

Interpreting the SHAR 2016: the Traffic Issue in the Local Plan

1. Summary

GBC's case relies on the SHAR 2016 findings. It says that the analysis presents a robust worst case, because it does not take into account potential benefits of modal shift, internalisation of travel within the major sites, that the housing target has been lowered since the work was carried out, and it quotes the 2% increase in speed in the modelled 2031 morning peak above that in the Do-Minimum scenario. The key quote from the report is that 'there will not be a severe impact...'. Traffic conditions in the Do-Minimum scenario are important because they are the closest to the current situation, and also because they are the basis for comparison with the other scenarios. The information available in the SHAR on Do-Minimum indicates that the model output understates the extent of congestion. Peak period congestion is an issue today, for example on the A3, but this is not shown in the model output. If congestion is generally worse than indicated by the model, then it does not represent a robust worst case.

2. The work done by SCC for GBC using SINTRAM is the key analysis of highway traffic in the preparation of the plan. The amount growth in the plan has been slightly reduced since the traffic work was done in May 2016, principally as a consequence of the removal of the Normandy/Flexford site. However, the aggregate effect on traffic is small – about 1% of the total veh-km in the morning peak. The potential for modal shift is assumed by GBC to be modest, and it would be premature to assume any significant change. The trip rates used for traffic analysis assume that a proportion of journeys are made by public transport or walking and cycling, so the facilities to meet that need are a basic requirement. The plan includes the Sustainable Movement Corridor but, with the exception of the West section, it has yet to be defined. The effects on bus services and highway capacity of the SMC are not yet known, and the consequences in terms of highway capacity are also not known. It is possible that a modest proportion of the trips generated in the large sites will remain within each site. The model incorporates decisions on the distribution of trips and it is only by detailed examination that any conclusion can be drawn on the scale of this effect. It is prudent to assume that it would be small.
3. The SHA forecast year is 2031. The end of the plan period is now 2034 so if the traffic work were to be repeated for 2034 there would be 3 more years' growth in background traffic to be added.
4. The uncertainty about the Solum development at Guildford Station has been removed with the decision to approve the proposed development. The Dunsfold Park development in Waverley was approved by the Secretary of State at the end of March. This will mean additional traffic on roads in Guildford, including the A281 which is already forecast to be over capacity. There remains uncertainty about the Wisley Airfield proposal, which is the subject of an appeal.
5. In the case of Wisley, Highways England has taken a position which has a bearing on the SHA. HE has no plans to widen the A3 between the A247 and Ockham to four lanes in each direction. The issue is whether the proposed Wisley development together with new slip roads at Burnt Common will require the addition of 4th lanes, and if it does, then should the developer pay the

cost? In the traffic analysis being undertaken for the Junction 10 scheme on behalf of Highways England, new slip roads are not included, but an allowance has been made for the Wisley development because it is in the Plan.

6. In the SHA, the following 2031 scenarios were developed for testing:
 - 1) Do-Minimum (which includes growth outside the borough to 2031)
 - 2) Do-Something , i.e. including developments but no mitigation measures
 - 3) Do-Something including local mitigation measures
 - 4) Do-Something with mitigation and M25 schemes
 - 5) Do-Something with mitigation, M25 schemes and A3 improvement from A31 to A320.

7. In the Do-Minimum scenario, the road network is similar to today's, and development is limited to that already approved within the borough, plus growth in other traffic to 2031. It therefore corresponds closer than other scenarios to the present situation, although it includes more traffic. So it would be instructive to consider traffic conditions in the Do-Minimum forecast in comparison with current conditions. There is limited information in the SHAR on the Do-Minimum forecast. The aggregate statistics are shown in Tables 4.1a and 4.1b for the AM and PM peaks, and Table 4.3 gives the flows and RFC (ratio of flow to capacity) on a selection of links. There are 5 links in Table 4.3 where flows are at or above capacity and 3 more where the RFC is between 0.85 and 1. These are shown in Table A1 of this note, together with junctions where capacity is exceeded or are close to capacity in the Do-Minimum scenario. The degree of congestion experienced today is worse than appears to be indicated by the model, the most obvious examples being the A3 Guildford Bypass and A31 Farnham Road which have RFCs of 0.71 and 0.67 respectively in Table 4.4. This suggests that the model understates the extent of congestion.

8. The network summary results in Table 4.1a of the SHAR include average speed by road type. Within the borough, the only trunk road is the A3. In the Do-Minimum scenario, trunk road speed is shown as 76.7 kph. (The equivalent 2009 speed was 81.5 kph.) Now according to DfT statistics, the observed speed on the A3 in 2015 was 25.6 mph, or 41 kph, as quoted in the GBC Transport Strategy (page 27), roughly half what was modelled. While this one indicator does not invalidate the use of the model for comparison purposes, it does suggest that traffic conditions may well be worse than forecast.

9. The main interest is in Scenario 5, because that is the nearest we have to a full picture. However, it should be noted that the M25 schemes (SRN3 and 'Smart Motorway') are included in RIS1, which means that they are committed and should be delivered in the early 2020s. So they will be part of the network well in advance of the planned growth in Guildford. The same is true of the A3 junction improvements at the University and Stoke interchanges (SRN7 and 8). It is therefore arguable that they should be included in the Do-Minimum network. Road users will adapt to these network changes in advance of the development of the major sites.

9. The anticipated improvement of the A3 (GBC's scheme SRN2) is included by DfT in RIS2. The A3 is a trunk road and a key part of the strategic road network in the region. The improvement SRN2 is not conditional on the Guildford local plan. Highways England expects to deliver the scheme by 2027/28 and it is therefore arguable that it should be included in the Do-Minimum network for 2031. This would significantly change the assessment of the impact of the Plan. In terms of other roads, the proposed improvements to the junctions A31/A331 and A331/A322 that have recently been the subject of SCC consultation, and also the railway bridge

at Ash that has now received funding, should be included in the Do-Minimum. (The future planned for traffic on Walnut Tree Close is unclear at present.)

10. So how much weight should be attached to the speed gain of 2% in the morning peak hour in 2031 Scenario 5 when compared to Scenario 1 (Do-Minimum)? The gain is due to the improvement of the A3 and of course a benefit should be expected. However, a degree of caution is necessary. Firstly, the A3 northbound is shown in Table 4.5 to be over capacity on the Guildford Bypass which implies congestion and potential disruption, and we should bear in mind that in the Do-Minimum case, the equivalent RFC is 0.67 (see Table 4.3). In addition, the AM peak volume of traffic is about 7% lower than the PM peak in the model, for reasons that are not explained. SINTRAM models the average hour of the peak period, so the peak hour demand is higher than the results show.
11. Highways England is conducting a study on the future of the M25 SW Quadrant, the busiest section of motorway in the country. So far, it has been concluded that there will be no further widening of the road. Recognising that there will be a capacity issue, even taking into account the Smart Motorway scheme that is in preparation, a wide range of options is being considered, including rail as well as highways. The use of existing roads to provide alternative orbital capacity is on the agenda, and one possible route would link the A3 via the A31/A331 to the M3 and M4. In Scenario 5, the M25 is shown to be at capacity in the AM peak (Table 4.5). One consequence of this is that borough roads may well have to carry more long distance traffic towards the end of the plan period and beyond than has been forecast.
12. There is evidence in the SHAR of the extent of congestion in peak periods on the local road network, but it is challenging to identify the links and junctions that will be under stress in Scenario 5. The analysis reported does not include queues. Figure 4.7 shows the ratio of flow to capacity for Scenario 5 at a small scale. Changes in junction delay are reported for Scenario 3 but not Scenario 5. There is limited information on the PM peak.
13. Table A2 lists the links with flows at or in excess of capacity in Scenario 5 identified in the SHAR tables. The results show that congestion will be widespread in peak periods. Traffic will increase substantially on minor roads, which are forecast to carry 47% more veh-km in the AM peak than in 2009. The text of the SHAR includes commentary on the results drawing attention to the pressure on the network even with the proposed mitigation. A selection of these points is quoted in Table A3. The A3 will continue to serve as a local distributor road in the urban area as well as a trunk road. In the town centre, the trip end forecasts for town centre zones show no increase compared to 2009, which appears to be at odds with the planned growth in retail and homes. The relevant figures are shown in Table A4. Nevertheless, the model indicates severe over-capacity on the main roads in the centre.

Table A1 LINKS AND JUNCTIONS AT OR CLOSE TO CAPACITY, DO-MINIMUM**AM average peak hour****a) Links with flows at or close to capacity, Do-Minimum, listed in SHAR Table 4.3**

Link	Direction	RFC
A3 Burpham to M25	North East	0.85
Egerton Road	West	1.04
B2215 High Street Ripley	West	1.12
A322 Woodbridge Road	South	1.13
A320 Stoke Road	North	1.00
Manor Road, Ash	South	1.8
A320 Woking Road	North	0.91
A25/A3 Midleton Road/A3	South on-slip	0.97
A322 Bridge Street	East	0.95

b) Junctions with traffic in excess or close to capacity, Do-Minimum, listed in SHAR Table 4.9

Junction	Type	RFC
A320 Woking Rd/Moorfield Road	Signal	1.59
Clay Lane/A3 London Road Slip On	Signal	1.04
A323/B3206/Manor Rd Ash	Roundabout	1.01
A323/B3411 Ash	Roundabout	2.56
Stoughton Rd/Grange Rd/Manor Rd	Signal	1.03
A31 Friary Bridge/Farnham Rd/Walnut Tree Close	Signal	1.03
A324 Dawney Hill/A324 Pirbright Grn/B3405 Gr	Priority	1.67
Westwood Lane/B3000 Puttenham Hill	Priority	1.33
A323 Guildford Rd/A324 Pirbright Rd	Signal	0.99
Shuttle signals over river, B367 Newark Lane	Signal	0.97
Oxenden Rd/Manor Rd	Priority	0.93
B2215 Portsmouth Rd/Ockham interchange	Roundabout	0.95
A25 Ladymead/A322 Woodbridge Rd	Signal	0.91
A322 Worplesdon Rd/Shepherds Lane/Stoughton Rd	Signal	0.99
A25 Epsom Rd/A247 The Street/A246 Epsom Rd	Signal	0.91
A322 Bridge St/ A31 Onslow St	Signal	0.93

Table A2 LINKS WITH FLOWS AT CAPACITY OR GREATER IN SCENARIO 5 (Plan)**AM average peak hour**

Links in Scen 3 likely to be unaffected by the M25 and A3 changes in Scen 5 have been included. This is not complete because Table 4.12 only shows the top ten RFCs.

Link	Direction	RFC
A25 Boxgrove Road	S	1.01
A322 Woodbridge Road	S	1.45
A320 Woking Road	N	1.21
A320 Stoke Road	N	1.29
A322 Bridge Street	E	1.04
A281 Millbrook	N	1.59
A323 Ash	E	1.35
D 4027 Moorfield Road	E	1.26
A323 Guildford Road ,Ash	E	1.35
A322 Worplesdon Road	S	1.15
A322 Worplesdon Road appr to G'fd	S	1.26
A324 Dawney Hill	N	1.21
A247 Clandon Rd, Burntcommon	S	1.10
A31 Farnham Road appr to G'fd	E	1.18
B3411 Mytchett Rd/ Frimley Rd	N	1.6
D4001 Egerton Road	W	1.21
M25 J10-11 and 11-10 +slips	both	1
A3 Guildford Bypass	NE	1.1
C17 Manor Road	S	1.61
C119 The Street Tongham	S	1.08

Sources :Tables 4.3, 4.4, 4.5, 4.12

TABLE A3 EXTRACTS FROM THE SHAR 2016

The following quotes are taken from the SHAR:

- Para 4.5.9
Referring to the effects of the strategic road schemes
It also indicates that those roads approaching the A3, such as the A320, A31, A25 and B3000, are also experiencing high increases due to trips attracted to the A3 as a result of the improvements. Some of these increases, such as on the A320, result in a significant deterioration in the Level of Service. However, it should be noted that despite these improvements, the A3 is still operating overcapacity with resulting impacts on congestion
- Para 4.13.9
Referring to the network in the vicinity of Ash/AshVale
Some of these roads already experience congestion, despite the model suggesting that flows in the Do-Minimum scenario are relatively low. Consequently, this shows the importance of studying the increase and effect on the RFC rather than the flow numbers themselves.
- Para 4.13.10
Similarly some of the roads northbound into the borough of Woking already experience congestion and the model is suggesting that the proposed additional development in Guildford will exacerbate existing conditions as trips from these developments travel to destination in Woking borough and beyond.

TABLE A4 TOWN CENTRE TRIP END FORECASTS

Extracted from Tables 3.1 3.2, 3.3, 3.4

Total change from 2009 town centre zone trip ends, AM average peak hour

Additional trips in 2031

Zone	AM average peak				PM average peak			
	arrivals		departures		arrivals		departures	
	Sc 1	Sc 2	Sc 1	Sc 2	Sc 1	Sc 2	Sc 1	Sc 2
133 Eastgate North	-14	0	2	0	2	-12	0	0
134 Millmead and The Mount	-21	-5	10	2	10	-19	2	-3
135 Millmead	-9	-7	-7	-7	6	-12	-7	-10
136 Guildford Town Centre	0	11	1	22	1	22	1	7
540 Leapale Road	-3	57	1	52	1	21	-2	-79
541 Drummond Road	3	-2	24	2	31	26	13	22
542 Eastgate South	-50	-21	2	-3	1	-3	-39	-17
543 Tunsgate	-142	-4	-132	-3	-123	-165	-130	-170
544 Millbrook	23	0	30	0	79	7	61	6
547 Guildford Bus Station	-1	0	-1	0	-1	0	-1	0
548 Bedford Road	29	52	5	74	1	68	23	43
549 Guildford Rail Station	0	0	0	0	0	0	0	0
550 Farnham Road Car Park	0	0	0	0	0	0	0	0
Total	-185	81	-51	153	8	-34	-112	-201
Total change from 2009 town centre zones AM average peak hour					arrivals -104, departures +102 = -2			
Total change from 2009 town centre zones PM average peak hour					arrivals -26 , departures -313= -339			