TRICS

REPORT 92/1

ASSESSMENT OF PARKING DEMAND

Price £60 TRICS members
£100 non-TRICS members

JMP
Consultants Ltd

CONTENTS

1. INTRODUCTION

1.1 In November 1990, the TRICS Consortium invited JMP Consultants to analyse the data held within the TRICS system, in order to compare parking demand levels at TRICS sites with existing parking standards.

1.2 Because of the nature of the TRICS data, the parking standards produced by the analysis were automatically "demand" standards designed to accommodate maximum usage. For every site included in the analysis, a parking demand ratio was calculated based on the gross floor area of the development divided by the parking accumulation occurring at the site.

1.3 In order to compare the parking demand ratios produced by the TRICS system to existing parking standards, it was necessary to consider the main land use classifications. However, due to the limited data available in many of the land uses in TRICS, it was necessary to restrict the data set to the following categories:

- Superstores
- DIY Superstores
- Retail Parks
- Offices
- Business Parks
- General Industrial

1.4 The calculation of demand ratios was further underlined by the use of ranking systems and the identification of an upper or "high" value of demand as a means of establishing standards. With regards to the first part of this report, it is assumed that an 85th percentile value should be adopted as the "higher" value (i.e. the value not exceeded by 85% of the observations). This issue is detailed in paragraph 3.18 of this Report.

1.5 Many Local Authorities restrict the provision of parking space at proposed developments in order to reduce the level of local traffic, and increase the use of public transport. The publication of this Report is not designed to question that ethos; it is designed solely to identify parking demand rates for those locations where maximum parking demand occurs, and where it needs to be accommodated.

1.6 The implications of providing less space than is demanded can be quite serious and therefore need to be recognised. One of the most common features of an under-provision of parking space at a site, is unwanted parking in adjacent roads which are frequently residential. The site itself may become less attractive as parking search times increase leading to lower commercial activity and financial return on developments. More seriously, congestion on the site itself may lead to more wide spread congestion on the highway network, if vehicles have to queue to enter the site.

2. THE STUDY

2.1 The traffic flow data for each of the land use classifications was studied in detail. Because it was necessary to calculate parking accumulation (arrivals less departures), only sites with manual and directional automatic traffic count data could be included in the study.

2.2 The parking accumulation for each site in the six land use classifications was calculated by subtracting cumulative departures from cumulative arrivals. By this method, the parking accumulation for each hour of the survey period could be noted.

2.3 For each site included in the study, the maximum hourly parking accumulation observed on any one day was noted, together with the time of day at which it occurred. For example, the maximum observed parking accumulation for the Sainsburys' Superstore in Chichester (WS A 01) occurred on Friday 4/11/88 between the hours of 14.00 and 15.00, giving a figure of 470 vehicles. The format of the data, as produced by the TRICS system, is given in Figure 2.1.

2.4 No distinction was made between those sites where the maximum parking demand was recorded on a weekday or on a Saturday/Sunday. The analysis was designed only to consider the maximum parking demand, whenever it occurred.

2.5 A parking demand ratio for each site was calculated based on the Gross Floor Area (GFA) of the development divided by the maximum parking accumulation, the results of which are shown in the tables in Appendix A. Using the example cited above, the maximum parking demand ratio was calculated as 10.7 sq m GFA per vehicle (5037 sq m GFA with 470 vehicles parked).

FIGURE 2.1

SURVEY TYPE 1 **EXAMPLE CALCULATION**
SITE REF: WS A 01 **SUPER & HYPERMARKET**
DATE OF SURVEY: **04/11/88 DAY: FRIDAY**

Time	In	Out	Total	Parking Accumulation
08.00-09.00	132	35	167	204
09.00-10.00	310	195	505	319
10.00-11.00	311	293	604	337
11.00-12.00	329	298	627	368
12.00-13.00	360	327	687	401
13.00-14.00	351	353	704	399
14.00-15.00	**414**	**343**	**757**	**470**
15.00-16.00	389	396	785	463
16.00-17.00	401	399	800	465
17.00-18.00	361	422	783	404
18.00-19.00	309	328	637	385
19.00-20.00	216	295	511	306
20.00-21.00	92	201	293	197
TOTAL	3975	3885	7860	197

Initial Car Park Occupancy: 107 Finishing Car Park Occupancy: 186
GFA 5037 sq m Maximum Parking 470
Maximum Demand 1:11 sq m

3. THE RESULTS

3.1 The ratios of GFA (sq m) to maximum parking demand were grouped for each land use as shown in Tables 3.1-3.6; a graphical representation of the results is shown in Figures 3.1-3.6. Each land use is discussed separately in the following paragraphs.

Superstores - Land Use A

3.2 There is a large volume of data available within the TRICS system for this land use category and so it was possible to use 54 out of a total of 62 sites in the study.

3.3 The maximum parking demand ratios of GFA sq m per vehicle for each site ranged from a value of 6 sq m GFA per vehicle for a site in Devon (DV A 01) to 58 sq m GFA per vehicle, also a site in Devon (DV A 03). The majority of ratios fell in the range 5 sq m to 40 sq m GFA; the three sites falling outside this range namely ES A 08, DV A 03 and DC A 03 were discounted as they displayed unusual trading patterns and had a disproportionate effect on the overall results. The ratios representing the remaining 51 sites are shown in Table 3.1 and Figure 3.1 in a grouped, cumulative form. The results show that of the 51 sites considered, 43% display parking demand ratios of 15 sq m or under, and 86% display parking demand ratio of 20 sq m or under.

3.4 The mode for the data set falls in the range 15 sq m to 20 sq m GFA with 22 out of the possible 51 sites displaying parking demand ratios within this range. Calculating a mean parking demand ratio for this land use, gives a value of 16 sq m GFA per vehicle. Listing the parking demand ratios in descending order for the most heavily used locations gives the sites shown in Table 3.1. Calculating an 85th percentile for the 51 sites corresponds to WS A 03 with a parking demand ratio of 12.2 sq m GFA per vehicle. It should be noted that stores displaying the highest parking demand ratios have a wide geographical distribution and are not just those located in the south-east of England.

DIY Superstores - Land Use C

3.5 The amount of data available within the TRICS system for DIY Superstores is much more limited than that for Superstores. Out of a possible 32 sites, 27 stores could be included in the study although three of these sites were later discounted as they displayed irregular trading patterns in comparison to the other stores. The majority of parking demand ratios fell in the range 15-30 sq m GFA within which they were evenly distributed; the frequency column in Table 3.2 shows that this range accounts for just over 70% of the sites studied. Of the remaining 7 sites, 6 fell in the range 30-50 sq m GFA but only 1 displayed a parking demand ratio of less than 15 sq m as opposed to 19 sites for the Superstore category.

3.6 Calculating a mean parking demand ratio for these DIY Superstores, gives a value of 27 sq m GFA per vehicle which is slightly higher than one would expect. However this can be explained by the fact that the spread of the data is fairly broad; Table 3.7 gives a variance of 92 and a standard deviation of 10 for this land use category. Listing the parking demand ratios in descending order for the most heavily used sites gives the list shown in Table 3.2. Calculating an 85th percentile for the 24 sites corresponds to a site in East Sussex (ES C 01) with a parking demand ratio of 18.5 sq m GFA per vehicle.

Retail Parks - Land Use F

3.7 The Retail Parks land use is another category that only has a very limited data set. Of the 26 sites held within the TRICS System, 20 could be included in the analysis. However 2 sites, BC F 01 and WS F 02, displayed parking demands of over 100 sq m GFA per vehicle and were discounted due to irregularities in their observed trading patterns. This brought the number of sites included in the analysis to 18.

3.8 Table 3.3 shows that there is little conformity in parking demand ratios for Retail Parks. Calculating a sample mean for this land use category yields a value of 53 sq m GFA per vehicle. However, the spread of data is much greater than that for the previous two land use categories; the standard deviation is 20 and the variance is 415 (See Table 3.7). Table 3.3 lists the sites with the highest parking demand. Unfortunately due to the limited nature of the data, it is unrealistic to calculate an 85th percentile although to do so would yield a parking demand ratio of 33 sq m GFA per vehicle corresponding to a site in Manchester (GM F 01).

Offices - Land Use G

3.9 The data set available for offices within the TRICS system contains 40 sites and it was possible to use 35 of these in the analysis.

3.10 The majority of parking demand ratios fell within two ranges as Table 3.4 shows. Ratios falling in the range 15 sq m to 25 sq m. account for 20% of the sites studied, while 37% fall in the range 30 sq m to 40 sq m. There are no sites with a parking demand ratio of less than 15 sq m GFA per vehicle.

3.11 Parking ratios are evenly distributed across the range from 40 sq m to 60 sqm GFA per vehicle. Thereafter they are fairly random, the maximum ratio being 99.7 sq m GFA per vehicle for a site in Greater Manchester (GM G 01).

3.12 Calculating a sample mean for this land use yields a value of 35 sq m GFA per vehicle which is fairly representative of the data as it corresponds to one of the highest frequency ranges (see Table 3.7). Listing the parking demand ratios in descending order for the most heavily used sites gives the values shown in Table 3.4. Calculating an 85th percentile for the 25 sites corresponds to (SC G 05) with a parking demand ratio of 23 sq m GFA per vehicle.

Business Parks - Land Use H

3.13 The Business Park category represents the smallest data set available for analysis. Of the 17 sites held within the TRICS system, 14 could be included in the study although GL H 05 was later discarded as the parking ratio calculated was over 100 sq m GFA per vehicle. Because of the limited nature of the data, the frequency of any one range was very low. However, 5 of the sites have parking demand ratios in the range 50 sq m to 60 sq m which accounts for 38% of the data as Table 3.5 shows. The remaining ratios are spread evenly over a much larger range.

3.14 Calculating a sample mean for this land use yields a value of 59 sq m GFA per vehicle which again is fairly representative of the data as it corresponds to the highest frequency range (see Table 3.7). Due to the limited nature of the data, it is unrealistic to calculate an 85th percentile although to do so would yield a parking demand ratio of 32.6 sq m GFA per vehicle corresponding to a site in Greater Manchester (GM H 02).

Industrial - Land Use I

3.15 This land use category represents the largest data set used in the analysis. Of a possible 89 sites held within the TRICS system, 73 sites were included in the study.

3.16 Despite the volume of available data, the parking demand ratios for this land use category displayed a distinct lack of conformity. The ratios recorded were spread over a range of 7 sq m to 982 sq m GFA per vehicle, with the range of 100 sq m to 120 sq m displaying the highest frequency, 11 out of a possible 73 sites. Table 3.6 shows the distribution of ratios over the 21 ranges. Given the enormous range over which the ratios are distributed, it is not surprising that Table 3.7 gives a variance of over 37,700, a sample standard deviation of 194 and a sample mean of 189 sq m GFA. Because of this, it is difficult to draw any conclusions as to the representativeness of this sample mean, since the data set has no statistical validity.

3.17 However, looking at Table 3.6 does indicate that only 15% of the sites fall in the range over 300 sq m GFA , while 70% fall in the range 20 sq m to 200 sq m; Table 3.6 also shows the sites with the highest parking demand ratios. Calculating an 85th percentile for this land use category gives 59.9 sq m GFA per vehicle which corresponds to a site in Lothian (LO I 01).

Statistical Analysis

3.18 Table 3.7 draws together the results for all six land uses. In addition to tabulating mean parking demand, the standard deviation, and the variance for such values, it also includes the 85th percentile values for each land use category identified in Tables 3.1-3.6 respectively (i.e. the value not exceeded by 85% of all observations.

3.19 If the data represented a true normal distribution, we would expect 68% of the observations to lie within plus or minus one standard deviation of the mean and 94% of the observations to lie within plus or minus two standard deviations of the mean.

3.20 However, it is important to note that as the data is arranged in terms of sq m per vehicle, it does not depict a straight line representation of activity as traffic demand increases. For instance, if the number of cars parked at a site increases by a factor of 50%, the parking demand rate decreases by a factor of 33%. The data cannot therefore fit a normal distribution and hence the standard deviation values quoted cannot be considered to be true representations of the data.

3.21 It must also be noted that there are often wide and inexplicable variations in traffic demand and hence parking demand at sites. When planning applications are submitted, very little is known about a site. For large retail superstores, the name of the operator if generally known but for retail parks, offices, business parks, etc., the convention is to build developments on "spec" and to seek occupiers once the sites are finished. It is therefore very difficult for the Planning Authority to take any accurate view as to how such sites might operate. However, they are normally of the opinion that the general interests of the community need to be respected, and the provision, both in terms of trip attraction and parking demand, needs to be "safe".

3.22 The developer is frequently of the same opinion. Above all, he needs to ensure that there is more than adequate parking provision for his occupiers and their visitors/customers. Hence neither the promoter of the development nor the Highway Authority would wish to use "average" values to assess parking demand as typically on 50% of occasions such provision would be an under supply. It is considered that in most cases the "penalty" for under supply of space is greater than the "penalty" for over supply. It is therefore recommended that sites should be developed such that there is an 85% probability that demand can be fully met within the curtilage of the site.

3.23 This value of 85% is not considered to be rigid, but it does suggest that something greater than the average should be adopted. Alternatively, it could be argued that the average plus one standard deviation should be used. If the data was normally distributed, this equates to an 84th percentile (i.e. 68% within the range $\pm$ 1 standard deviation). However, the use of standard deviations rather than percentiles tends to suggest a "black box" approach and for some of the results presented in Table 3.7, such an approach would lead to inaccuracies as the data is clearly not normally distributed.

3.24 It is therefore recommended that an engineering judgement should be used so as to adopt a reasonable value. It is hoped that this value would accommodate much of the variation and would be somewhere close to the 85th percentile value, depending upon the spread of the data.

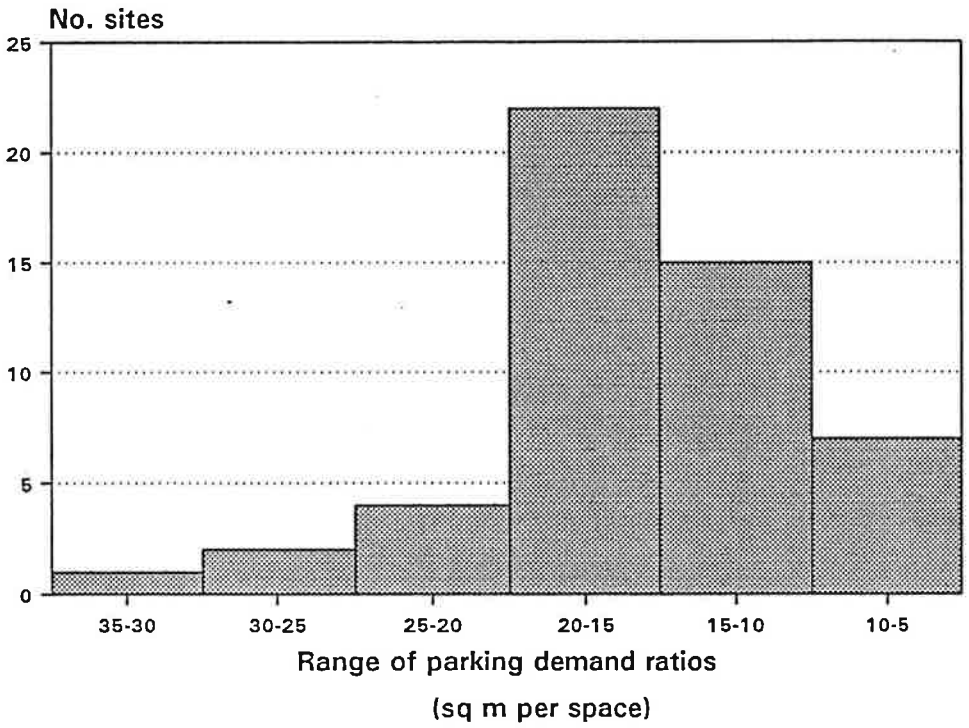
TABLE 3.1
LAND USE A - SUPERSTORES

Parking Demand Ratio (x) sq m GFA/vehicle	Frequency of Occurrence No. Sites	Frequency of Occurrence (%)	Cumulative Frequency (%)
x < 5	0	0	100
5 < x < 10	7	14	100
10 < x < 15	15	29	86
15 < x < 20	22	43	57
20 < x < 25	4	8	14
25 < x < 30	2	4	6
30 < x < 35	1	2	2
	51	100	

PARKING DEMAND RATIOS IN THE RANGE TO 15 SQ M G.F.A/VEHICLE

Town	Site	Description	G.F.A	Parking demand ratios sq m/vehicle
Newton Abbott	(DV A 01)	Tesco	5333	5.9
Horsham	(WS A 06)	Tesco	6503	8.1
Whitstable	(KC A 02)	Tesco	6500	8.6
Hove	(ES A 06)	Co-Op	4650	8.6
Brighton	(ES A 02)	Gateway	8260	10.3
Reigate	(SC A 02)	Tesco	7350	10.6
Chichester	(WS A 01)	Sainsbury	5037	10.7
Worthing	**(WS A 03)**	**Tesco**	**5324**	**12.2 85th Percentile**
Bolton	(GM A 02)	Morrisons	6503	14.2
Burpham	(SC A 01)	Sainsbury	5667	13.1
Upper Norwood	(GL A 01)	Safeway	5309	13.7
Whitstable	(KC A 01)	Tesco	6080	14.1
Bolton	(GM A 03)	Tesco	6503	14.2
Bournemouth	(DC A 02)	Asda	7432	14.5
Exeter	(DV A 02)	Leo's	2500	14.5
Hastings	(ES A 07)	Tesco	6770	14.6

Figure 3.1 Land Use A-Superstores



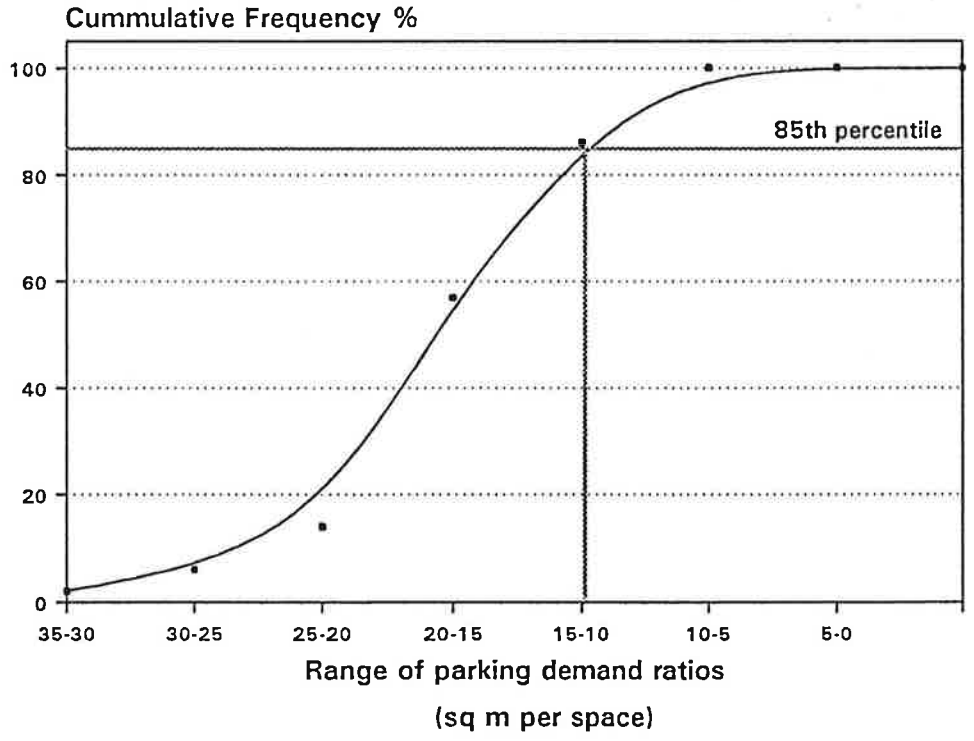


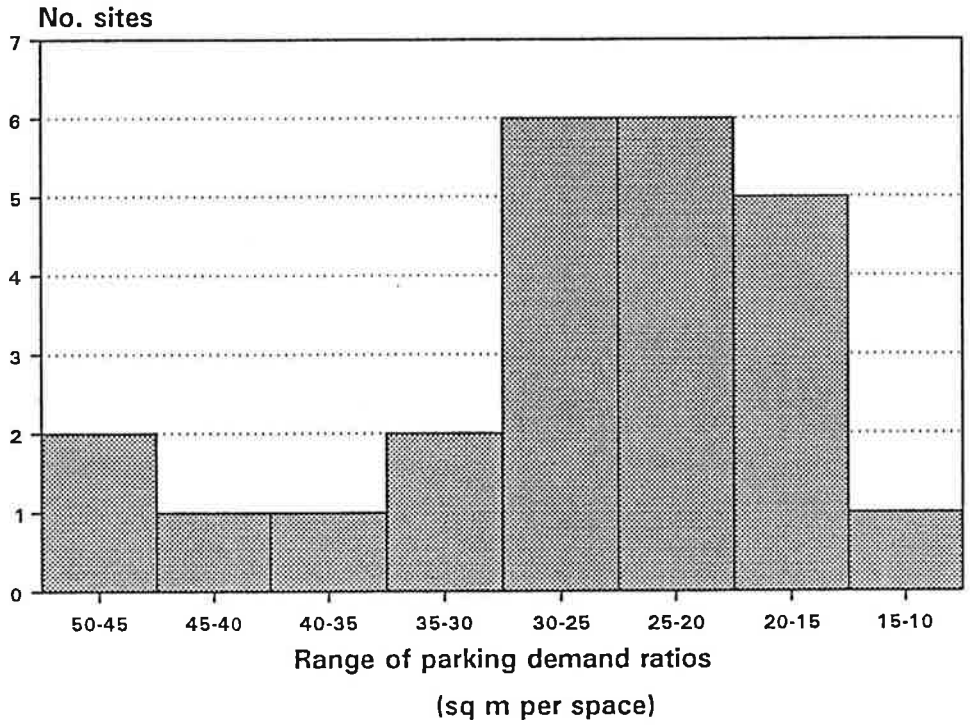
TABLE 3.2
LAND USE C - DIY STORES

Parking Demand Ratio (x) sq m GFA/vehicle	Frequency of Occurrence No. Sites	Frequency of Occurrence (%)	Cumulative Frequency (%)
x < 10	0	0	100
10 < x < 15	1	4	100
15 < x < 20	5	22	96
20 < x < 25	6	25	74
25 < x < 30	6	25	49
30 < x < 35	2	8	24
35 < x < 40	1	4	16
40 < x < 45	1	4	12
45 < x < 50	2	8	8
	24	100	

PARKING DEMAND RATIOS IN THE RANGE 10 SQ M TO 20 SQ M G.F.A/VEHICLE

Town	Site	Description	G.F.A	Parking demand ratios sq m/vehicle
Brighton	(ES C 12)	Texas	3250	11.8
Eastbourne	(ES C 03)	B&Q	1765	15.9
Basingstoke	(HC C 01)	Homebase	3020	18.4
Hastings	**(ES C 01)**	**B&Q**	**1849**	**18.5 85th Percentile**
Bognor	(WS C 01)	Payless	2000	18.9
Maidstone	(KC C 01)	B&Q	2978	19.6
Eastbourne	(ES C 02)	Payless	2973	21.1
Leatherhead	(SC C 01)	B&Q	4600	22.2
Brighton	(ES C 06)	B&Q	2163	22.5
Maidstone	(KC C 02)	B&Q	2805	23.4
Worthing	(ES C 07)	Payless	3605	24.7

Figure 3.2 Land Use C-DIY Superstores



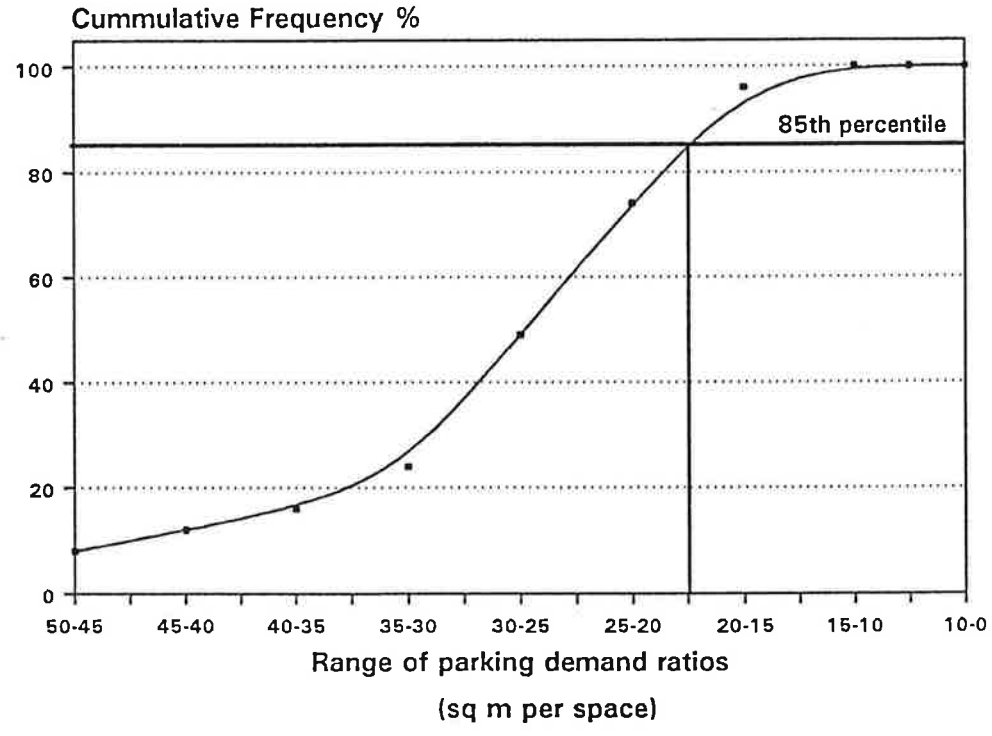


TABLE 3.3
LAND USE F - RETAIL PARKS

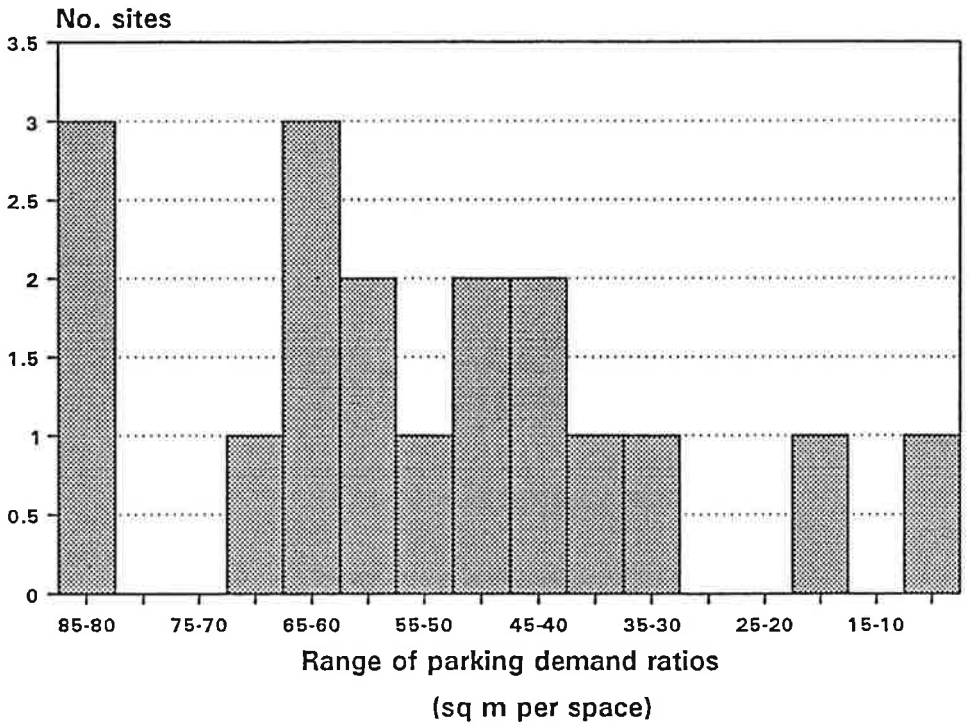
Parking Demand Ratio SQ M GFA/vehicle	Frequency of Occurrence No. Sites	Frequency of Occurrence (%)	Cumulative Frequency (%)
x < 10	1	5.5	100
10 < x < 15	0	0	94.5
15 < x < 20	1	5.5	94.5
20 < x < 25	0	0	89
25 < x < 30	0	0	89
30 < x < 35	1	5.5	89
35 < x < 40	1	5.5	83.5
40 < x < 45	2	11	78
45 < x < 50	2	11	67
50 < x < 55	1	5.5	56
55 < x < 60	2	11	50.5
60 < x < 65	3	17	39.5
65 < x < 70	1	5.5	22.5
70 < x < 75	0	0	17
75 < x < 80	0	0	17
80 < x < 85	3	17	17
	18	100	

PARKING DEMAND RATIOS IN THE RANGE TO 50 SQ M G.F.A/VEHICLE

Town	Site	Description	G.F.A	Parking demand ratios sq m/vehicle
Camberley	(BC F 02)	Tescos/M&S	2296	10.3
Stockport	(GM F 04)	Retail Park	4054	19.7
Manchester	**(GM F 01)**	**Retail Park**	**14294**	**32.9 85th Percentile**
Crawley	(WS F 01)	Retail Park	14543	37.4
Rochdale	(GM F 03)	Retail Park	8687	41.4
Poole	(DC F 01)	Retail Park	8361	41.8
Newhaven	(ES F 01)	Retail Park	8685	46.4
Kings Lynn	(NF F 01)	Retail Park	18640	47.1

* Note: This is based on a very limited data set.

Figure 3.3 Land Use F-Retail Parks



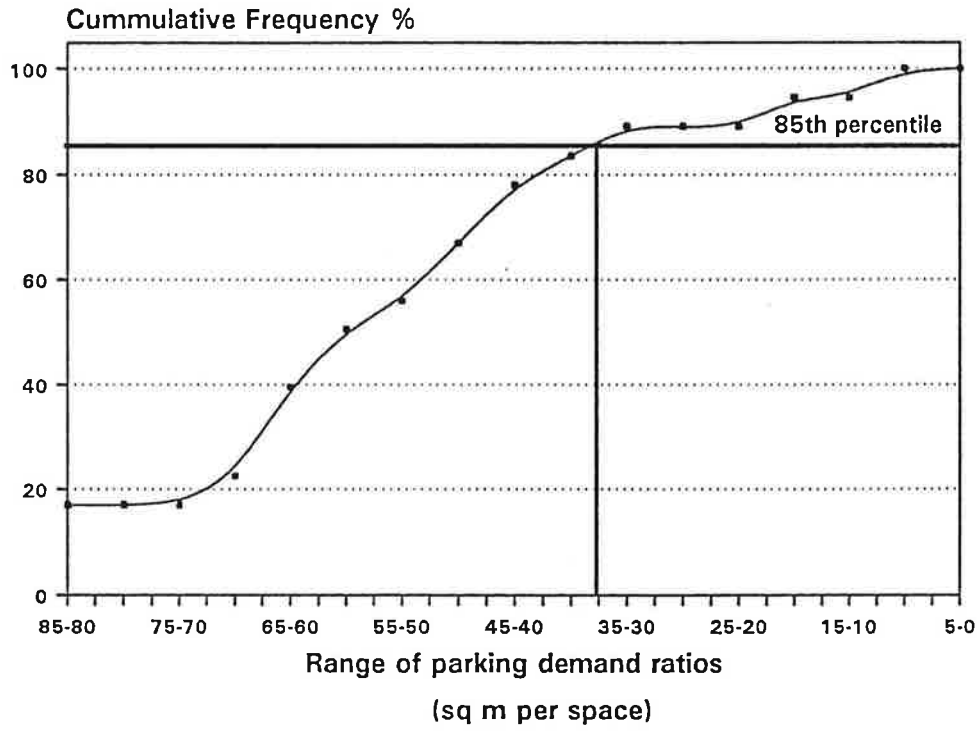


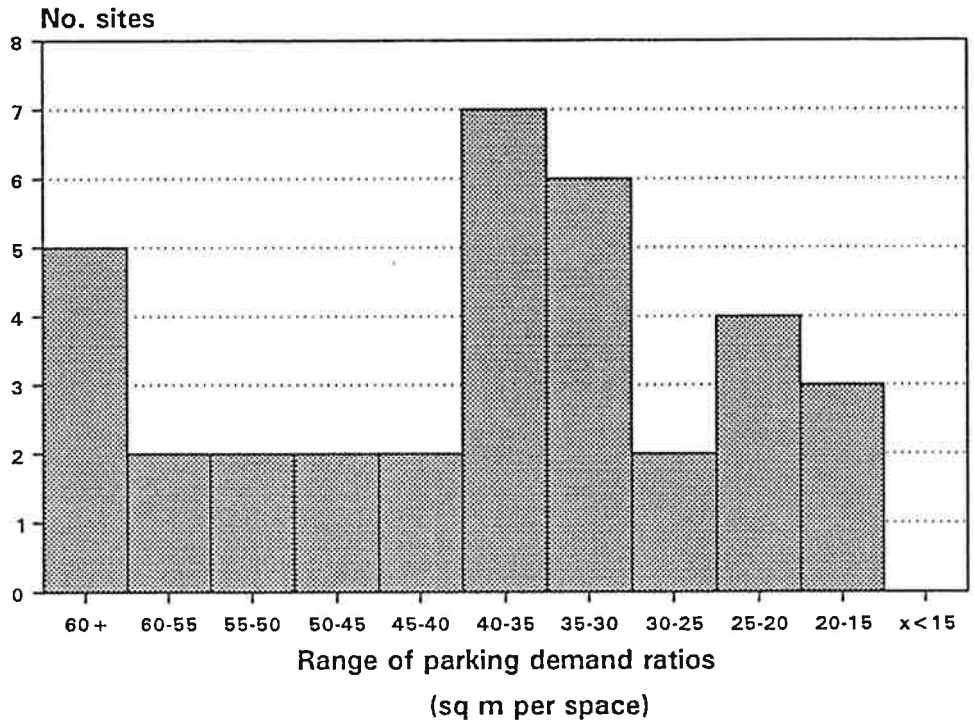
TABLE 3.4
LAND USE G - OFFICES

Parking Demand Ratio (x) SQ M GFA/Vehicle	No. Sites	Frequency of Occurrence (%)	Cumulative Frequency (%)
x < 15	0	0	100
15 < x < 20	3	8	100
20 < x < 25	4	11	92
25 < x < 30	2	6	81
30 < x < 35	6	17	75
35 < x < 40	7	20	58
40 < x < 45	2	6	38
45 < x < 50	2	6	32
50 < x < 55	2	6	26
55 < x < 60	2	6	20
x > 60	5	14	14
	35	100	

PARKING DEMAND RATIOS IN THE RANGE 15 SQ.M TO 40 SQ M G.F.A/VEHICLE

Town	Site	Description	G.F.A	Parking demand ratios sq m/vehicle
Kingswood	(SC G 03)	Legal & General Insurance	19019	16.0
Dorking	(SC G 04)	Life Britannia	5110	19.6
Woking	(SC G 01)	Costain	5400	19.8
Hillingdon	(GL G 04)	Kirk House	1545	21.3
Dorking	**(SC G 05)**	**Friends Provident**	**13275**	**23.0**
				85th Percentile
Epsom	(SC G 06)	Petrofina	5400	23.9
Brighton	(ES G 02)	American Express	4916	25.3
Bracknell	(BC G 03)	Household International	7553	26.5
Poole	(DC G 05)	Link House	3283	29.1
Basingstoke	(HC G 01)	Fanum House	36500	30.7
Blackpool	(LC G 01)	Bonds & Stocks	14992	30.8
Hillingdon	(GL G 02)	Memorex House	1021	31.9
Claygate	(SC G 01)	CPC/ARIA	5574	34.6
Bournemouth	(DC G 01)	Chase Manhattan	13981	34.6
Stockport	(GM G 02)	Hewlett Packard	7491	34.8
Basingstoke	(HC H 05)	Snamprogetti	9400	37.3
Basingstoke	(HC H 06)	AA	23600	38.6
Poole	(DC G 03)	St Johns House	1936	38.7
Brighton	(ES G 01)	America Express	25929	38.8
Hillingdon	(GL G 02)	Trident House	3250	39.2
Uxbridge	(GL G 01)	Harman House	12528	39.8
Ealing	(GL G 07)	Nash House	2877	40.0

Figure 3.4 Land Use G-Offices



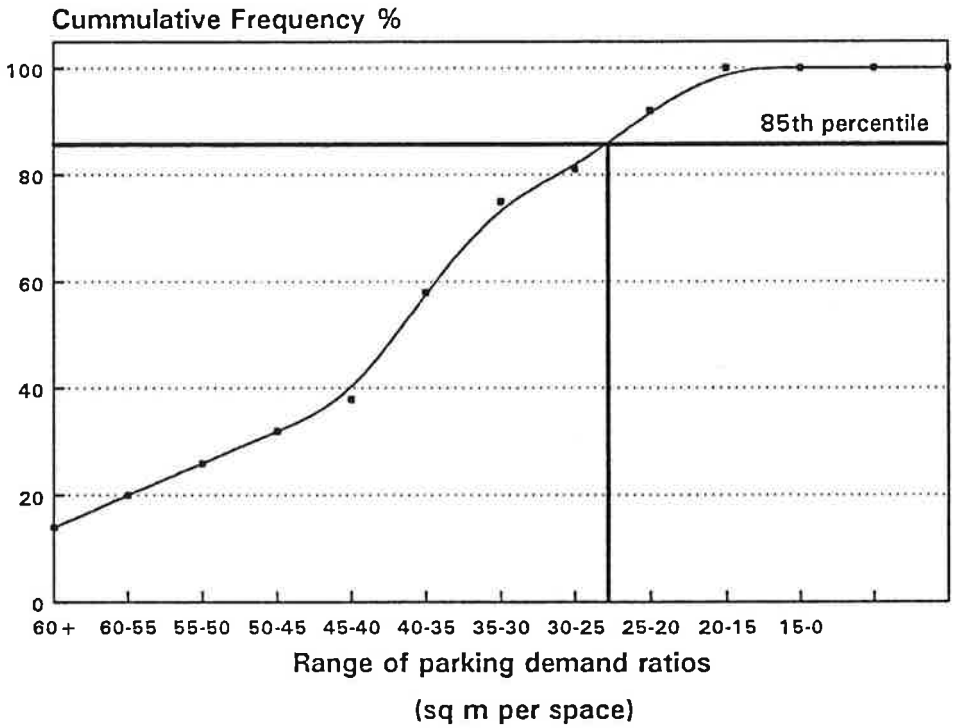


TABLE 3.5
LAND USE H - BUSINESS PARKS

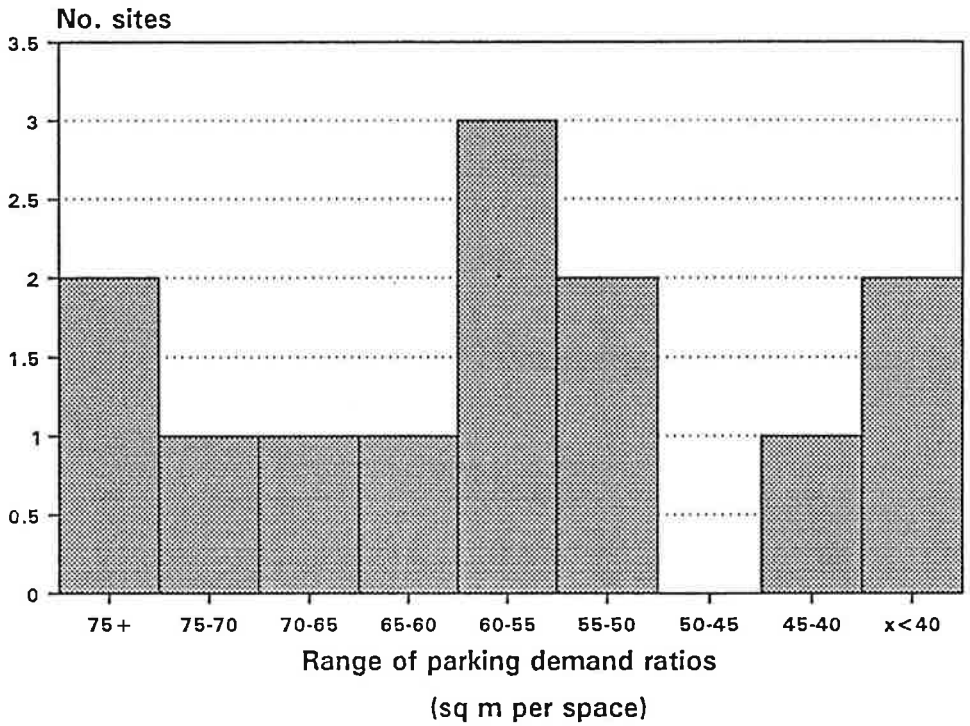
Parking Demand Ratio (x) SQ M (GFA)/Vehicle	Frequency of Occurrence No. Sites	Frequency of Occurrence (%)	Cumulative Frequency (%)
x < 40	2	15	100
40 < x < 45	1	8	85
45 < x < 50	0	0	77
50 < x < 55	2	15	77
55 < x < 60	3	23	62
60 < x < 65	1	8	39
65 < x < 70	1	8	31
70 < x < 75	1	8	23
75 < x < 100	2	15	15
	13	100	

PARKING DEMAND RATIOS IN THE RANGE TO 70 SQ M G.F.A/VEHICLE

Town	Site	Description	G.F.A	Parking demand ratios sq m/vehicle
Bracknell	(BC H 05)	Hi-Tech Business Park	9940	29.7
Urmston	**(GM H 02)**	**Business Park**	**12077**	**32.6**
				85th percentile *
Hillingdon	(GL H 03)	Business Park	5050	44.7
Hillingdon	(GL H 01)	Business Park	31000	51.2
Southwater	(WS H 01)	Southwater Business Park	16250	52.3
Bracknell	(BC H 04)	Business Park	78756	58.0
Woking	(SC H 02)	Business Park	23000	59.0
Uxbridge	(GL H 04)	Business Park	16497	59.3
Leatherhead	(SC H 01)	Business Park	16000	61.1
Hillingdon	(GL H 02)	Business Park	4200	66.7

* Note: This is based on a very limited data set.

Figure 3.5 Land Use H-Business Parks



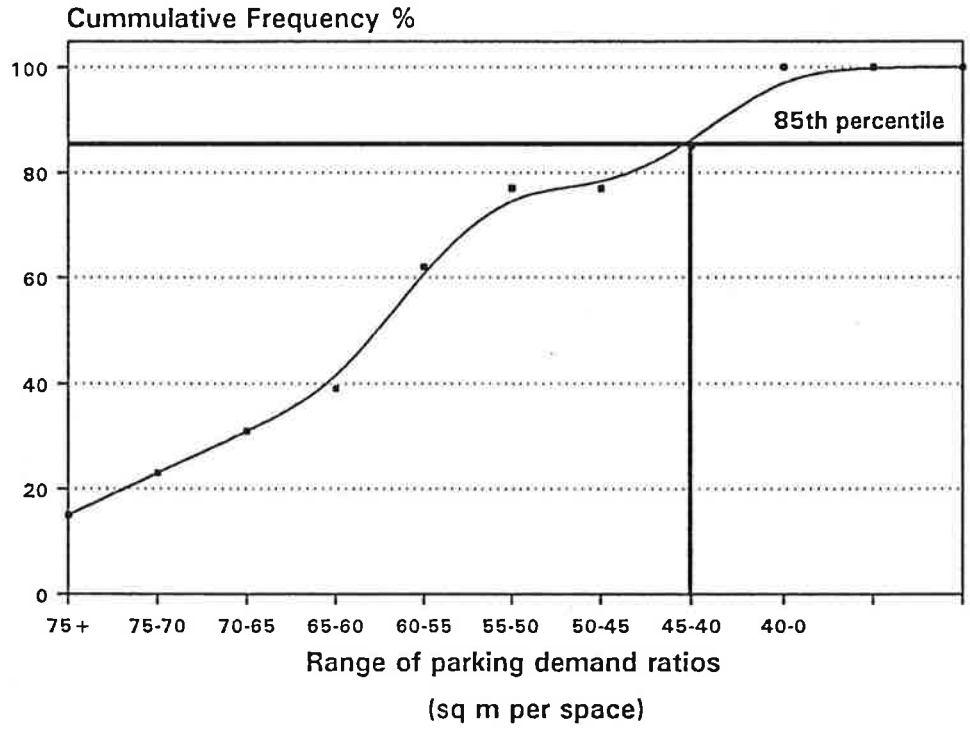


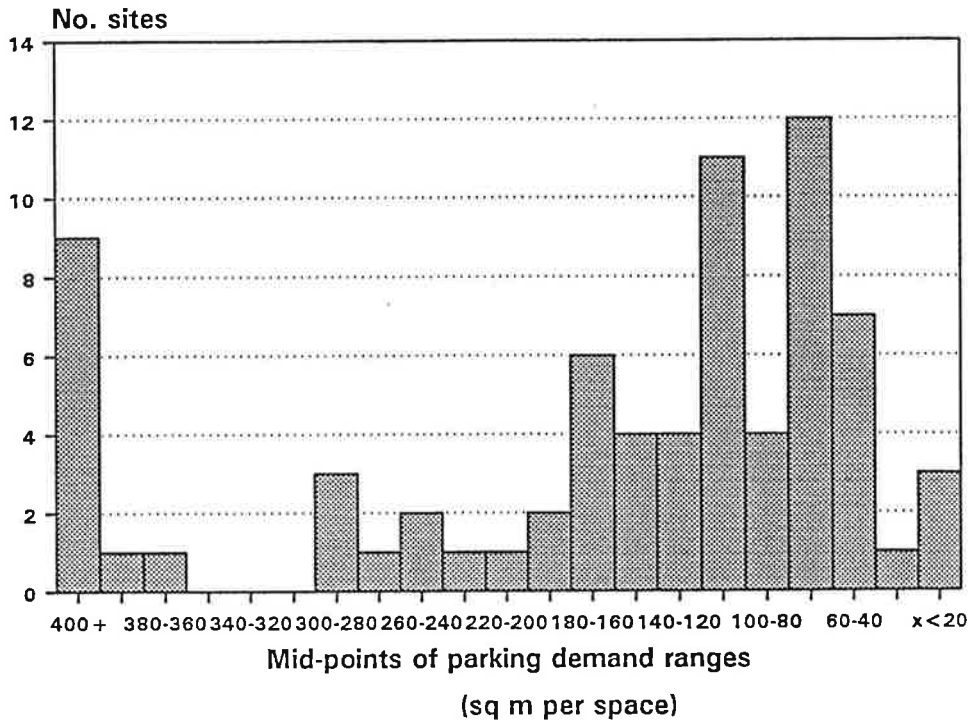
TABLE 3.6 LAND USE I - INDUSTRIAL

Parking Demand Ratio (x) SQ M (GFA)/Vehicle	Frequency of Occurrence No. Sites	Frequency of Occurrence (%)	Cumulative Frequency (%)
x < 20	3	4.1	100
20 < x < 40	1	1.4	95.9
40 < x < 60	7	9.6	94.5
60 < x < 80	12	16.4	84.9
80 < x < 100	4	5.5	68.5
100 < x < 120	11	15.1	63.0
120 < x < 140	4	5.5	47.9
140 < x < 160	4	5.5	42.4
160 < x < 180	6	8.2	36.9
180 < x < 200	2	2.7	28.7
200 < x < 220	1	1.4	26.0
220 < x < 240	1	1.4	24.6
240 < x < 260	2	2.7	23.2
260 < x < 280	1	1.3	20.5
280 < x < 300	3	4.1	19.2
300 < x < 320	0	0.0	15.1
320 < x < 340	0	0.0	15.1
340 < x < 360	0	0.0	15.1
360 < x < 380	1	1.4	15.1
380 < x < 400	1	1.4	13.7
x > 400	9	12.3	12.3
	73	100	

PARKING DEMAND RATIOS IN THE RANGE TO 60 SQ M G.F.A/VEHICLE

Town	Site	Description	G.F.A	Parking demand ratios sq m/vehicle
Bridgend	(MG I 01)	Industrial Estate	15517	7.2
South Shields	(TW I 04)	Industrial Estate	4102	10.7
Glasgow	(SD I 01)	Industrial Estate	7738	15.5
Brighton	(ES I 05)	Industrial Estate	2866	36.7
Bournemouth	9DC I 13)	Industrial Estate	4400	41.9
Fareham	(HC I 02)	Industrial Estate	9691	45.1
Littlehampton	(WS I 01)	Brookside Industrial Estate	19900	48.1
Lewes	(ES I 04)	Industrial Estate	7500	48.4
Reading	(BC I 03)	Industrial Estate	69375	54.0
Ferndown	(DC I 02)	Industrial Estate	80421	57.5
Edinburgh	**(LO I 01)**	**Industrial Estate**	**4437**	**59.9**
				85th Percentile

Figure 3.6 Land Use I-Industrial



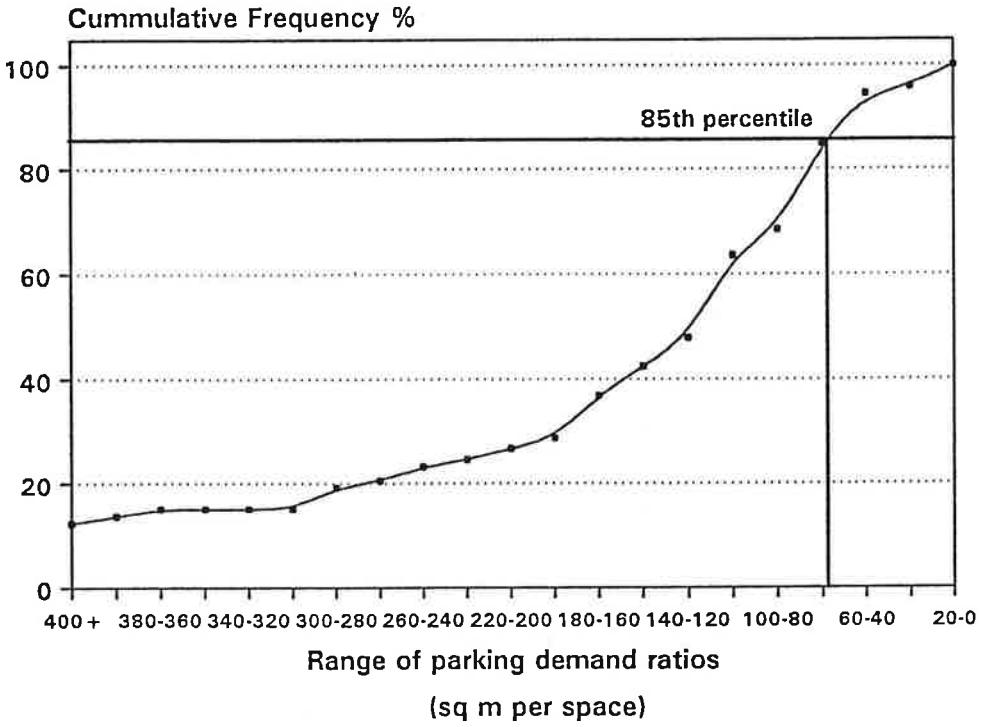


TABLE 3.7
SAMPLE STATISTICS FOR THE DIFFERENT LAND USES BASED ON G.F.A.

	Sample Size	Sample Mean	Sample Standard Deviation	Variance	85th Percentile
Superstores	51	16	5	25	12.2
DIY Superstore	24	27	10	92	18.5
Retail Parks	18	53	20	415	32.9
Offices	35	42	20	385	23.0
Business Parks	13	59	18	311	32.6
Industrial	73	189	194	37700	59.9

4. ANALYSIS

4.1 The previous Sections have considered maximum parking demand observed from a series of generally one off traffic counts. The surveys were designed so as to be undertaken on "typical" days and not at peak times, hence any parking standards adopted on this basis would not include provision for peak parking demand.

4.2 The question then arises as to how much of the peak demand should be accommodated within the curtilage of a site. Consider for example a food retail site. Is it reasonable to provide sufficient parking space to accommodate the Christmas Eve Peak and then to have that space unused for 364 days of the year? In part, the answer to this will depend upon the availability of alternative parking space in the locality, the effect of congestion backing up onto the network, and the opportunity for customers to seek alternative stores.

4.3 The question of accommodating peak demand is not as significant when traffic demand is being considered in the context of junction capacity. In this scenario, there is no absolute value for demand and capacity can at times be amended by relatively simple modifications to the junction layout or traffic signal timing. Within the context of providing parking space, it is very unlikely that any additional parking space can be provided once the site has been laid out. There is normally only a single opportunity to get the layout correct.

4.4 In addition to the variation that can occur from day to day in the level of demand for parking, two other factors need to be considered namely:

i) reserve space to ensue that the car park can operate efficiently and not be hampered by excessive search times
ii) provision for growth in travel demand

4.5 The effect of these two issues, together with the effect of day to day variance will differ by the type of land use. The following paragraphs set out the possible effect of each element on the six land uses being considered.

Superstores

4.6 Typically the maximum parking demand occurs on a Saturday. Previous research [1] has examined the seasonal variation of some 9 food retail sites over a time period in excess of one year. From this research it was possible to determine weekly variations in activity and hence in parking demand. (Standard Deviation and Variance were given for a range of sites based on Saturday traffic levels).

4.7 Assuming the variation in traffic flow levels from a store (excluding a few peak days) can be represented by a normal distribution, it can be assumed that 68% of Saturday flows will be within one standard deviation of the mean and 94% of flows will lie within two standard deviation of the mean. Equating this to a number of days suggests that on 35 Saturdays a year parking demand will be within one standard deviation of the mean and on 48 Saturdays a year parking demand will be within two standard deviations of the mean. It is likely that a Highway Authority will be seeking a provision of space designed to match 48 Saturdays a year rather than just 35 Saturdays a year.

4.8 Based on the previous research and averaging data over 9 food retail sites, it was observed that two standard deviations represents a point some 21% higher than the mean. (This will be rounded down to 20% for simplicity).

4.9 The second factor to consider is operational capacity. The practical capacity of a car park is likely to be lower than the static capacity as newly vacated spaces may be overlooked by vehicles in the car park searching for spaces. Common Practice [2] has suggested that 5% reserve capacity would be a reasonable value to overcome this problem.

4.10 The third factor is growth in demand in the food retail market. Research has shown that the volume of food sales increased by around 3% in 1989 compared with rises of 4-5% in both 1987 and 1988 [3]. Despite the recession, it has been predicted that food sales will remain largely static throughout the 1990's and therefore despite the limited research, it is not unreasonable to propose a value of 3% growth per annum. However it is unlikely that such a growth rate could be sustained for too long. Congestion of car parks, check outs, etc., would inhibit the growth in demand as would the opening of a new competitor. It is therefore assumed that this growth rate could not be sustained for more than 5 years.

4.11 Table 4.1 draws these factors together. If all three adjustment figures were to be applied, an overall factor of plus 46% would emerge. This would take the average parking demand ratio to 1 space per 11 sq m (GFA) and the 85th percentile value to 1 space per 8.4 sq m (GFA).

TABLE 4.1 PARKING DEMAND - FOOD SUPERSTORE

		Average sq m (GFA)	85th Percentile sq m (GFA)
Demand		16	12.2
Factors			
i)	Variation	+ 20%	+ 20%
ii)	Operation efficiency	+ 5%	+ 5%
iii)	Growth (3% for 5 years)	+ 16%	+ 16%
	Total	+ 46%	+ 46%
Revised Demand		11	8.4

Note: Adjustment factors for variation, operational efficiency and growth are applied cummulatively.

4.12 The application of all these factors on top of the use of the 85th percentile value, would probably lead to an over provision of parking. In part, this would arise from the fact that an 85th percentile value is more likely to contain some survey data recorded at levels above the average day, and hence the "variation" parameter of plus 20% would be, in part, double counting. It is also likely that the full provision of 5% spare capacity for operational efficiency would be used for parking during occasional peak periods of demand.

4.13 Based on the figures presented in this Report it is noted that the average parking demand for all new sites is likely to be 1 space per 11 sq m (GFA). However, to ensure that each new site has a reasonable probability of containing all of its parking demand within its own curtilage on most days of the year, a parking standard of 1 space per 9 sq m (GFA) should be adopted.

DIY Superstores

4.14 As with food superstores, three adjustment parameters need to be applied to the basic values recorded in the database, namely:

i) daily variation
ii) operational efficiency
iii) growth

4.15 Information regarding daily variation in trips to DIY Stores is much more scarce than that for food retail stores. Hence with the lack of alternative estimates being available, the same values quoted for food superstores were adopted for DIY stores. The results of this application are set out in Table 4.2.

TABLE 4.2
PARKING DEMAND - DIY SUPERSTORES

		Average sq m (GFA)	85th Percentile sq m (GFA)
Demand		27	18.5
Factors			
i)	Variation	+ 20%	+ 20%
ii)	Operation efficiency	+ 5%	+ 5%
iii)	Growth (3% for 5 years)	+ 20%	+ 20%
	Total	+ 46%	+ 46%
Revised Demand		18.5	12.7

4.16 As previously discussed in the context of Food Superstores, applying the full range of adjustment factors to the 85th percentile value is likely to lead to an over provision of parking. It is therefore noted that the average parking demand for all new sites is likely to be in the order of 1 space per 18.5 sq m (GFA). However to ensure, to a reasonable probability, that an individual site will be able to accommodate all of its demand within the curtilage of the development, a standard of 1 space per 15 sq m (GFA) should be adopted.

Retail Parks

4.17 The adjustment figures proposed for the other retailing types could equally be applied to Retail Parks particularly as alternative data does not exist. Table 4.3 sets out the modified demand estimates.

TABLE 4.3 PARKING DEMAND - RETAIL PARKS

		Average sq m (GFA)	85th Percentile sq m (GFA)
Demand		53	32.9
Factors			
i)	Variation	+ 20%	+ 20%
ii)	Operation efficiency	+ 5%	+ 5%
iii)	Growth (3% for 5 years)	+ 20%	+ 20%
	Total	+ 46%	+ 46%
Revised Demand		36	22.5

4.18 Based on these figures, it is noted that the average parking demand for retail parks is likely to be of the order of 1 space per 36 sq m (GFA). However, in order to ensure to a reasonable probability that an individual site will be able to accommodate all of its parking demand within the curtilage of the development, a standard closer to the 85th percentile should be adopted. Bearing in mind the problem of "double counting", it is reasonable to assume that most retail parks will be adequately supplied if a standard of 1 space per 25 sq.m. (GFA) is adopted. However, it is necessary to remember that there are wide variations in the type and content of Retail Parks and this could significantly alter the demand being placed on the available parking space.

Offices

4.19 As with the retail land uses, adjustment factors taking account of daily variation, operational efficiency and growth, need to be applied to the basic values previously calculated.

4.20 Some limited data on daily variation in traffic flows to offices, exists within the TRICS database. This is tabulated for three sites in Table 4.4 below.

TABLE 4.4
DAILY 24 HOURS TRAFFIC FLOWS - OFFICES

Site	(a)	(b)	(c)
Monday	1893	2144	960
Tuesday	1951	2113	988
Wednesday	2064	2165	1003
Thursday	1875	2191	953
Friday	2061	2142	971
Mean Daily Traffic Flow	1969	2151	975
1 Standard Deviation	± 89.3	± 29.0	± 20.5
2 Standard Deviations	± 178.5	± 58.0	± 41.0
% Difference Between Mean and 2 Standard Deviations	9.1%	2.7%	4.2%

4.21 If we assume that parking demand should be satisfied for at least 4 days out of 5, we need to examine the variation from the mean given by two standard deviation values. Averaging this across the three sites suggests that a correction value of plus 5% should be applied.

4.22 Because parking provision at offices is used on a daily basis by staff commuting to and from work, there is no need to provide much additional space for operational efficiency (i.e. reducing search times) although some may be required to accommodate large daily variations in visitor space. It is suggested that 2% additional space would satisfy this point.

4.23 Having provided car parking spaces for commuters, there is not likely to be much change in usage for travel to and from work over time, and hence adjustments for increased car usage need not be applied. However companies may vary the number of people in an office quite considerably (increasing the number of staff as work increases, and reducing the numbers as work falls off). Frequently, increases in staffing of up to 20% can be achieved within the same provision of space but generally, increases in staffing levels will lead to a corresponding increase in the demand for parking. It is of course impractical to predict what might happen over the life of an office, but it is suggested that a margin of 10% should be applied.

4.24 Putting these values together into Table 4.5 provides the following analysis.

TABLE 4.5 PARKING DEMAND - OFFICES

		Average sq m (GFA)	85th Percentile sq m (GFA)
Demand		42	23.0
Factors			
i)	Variation	+ 5%	+ 5%
ii)	Operation efficiency	+ 2%	+ 2%
iii)	Growth (provision)	+ 10%	+ 10%
	Total	+ 18%	+ 18%
Revised Demand		36	19.5

4.25 As with the previous land uses, it is recognised that the application of all the adjustment factors to the 85th percentile value might lead to an over provision of space, and hence a slightly lower value should be adopted. However based on these observations it is noted that the average parking demand for all new office sites is likely to be of the order of 1 space per 36 sq m (GFA) but to ensure that each site has a reasonable probability of containing all of its parking demand on most days of the year, a parking standard of 1 space per 20 sq m (GFA) should be adopted.

4.26 If a number of office developments are grouped within a single site, i.e. a campus type development, it follows that a lower parking standard could be adopted if there is the potential for the individual demand of each office to be balanced out with less active sites.

Business Parks

4.27 Under current planning legislation, it is very difficult to differentiate between a Business Park and an Office Campus. However, in the TRICS system, all office campuses have been grouped together under land use G - offices, and all modern light industrial sites with an office element have been grouped together under land use H - Business Parks.

4.28 Using the same adjustment factors as quoted above, Table 4.6 gives the revised parking demand for Business Parks.

TABLE 4.6 PARKING DEMAND - BUSINESS PARKS

		Average M^2 (GFA)	85th Percentile M^2 (GFA)
Demand		59	32.6
Factors			
i)	Variation	+ 5%	+ 5%
ii)	Operation efficiency	+ 2%	+ 2%
iii)	Growth (provisions)	+ 10%	+ 10%
	Total	+ 18%	+ 18%
Revised Demand		50	27.6

4.29 Using the same line of reasoning as previously set out, it is noted that the average parking demand for all new sites is likely to be of the order of 1 space per 50 sq.m. However, in order to ensure that all parking is contained within the curtilage of the site, a standard of 1 space per 30 sq.m. (GFA) should be applied.

4.30 However, it needs to be recognised that Business Parks are defined as "B1" in planning terms and are therefore indistinguisable from office complexes where much more provision would generally be required. It may then be that parking provision for Business Parks should be somewhere in the region of one space per 25-30 sq m (GFA).

Industrial

4.31 The database contains such a varied set of information on industrial land uses that it is difficult to use the information to propose standards. However, whilst recognising these problems, Table 4.7 sets out the revised demand values using the adjustment parameters quoted for Business Parks and Offices.

TABLE 4.7 PARKING DEMAND - INDUSTRIAL

		Average sq m (GFA)	85th Percentile sq m (GFA)
Demand		189	59.9
Factors			
i)	Variation	+ 5%	+ 5%
ii)	Operation efficiency	+ 2%	+ 2%
iii)	Growth (provisions)	+ 10%	+ 10%
	Total	+ 18%	+ 18%
Revised Demand		160	50.8

4.32 Based on this information, an average parking demand for industrial sites is likely to be 1 of the order of space per 160 sq m GFA. However in order to ensure that all the parking demand can be fully met within the curtilage of the site, a parking standard of around 1 space per 50 sq m GFA should be adopted. However, the very wide variation in this data should be noted and hence the lack of credibility that can be given to these numbers.

5. COMPARISON WITH EXISTING STANDARDS

5.1 The following Table sets out the parking standards adopted by the seven TRICS counties. As one would expect, there is a wide degree of conformity between the values adopted for the different land uses across the counties.

TABLE 5.1 CURRENT PARKING STANDARDS (sq m per space)

	Berks	Hamp	Kent	Surrey	Dorset	East Sussex	West Sussex
Retail Food	10	8	10	9	10	▪	10
Retail Non-Food	20	18	25	16	20	▪	18
Retail Parks	*	18	-	20	20	*	18
Offices	25	20	20	20	20	30	20
Business Parks	25	20	-	20	20	30	20
Industrial	25-50	20	50	20	20	50	20

Note: * Parking Standard is determined by the mix of retail stores
▪ Standards not provided in terms of GFA

TABLE 5.2 COMPARISONS OF STANDARDS WITH DEMAND (sq m per space)

	Surrey Standard	Demand Estimates
Retail Food	9	9
Retail Non-Food	16	15
Retail Parks	20	25
Offices	20	20
Business Parks	20	30
Industrial	20	50

5.3 Table 5.2 above compares the recommended standards to those standards adopted by Surrey County Council, which are themselves typical of current County Council Standards.

5.4 From the comparison it would appear that the demand estimates confirm the values used for food and non-food retailing although there may be some over provision of space at retail parks. This is bourne out by the general observation that such sites always seem to have acres of spare parking. The difficulty here arises from the lack of definition as to which traders might be attracted to the site at the planning application stage. It is known that a DIY store attracts much greater activity than other non-food superstores yet planning legislation cannot differentiate between DIY and non-DIY uses. The solution to this problem may require developers to enter into planning agreements to limit the number of high activity users on a site thus covering the parking standards that need to be adopted.

5.5 The analysis also confirms Surrey's parking standards for offices, that of one vehicle space per 20 sq m (GFA). This figure was reflected in the ratios appearing at the top end of the range in the data set, and by the 85th percentile value shown in Table 3.4.

5.6 Demand for parking at Business Parks however, appears to be less than that specified by many County Councils. The difficulty here arises from the fact that planning legislation currently groups both Offices and Business Parks together under the "B1" land use category and so the maximum provision of 1 space per 20 sq m (GFA) must be made available at Business Parks when infact a provision closer to one space per 30 sq m (GFA) may be more than adequate.

5.7 With respect to industrial sites, the problem again relates to the definition of land use classes. The widening of the legislation to allow developments to gravitate towards "B1" uses without restriction is creating problems with the definition of parking standards which need to be overcome.

REFERENCES

(1) Reference: "Seasonal & Daily Variation in Travel to Retail Stores"
Traffic Engineers & Control February 1991 - C R Eastman

(2) Reference: "Road and Traffic in Urban Areas"
Institution of Highways & Transportation (Page 269)

(3) Reference: "Food superstores - The Challenge of the 90's"
Debenham & Tewson Research

SUPERSTORES-LAND USE A

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
WS A 01	Sainsbury	Chichester (Edge of Town)	5037	2641	470	14.00-15.00	4/11/88 Fri	526	11	9
WS A 02	Tesco	Horsham (Edge of Town)	6503	4346	798	15.00-16.00	24/10/87 Sat	647	8	10
WS A 03	Tesco	Worthing (Neighbourhood Centre)	5324	2539	435	11.00-12.00	24/10/87 Sat	330	12	16
WS A 04	Tesco	Bognor (Industrial Zone)	6300	3400	356	10.00-11.00	4/11/88 Fri	559	18	11
ES A 01	Sainsbury	Brighton (Neighbourhood Centre)	5376	----	335	18.00-19.00	6/3/86 Thur	340	16	16
ES A 02	Gateway	Brighton (Edge of Town)	8260	4995	804	18.00-19.00	20/5/89 Sat	725	10	11
ES A 03	Asda	Brighton (Neighbourhood Centre)	8175	4245	504	11.00-12.00	21/5/88 Sat	780	16	10
ES A 04	Safeway	Eastbourne (Neighbourhood Centre)	2787	1858	160	13.00-14.00	11/9/87 Fri	200	17	14

LAND USE A - SUPERSTORES

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
ES A 05	Safeway	Seaford (Town Centre)	2830	2200	148	10.00-11.00	20/6/87 Sat	150	19	19
ES A 06	Co-Op	Hove (Neighbourhood Centre)	4650	2550	543	17.00-18.00	21/5/88 Sat	350	9	13
ES A 07	Tesco	Hastings (Suburban Area)	6770	4028	465	11.00-12.00	26/9/86 Fri	500	15	14
ES A 08	Safeway	Lewes (Town Centre)	2500	1700	46	15.00-16.00	11/4/86 Fri	93	54	27
ES A 09	Sainsbury	Brighton (Neighbourhood Centre)	5376	2890	292	08.00-09.00	20/5/89 Sat	340	18	18
SC A 01	Sainsbury	Burpham (Suburban Area)	5667	3530	434	11.00-12.00	7/2/87 Sat	620	13	9
SC A 02	Tesco	Reigate (Edge of Town)	7350	4400	693	14.00-15.00	21/2/87 Sat	700	11	10
DC A 01	Gateway	Weymouth (Town Centre)	4755	2950	242	16.00-17.00	30/6/89 Fri	365	20	13

LAND USE A - SUPERMARKETS

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
DC A 02	Asda	Bournemouth (Town Centre)	7432	4182	514	12.00-13.00	8/2/90 Thur	640	14	12
DC A 03	Gateway	Blanford (Town Centre)	4266	1950	103	09.00-10.00	26/07/90 Thur	82	41	52
KC A 01	Tesco	Whitstable (Free Standing)	6080	3669	431	11.00-12.00	3/10/87 Sat	500	14	12
KC A 02	Tesco	Whitstable (Free Standing)	6500	3599	757	16.00-17.00	2/10/87 Fri	700	9	9
KC A 03	Sainsbury	Tunbridge Wells (Neighbourhood Centre)	5955	3168	347	15.00-17.00	2/11/90 Fri	747	17	8
DV A 01	Tesco	Newton Abbot (Edge of Town)	5333	2913	911	19.00-20.00	27/6/87 Sat	700	6	8
DV A 02	Leo's	Exeter (Suburban Area)	2500	1500	173	17.00-18.00	26/6/87 Fri	200	14	12
DV A 03	Leo's	Exeter (Neighbourhood Centre)	2500	1375	43	10.00-11.00	27/6/87 Sat	140	58	18

LAND USE A - SUPERSTORES

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
DV A 04	Tesco	Ivybridge (Free Standing)	6862	2767	348	17.00-18.00	15/5/87 Fri	1000	20	7
DV A 05	Tesco	Plymouth (Suburban Area)	6291	3700	369	18.00-19.00	15/5/87 Fri	569	17	11
DV A 06	Plymco	Plymouth (Suburban Area)	6980	3356	292	11.00-12.00	16/7/88 Sat	550	24	13
GL A 01	Safeway	Upper Norwood (Edge of Town)	3509	2264	256	10.00-11.00	12/10/90 Fri	294	14	12
GL A 02	Safeway	Fulham (Town Centre)	3019	1816	148	13.00-14.00	12/10/90 Fri	225	20	13
GL A 04	Safeway	Peckham (Town Centre)	3359	2080	194	10.00-11.00	12/10/90 Fri	205	17	16
GL A 05	Sainsbury	Kensington (Free Standing)	4869	2524	295	10.00-11.00	28/6/91 Fri	249	16	20

LAND USE A - SUPERSTORES

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
GL A 06	Sainsbury	Islington (Free Standing)	3902	2338	148	11.00-12.00	05/7/91 Fri	134	26	29
GL A 07	Sainsbury	Camden (Town Centre)	6046	2890	341	12.00-13.00	29/6/91 Sat	310	18	20
GL A 08	Waitrose	West Ealing (Unkown)	2596	1410	157	10.00-11.00	22/3/91 Fri	162	16	16
GL A 09	Tesco	Neasden (Free Standing)	9290	6057	497	19.00-20.00	21/6/91 Fri	1198	19	8
GM A 01	Tesco	Salford (Free Standing)	9271	6624	354	19.00-20.00	23/6/89 Fri	924	26	10
GM A 02	Morrisons	Bolton (Town Centre)	6503	4645	528	14.00-15.00	24/6/89 Sat	540	12	12
GM A 03	Tesco	Horwich, Bolton (Free Standing)	6503	3716	457	10.00-11.00	17/6/89 Sat	494	14	13
GM A 04	Asda	Bury (Free Standing)	8556	5547	364	18.00-19.00	9/6/89 Fri	640	23	13

LAND USE A - SUPERSTORES

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
GM A 05	Safeway	Manchester (Chorlton Cum Hardy) (Edge of Town)	2700	1539	267	16.00-17.00	23/6/89 Fri	224	10	12
GM A 06	Tesco	East Didsbury (Free Standing)	3716	2118	321	18.00-19.00	11/8/89 Fri	287	12	13
GM A 07	Morrisons	Rochdale (Town Centre)	4836	2697	207	11.00-12.00	24/6/89 Sat	400	23	12
GM A 08	Shopping Giant	Salford (Neighbourhood Centre)	3240	1530	103	14.00-15.00	10/6/89 Sat	164	31	20
GM A 09	Sainsbury	Stockport (Town Centre)	4598	2206	421	09.00-10.00	17/6/89 Sat	443	11	10
GM A 10	Asda	Ashton-U-Lyne Tameside (Free Standing)	9244	4180	535	18.00-19.00	30/6/89 Fri	618	17	15
GM A 11	Sainsbury	Altrincham (Town Centre)	4548	2247	301	14.00-15.00	23/6/89 Fri	305	15	15

LAND USE A - SUPERSTORES

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
GM A 12	Asda	Wigan (Free Standing)	6039	3252	378	14.00-15.00	24/6/89 Sat	650	16	9
LC A 01	Asda	Lancaster (Edge of Town)	6689	3995	413	18.00-19.00	9/6/89 Fri	506	16	13
LC A 02	Morrisons	Salford (Town Centre)	10,368	4837	512	10.00-11.00	17/6/89 Sat	693	20	15
LC A 03	Sainsbury	Preston (Edge of Town)	6038	2973	305	11.00-12.00	30/9/89 Fri	535	20	11
LC A 04	Tesco	Clitheroe, Ribble Valley (Town Centre)	2230	1486	105	11.00-12.00	21/10/89 Sat	113	21	20
LC A 05	Morrisons	Preston (Suburban Area)	6875	3902	744	15.00-16.00	30/9/89 Sat	802	9	8
LC A 06	Sainsbury	Lancaster (Town Centre)	4699	2257	308	10.00-11.00	18/5/90 Fri	320	15	15
NF A 01	Sainsbury	Norwich (Town Centre)	6950	3200	388	09.00-10.00	22/6/91 Fri	412	18	17

DIY SUPERSTORES-LAND USE C

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
WS C 01	Payless	Bognor (Industrial Zone)	2000	1644	106	14.00-15.00	24/10/87 Sat	128	19	16
WS C 02	Halfords	Bognor (Edge of Town)	3810	3048	94	15.00-16.00	10/11/89 Fri	---	40	--
HC C 01	Homebase	Basingstoke (Commercial Zone)	3020	----	164	11.00-12.00	18/5/85 Sat	200	18	15
ES C 01	B&Q	Hastings (Suburban Area)	1849	1691	100	16.00-17.00	19/9/87 Sat	50	18	37
ES C 02	Payless	Eastbourne (Suburban Area)	2973	1858	141	18.00-19.00	11/9/87 Fri	125	21	24
ES C 03	B&Q	Eastbourne (Suburban Area)	1765	1686	111	12.00-13.00	11/9/87 Fri	250	16	7
ES C 05	Texas	Lewes (Commerical Zone)	2175	1785	48	18.00-19.00	26/6/87 Fri	44	45	49
ES C 06	B&Q	Brighton (Commercial Zone)	2163	1951	96	17.00-18.00	2/7/87 Thur	60	22	36

LAND USE C - DIY SUPERSTORES

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
ES C 07	Payless	Worthing (Commercial Zone)	3605	3159	146	11.00-12.00	4/7/87 Sat	180	25	20
ES C 08	Fix It	Brighton (Suburban Area)	1115	----	39	16.00-17.00	4/7/87 Sat	35	29	32
ES C 09	Payless	Hove (Commercial Zone)	2935	2360	91	15.00-16.00	8/3/86 Sat	76	32	39
ES C 10	Texas	Brighton (Commercial Zone)	3250	1950	109	14.00-15.00	8/3/86 Sat	161	30	20
ES C 12	Texas	Brighton (Edge of Town)	3250	1950	276	16.00-17.00	11/6/89 Sun	161	12	20
DC C 02	B&Q	Bournemouth (Free Standing)	2660	2470	46	11.00-12.00	12/11/87 Thur	137	58	19
DC C 05	Great Mills	Poole (Suburban Area)	3456	2973	115	14.00-15.00	26/8/89 Fri	220	30	16
SC C 01	B&Q	Leatherhead	4000	3250	180	11.00-12.00	1/2/87 Sun	155	22	26

LAND USE C - DIY SUPERSTORES

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
SC C 02	Texas	Reigate (Town Centre)	3160	2230	66	14.00-15.00	14/2/87 Sat	80	48	39
KC C 01	B&Q	Larkfield, Maidstone (Free Standing)	2978	2648	152	14.00-15.00	24/10/87 Sat	166	20	18
KC C 02	B&Q	Barker Road, Maidstone (Free Standing)	2805	2400	120	15.00-16.00	3/10/87 Sat	---	23	--
GM C 01	B&Q	Stockport (Free Standing)	4650	5268	172	14.00-15.00	24/6/89 Sat	310	27	15
GM C 02	Halfords	Altrincham (Free Standing)	1874	882	74	15.00-16.00	12/8/89 Sat	143	25	13
LC C 01	B&Q	Chorley (Suburban Area)	4808	3038	60	15.00-16.00	10/6/89 Sat	184	80	26
LC C 02	Do-It-All	Preston (Suburban Area)	3378	2799	122	15.00-16.00	7/10/89 Sat	199	28	17
IM C 01	B&Q	Douglas, Isle of Man (Free Standing)	3160	----	67	14.00-15.00	2/11/89 Thur	---	47	---

LAND USE C - DIY SUPERSTORES

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
NF C 01	B&Q	Norwich (Town Centre)	3900	3465	140	11.00-12.00	22/6/90 Fri	247	28	16
NF A 02	Do-It-All	Great Yarmouth (Edge of Town)	3252	2787	104	12.00-13.00	16/02/91 Sat	200	31	16
NF C 03	Halfords	Norwich (Edge of Town)	3345	2973	17	10.00-11.00	20/7/90 Fri	50	197	67

RETAIL PARKS-LAND USE F

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
ES F 01	Retail Park	Newhaven (Industrial Zone)	8685	5205	187	15.00-16.00	27/6/87 Sat	150	46	58
DC F 01	Retail Park	Poole (Free Standing)	8361	6067	200	10.00-11.00	11/5/85 Sat	276	42	30
DC F 04	Retail Park	Poole (Suburban Area)	3150	2890	52	14.00-15.00	11/11/89 Sat	150	61	21
DC F 05	Retail Park	Poole (Free Standing)	12,387	10,379	149	15.00-16.00	28/4/90 Sat	648	83	19
HF F 01	Retail Park	Stevenage (Edge of Town)	4691	3762	88	11.00-12.00	23/4/88 Sat	266	53	18
HC F 01	Retail Park	Havant	7900	5350	122	14.00-15.00	4/6/89 Sun	288	65	27
WS F 01	County Oak Retail Park	Crawley (Commercial Zone)	14,543	----	389	14.00-15.00	13/5/89 Sat	400	37	36
WS F 02	Arun Retail Park	Bognor Regis (Edge of Town)	8071	----	70	10.00-11.00	4/5/90 Fri	336	115	24

LAND USE F - RETAIL PARKS

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
WS F 03	Portfield Retail Park	Chichester (Edge of Town)	14400	----	241	14.00-15.00	09/6/90 Sat	---	60	--
GM F 01	Central Retail Park	Manchester (Town Centre)	14,294	11,413	435	14.00-15.00	5/8/89 Sat	---	33	--
GM F 02	Retail Park	Oldham (Free Standing)	16,926	16,740	207	15.00-16.000	12/8/89 Sat	616	82	27
GM F 03	Canal Basin Retail Park	Rochdale (Town Centre)	8687	5641	210	14.00-15.00	5/8/89 Sat	361	41	24
GM F 04	Retail Park	Stockport (Free Standing)	4054	----	206	15.00-16.00	5/8/89 Sat	300	20	14
GM G 05	Retail Park	Middleton (Suburban Area)	10684	8600	161	14.00-15.00	28/6/91 Fri	600	66	18
LC F 01	Capital Centre Retail Park	Preston (Suburban Area)	8256	----	143	15.00-16.00	10/6/89 Sat	386	58	21
LC F 02	Burnley Retail Park	Burnley (Town Centre)	3725	----	46	14.00-15.00	14/10/89 Sat	159	81	23

LAND USE F - RETAIL PARKS

Site	Description	Location	G.F.A.	R.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
LC F 03	Peel Centre Retail Park	Blackburn (Edge of Town)	17837	----	275	14.00-15.00	27/4/91 Sat	804	65	22
BC F 01	Retail Park	Reading (Suburban Area)	11,520	----	105	12.00-13.00	30/11/90 Fri	---	110	---
BC F 02	Tesco/M&C	Camberley (Free Standing)	22296	----	2167	15.00-16.00	20/4/91 Sat	---	10	---
NF F 01	Retail Park	King Lynn (Commercial Zone)	18640	16238	396	11.00-12.00	27/7/90 Fri	---	47	---

OFFICES-LAND USE G

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
HC G 01	Fanum House & Gateway 2	Basingstoke (Commercial Zone)	36,500	1190	09.00-10.00	15/10/85 Tue	1288	31	28
HC G 02	IBM Park	Hursely (Commercial Zone)	65,680	1248	10.00-11.00	21/8/86 Thur	1750	53	37
HC G 03	Basing View	Basingstoke (Commercial Zone)	135,750	2817	09.00-10.00	6/5/86 Tue	5073	48	27
HC G 04	Sun Life	Basingstoke (Commercial Zone)	13,900	279	10.00-11.00	11/7/89 Tue	360	50	39
HC G 05	Snamprogetti	Basingstoke (Commercial Zone)	9400	252	14.00-15.00	11/7/89 Tue	431	37	22
HC G 06	AA	Basingstoke (Commercial Zone)	23,600	612	10.00-11.00	11/7/89 Tue	750	39	31
ES G 01	American Express	Brighton (Town Centre)	25,929	668	11.00-12.00	24/5/85 Fri	50	39	518
ES G 02	American Express	Brighton (Town Centre)	4,916	194	09.00-10.00	24/5/85 Fri	105	25	47

LAND USE G - OFFICES

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
ES G 03	British Telecom	Brighton (Town Centre)	18,240	231	09.00-10.00	18/9/84 Tue	250	79	73
DC G 01	Chase Manhattan Bank	Bournemouth (Free Standing)	13,981	404	10.00-11.00	29/3/88 Tue	370	35	38
DC G 02	Barclays House	Poole (Town Centre)	40500	959	10.00-11.00	6/3/90 Tue	1118	42	36
DC G 03	St Johns House	Poole (Town Centre)	1936	50	15.00-16.00	6/3/90 Tue	84	39	23
DC G 04	Frizzell House	Poole (Free Standing)	14643	253	09.00-10.00	8/3/90 Thur	305	58	48
DC G 05	Link House Publishing	Poole (Town Centre)	3283	113	09.00-10.00	8/3/90 Thur	109	29	30
DC G 06	Office Complex	Poole (Town Centre)	6080	92	15.00-16.00	6/3/90 Tue	86	66	70
SC G 01	Costain	Woking (Town Centre)	5400	273	11.00-12.00	17/2/87 Tue	40	20	135

LAND USE G - OFFICES

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
SC G 02	CPC/ARIA Estate/ Central National	Claygate (Suburban Area)	5574	161	10.00-11.00	2/3/89 Thur	---	35	---
SC G 03	Legal & General Insurance	Kingswood (Suburban Area)	19,019	1190	11.00-12.00	23/2/89 Thur	---	16	---
SC G 04	National Employers Life Britannia	Dorking (Edge of Town)	5110	261	10.00-11.00	23/2/89 Thur	---	20	---
SC G 05	Friends Provident	Dorking (Edge of Town)	13,275	577	11.00-12.00	7/2/89 Tue	---	23	---
SC G 06	Petrofina	Epsom (Town Centre)	5400	226	10.00-11.00	11/2/87 Wed	132	24	41
GL G 01	Harman House	Uxbridge (Town Centre)	12,528	315	09.00-10.00	13/7/88 Wed	372	40	34
GL G 02	Trident House	Hillingdon (Edge of Town)	3250	83	10.00-11.00	11/7/88 Mon	53	39	61

LAND USE G - OFFICES

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
GL G 03	Memorex Telex House	Hillingdon (Free Standing)	1021	32	09.00-10.00	11/7/88 Mon	40	32	25
GL G 04	Kirk House	Hillingdon (Neighbourhood Centre)	1545	71	10.00-11.00	15/7/88 Fri	51	22	30
GL G 05	Times House	Ruislip (Suburban Area)	2653	60	11.00-12.00	6/7/88 Wed	101	44	26
GL G 06	106 Oxford Road	Uxbridge (Edge of Town)	3760	65	10.00-11.00	13/7/89 Thur	99	58	38
GL G 07	Nash House	Ealing (Industrial Zone)	2877	72	14.00-15.00	17/7/91 Wed	105	40	26
GL G 08	N.E.C.	Ealing (Industrial Zone)	6039	74	14.00-15.00	25/6/91 Tue	90	82	67
GL C 09	B Elliott	Ealing (Industrial Zone)	5633	71	11.00-12.00	27/6/91 Thur	85	79	66
WS G 01	Woolwich Adminstration Centre	Worthing (Free Standing)	9200	180	10.00-11.00	22/5/90 Tue	300	51	31

LAND USE G - OFFICES

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
BC G 03	Household International	Bracknell (Free Standing)	7553	285	14.00-15.00	2/11/90 Wed	---	26	---
LC G 01	Bonds & Stocks	Blackpool (Edge of Town)	14992	486	09.00-10.00	5/10/90 Fri	561	31	27
GM G 01	Norweb	Bolton (Industrial Zone)	11958	120	15.00-16.00	27/6/90 Wed	190	100	63
GM G 02	Hewlett Packard	Stockport (Free Standing)	7491	215	11.00-12.00	16/11/90 Fri	350	35	21

BUSINESS PARKS-LAND USE H

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
SC H 01	Business Park	Leatherhead (Town Centre)	16,000	262	14.00-15.00	3/2/87 Tue	700	61	23
SC H 02	Business Park	Woking (Edge of Town)	23,000	390	10.00-11.00	10/2/87 Tue	600	59	38
GL H 01	Business Park	Hillingdon (Suburban Area)	31,000	606	10.00-11.00	7/7/88 Thur	960	51	32
GL H 02	Business Park	Hillingdon (Free Standing)	4200	63	11.00-12.00	8/7/88 Fri	126	67	33
GL H 03	Business Park	Hillingdon (Suburban Area)	5050	113	11.00-12.00	4/7/88 Mon	120	45	42
GL H 04	Business Park	Uxbridge (Edge of Town)	16,497	278	14.00-15.00	14/7/88 Thur	360	59	46
GL H 05	Business Park	Hillingdon (Edge of Town)	32,500	321	11.00-12.00	5/7/88 Tue	537	101	60
GL H 06	Business Park	Hayes (Edge of Town)	3880	54	11.00-12.00	7/7/88 Thur	65	72	60

LAND USE H - BUSINESS PARKS

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
WS H 01	Southwater Business Park	Southwater (Edge of Town)	16,250	311	10.00-11.00	28/11/90 Wed	---	52	---
BC H 04	Business Park	Bracknell (Industrial Zone)	78,756	1358	11.00-12.00	21/11/90 Wed	600	58	131
BC H 05	Hi-Tech Business Park	Bracknell (Industrial Zone)	9940	346	11.00-12.00	22/11/90 Thur	368	30	27
CB H 01	Lakeland Business Park	Cockermouth (Edge of Town)	4240	51	13.00-14.00	20/11/90 Tue	218	83	19
GM H 02	Business Park	Urmston (Free Standing)	12077	371	10.00-11.00	1/3/91 Fri	500	33	24
NF H 01	Research Centre	Norwich (Free Standing)	43622	476	09.00-10.00	4/12/90	528	92	83

INDUSTRIAL-LAND USE I

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
ES I 01	Industrial Estate	Brighton (Suburban Area)	13,300	188	09.00-10.00	1/5/84 Tue	---	71	---
ES I 04	Industrial Estate	Lewes (Edge of Town)	7500	155	09.00-10.00	20/5/87 Wed	---	48	---
ES I 05	Industrial Estate	Brighton (Suburban Area)	2866	78	11.00-12.00	7/5/87 Thur	---	37	---
DC I 01 * (1982)	Industrial Estate	Ferndown (Industrial Zone)	80,421	1173	11.00-12.00	31/3/82 Wed	---	69	---
DC I 02 * (1986)	Industrial Estate	Ferndown (Industrial Zone)	80,421	1399	09.00-10.00	18/7/86 Fri	---	57	---
DC I 06	Industrial Estate	Ferndown (Industrial Zone)	15,680	141	10.00-11.00	19/6/85 Wed	270	111	58
DC I 07	Industrial Estate	Nr Sandford (Industrial Zone)	27,814	285	09.00-10.00	10/8/84 Fri	---	98	---
DC I 08	Industrial Estate	Poole (Industrial Zone)	15,356	195	13.00-14.00	18/9/84 Tue	200	79	77

Note: * DC I 01 and DC I 02 are the same site surveyed at different periods

LAND USE I - INDUSTRIAL

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
DC I 09	Industrial Estate	Bournemouth (Industrial Zone)	32,600	355	10.00-11.00	2/2/88 Tue	920	92	35
DC I 10	Industrial Estate	Bournemouth (Industrial Zone)	11,500	171	10.00-11.00	10/2/88 Wed	200	67	57
DC I 11	Industrial Estate	West of Ringwood (Industrial Zone)	42,270	675	10.00-11.00	9/6/88 Thur	500	63	84
DC 1 12	Revlon Factory	Bournemouth (Suburban Area)	19,230	284	11.00-12.00	13/9/88 Tue	250	68	77
DC I 13	Industrial Estate	Bournemouth (Suburban Area)	4400	105	14.00-15.00	13/9/88 Tue	120	42	37
DC I 14	Bailey Gate Industrial Estate	Sturminster Marshall	3100	120	14.00-15.00	31/1/90 Wed	---	258	---
HC I 01	Industrial Estate	Fareham (Industrial Zone)	21091	199	10.00-11.00	8/4/87 Wed	---	106	---
HC I 02	Industrial Estate	Fareham (Industrial Zone)	9691	215	09.00-10.00	13/6/89 Tue	226	45	43

LAND USE I - INDUSTRIAL

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
MG I 01	Industrial Estate	Bridgend Mid-Glamorgan	15,517	2161	16.00-17.00	20/10/83 Thur	---	7	---
MG I 02	Industrial Estate	Kenfig (Free Standing)	105,305	375	10.00-11.00	24/10/83 Mon	---	281	---
MG I 03	Industrial Estate	Treforest (Free Standing)	696,587	3647	18.00-19.00	26/10/83 Wed	---	191	---
MG I 04	Industrial Estate	Cardiff	36,232	74	11.00-12.00	31/10/83 Mon	---	490	---
SC I 01	Brooklands Industrial Park	Byfleet (Industrial Zone)	3065	26	10.00-11.00	5/7/90 Thur	65	118	47
SC I 02	Brooklands Industrial Park	Byfleet	55,740	67	10.00-11.00	5/7/90 Thur	50	832	1115
SC I 04	Brooklands Industrial Park	Byfleet	24,154	45	16.00-17.00	17/7/90 Tue	100	537	242

LAND USE I - INDUSTRIAL

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
SY I 01	Industrial Estate	Hellaby Rotherham	5145	37	12.00-13.00	6/10/83 Thur	---	139	---
SY I 02	Industrial Estate	Doncaster	36,142	219	15.00-16.00	5/10/83 Wed	---	165	---
LO I 01	Industrial Estate	Edinburgh	4437	74	10.00-11.00	15/9/83 Thur	---	60	---
SD I 01	Industrial Estate	Glasgow	7738	499	18.00-19.00	6/10/83 Thur	---	16	---
SD I 02	Industrial Estate	Beith	16,736	85	09.00-10.00	5/10/83 Wed	---	197	---
SD I 03	Industrial Estate	Blantyre	42,168	283	14.00-15.00	21/9/83 Wed	---	149	---
SD I 04	Industrial Estate	Clydebank	17,053	113	11.00-12.00	22/9/83 Thur	---	151	---
SD I 05	Industrial Estate	Coatbridge	19,040	49	14.00-15.00	28/9/83 Wed	---	388	---

LAND USE I - INDUSTRIAL

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
SD I 06	Industrial Estate	Cumnock	38,817	50	08.00-09.00	8/9/83 Thur	---	776	---
SD I 07	Industrial Estate	Motherwell	3760	32	09.00-10.00	4/10/83 Tue	---	117	---
SD I 08	Industrial Estate	Larkhall	16,903	58	08.00-09.00	29/9/83 Thur	---	291	---
SD I 09	Industrial Estate	Newhouse	53,551	749	10.00-11.00	18/9/83 Sun	---	71	---
SD I 10	Industrial Estate	Glasgow	46,014	268	09.00-10.00	20/9/83 Tue	---	172	---
SD I 11	Industrial Estate	Vale of Leven	54,977	351	13.00-14.00	27/9/83 Tue	---	144	---
CW I 01	Industrial Estate	Redruth (Edge of Town)	8332	30	08.00-09.00	3/11/83 Thur	---	278	---
CW I 02	Industrial Estate	Newquay (Edge of Town)	41246	42	08.00-09.00	2/11/83 Wed	---	982	---

LAND USE I - INDUSTRIAL

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
CD I 01	Industrial Estate	Manor Flint	9755	88	09.00-10.00	10/10/83 Mon	---	111	---
CD I 02	Industrial Estate	Shotton	234,115	497	10.00-11.00	12/10/83 Wed	---	471	---
CB I 01	Industrial Estate	Salterbeck Worthington	33,662	200	13.00-14.00	5/10/83 Wed	---	168	---
CB I 02	Industrial Estate	Solway - Maryport	23,267	202	15.00-16.00	5/10/83 Wed	---	115	---
BC I 01	Industrial Estate	Reading (Edge of Town)	167,416	1528	10.00-11.00	6/6/86 Fri	---	109	---
BC I 02	Industrial Estate	Newbury (Industrial Zone)	27,708	95	10.00-11.00	6/6/86 Fri	---	292	---
BC I 03	Industrial Estate	Reading (Edge of Town)	69,375	1284	14.00-15.00	2/6/86 Mon	---	54	----
CL I 01	Industrial Estate	Consett-Ledgate	14,115	69	10.00-11.00	10/10/83 Mon	---	204	---

LAND USE I - INDUSTRIAL

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
CL I 03	Industrial Estate	Middlesborough	9092	21	08.00-09.00	18/10/83 Tue	---	433	---
LC I 01	Farringdon Industrial Estate	Burnley (Edge of Town)	48,308	366	13.00-14.00	24/4/89 Mon	---	132	---
HB I 01	Industrial Estate	Scunthorpe (Edge of Town)	2983	45	10.00-11.00	29/9/83 Thur	---	66	---
HB I 02	Industrial Estate	Kingston-Upon-Hull (Suburban Area)	6167	35	10.00-11.00	28/9/83 Wed	---	176	---
TW I 01	Industrial Estate	Cramlington	13,801	205	10.00-11.00	18/10/83 Tue	---	67	---
TW I 02	Industrial Estate	Houghton Le Spring	39,348	84	08.00-09.00	17/10/83 Mon	---	468	---
TW I 03	Industrial Estate	North Tyne	17,640	103	09.00-10.00	21/10/83 Fri	---	171	---
TW I 04	Industrial Estate	Rekendyke South Shields	4102	383	13.00-14.00	3/10/83 Mon	---	11	---

LAND USE I - INDUSTRIAL

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
TW I 05	Industrial Estate	Sedletch Tyne & Wear	6842	28	13.00-14.00	17/10/83 Mon	---	244	---
MS I 01	Argyle Industrial Estate	Birkenhead	4965	76	09.00-10.00	22/10/83 Sat	---	65	---
MS I 02	Industrial Estate	Knowsley Merseyside	25,098	207	09.00-10.00 Wed	26/10/83	---	121	---
MS I 03	Industrial Estate	Lamberhead Wigan (Edge of Town)	9835	88	13.00-14.00	20/9/83 Tue	---	112	---
MS I 04	Industrial Estate	St Helens (Suburban Area)	26,398	170	10.00-11.00	12/10/83 Wed	---	155	---
GW I 01	Industrial Estate	Newport (Edge of Town)	16,932	46	13.00-14.00	12/10/83 Wed	---	368	---
GW I 03	Industrial Estate	Upper Boat	31,882	141	10.00-11.00	27/10/83 Thur	---	226	---
PS I 02	Industrial Estate	Vastre New Town (Edge of Town)	19,429	161	10.00-11.00	13/10/83 Thur	---	121	---

LAND USE I - INDUSTRIAL

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
GL I 01	Elizabeth Arden	Ealing (Industrial Zone)	8270	130	13.00-14.00	14/6/91 Thur	109	64	76
GL I 02	Inco Europe Ltd	Ealing (Industrial Zone)	29136	44	10.00-11.00	4/7/91 Thur	90	662	324
GL I 03	Industrial Estate	Ealing (Industrial Zone)	2741	25	11.00-12.00	3/7/91 Wed	25	110	110

LAND USE I - INDUSTRIAL

Site	Description	Location	G.F.A.	Max Demand	Time Of Day	Date	No Parking Spaces	M^2 G.F.A To 1 Car By Max P.D.	M^2 G.F.A. To 1 Car By Parking Spaces
GR I 01	Industrial Estate	Dundee	21,324	127	10.00-11.00	16/9/83 Fri	---	168	---
IM I 01	Industrial Estate	Douglas, Isle of Man	18,700	212	10.00-11.00	2/11/89 Thur	---	88	---
WS I 01	Brookside Industrial Estate	Littlehampton (Edge of Town)	19,900	414	08.00-09.00	16/10/90 Tue	---	48	---
WG I 01	Industrial Estate	Ponthenri (Industrial Zone)	1894	18	13.00-14.00	18/10/83 Tue	---	105	---
BR I 01	Industrial Estate	Tweedbank	4940	46	09.00-10.00	13/9/83 Tue	---	107	---
GM I 01	Industrial Enterprise Centre	Oldham (Edge of Town)	8285	132	10.00-11.00	5/11/90 Mon	200	63	41
GM I 02	Wheatlee Industrial Estate	Wigan (Free Standing)	31500	342	13.00-14.00	20/11/90 Tue	---	92	---