

Technical Note

Project	Keynsham Place Making Plan	Date	2 September 2015
Note	Assessment of Future Car Parking Demand	Ref	204269.CQ.00.68
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1. Introduction

1.1 Bath and North East Somerset Council (B&NES) is in the process of preparing its Place Making Plan (PMP) which will complement its recently adopted Core Strategy. The Core Strategy and PMP will together form the B&NES Local Plan. This Technical Note relates to the Keynsham Master-Plan part of the PMP.

1.2 Discrete pieces of evidence are required to inform the Keynsham section of the PMP. B&NES requires evidence relating to the following transport aspects affecting the town:

- A review of the need for further specific pedestrian/cycle improvements (outside of the town centre) including priority cycling routes;;
- Assessment of potential public realm improvements in Keynsham High Street associated with potential one-way operation between the Charlton Road and Temple Street/Bath Hill junctions;;
- Further investigation of a proposed Avon Mill Lane/A4 Bath Road link road, and potential for reducing through traffic in the town centre; and
- An assessment of future car parking demand in the Town Centre taking into account future growth of Keynsham, with identification of any extra parking provision required and of what type.

1.3 This Technical Note assesses future car parking demand in the Town Centre taking account of the various committed and Core Strategy developments expected to be completed in the Plan period. Existing supply and spare capacity in off-street public car parks and on-street areas in the vicinity of the Town Centre has been obtained from the following reports supplied by B&NES:

- Parking Beat Survey Report - March 2015: Nationwide Data Collection: This covered all the public off-street car parks in the Town Centre, the Tesco car park at St John's Court and some PNR/on-street parking locations. Surveys were carried out between 7:00am and 7:00pm on Thursday 12th and Saturday 14th March 2015, with occupancy and duration of stay data reported. This report is included as **Appendix A**; and
- Parking Survey Report - May 2015, Atkins: This covered the extent and duration of existing on-street parking occurring in various zones around the

Town Centre. Spare capacity in this on-street stock has been considered to form part of the available parking supply available for drivers accessing the Town Centre in assessing future demand, although it is accepted that some of this existing parking occurs in residential streets. This report is included as **Appendix B**.

2. Existing Parking Supply and Utility - Short Stay

2.1 **Table 2.1** below provides a summary of the surveyed parking accumulations in the short stay Ashton Way and Civic Centre car parks on a weekday. **Table 2.2** shows the same data for a Saturday.

Time	Ashton Way (Capacity 224)		Civic Centre (Capacity 127)		Total Vehicles Counted	Combined Capacity	Spare Capacity
	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation			
07:00	9	4%	10	8%	19	351	332
07:30	11	5%	37	29%	48	351	303
08:00	21	9%	73	57%	94	351	257
08:30	35	16%	79	62%	114	351	237
09:00	75	33%	95	75%	170	351	181
09:30	114	51%	100	79%	214	351	137
10:00	124	55%	112	88%	236	351	115
10:30	137	61%	99	78%	236	351	115
11:00	131	58%	102	80%	233	351	118
11:30	169	75%	109	86%	278	351	73
12:00	174	78%	99	78%	273	351	78
12:30	173	77%	107	84%	280	351	71
13:00	136	61%	104	82%	240	351	111
13:30	137	61%	113	89%	250	351	101
14:00	134	60%	111	87%	245	351	106
14:30	112	50%	81	64%	193	351	158
15:00	116	52%	99	78%	215	351	136
15:30	95	42%	61	48%	156	351	195
16:00	89	40%	79	62%	168	351	183
16:30	61	27%	43	34%	104	351	247
17:00	45	20%	61	48%	106	351	245
17:30	35	16%	33	26%	68	351	283
18:00	39	17%	33	26%	72	351	279
18:30	56	25%	39	31%	95	351	256

Time	Ashton Way (Capacity 224)		Civic Centre (Capacity 127)		Total Vehicles Counted	Combined Capacity	Spare Capacity
	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation			
07:00	8	4%	2	2%	10	351	341
07:30	6	3%	2	2%	8	351	343
08:00	6	3%	7	6%	13	351	338
08:30	15	7%	10	8%	25	351	326
09:00	41	18%	18	14%	59	351	292
09:30	70	31%	19	15%	89	351	262
10:00	79	35%	17	13%	96	351	255
10:30	115	51%	24	19%	139	351	212
11:00	122	54%	23	18%	145	351	206
11:30	97	43%	25	20%	122	351	229
12:00	85	38%	13	10%	98	351	253
12:30	126	56%	24	19%	150	351	201

13:00	107	48%	10	8%	117	351	234
13:30	113	50%	15	12%	128	351	223
14:00	87	39%	9	7%	96	351	255
14:30	96	43%	19	15%	115	351	236
15:00	89	40%	24	19%	113	351	238
15:30	85	38%	7	6%	92	351	259
16:00	55	25%	26	20%	81	351	270
16:30	58	26%	17	13%	75	351	276
17:00	36	16%	31	24%	67	351	284
17:30	29	13%	19	15%	48	351	303
18:00	14	6%	18	14%	32	351	319
18:30	16	7%	18	14%	34	351	317

2.8 The tables show that the capacity of the off-street short stay parking supply is most critical in the weekday between 11:30am and 1:00pm, when cumulative utility is around 79%.

2.9 In addition to the above off-street car parks there is some existing short-stay parking supply provided in the following streets within the Town Centre:

- High Street - limited waiting restrictions that operate Monday to Saturday between 8am and 6pm waiting limited to a maximum of 30 minutes, no return within 1 hour;
- Carpenters Lane - limited waiting restrictions that operate Monday to Saturday between 8am and 6pm waiting limited to a maximum of 1 hour, no return within 2 hours;
- Carpenters Lane - limited lengths of single yellow line restriction that prohibit waiting between 8am and 6pm, Monday to Saturday; and
- Temple Street - limited waiting restrictions that operate Monday to Saturday between 8am and 6pm waiting limited to a maximum of 30 minutes, no return within 1 hour.

2.10 The collective capacity of this short stay on-street parking is only 44 spaces. A detailed usage breakdown is not provided in this report, although results show that maximum utility of circa 77% occurred mid-morning on a weekday, with up to 84% of all spaces occupied around noon on a Saturday.

3. Existing Parking Supply and Utility: Long-Stay

3.1 **Table 3.1** below provides a summary of the surveyed parking accumulations in the long stay Ashton off-street car parks in the Town Centre on a weekday. **Table 3.2** shows the same data for a Saturday.

3.2 Not unexpectedly the usage of the off-street long stay car parks is greater on a weekday due to commuter demands, and as such the existing spare capacity much more limited than it is on Saturday. The data shows that surplus cumulative capacity is only 22% or under between 9:30am and 2:00pm. In contrast, surplus long stay capacity in off-street Town Centre car parks on Saturday is always 46% or higher.

Table 3.1 Summary of Off-Street Pay and Display and Free Long Stay - Typical Weekday

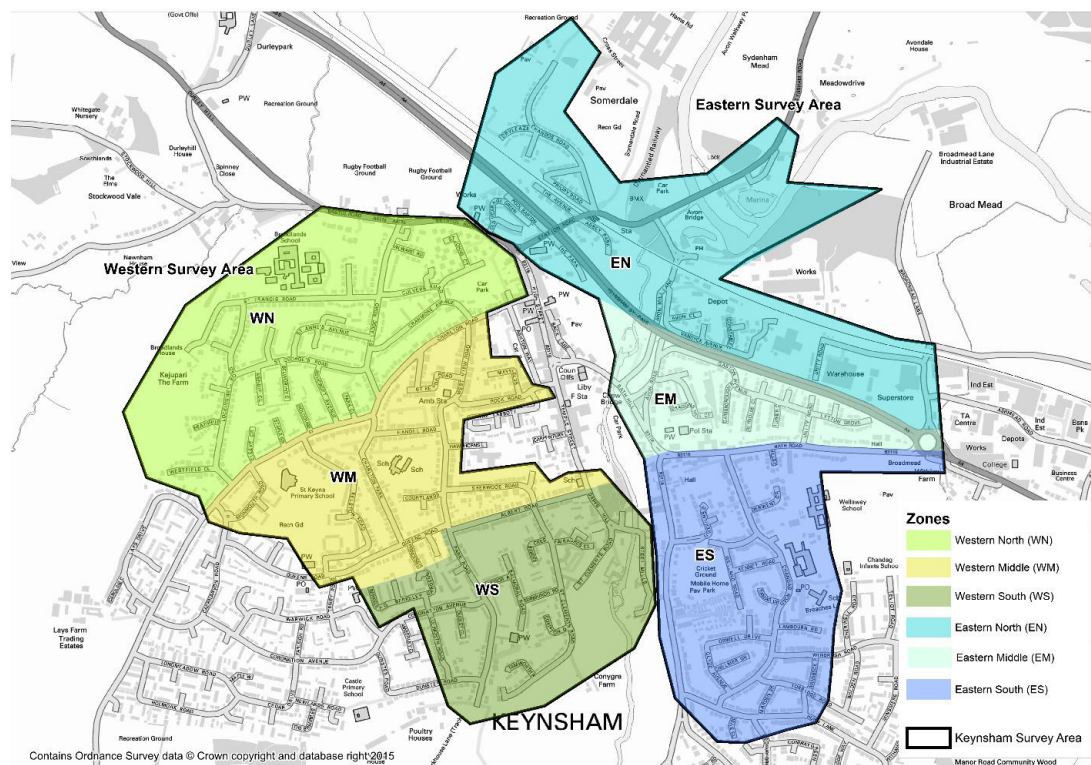
Time	Labbotts (Capacity 69)		Fox & Hounds (Capacity 27)		Bath Hill East (Capacity 154)		Station Road (Capacity 40)		Railway Station (Capacity 53)		Nursery (Capacity 43)		Total Vehicles Counted	Combined Capacity	Spare Capacity
	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation			
07:00	14	20%	2	7%	3	2%	5	13%	25	47%	8	19%	57	386	329
07:30	21	30%	1	4%	8	5%	5	13%	28	53%	8	19%	71	386	315
08:00	26	38%	5	19%	29	19%	40	100%	49	92%	42	98%	191	386	195
08:30	28	41%	10	37%	69	45%	41	103%	49	92%	44	102%	241	386	145
09:00	38	56%	22	81%	79	51%	41	103%	49	92%	44	102%	273	386	113
09:30	39	57%	22	81%	105	68%	41	103%	49	92%	44	102%	300	386	86
10:00	58	84%	23	85%	115	75%	37	93%	49	92%	44	102%	326	386	60
10:30	51	74%	19	70%	115	75%	38	95%	49	92%	44	102%	316	386	70
11:00	41	59%	18	67%	126	82%	41	103%	49	92%	44	102%	319	386	67
11:30	43	62%	19	70%	121	79%	40	100%	49	92%	43	100%	315	386	71
12:00	56	81%	19	70%	121	79%	39	98%	49	92%	42	98%	326	386	60
12:30	51	74%	20	74%	120	78%	39	98%	48	91%	42	98%	320	386	66
13:00	47	68%	19	70%	115	75%	38	95%	48	91%	43	100%	310	386	76
13:30	43	62%	23	85%	101	66%	34	85%	46	87%	44	102%	291	386	95
14:00	38	55%	21	78%	103	67%	34	85%	46	87%	43	100%	285	386	101
14:30	25	36%	21	78%	85	55%	35	88%	45	85%	42	98%	253	386	133
15:00	31	45%	20	74%	85	55%	35	88%	41	77%	41	95%	253	386	133
15:30	23	33%	18	67%	90	58%	37	93%	41	77%	41	95%	250	386	136
16:00	32	46%	17	63%	71	46%	37	93%	33	62%	30	70%	220	386	166
16:30	15	22%	22	81%	36	23%	22	55%	34	64%	30	70%	159	386	227
17:00	19	28%	14	52%	36	12%	17	43%	36	68%	28	65%	132	386	254
17:30	16	23%	6	22%	16	10%	17	43%	19	36%	6	14%	80	386	306
18:00	17	25%	6	22%	10	6%	18	45%	17	32%	6	14%	74	386	312
18:30	23	33%	10	37%	19	12%	18	45%	17	32%	6	14%	93	386	293

Time	Labbotts (Capacity 69)		Fox & Hounds (Capacity 27)		Bath Hill East (Capacity 154)		Station Road (Capacity 40)		Railway Station (Capacity 53)		Nursery (Capacity 43)		Total Vehicles Counted	Combined Capacity	Spare Capacity
	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation	Parked Vehicles	% Utilisation			
07:00	3	4%	0	0%	4	3%	1	3%	6	11%	5	12%	19	386	367
07:30	6	9%	0	0%	4	3%	1	3%	6	11%	5	12%	22	386	364
08:00	13	19%	0	0%	17	11%	0	0%	5	9%	18	42%	53	386	333
08:30	25	36%	0	0%	25	16%	6	15%	7	13%	34	79%	97	386	289
09:00	33	48%	0	0%	59	38%	6	15%	7	13%	38	88%	143	386	243
09:30	30	43%	0	0%	53	34%	12	30%	11	21%	37	86%	143	386	243
10:00	21	30%	2	7%	86	56%	13	33%	12	23%	37	86%	171	386	215
10:30	4	6%	3	11%	71	46%	12	30%	12	23%	35	81%	137	386	249
11:00	11	16%	4	15%	91	59%	30	75%	12	23%	39	91%	187	386	199
11:30	38	55%	2	7%	90	58%	30	75%	10	19%	39	91%	209	386	177
12:00	29	42%	2	7%	72	47%	20	50%	15	28%	36	84%	174	386	212
12:30	30	43%	5	19%	66	43%	35	88%	13	25%	36	84%	185	386	201
13:00	20	29%	2	7%	33	21%	25	63%	12	23%	35	81%	127	386	259
13:30	16	23%	3	11%	38	25%	24	60%	15	28%	36	84%	132	386	254
14:00	22	32%	3	11%	35	23%	24	60%	14	26%	37	86%	135	386	251
14:30	11	16%	1	4%	41	27%	8	20%	16	30%	29	67%	106	386	280
15:00	23	33%	6	22%	41	27%	28	70%	9	17%	33	77%	140	386	246
15:30	19	28%	5	19%	30	19%	18	45%	11	21%	30	70%	113	386	273
16:00	15	22%	3	11%	26	17%	19	48%	8	15%	26	60%	97	386	289
16:30	15	22%	0	0%	22	14%	9	23%	10	19%	21	49%	77	386	309
17:00	9	13%	0	0%	10	6%	10	25%	9	17%	20	47%	58	386	328
17:30	9	13%	0	0%	7	5%	6	15%	8	15%	8	19%	38	386	348
18:00	8	12%	0	0%	7	5%	6	15%	6	11%	8	19%	35	386	351
18:30	8	12%	0	0%	0	0%	6	15%	6	11%	8	19%	28	386	358

3.11 In addition to the off-Street car park data described above, the Atkins report provided the requisite occupancy data on the level of on-street parking in various zones around the Town Centre, most of these residential streets. The extent of each zone is shown in Figure 3.1 below and are denoted as follows:

- Eastern North (EN);
- Eastern Middle (EM);
- Eastern South (ES);
- Western North (WN);
- Western Middle (WM); and
- Western South (WS).

Figure 3.1 ‘On-street’ Parking Survey Zones



3.12 Unlike the off-street car park surveys undertaken by NDC, the on-street parking beat surveys undertaken in these zones were only undertaken at the following times:

- AM1 07:00 - 09:00;
- AM2 11:00 - 12:00;
- PM1 14:00 - 15:00; and
- PM2 17:00 - 18:00.

- 3.13 As such it is not possible to build up parking accumulation profiles for these zones as data coverage was not continuous. However, the data presented does provide ‘snapshots’ of overall occupancy in each zone at these times. Atkins estimated the available on-street car parking capacity by measuring the length of available kerb space for on-street parking and allowing 5 metres for each space, discounting lengths where on-street parking is prohibited (by parking restrictions), or not practicable (due to road layout / drive-ways etc.).
- 3.14 The on-street car parking capacity for each of the zones is summarised in Tables 3.3 and 3.4 below for the eastern and western zones respectively.
- It is noted from the areas and streets included in the Atkins surveys that not all included roads, or indeed zones, necessarily provide convenient on-street parking for Town Centre users. An example is Zone ES, which includes most of the roads on the Chandag estate on the east side of Keynsham, which is some distance from the High Street. As such, demand assessment and potential shortfall has focused on existing off-street and on-street parking available within the Town Centre, and covered by the NDC surveys. Any potential ‘excess’ demand periods leading to a potential spill-over of parking into these zones is then identified.
- 3.15 The results presented in the Atkins report only gives the overall spare parking utility in the different zones in the four periods, so the degree to which existing on-street parking impacts on specific roads is not indicated. .

Table 3.3 Summary of Estimated On-Street Car Parking Capacity – Eastern Zones								
Zone Ref	Street	Est. Capacity	Zone Ref	Street	Est. Capacity	Zone Ref	Street	Est. Capacity
EN	Chandos Road	108	EM	Avon Road	29	ES	Breaches Lane	7
	Constable Close	17		Chelsea Close	12		Chandag Road	111
	Dryleaze	33		Dragons Hill Close	8		Chelmer Grove	14
	Keynsham Road	16		Dragons Hill Gardens	30		Clyde Avenue	24
	Old Vicarage Green	30		Fox & Hounds Lane	13		Derwent Grove	8
	Priory Road	36		Gainsborough Road	39		Hills Close	7
	Summerleaze	12		Gaston Avenue	33		Hurn Lane	94
	Tennyson Close	13		Lytton Grove	24		Lambourn Road	25
	Unity Road	23		Nash Close	6		Limekilns Close	6
	Vandyke Avenue	19		Reynolds Close	31		Marden Road	7
	Zone EN sub-total	307		Rubens Close	10		Orwell Drive	18
				Turner Close	5		Severn Way	9
				Unity Road	23		Tamar Drive	21
				Zone EM sub-total	263		Torridge Road	9
							Trent Green	8
							Wansbeck Road	12
							Welland Road	22
							Wellsway Road	12
							Windrush Road	21
							Zone ES sub-total	435
							EN/EM/ES Total	1,005

Notes:

1. Unity Road appears in both zone EN and zone EM so the estimated capacity of 46 has been evenly split between the two zones
2. Dene Close is shown on the capacity tab of the Keynsham ANPR Database spreadsheet with a capacity of 9. However, it does not appear on the Summary of Data tab so we are unable to determine which zone it is in. The Capacity tab indicates an on-street car parking capacity of 2,915 but this assessment has been based on an on-street car parking capacity of 2,906 (2,915 – 9)

Table 3.4 Summary of Estimated On-Street Car Parking Capacity – Western Zones
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Zone Ref	Street	Est. Capacity	Zone Ref	Street	Est. Capacity	Zone Ref	Street	Est. Capacity
WN	Ashcroft Avenue	51	WM	Caernarvon Road	6	WS	Albert Road	39
	Bristol Road	15		Cameroons Close	4		Balmoral Road	45
	Broadlands Avenue	19		Charlton Park	54		Berkeley Gardens	49
	Cleeve Grove	16		Charlton Road	82		Compton Green	8
	Cranmore Avenue	46		Courtlands	13		Corfe Crescent	26
	Culvers Road	29		Handel Road	58		Coronation Avenue	24
	Heathfield Close	14		Kelston Road	49		Dapps Hill	49
	Holcombe Grove	22		Mayfields	23		Dudley Close	18
	Lockingwell Road	150		Monmouth Road	56		Dunster Road	11
	Mendip Close	21		Park Road	32		Edinburgh Road	19
	Milward Road	28		Princess Close	6		Lulworth Road	32
	Orchard Close	8		Queens Road	34		Park Road	31
	Selworthy Close	19		Rock Road	29		St Clements Road	97
	St Anne's Avenue	77		Sherwood Close	9		Tamworth Road	14
	St Francis Street	71		Sherwood Road	81		Windsor Avenue	12
	St George's Road	102		St Kenya Road	33		Zone WN sub-total	474
	St John's Court	40		West View Road	42			
	St Margaret's Close	9		Wesbourne Avenue	16			
	Staple Grove	12		Zone WN sub-total	627			
	Westfield Close	22						
	Winscombe Close	27						
	Wheathill Close	2						
	Zone WN sub-total	800						
							WN/WM/WS Total	1,901
							EN/EM/ES Total	1,005
							All Zones Total	2,906

Notes:

1. Park Road appears in both zone WM and zone WS so the estimated capacity of 63 has been split 32 WM and 31 WS
2. Dene Close is shown on the capacity tab of the Keynsham ANPR Database spreadsheet with a capacity of 9. However, it does not appear on the Summary of Data tab so we are unable to determine which zone it is in. The Capacity tab indicates an on-street car parking capacity of 2,915 but this assessment has been based on an on-street car parking capacity of 2,906 (2,915 – 9)

3.16 Using the data on space availability indicated in the Atkin’s report for each zone, the minimum percentage recorded as available in the overall eastern and western areas on a weekday and Saturday were as follows:

Eastern Zones (EN, EM and ES)

- Weekday: Minimum on-street parking capacity available - PM2 65.26%, 656 spaces of 1005; and
- Saturday: Minimum on-street parking capacity available - PM1 62.63%, 629 spaces of 1005.

Western Zones (WN, WM and WS)

- Weekday: Minimum on-street parking capacity available - PM1 55.47%, 1055 spaces of 1901; and
- Saturday: Minimum on-street parking capacity available - PM1 61.01%, 1160 spaces of 1901.

3.17 This demonstrates the care needed in taking all this parking stock into account as ‘Town Centre available’, as the presumed weekday spare capacity available is 1,711 spaces, and 1,789 on Saturday.

4. Tesco Car Park: St Johns Court

4.1 This car park is considered separately as it primarily a car park for Tesco customers but offers free parking for up to 2 hours. A summary of the observed parking accumulation at this car park for a typical weekday and Saturday is given in Tables 4.1 and 4.2 below:.

Time	Parked Vehicles (Capacity 191)	% Utilisation
07:00	15	8%
07:30	8	4%
08:00	23	12%
08:30	42	22%
09:00	96	50%
09:30	109	57%
10:00	137	72%
10:30	56	29%
11:00	158	83%
11:30	95	50%
12:00	135	71%
12:30	78	41%
13:00	132	69%
13:30	66	35%
14:00	149	78%
14:30	38	20%
15:00	99	52%
15:30	59	31%
16:00	63	33%
16:30	130	68%

17:00	68	36%
17:30	78	41%
18:00	69	36%
18:30	98	47%

Table 4.2: Parking Accumulation - Tesco Car Park: Typical Saturday

Time	Parked Vehicles (Capacity 191)	% Utilisation
07:00	14	7%
07:30	17	9%
08:00	19	10%
08:30	21	11%
09:00	37	19%
09:30	58	30%
10:00	123	64%
10:30	58	30%
11:00	97	51%
11:30	84	44%
12:00	96	50%
12:30	112	59%
13:00	55	29%
13:30	78	41%
14:00	62	32%
14:30	46	24%
15:00	63	33%
15:30	65	34%
16:00	34	18%
16:30	37	19%
17:00	59	31%
17:30	38	20%
18:00	45	24%
18:30	0	0%

4.2 As expected the busiest time at this car park occurs around mid-morning on a weekday.

5. Future Town Centre Parking Demand: Residential Developments

5.1 This section considers the demand that can be expected to be generated for parking within or adjacent to the Town Centre by the various residential developments expected to be completed within the Plan period. The following residential sites have been considered using Transport Assessment data available, as all are edge of town, and as such likely to generate trips by car into the Town Centre for shopping, leisure and possibly employment purposes:

- Site K2A south-west Keynsham 266 dwellings;
- Site K2B south-west Keynsham (Taylor Wimpey) 285 dwellings under construction;
- Site KE3A east Keynsham 250 dwellings. Safeguarded land under Policy KE3B allows for a further 250 units; and
- Site KE4 south-west Keynsham 200 dwellings.

5.2 Table 5.1 below provides a summary of the TRICS trip rates for ‘Houses Privately Owned’ that form the basis of the assessment for a typical weekday. This TRICS data is the same as that used in the assessment of residential trip generation associated with the 700 dwellings proposed and consented for the Somerdale site, although agreed trip rates subsequently used for the K2A, K2B, KE3A/3B and KE4 assessments are little different from these. The exact residential trip rates used to individually assess each site have not been used, as this effect is negligible compared to the assumption necessary concerning the proportion of trips accessing the Town Centre in different hours. Previous assessment work using the S-Paramics model of Keynsham to assess these developments considered the 7:00-10:00am and 3:00-7:00pm weekday periods. Trip distributions were agreed as part of this work and, given these contained the commuter peak periods, resulted in most trips routing out of Keynsham in the AM peak period and returning in the PM peak period. The distribution proportions used for trips terminating in the Town Centre are indicated in the below table for the relevant modelled periods, but no such information was available for the weekday period from 10:00am to 3:00pm or indeed a Saturday.

5.3 Not unexpectedly, the proportion of weekday car trips generated in the peak periods which terminate in the Town Centre is low, and certainly lower than might be expected with car trips associated with these sites in the 10:00am to 3:00pm period. In order to estimate the collective car parking demand generated by these new residential sites over the day, it was necessary to make an assumption about the proportion of trips terminating in the Town Centre. The estimated or assumed proportions of outbound car trips between 10:00am and 3:00pm with a Town Centre destinations are indicated in red in the table. As noted earlier, this has a much larger bearing on the overall results than minor differences in the respective trip rates for each development.

Table 5.1 Residential Developments: Weekday Generation and Town Centre Trips

Time Period	Houses Privately Owned			Trip Rates		Town Centre	
	In	Out	Total	In	Out	Proportion IN	Arrivals
07:00-08:00	90	288	378	0.07	0.23	0.01	3
08:00-09:00	195	503	698	0.16	0.40	0.05	25
09:00-10:00	203	220	423	0.16	0.18	0.09	20
10:00-11:00	179	229	408	0.14	0.18	0.25	57
11:00-12:00	216	204	420	0.17	0.16	0.50	102
12:00-13:00	219	210	429	0.18	0.17	0.50	105
13:00-14:00	205	214	419	0.16	0.17	0.50	107
14:00-15:00	228	239	467	0.18	0.19	0.50	119
15:00-16:00	350	261	612	0.28	0.21	0.25	65
16:00-17:00	360	240	600	0.29	0.19	0.12	29
17:00-18:00	454	266	721	0.36	0.21	0.07	19
18:00-19:00	352	278	629	0.28	0.22	0.01	3
	3051	3153	6204				654

5.4 Using the stated assumption about the hourly proportion of Town Centre trips the total number of arrivals on a weekday between 7:00am and 7:00pm is predicted to be 654. The corresponding figures for a typical Saturday are shown in Table 5.2 below.

Table 5.2 Residential Developments: Saturday Generation and Town Centre Trips

Time Period	Houses Privately Owned			Trip Rates		Town Centre	
	In	Out	Total	In	Out	Proportion IN	Arrivals
07:00-08:00	15	48	63	0.012	0.038	0.01	0
08:00-09:00	60	121	181	0.048	0.097	0.05	6
09:00-10:00	149	259	408	0.119	0.207	0.09	23
10:00-11:00	173	261	434	0.138	0.209	0.25	65
11:00-12:00	268	327	594	0.214	0.261	0.50	163
12:00-13:00	318	339	657	0.254	0.271	0.50	170
13:00-14:00	324	291	615	0.259	0.233	0.50	146
14:00-15:00	345	315	661	0.276	0.252	0.50	158
15:00-16:00	335	300	636	0.268	0.24	0.25	75
16:00-17:00	335	188	523	0.268	0.15	0.12	23
17:00-18:00	339	303	642	0.271	0.242	0.07	21
18:00-19:00	322	276	598	0.257	0.221	0.01	3
	2982	3029	6011				853

5.5 **Appendix C** contains the EXCEL spreadsheets calculations used to:

- Estimate the parking duration associated with arrivals in each hour;
- The resulting departure profile and overall parking accumulation profile; and
- The predicted parking accumulation profiles associated with users parking for 2 hours or less, or greater than 2 hours.

5.6 The resultant total parking accumulation and split into short stay (up to 2 hours) and longer stay is shown in Table 5.3 for a weekday. The weekday accumulation is shown to rise quickly between 11:00am to noon, with 'peak' demand reached between 2:00-3:00pm.

Table 5.3 Residential Demand: Parking Accumulation -Weekday

Time Period	In	Out	Accumulation: Total	Accumulation: up to 2 Hours Parking Duration	Accumulation: > 2 Hours Parking Duration
07:00-08:00	3	1	2	2	1
08:00-09:00	25	7	21	15	6
09:00-10:00	20	20	21	12	9
10:00-11:00	57	23	55	29	27
11:00-12:00	102	43	115	51	64
12:00-13:00	105	79	141	53	89
13:00-14:00	107	100	148	53	95
14:00-15:00	119	107	161	60	101
15:00-16:00	65	109	117	33	85
16:00-17:00	29	88	58	17	41
17:00-18:00	19	68	8	6	3
18:00-19:00	3	11	0	0	0
	654	654			

5.7 The accumulation demand figures for a Saturday are shown in Table 5.4 below. The 'peak' again occurs over the lunchtime period, building up mid-morning but tailing off quickly after 4:00pm.

Table 5.4 Residential Demand: Parking Accumulation - Saturday

Time Period	In	Out	Accumulation	Accumulation up to 2 Hours Parking Duration	Accumulation > 2 Hours Parking Duration
07:00-08:00	0	0	0	0	0
08:00-09:00	6	1	5	4	1
09:00-10:00	23	8	20	14	6
10:00-11:00	65	22	63	33	31
11:00-12:00	163	54	173	82	91
12:00-13:00	170	118	224	85	140
13:00-14:00	146	155	215	73	142
14:00-15:00	158	156	217	79	138
15:00-16:00	75	147	145	38	108
16:00-17:00	23	106	62	14	48
17:00-18:00	21	74	9	6	2
18:00-19:00	3	11	0	0	0
	853	853			

5.8 The following residential development sites have been excluded from the assessment for the reasons given:

- Somerdale - The Somerdale development which is currently under construction has planning permission for up to 700 dwellings. This site is adjacent to the Town Centre and, in view of this, it is considered that few people would drive such a relatively short distance and pay for parking in off-street car parks. It is noted that many roads surveyed in the surrounding zones are at least as far from the High Street as Somerdale, and in many cases further away. The exception will probably be trips made for bulk food shopping, so some additional demand for use of the Tesco car park at St Johns Court could arise; and
- Riverside - It is anticipated that the existing Riverside offices which are currently empty will be redeveloped as flats, but this is currently not known. However, should this scenario arise it is unlikely that this would create much demand for Town Centre parking as the site itself is within this area. Although the existing Riverside offices have no on-site parking provision, it is possible that re-development as flats would include ancillary parking.

6. Future Town Centre Parking Demand: Commercial/Retail/Leisure Developments

6.1 This section considers the demand or parking effects which could result from commercial, industrial or retail/leisure developments in the Plan period. These are as follows:

- Riverside - as noted above it is expected that the vacant Riverside offices will be redeveloped as flats but this is not certain. If re-occupied by a new user

the effect on long-stay parking demand could be considerable, as these offices have no bespoke on-site parking of their own;

- New Town Hall/Civic Centre - The closure of the Riverside offices has resulted in most of the B&NES staff based there being transferred to the new Civic Centre offices. B&NES have advised that the number of employees at the Riverside was approximately 550 whilst the total capacity of the Civic Centre is 650, but that is unlikely this number would ever be in the office in total at any one time. Establishing a firm number on how many employees would be in the office on a typical weekday once all of the staff moves have taken place is difficult, given that staff now work flexibly and from home more often. It was considered that 'take-up' in place when the NDC and Atkins surveys were done was probably typical. As such, no uplift in future parking demand linked to the Civic Centre has been assumed;
- Fire Station: Proposed re-development as offices. B&NES advised that *"With regards to the Fire Station site on Temple Street there are 63 parking spaces on the lower deck of the Civic Centre car park which they control"*. Estimated office floor-space GFA is 2,500sqm. This would have been excluded from the NDC surveys, and more than sufficient to accommodate the parking needs of this office re-development; and
- Relocation of the Leisure Centre -: B&NES have advised that there are plans to potentially re-locate the leisure centre to Ashton Way, which could impact on supply depending as to what extent the number of spaces here is affected. However, it is understood discussions are still currently taking place regarding the future location of the leisure centre, so this is not confirmed or details known. However, Table 2.1 shows that little spare capacity exists in the short stay Ashton Way and Civic Centre car parks around mid-morning on a weekday, so whatever form the redevelopment makes it will need to ensure that the existing quantum of off-street short-stay parking supply in Ashton Way is not reduced, and preferably enhanced.

6.2 The potential retention of Riverside as offices, with space taken up by a new user, will have the biggest impact on future car parking demand. It would also have a greater traffic impact on the Town Centre which was considered, but dismissed in favour of probable residential redevelopment, in assessing the effect of the Somerdale development and the wider Core Strategy allocations. Notwithstanding this, WSP TN3 'Growth Factors' submitted as part of the Somerdale transport assessment work and included as **Appendix D** considered the net traffic increase which could arise with the new Civic offices and Riverside retained as offices. When extrapolated to give all net hourly generation figures between 7:00am and 7:00pm the increase in parking accumulation demand over the day is given in Table 6.1 below. The figures show that long stay parking demand linked to retention of Riverside as offices would increase supply need by around 300 spaces between 9:00am and 4:00pm on a typical weekday. There would obviously be no effect on Saturday. As the current offices have no bespoke on-site parking provided, this employee parking demand would have to be met by existing off-street and on-street supply.

Table 6.1 Increased Long Stay Parking Demand: Riverside offices retained - Weekday

Time Period	In	Out	Accumulation
07:00-08:00	75	0	75
08:00-09:00	184	21	238
09:00-10:00	95	39	294
10:00-11:00	39	31	302
11:00-12:00	34	33	303
12:00-13:00	37	55	285
13:00-14:00	47	42	290
14:00-15:00	33	41	282
15:00-16:00	58	41	299
16:00-17:00	40	90	249
17:00-18:00	20	133	136
18:00-19:00	5	44	97
	667	570	

7. Comparison of Parking Demand and Supply

7.1 Table 7.1 provides a comparison of the expected future increase in weekday short-stay parking demand with current spare supply. This shows that expected future demand for up to 2 hour stay parking in the Town Centre could just be met with the current spare capacity available within the Ashton Way and Civic Centre off-street car parks. Note that the Tesco car park at St Johns Court has been excluded from the short stay spare capacity figures. The table also shows the spare on-street parking capacity available within the zones surveyed around the Town Centre at specific times. This of course would be available to short-stay users but, as noted earlier, not all these streets would necessarily be viewed as convenient for these types of trip. The figures highlight the need to retain the current quantum of short stay parking supply at Ashton Way, and avoid a reduction with any planned relocation of the leisure centre.

Table 7.1 Additional Parking Demand/Supply Comparison: Short Stay - Weekday

Time Period	Parking Accumulation (up to 2 hours)	Spare Capacity		
		Combined Average Hourly Off-Street Short-Stay	On-Street Combined Eastern Zones	On-Street Combined Western Zones
07:00-08:00	2	317	698	1194
08:00-09:00	15	247	698	1194
09:00-10:00	12	159	-	-
10:00-11:00	29	115	-	-
11:00-12:00	51	95	707	1185
12:00-13:00	53	74	-	-
13:00-14:00	53	106	-	-
14:00-15:00	60	264	659	1054
15:00-16:00	33	165	-	-
16:00-17:00	17	215	-	-
17:00-18:00	6	264	656	1200
18:00-19:00	0	267	-	-

7.2 Table 7.2 provides the same comparison for the increase in long stay parking demand expected in the weekday. In this case the demand will depend on whether Riverside is re-occupied as offices, with the associated commuter parking. As such, forecast accumulation profile with and without Riverside are included in the table. The results show that, without offices at Riverside, the residual demand could just about be met within existing off-street car parks. The exception is the late morning, when some demand could only be met by on-street parking spill-over into the surrounding residential streets. With the additional demand generated by retained and re-developed offices at Riverside the shortfall in existing off-street long stay supply will be acute. Whilst, this could be met by surrounding on-street parking availability, it would clearly lead to greater pressure for non-residential parking in residential streets around the Town Centre.

Table 7.2 Additional Parking Demand/Supply Comparison: Long Stay - Weekday

Time Period	Parking Accumulation (> 2 hours) No Riverside Offices	Parking Accumulation (> 2 hours) With Riverside Offices	Spare Capacity		
			Combined Average Hourly Off-Street Long-Stay	On-Street Combined Eastern Zones	On-Street Combined Western Zones
07:00-08:00	1	76	322	698	1194
08:00-09:00	6	244	170	698	1194
09:00-10:00	9	303	99	-	-
10:00-11:00	27	329	65	-	-
11:00-12:00	64	367	69	707	1185
12:00-13:00	89	374	63	-	-
13:00-14:00	95	385	85	-	-
14:00-15:00	101	383	117	659	1054
15:00-16:00	85	384	134	-	-
16:00-17:00	41	290	196	-	-
17:00-18:00	3	139	280	656	1200
18:00-19:00	0	97	302	-	-

7.3 Table 7.3 below shows the corresponding short stay parking comparison for a Saturday. As can be seen there is ample spare capacity in the off-street short stay car parks alone to meet the expected additional demand expected on a Saturday. As such, no further on-street parking encroachment onto surrounding residential street is expected.

7.4 Table 7.4 compares the additional long stay parking accumulation demand predicted on Saturday with available spare supply. The table shows that, like the short stay parking demand, expected long stay parking increases could be met by the spare capacity within the current off-street car parks. The effect of retained office based employment at Riverside is clearly not an issue at the weekend, although the figures do show that some employee generated parking could still be accommodated with the existing off-street parking stock should some use of these offices occur on Saturday.

Table 7.3 Additional Parking Demand/Supply Comparison: Short Stay - Saturday

Time Period	Spare Capacity
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	Parking Accumulation (up to 2 hours)	Combined Average Hourly Off-Street Short-Stay	On-Street Combined Eastern Zones	On-Street Combined Western Zones
07:00-08:00	0	342	639	1183
08:00-09:00	4	332	639	1183
09:00-10:00	14	277	-	-
10:00-11:00	33	233	-	-
11:00-12:00	82	217	645	1160
12:00-13:00	85	227	-	-
13:00-14:00	73	228	-	-
14:00-15:00	79	245	629	1263
15:00-16:00	38	248	-	-
16:00-17:00	14	273	-	-
17:00-18:00	6	293	632	1251
18:00-19:00	0	318	-	-

Table 7.3 Additional Parking Demand/Supply Comparison: Long Stay - Saturday

Time Period	Parking Accumulation (>2 hours)	Spare Capacity	On-Street Combined Eastern Zones	On-Street Combined Western Zones
		Combined Average Hourly Off-Street Long-Stay		
07:00-08:00	0	365	639	1183
08:00-09:00	1	311	639	1183
09:00-10:00	6	243	-	-
10:00-11:00	31	232	-	-
11:00-12:00	91	188	645	1160
12:00-13:00	140	206	-	-
13:00-14:00	142	256	-	-
14:00-15:00	138	265	629	1263
15:00-16:00	108	259	-	-
16:00-17:00	48	349	-	-
17:00-18:00	2	338	632	1251
18:00-19:00	0	354	-	-

8. Conclusions

8.1 This Technical Note has considered the additional demand for car parking in Keynsham Town Centre expected as various developments come forward over the Plan period. Demand assessment has considered the residential developments at K2A, K2B, KE3A/KE3B and KE4, all of which are edge of town and likely to generate car based trips to the Town Centre for shopping, leisure and potentially employment purposes. The assessment has also considered the additional effect of the Riverside offices being retained, and reoccupied. Whilst there is an expectation that these currently vacant offices will be re-developed as flats, this is not a given.

8.2 Surveys of the off-street car parks undertaken by NDC (Appendix A), and on-street parking in various zones surrounding the Town Centre (Appendix B) by Atkins, have been used to assess available spare supply for short stay and long stay parking. It is noted that some of the streets included in the surrounding ‘zone’ surveys are a

little remote from the Town Centre to be considered convenient by short stay users, but are clearly a walkable distance away to be considered a viable choice for long stay users.

- 8.3 The assessment shows that the expected future demand for up to 2 hour stay parking in the Town Centre during a weekday could just be met with the current spare capacity available within the Ashton Way and Civic Centre off-street car parks. With respect to additional long stay demand during a weekday, the results again show that this could just about be met within existing off-street car parks. The exception is the late morning, when some demand could only be met by on-street parking spill-over into the surrounding residential streets. However, with the additional demand generated by retained and re-developed offices at Riverside the shortfall in existing off-street long stay supply will be acute. Whilst, this could again be met by surrounding on-street parking availability, it would clearly lead to greater pressure for non-residential parking in residential streets around the Town Centre. The desirability of this will need to be considered by B&NES in view of the potential impact on residents, and thus need for further off-street long stay parking supply. However, this is clearly linked to what scenario with the futures use of Riverside evolves over time; an extant re-use as offices the worst case.
- 8.4 The assessments undertaken for a typical Saturday show that current spare capacity for short and long stay parking in the off-street Town Centre car parks will be sufficient to meet expected additional demands at the weekend.