



Title: Hawkwell Village, Bicester  
Strategic Road Network Junction Impact Assessment  
Technical Note 12 v3  
Date: November 2022

## 1.0 Introduction

- 1.1.1 Jubb has been commissioned by Hallam Land Management Ltd (HLM) to provide highways and transportation advice in relation to a proposal for a residential-led mixed use development on land north-east of the railway line in North West Bicester - 'Hawkwell Village'.
- 1.1.2 A planning application (Ref: 21/04275/OUT) was submitted in December 2021 for a residential led mixed use development for up to 3,100 dwellings.
- 1.1.3 A previous application (14/01384/OUT), comprising of a residential led mixed use development of up to 2,600 dwellings, received the benefit of a resolution to grant planning permission; however, no section 106 was agreed.
- 1.1.4 The main thrust of the submitted Transport Assessment to support the new application is that whilst permission is being sought for 500 dwellings more than in 2014, total trip generation would be similar, due to a general lowering of trip generation per dwelling between 2014 and 2019, the effect of the Covid-19 pandemic on working practices, the internalisation of trips due to the provision of other land uses, the marketing of a robust Travel Plan and the provision of mobility hubs, a public transport contribution and off-site active travel route improvements.
- 1.1.5 Oxfordshire County Council (OCC) requested the use of the updated Bicester Transport Model (BTM), managed by Tetra Tech on behalf of OCC, to inform the traffic assessment of the Hawkwell Village (HV) development. Correspondence with National Highways (NH) has agreed the BTM as a suitable tool to assess the impact of the traffic generation of the development on the Strategic Road Network (SRN).
- 1.1.6 This Technical Note (TN) provides the turning movement outputs from the BTM and the assessment of the percentage impact at the junctions within the SRN along with commentary as to the need to undertake individual junction capacity modelling.

## 2.0 Bicester Transport Model Turning Movement Data

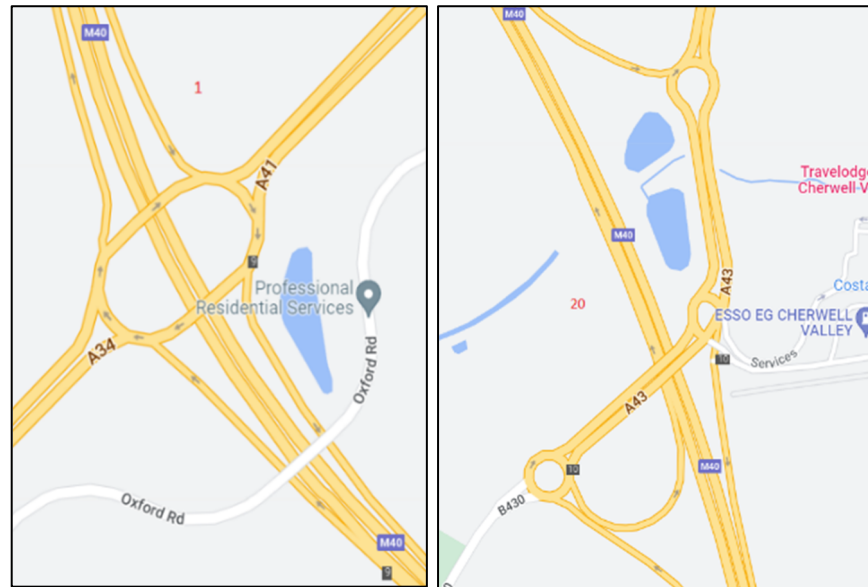
- 2.1.1 The BTM model runs included the following scenarios:

- 2031 Base;

- 2031 Base + Committed;
- 2031 Base + Committed + Development 1a (BTM traffic generation); and
- 2031 Base + Committed + Development 1b (Agreed 'Decide & Provide' (D&P) trip generation).

2.1.2 **Figure 2.1** visually represents the junctions for which turning movements from the BTM were extracted.

2.1.3 The extracted turning movements are attached at **Appendix A**.



*Figure 2.1 – Junction Locations and Reference Numbers*

2.1.4 Correspondence from NH on the 'D&P' trip rate calculation agreed base trip rates and the majority of reductions for the 'D&P' scenario with the exception of homeworking and sustainable travel behaviour. Therefore, this assessment, whilst reporting the 'D&P' percentage impact BTM output, concentrates on the BTM trip generation percentage impact.

**3.0 Junction Percentage Impact Assessment**

3.1.1 **Table 3.1** sets out the calculated percentage impact assessment of the Proposed Development on individual junctions and each arm of the junction along with commentary as to the need to undertake individual junction capacity testing. The assessment compares the percentage impact of Developments 1a and 1b against the Base + Committed scenario.

Ref	Junction	Arm	2031 + Dev 1a		Year 2031 + Dev 1b		Comments
			AM	PM	AM	PM	
1	M40 Junction 9	M40 (N)	-1%	-1%	-1%	-1%	Reduction in total movements through the junction and on each arm in both peak hours. Junction capacity assessment not required.
		A41	-21%	-28%	-21%	-26%	
		M40 (S)	-13%	-16%	-13%	-16%	
		A34	-7%	-8%	-7%	-8%	
		Total	-8%	-10%	-8%	-10%	
20a	M40 Junction 10 (Padbury signal junction)	M40 SB Off Slip	-17%	-18%	-17%	-19%	Reduction in total movements through the junction and on the M40 SB Off Slip and A43(S) arms in both peak hours. The A43(N) arm indicates an increase in vehicle movements of 2% and 3% in the AM and PM peak hours respectively. The percentage impact is minimal i.e. below 5% and well within expected daily traffic fluctuations (10%). Junction capacity assessment not required.
		A43 (N)	2%	3%	2%	1%	
		A43 (S)	-4%	-5%	-4%	-5%	
		Total	-4%	-4%	-4%	-5%	
20b		A43 (N)	-3%	-3%	-3%	-4%	Reduction in total movements through the junction and on each arm in both peak hours. Junction capacity assessment not required.

Ref	Junction	Arm	2031 + Dev 1a		Year 2031 + Dev 1b		Comments
			AM	PM	AM	PM	
	M40 J10 (Cherwell signal junction)	Services	0%	0%	0%	0%	
		A43 (W)	-4%	-5%	-4%	-5%	
		Total	-3%	-3%	-3%	-4%	
20c	M40 J10 (Ardley roundabout)	A43 (E)	-3%	-8%	-3%	-8%	Reduction in total movements through the junction and on each arm in both peak hours. Junction capacity assessment not required.
		M40 NB Off Slip	-1%	-7%	-1%	-7%	
		B430	-39%	1%	-40%	1%	
		Total	-8%	-6%	-8%	-6%	

*Table 3.1: Percentage Impact of Traffic Generated by Hawkwell Village at Junctions on the Strategic Road Network*

**4.0 Summary**

4.1.1 **Table 3.1** has summarised the data output from the BTM showing a percentage impact of both the BTM and the D&P vehicle flows through the junction as a whole and on each individual arm. Commentary on the need to undertake individual junction capacity assessment is provided and HE are invited to provide a response to the assessment.

North West Bicester – Hawkwell Village

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Appendix A BTM Output

PCU Summary

Ref	Junction	Arm	Year 2021 Base		Year 2021 Base + Comm		Year 2031 + Dev 1a		Year 2031 + Dev 1b		Year 2031 + Dev 1a % Change on Base + Committed		Year 2031 + Dev 1b % Change on Base + Committed	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			1	M40 Junction 9	M40 (N) A41 M40 (S) A34 Total	2037 1435 521 3789 7783	2361 1305 960 3676 8302	2045 1441 524 3790 7800	2366 1311 963 3672 8312	2025 1140 456 3539 7160	2345 938 806 3377 7466	2024 1135 456 3369 7154	2349 965 809 3369 7492	-1% -21% -13% -7% -8%
2	A41 Oxford Road / Vendee Drive roundabout	A41 (N) Unlabelled Rd A41 (S) Park & Ride Vendee Drive Total	1088 411 1353 11 960 3823	1407 478 1358 8 663 3914	1103 414 1357 11 673 3880	1422 463 1361 8 7 3948	716 258 1028 3 920 2923	1131 354 978 2 349 2814	703 258 980 3 910 2911	1097 351 980 2 405 2834	-35% -38% -24% -75% -8%	-20% -27% -28% -74% -48%	-35% -38% -24% -75% -9%	-23% -27% -28% -74% -40%
3	A41 / B4030 Oxford Road signalised roundabout	Oxford Rd A41 (E) A41 (S) Unlabelled Rd (W) Total	1426 1326 1669 110 4532	1151 1108 1835 48 4142	1443 1334 1669 110 4556	1528 1283 1916 89 4816	1182 1043 1110 74 3409	1018 887 1630 27 3562	1173 1041 1110 74 3399	981 878 1609 27 3496	-18% -22% -33% -33% -25%	-33% -31% -15% -69% -26%	-19% -22% -33% -33% -25%	-36% -32% -16% -69% -27%
4	A41 Oxford Road / Pingle Drive signal junction	B4030 Oxford Road (N) Pingle Drive (E) A41 Oxford Road (S) Total	1501 145 1081 2727	1173 498 1505 3177	1512 148 1095 2755	1188 501 1531 3220	1442 197 1068 2707	1328 243 1477 3048	1433 198 1069 2700	1287 242 1456 2985	-5% 33% -2% -2%	12% -51% -4% -5%	-5% 34% -2% -7%	8% -52% -5% -7%
5	Middleton Stoney Road / Kings End mini roundabout	Kings End (N) Oxford Road (S) Middleton Stoney Road (W) Total	1179 1013 935 3128	1075 1421 725 3221	1142 1032 1005 3179	1092 1448 737 3277	1186 1074 850 3110	1212 1478 707 3397	1178 1456 705 3340	4% 4% -15% -2%	1% 2% -4% 4%	4% 4% -16% -2%	8% 1% -4% 2%	
6	Field Street / Bucknell Road priority junction	Field Street (N) Field Street (S) Bucknell Road (W) Total	918 778 135 1831	920 1090 90 2100	883 827 143 1853	927 1099 90 2116	917 801 130 1848	884 1029 107 2019	908 806 127 1841	880 1025 111 2015	4% -3% -9% 0%	-5% -6% 19% -5%	3% -3% -11% -1%	-5% -7% 23% -5%
7	Queens Avenue / St John's Street mini roundabout	Field Street (N) St John's Street (E) Queens Avenue (S) Total	951 650 842 2443	909 630 1032 2572	915 666 880 2461	923 636 1043 2602	911 677 864 2452	884 615 1100 2599	908 675 867 2449	859 610 1091 2560	-1% 2% -2% 0%	-4% -3% 5% 0%	1% -1% 0% 0%	-7% -4% 5% -2%
8	Banbury Road / Field Street mini roundabout	Buckingham Road (N) Field Street (S) Banbury Road (W) Total	509 747 411 1667	696 1003 230 1929	504 804 382 1690	699 1008 234 1941	515 728 404 1647	623 998 263 1884	518 732 391 1642	619 989 262 1870	2% -9% 6% -3%	-11% -1% 12% -3%	3% -9% 3% -3%	-11% -2% 12% -4%
9	A41 / A4421 / B4100 / Gravenhill Road roundabout	B4100 London Rd A4421 A41 (SE) Gravenhill Road A41 (NW) Total	246 615 783 322 1343 3062	496 474 940 259 1369 3042	249 626 782 333 1362 3104	508 482 945 260 1373 3060	178 335 642 223 962 2162	249 285 705 159 1100 2249	177 333 642 224 960 2158	247 279 702 159 1098 2238	-28% -46% -18% -33% -29% -30%	-51% -41% -25% -39% -20% -27%	-29% -47% -18% -33% -30% -30%	-51% -42% -26% -39% -20% -27%
10	A4421 / Peregrine Way roundabout	Peregrine Way (N) A4421 (E) A4421 (W) Total	494 336 446 1276	230 367 824 1421	503 347 473 1421	232 375 830 1437	326 353 489 1169	267 352 671 1290	327 350 489 1166	266 341 667 1273	-35% 2% 3% -12%	15% -6% -19% -10%	-35% 1% 3% -1%	15% -9% -20% -11%
11	Wretchwick Way / Charbridge Lane / Gavray Drive roundabout	Charbridge Lane (N) SE Bicester Access Road Wretchwick Way Gavray Drive (W) Total	1076 428 606 130 2241	1028 688 554 108 2378	1103 462 644 137 2346	1040 696 560 108 2403	1213 451 454 100 2218	1080 691 582 86 2438	1199 452 455 100 2206	1060 684 576 86 2405	10% -2% -29% -27% -5%	4% -1% 4% -21% 1%	2% -9% -29% -27% -6%	2% -2% 3% -21% 0%
12	A4421 / Bicester Road roundabout	Bicester Road (E) Charbridge Lane (S) A4421 (W) Total	443 915 1329 2687	342 1209 1279 2830	461 987 1351 2799	339 1220 1292 2850	454 824 1448 2726	345 1213 1339 2898	455 827 1429 2711	344 1204 1322 2870	-1% -17% 7% -3%	2% -1% 4% 2%	-1% -16% 6% -3%	0% -1% 2% 1%
13	A4421 / Launton Road / Skimmingish Lane roundabout	Skimmingish Lane (N) Wyndham Hall (E) A4421 (S) Launton Road (W) Total	1383 15 1194 693 3285	1064 27 1403 1096 3589	1390 15 1281 1101 3392	1091 27 1409 1101 3628	1367 12 1070 854 3303	1197 18 1371 1078 3664	1352 18 1363 1074 3293	1172 18 1363 1074 3627	-2% -19% -17% 21% -3%	10% -32% -3% -2%	-3% -19% -16% 21%	3% -33% -3% -2%
14	A4421 / Skimmingish Lane / Buckingham Road / A4095 roundabout	A4421 (N) Skimmingish Lane (E) Buckingham Road (S) A4095 (W) Total	1346 782 451 1154 3734	1031 1474 375 997 3878	1358 1499 455 1164 3855	1040 829 373 1034 3946	1377 829 331 1226 3762	1155 1375 432 1050 4012	1380 836 330 1196 3742	1171 1362 399 1046 3979	1% -6% -27% 5% -2%	11% -8% 16% 2% 2%	2% -5% -28% 3% -3%	13% -9% 7% 1% 1%
15	B4100 Banbury Road / A4095 Lords Lane roundabout	B4100 (N) A4095 (E) Banbury Road (S) A4095 (W) Total	1237 1121 311 527 3196	857 1309 399 648 3213	1239 1246 425 658 3451	924 1337 423 657 3342	1251 1185 355 696 3442	942 1211 488 644 3336	1234 1180 363 678 3421	943 1263 581 678 3465	1% -7% -16% 24% 0%	2% -9% 15% 6% 0%	0% -5% -15% 19% 0%	4% -6% -37% 3% 4%
16	B4100 / Caversfield priority junction	B4100 (N) Aunt Elms Lane (E) B4100 (S) Total	1059 127 629 1815	784 61 878 1723	1164 160 641 1965	826 66 931 1823	1212 117 615 1945	908 79 1012 1998	1215 118 600 1933	898 79 1002 1980	4% -27% -4% -1%	10% 19% 9% 10%	4% -26% -6% 2%	9% 20% -6% 0%
17	A4095 Lords Lane / Bucknell Road roundabout	Bucknell Road (N) A4095 (E) Bucknell Road (S) Total	12 236 170 417	12 280 273 565	12 250 183 445	12 289 276 579	12 303 165 480	12 261 322 595	12 292 167 472	12 284 310 606	0% 21% -10% 8%	0% -10% 16% 3%	0% 17% -9% 6%	0% -2% 12% 5%
18	Howes Lane / Bucknell Road priority junction	Bucknell Road (N) Bucknell Road (S) Howes Lane (W) Total	248 86 128 462	292 123 258 674	262 94 134 491	301 125 262 688	315 90 118 522	273 134 246 653	304 91 119 514	296 123 244 662	20% -5% -12% 7%	-9% 7% -6% -5%	16% -4% -11% 5%	2% -2% -7% -4%
19	Howes Lane / Middleton Stoney Road / Vendee Drive Road roundabout	Howes Lane (N) Middleton Stoney Road (E) Vendee Drive (S) B4030 (W) Total	788 722 586 650 2746	459 550 1095 572 2676	783 772 622 793 2970	482 598 1116 629 2824	772 651 622 725 2770	360 630 961 614 2565	750 651 626 725 2751	423 632 960 607 2622	-1% -16% 0% -9% -7%	-25% 5% -14% -2% -9%	-4% -16% 1% -9% -7%	-12% 6% -14% -3% -7%
20a	M40 J10 (Padbury signal junction)	M40 SB Off Slip A43 (N) A43 (S) Total	928 1947 1405 4280	728 1455 2006 4188	929 1971 1409 4310	738 1462 2016 4216	775 2012 1355 4142	602 1507 1923 4032	776 2012 1354 4142	600 1479 1913 3992	-17% 2% -4% -4%	-18% 3% -5% -4%	-17% 2% -4% -4%	-19% 1% -5% -5%
20b	M40 J10 (Cherwell signal junction)	A43 (N) Services A43 (W) Total	2487 586 1593 4666	1879 610 2175 4663	2536 586 1597 4720	1889 610 2185 4683	2467 586 1533 4587	1838 610 2085 4532	2468 586 1532 4586	1806 610 2075 4491	-3% 0% -4% -3%	-3% 0% -5% -3%	-3% 0% -4% -3%	-4% 0% -5% -4%
20c	M40 J10 (Ardley roundabout)	A43 (E) M40 NB Off Slip B430 Total	1319 1328 511 3158	1162 1829 587 3578	1354 1328 509 3191	1173 1828 597 3598	1311 1318 308 2937	1085 1707 604 3396	1311 1318 303 2932	1078 1701 601 3381	-3% -1% -39% -8%	-8% -7% 1% -6%	-3% -1% -40% -6%	-8% -7% 1% -6%
21	Middleton Road / Bainton Road priority junction	Ardley Road (N) Bainton Road (E) Bicester Road (S) Middleton Road (W) Total	331 72 176 85 664	178 27 88 221 514	397 82 170 116 764	203 30 123 232 562	412 44 123 75 655	177 24 217 193 612	415 44 113 75 648	166 23 198 187 574	4% -46% -27% -35% -14%	-12% -18% 121% -17% 9%	5% -46% -34% -35% -15%	-18% -22% 101% -19% 2%
23	Site Access (Eastern)	Site Access (N) A4095 (E) Germarder Way (S) A4095 (W) Total	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	440 774 28 419 1660	322 530 96 700 1648	373 792 26 424 1617	241 789 26 674 1730				
24	Site Access (Western)	Site Access (N) A4095 (E) A4095 (W) Total	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	178 599 397 1174	178 599 397 1174	158 588 402 1148	158 588 402 1148				