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# Private non-residential parking in Winchester Report on a survey

## Foreword

Winchester Action on Climate Change (WinACC) is a network of local people and organisations working together to tackle climate change. We aim to engage every household and organisation in the district in meeting the target of cutting the District's emissions by 30 per cent over the 11 years from 2004 to 2015. WinACC's vision is of a more equitable, more enjoyable and more resilient low carbon society across the district, with healthier lifestyles, stronger communities, and greater food and energy security.

WinACC's Transport Action Group focuses on cutting the carbon footprint of travel. In line with the aims of the Local Sustainable Transport Funded Hampshire Sustainable Transport Towns project, we aim to reduce car miles. As well as reducing our carbon footprint, a reduction in car mileage in Winchester town centre will also improve air quality – annual average $NO_2$ concentration in central Winchester is persistently around 50µg.m$^{-3}$, 25% above the 40µg.m$^{-3}$ limit set by the EC Ambient Air Quality Directive 2008.

The availability of car parking is one of many interlocking elements of a traffic reduction plan. Other elements are signage, naming and pricing of car parking, route management to manage traffic flow, and support for alternatives such as walking, cycling and public transport.

WinACC has been regularly monitoring parking in public car parks in and near Winchester town. This reports the findings of our first survey of private, non-residential car parking in and near Winchester town centre. We believe that no-one has looked at this before

Our conclusions are tentative and more work is needed before any certain recommendations can be made. The study needs repeating to get an average over time, and the survey was restricted to an inner set of zones. Any definitive conclusions depend on knowing more about parking space turnover as well as understanding the origin of trips using the car parks (trip matrix analysis).

What we have discovered, however, is significant enough to deserve attention. Private non-residential parking in Winchester city centre well outweighs the total of public car parking space and must contribute significantly to Winchester's traffic.

## Summary

A survey of private non-residential car parking spaces and occupancy in and near to Winchester town centre was carried out by WinACC (Winchester Action on Climate Change) in November 2011.

The survey found an estimated overall capacity of 9643, of which 8307 were in marked car parking spaces and the remainder unmarked, and a weekday day-time occupancy of 6941. Private non-residential parking in the area therefore well outweighs the total of public car parking spaces. The overall ratio of private non-residential to public spaces is 3.0; in the outer areas of our study the ratio is 4.8; in the town centre it is 1.0.

The impact of car parking numbers on traffic movements and thus on emissions depends on both turnover and routes. We would welcome more research on patterns in Winchester. Nevertheless, the survey demonstrates that private non-residential car parking must be taken into account when considering measures to reduce car mileage in Winchester town centre.

*August 2012*

# 1 The survey

WinACC (Winchester Action on Climate Change) volunteers surveyed private non-residential off-street parking in Winchester during November 2011 on weekdays between 10am and 4pm. The survey covered areas within easy walking distance of Winchester city centre (see map). An initial decision not to include parking at Tesco's and Westgate School with Western primary School was later reviewed and thought to be an illogical omission. In the absence of direct survey data it was decided to make estimates for these sites using Google Earth[1].

Some long-derelict sites (especially at Bar End) have significant potential parking capacities, but since this would be to prejudge the use of the sites when they become re-opened, they are not counted in the current survey.

Figure 1 and Figure 2 show the surveyed areas. In this report the data is aggregated into the sub-areas shown in Figure 2. WinACC has the data collected for individual businesses or institutions. The sub-areas have been chosen roughly to reflect either a distinct zonal nature or a distinctly different access likelihood.

The aggregated data is recorded in Figure 3. The data, for each aggregation of individual sites, comprises:

- the number of marked car parking spaces (if any)
- the number of parked cars observed
- an estimate of the capacity of the sites.

# 2 Methodology

The survey counted cars actually parked and places for car parking that were marked, and estimated the number of places for car parking in any unmarked empty space.

Only parking by and for cars was included in the survey.

Public parking sites, or those clearly for use by residents only, were excluded from the survey.

The business of some establishments is cars (for sale in showrooms or for repair in body shops). Where it was possible to distinguish, vehicles from these establishments and the spaces for them were not counted.

[1] With the difficulty of counting parking areas partially obscured by trees. Note that the Google survey relates to a weekday in April 2010 and appears to be rather earlier in the day (8.30 – 9.30 in the morning) than the rest of our survey.

The estimated capacity can only be approximate because the space where cars can be parked is also used for other things like waste bins, lorries or buses.

Even when spaces are marked, some spaces are used for other purposes. Nevertheless these spaces were counted.

# 3 Findings

## 3.1 Parking numbers

There are some 8307 marked parking spaces in these non-residential parking sites. 6941 parked cars were observed. Including our best estimate of unmarked spaces, the estimated overall capacity of the sites is 9643.

This large number of cars in private non-residential spaces is only a part of the overall total of parking in Winchester. For the core zones of Winchester City:

| | |
|---|---|
| Total number of parked cars we counted at non-residential parking sites in these zones | 6941 |
| Average number of cars parked in off-street public car parking in this zone (see Figure 4). | 2311[2] |
| Our estimate of cars parked on streets in this zone (using Google Streetview[3] ) | 1776 |
| **Total** | **11028** |

We found that private non-residential parking in these zones well outweighs the total of public car parking space.

The overall ratio of private non-residential to public is 3.0; in the outer areas of our study the ratio is 4.8 and in the town centre is 1.0.

## 3.2 The impact of turnover

We also need to consider the effects of turnover. The impact of a parking space depends on turnover – i.e. how many cars drive through town each day on the way to and from the parking space. There are broadly three categories of parking use: people driving to and from work and parking at their workplace; people driving to and from work and parking elsewhere; and people visiting leisure facilities, services and shops. The first two categories are likely to have one car per day i.e. turnover is one; the others will be higher.

[2] From WinACC's on-running survey of public off-street car parking in Winchester - see *Car Parking in Winchester – WinACC Summary Report Edition 3 May 2011*. The figure of 2311 is the average occupancy of the car parks in the zones of Figure 1 for normal working day surveys from March 2010 to the present.

[3] It must be pointed out that Google Streetview for Winchester clearly covers different days and even different seasons.

We do not know the turnover of public car parking spaces.[4] nor of the private non-residential sites we surveyed, whether in the town centre or outside. We have made the conservative estimate that the majority of car parking in private non-residential parks is parking for the whole day by people at work.

There is, however, a significant number of car parking spaces that probably turn over more than once per day. This number will be dominated by the customer car parking, such as at major shopping outlets like Tesco's and Homebase, where visits will normally last no more than two hours, and each space could be used in series by 4 or 5 cars per day.

We do not include in this category of high-turnover parking the customer parking at the station on the assumption that this is really displaced workplace parking (and likely to be of once-per-day turnover). We have made some very rough estimates of the remainder of the customer parking. The total number of spaces that we feel may be involved in more-than-once-per-day turnover is 1556, of which 831 spaces were occupied.

Major providers of parking (see Figure 3) include:

| | **Estimated capacity** | **Vehicles observed** |
|---|---|---|
| RHCH | 995 | 925 |
| Station | 625 | 621 |
| University | 403 | 280 |
| HCC | 658 | 501 |
| Bar End Industrial | 575 | 400 |
| Winnall Industrial | 1848 | 1178 |
| Police, Courts & Prison | 429 | 381 |
| Schools | 485 | 506 |
| Tesco's, Homebase, Halford/Curry | 973 | 356 |

### 3.3 The impact of routes on the central circulatory system.

The routes that cars take coming and going from parking spaces also affect their impact. An attempt was made to aggregate data according to the likelihood of the parking being accessed by vehicles using the central circulatory system. Since the origin of the trips that use the parking is unknown, this is likely to be a very rough estimate.

[4] We have been unable to find a reference, but we believe that some very old data showed daily turnover for a parking place in the old central car park (Brooks site) of 5-7. It would be useful to have some modern authoritative data on this.

1311 parked cars were deemed likely to have used the central circulatory system (e.g. are accessed by roads that naturally lead into the system); the estimated capacity of the sites involved was 1544.

A further 625 cars were deemed very likely to have used the central circulatory system (being physically on the central circulatory system or only accessible through it – e.g. River Park); the estimated capacity of these sites is 797.

# 4 The policy implications

The level of private non-residential car parking needs to be taken into account in tackling two key issues of concern in Winchester.

The annual mean nitrogen dioxide level in central Winchester (particularly in St George's Street but also probably in Romsey Road[5]) exceeds the maximum level allowed by the European Ambient Air Quality Directive (2008)[6] by around 25%.[7] This needs to be remedied. An obvious way of tackling this would be to reduce traffic volumes in Romsey Road, St George's Street, North Walls by 20%.

Winchester City Council is committed as part of its programme on climate change, to reducing greenhouse gas emissions in the district by a third between 2004 and 2015. Reduction of transport emissions must be part of this programme.

The impact of car parking numbers on traffic movements and thus on emissions depends on both turnover and routes. Nevertheless, the survey demonstrates that private non-residential car parking must be taken into account when considering measures to reduce car mileage in Winchester town centre.

A sound evidence-based approach to the planned reduction of car movements and mileage in and close to Winchester town centre requires data on parking usage, parking turnover and an analysis of car trips.

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[5] Only one site in St George's St takes this annual measure, but other spot measures indicate problems elsewhere.

[6] The UK has incorporated these limits in its Air Quality Objectives. Full compliance should have been achieved by January 2010.

[7] These statutory limits are not an arbitrary burden that we can seek to offload or defer. The separation of effects of $NO_2$ from other pollutants is complicated, but the Committee on the Medical Effects of Air Pollutants (www.comeap.org.uk/component/content/article/28-page-linking/117-oxides-of-nitrogen.htm) states:
*Evidence suggests that ambient (outdoor) concentrations of nitrogen dioxide can increase the sensitivity of asthmatics to allergens and therefore increase the likelihood of asthma attacks and longer term exposure to nitrogen dioxide can increase the likelihood of respiratory illnesses in children.*

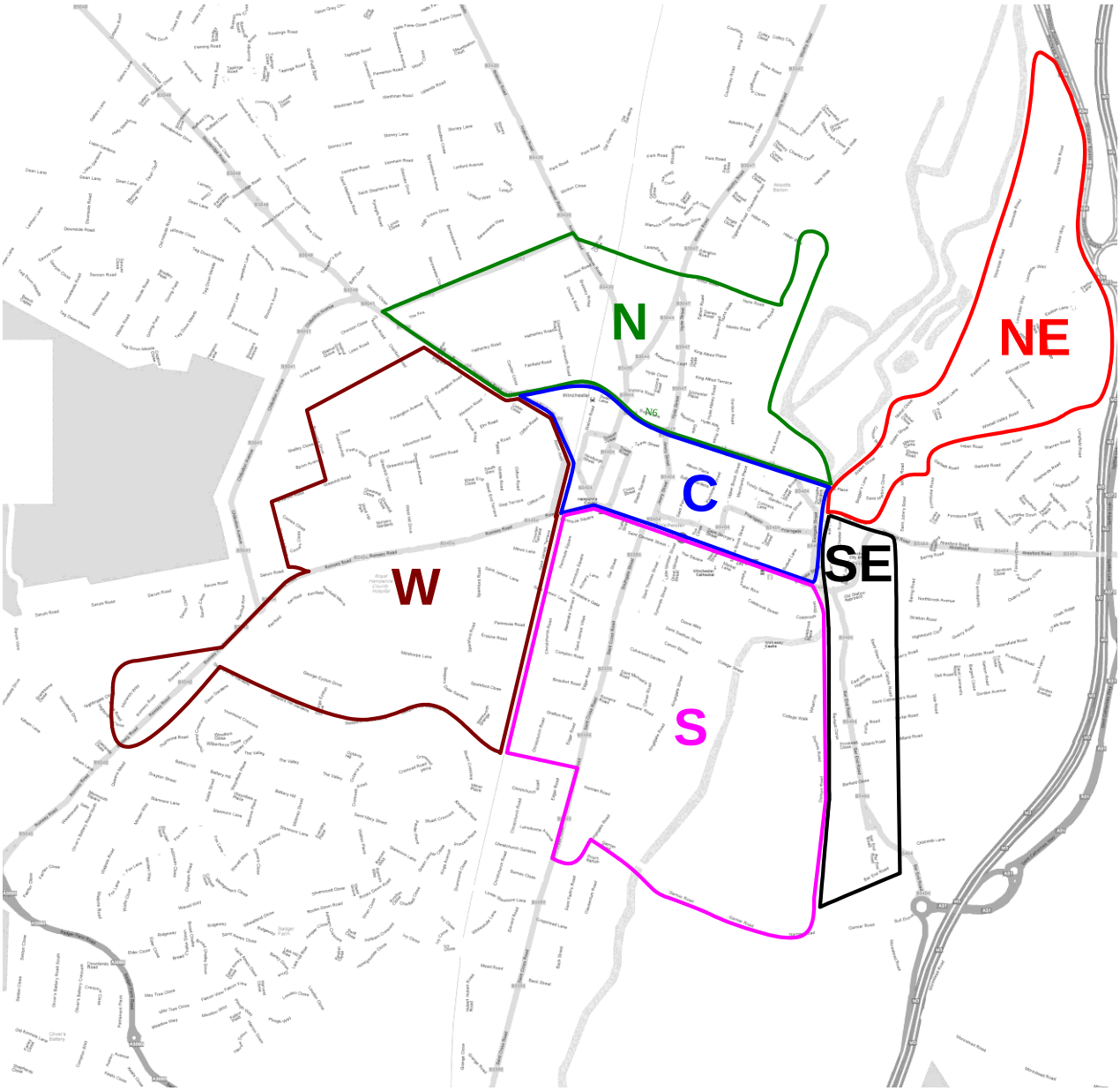



**Figure 1 - Main areas of survey**

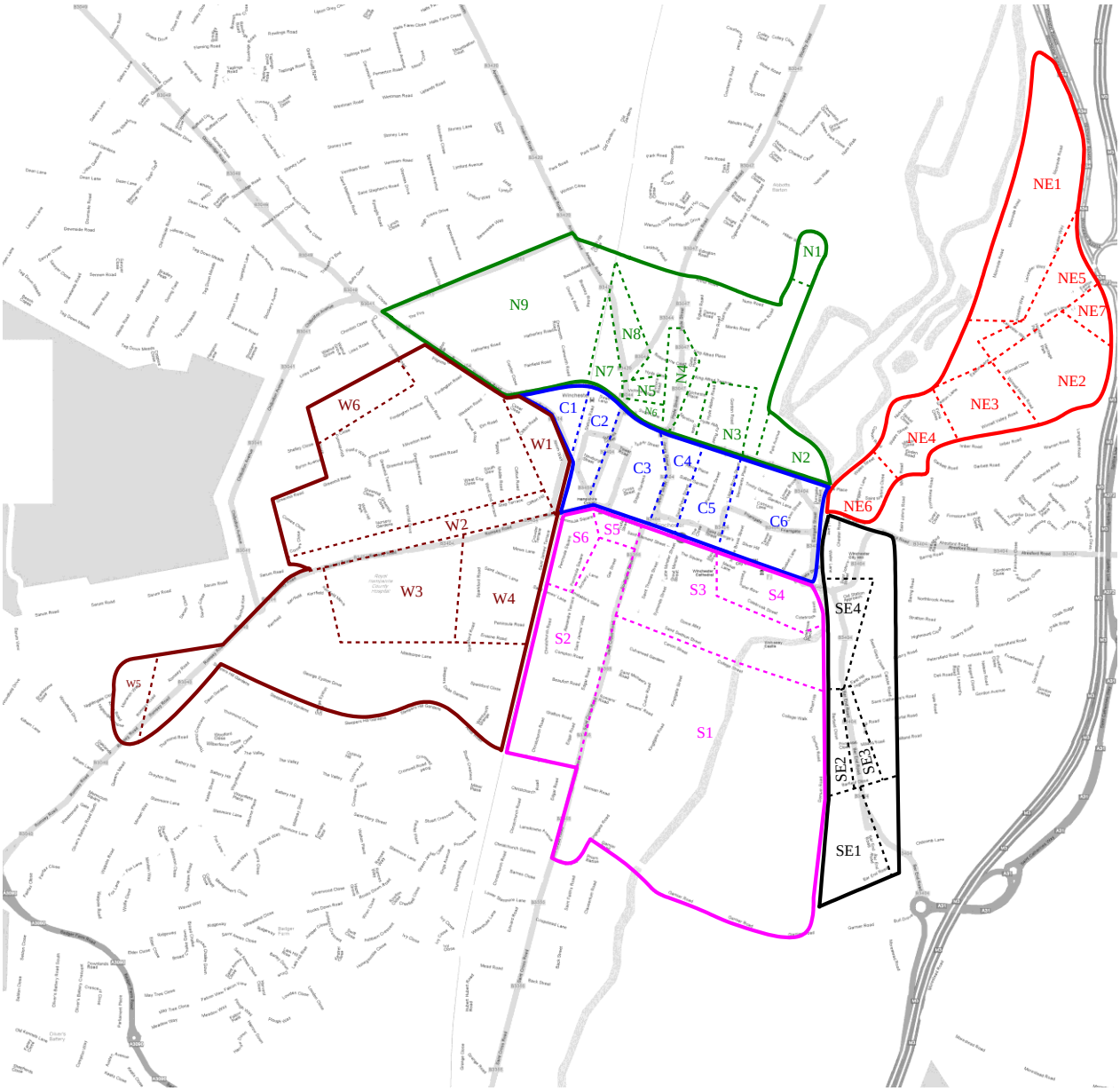



**Figure 2 - Areas sub-divided**

| Aggregation | Sub-area Index | | Number of marked car parking spaces | Number of spaces occupied (weekday mid morning or mid afternoon) by cars | Assessed capacity |
|---|---|---|---|---|---|
| | | | | | |
| **By Main Providers** | | | | | |
| RHCH | | | 985 | 925 | 995 |
| Station | | | 625 | 621 | 625 |
| University | | | 403 | 280 | 403 |
| HCC | | | 343 | 501 | 658 |
| Bar End Industrial | | | 381 | 400 | 575 |
| Winnall Industrial | | | 1603 | 1178 | 1848 |
| Police, Courts & Prison | | | 414 | 381 | 429 |
| Schools | | | 434 | 506 | 485 |
| Tesco's, Homebase, Halford/Curry | | | 973 | 356 | 973 |
| | | Totals: | **5176** | **4223** | **5996** |
| | | | | | |
| **By effect on central circulation system** | | | | | |
| likely central circuln | | | 1441 | 1311 | 1544 |
| very likely central circuln | | | 612 | 625 | 797 |
| | | Totals: | **2053** | **1936** | **2341** |
| | | | | | |
| **By subarea** | | | | | |
| **SE** | | | | | |
| Bar End Ind Est south of Barfield | SE_1 | | 208 | 374 | 548 |
| Bar End Ind Est north of Barfield | SE_2 | | 56 | 41 | 144 |
| Bar End Road | SE_3 | | 101 | 88 | 31 |
| Chesil Street | SE_4 | | 80 | 28 | 88 |
| | | Totals: | **445** | **531** | **811** |
| **NE** | | | | | |
| Moorside Rd estate | NE_1 | | 830 | 571 | 954 |
| North of Winnall Manor Rd | NE_2 | | 418 | 192 | 427 |
| South of WMR | NE_3 | | 276 | 261 | 303 |
| Nickel Close & Easton Lane estate | NE_4 | | 82 | 123 | 127 |
| West side of Easton Lane | NE_5 | | 416 | 158 | 456 |
| Durngate | NE_6 | | 0 | 5 | 24 |
| Tesco | NE_7 | | 626 | 258 | 626 |
| | | Totals: | **2648** | **1568** | **2917** |
| **N** | | | | | |
| Rugby club | N_1 | | 85 | 121 | 136 |
| Durngate | N_2 | | 138 | 128 | 138 |
| Hyde Abbey Rd, Gordon Rd | N_3 | | 95 | 74 | 95 |
| Hyde Street | N_4 | | 71 | 55 | 103 |
| Victoria Road | N_5 | | 144 | 129 | 144 |
| Swan Lane | N_6 | | 49 | 36 | 49 |
| Andover Rd - station side | N_7 | | 365 | 215 | 365 |
| Worthy Lane & Andover Road east | N_8 | | 154 | 112 | 154 |
| Bereweeke/Stockbridge Rd N side | N_9 | | 152 | 209 | 152 |
| | | Totals: | **1253** | **1079** | **1336** |
| **Central** | | | | | |
| West side of station | C_1 | | 526 | 567 | 579 |
| Sussex Street & west | C_2 | | 59 | 94 | 130 |
| West of Jewry Street | C_3 | | 348 | 316 | 365 |
| ST peter Street & west | C_4 | | 141 | 203 | 253 |
| Upper Brook St and west | C_5 | | 97 | 106 | 153 |
| Friarsgate and Eastgate | C_6 | | 129 | 102 | 137 |
| | | Totals: | **1300** | **1388** | **1617** |
| **S** | | | | | |
| South of Kingsgate | S_1 | | 132 | 144 | 195 |
| Southgate St and west | S_2 | | 122 | 97 | 135 |
| North of Kingsgate | S_3 | | 132 | 144 | 189 |
| Colebrook Street Market Lane | S_4 | | 84 | 84 | 116 |
| Law Courts & St Clement | S_5 | | 49 | 53 | 76 |
| Upper Peninsula | S_6 | | 43 | 27 | 43 |
| | | Totals: | **562** | **549** | **754** |
| **W** | | | | | |
| SW of St paul /Stockbridge Rd | W_1 | | 65 | 49 | 72 |
| Romsey Rd and North | W_2 | | 530 | 441 | 530 |
| Hospital | W_3 | | 966 | 916 | 976 |
| University | W_4 | | 334 | 208 | 334 |
| Monarch Way (HCC) | W_5 | | 106 | 116 | 198 |
| Westgate & Western schools | W_6 | | 98 | 96 | 98 |
| | | Totals: | **2099** | **1826** | **2208** |
| | | | | | |
| **Sub_area totals:** | | | **8307** | **6941** | **9643** |
| | | | | | |
| | | | | | |
| | | | | | |

**Figure 3 Aggregated Parking Observations**

| Area | Cars parked | Estimated capacity | Comment |
|---|---|---|---|
| **Central** | | | |
| Private non-residential (average normal weekday 2010-2012) | 1388 | 1617 | Survey as described. Estimates of capacity are very rough |
| Public off-street | 1244 | 1563 | The Brooks, Middle Brook St, Upper Brook St, Cossack Lane, Friarsgate, Jewry St, Tower St, Gladstone St |
| Public on-street | 187 | 238 | From Google Streetview. Estimates of capacity are very rough |
| | | | |
| **North-east** | | | |
| Private non-residential | 1568 | 2917 | |
| Public off-street | 0 | 0 | |
| Public on-street | 126 | 199 | |
| | | | |
| **South-east** | | | |
| Private non-residential | 531 | 811 | |
| Public off-street | 551 | 903 | Chesil Multi-storey, Chesil Surface, Barfield P&R |
| Public on-street | 161 | 286 | |
| | | | |
| **South** | | | |
| Private non-residential | 549 | 754 | |
| Public off-street | 71 | 77 | Colebrook St |
| Public on-street | 314 | 476 | |
| | | | |
| **West** | | | |
| Private non-residential | 1826 | 2208 | |
| Public off-street | 0 | 0 | |
| Public on-street | 372 | 648 | |
| | | | |
| **North** | | | |
| Private non-residential | 1079 | 1336 | |
| Public off-street | 445 | 680 | River Park, St Peters, Durngate, Cattle Market, Worthy Lane, Coach Park |
| Public on-street | 616 | 962 | |
| | | | |
| | | | |
| **All** | | | |
| Private non-residential | 6941 | 9643 | |
| Public off-street | 2311 | 3223 | |
| Public on-street | 1776 | 2809 | |
| Total | 11028 | 15675 | |
| | | | |

**Figure 4 Comparison non-residential parking and public car parking**