3.2 The Chalfonts and Amersham (CFA8)

The Chalfonts and Amersham (CFA8) SES3 and AP4 revised scheme changes

3.2.1 The original scheme in this area is as described in section 7.4 of the main TA. This has since been amended by the SES and AP2 scheme described in section 3.2 of the SES and AP2 TA.

3.2.2 The third bullet point of paragraph 3.2.3 of the SES and AP2 TA, discussing A404 Wheilden Lane (between A413 Amersham bypass and Whielden Street), is deleted. This section of road remains in use for the movement of excavated material.

3.2.3 Additional traffic surveys have been undertaken at the following junctions and on sections of highway in The Chalfonts and Amersham area (CFA9) to supplement the information reported in the main TA and SES and AP2 TA:

- A413/ School Lane (Amersham Old Town)/ Shardeloes;
- A413 Amersham Bypass with A404 Whielden Lane;
- A40 London Road/ A355 Pyebush Roundabout;
- A404 Whielden Lane/ Whielden Street;
- A355/ Ledborough Lane;
- A40 London Road/ A355 London End;
- A413 Amersham Road, between Joiners Lane and Chalfont St Giles; and
- A40 London Road, between London End and Pyebush Roundabout.

3.2.4 A revision to forecast construction traffic on the A404 Whielden Lane, to account for the movement of excavated material between A413 Amersham Bypass and Whielden Street, has been made. This has resulted in a change in all vehicle construction trips on this section of road. The forecast flows for the A404 Whielden Lane presented in Tables 7-30 and 7-31 in the SES and AP2 TA are unchanged but relate to the A404 Whielden Lane, west of Whielden Street.

3.2.5 The following AP4 revised scheme change, located in CFA9 (Central Chilterns), has necessitated a revision to the number of construction vehicle trips by road within CFA8:

- extension to the Chiltern tunnel from Mantle's Wood portal to South Heath green tunnel north portal and associated works in CFA9 (AP4-009-001).

3.2.6 The changes lead to a number of changes to the traffic and transport assessment in The Chalfonts and Amersham area (CFA8) reported in the main TA and SES and AP2 TA. Noted changes to paragraphs are in relation to the main TA or the SES and AP2 TA.

Assessment methodology

3.2.7 The assessment methodology is as described in Section 7.2 of the main TA.

Existing baseline

3.2.8 Baseline conditions in this area are as described in Section 5.10 of the main TA and SES and AP2 TA, updated by the additional traffic survey data. Further information on surveys can be found in the supplementary baseline survey report in Annex B(iii).

Future baseline

3.2.9 Future baseline conditions in this area are as described in Section 7.4 of the main TA and SES and AP2 TA, updated by the additional traffic survey data.

3.2.10 Table 7-22 and Table 7-23 are partially replaced to include the following links, whereby new baseline data is provided, due to additional traffic data collected.

Table 7-22: The Chalfonts and Amersham strategic road network future baseline flows (vehicles) - AM peak – partial replacement

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012/2015)		2021		2026		2041							
		All vehs	HGV	All vehs	HGV	All vehs	HGV	All vehs	HGV	2021	2026	2041	2021	2026	2041
A413 Amersham Road (between Joiners Lane and Chalfont St Giles)	NB	686	7	743	7	792	8	915	9	+57	+106	+229	8%	15%	33%
	SB	1044	12	1132	13	1206	14	1394	16	+88	+162	+350	8%	16%	34%
A40 London Road, between London End and Pyebush Roundabout	EB	1398	22	1511	24	1604	25	1861	29	+113	+206	+463	7%	15%	33%
	WB	1370	29	1481	31	1572	33	1825	38	+111	+202	+455	7%	15%	33%

Table 7-23: The Chalfonts and Amersham strategic road network future baseline flows (vehicles) - PM peak – partial replacement

Location	Direction	Baseline flow								All vehicles actual change from 2012			All vehicles % change from 2012		
		2012/2015		2021		2026		2041							
		All vehs	HGV	All vehs	HGV	All vehs	HGV	All vehs	HGV	2021	2026	2041	2021	2026	2041
A413 Amersham Road (between Joiners Lane and Chalfont St Giles)	NB	1017	4	1103	4	1179	5	1371	5	+86	+162	+354	8%	16%	35%
	SB	662	3	718	3	767	3	892	3	+56	+105	+230	8%	16%	35%
A40 London Road, between London End and Pyebush Roundabout	EB	1093	5	1181	5	1256	5	1464	6	+88	+163	+371	7%	15%	34%
	WB	1306	28	1410	30	1500	32	1749	37	+104	+194	+443	7%	15%	34%

Construction description

Construction trip assumptions

Assignment

3.2.11 Paragraphs 3.2.3 and 3.2.18 of the SES and AP2 TA are amended to remove the reference that Joiners Lane and Chesham Lane/Denham Lane (between Joiners Lane and Chalfont St. Peter ventilation shaft satellite compound) are new routes for the movement of excavated material. These roads were utilised for the movement of excavated material in the original scheme and remain so in the SES3 and AP4 revised scheme.

3.2.12 Paragraph 3.2.13 of the SES and AP2 TA describing construction routes is replaced by:

"A413 (between the boundary with CFA7 and Bottom House Farm Lane, and between the A355 Gore Hill and the boundary with CFA 9), A355 Gore Hill/Amersham Road (between A413 Amersham Bypass and M40), Bottom House Farm Lane (between Chalfont St Giles ventilation shaft satellite construction compound and A413 Amersham Road), A404 Wheilden Lane, between the A413 Amersham Bypass and Whielden Street, Joiners Lane and Chesham Lane/Denham Lane (between Joiners Lane and Chalfont St Peter ventilation shaft satellite construction compound)."

3.2.13 Paragraph 3.2.14 of the SES and AP2 TA is amended to remove '330 cars/LGVs and 100 HGVs per day (two way)', and this is replaced by:

"280 cars/LGVs per day (two way) and 90 HGVs per day (two way)."

3.2.14 This change is in relation to a difference in trips generated by compounds within CFA9, related to the Chiltern Tunnel extension.

Assessment of construction impacts

Highway network

3.2.15 Changes to forecast traffic flows as a result of the SES3 and AP4 revised scheme, including the revised flows on the A404 Whielden Lane, between A413 Amersham Bypass and Whielden Street, are presented. Forecast flows for the sections of road whereby the baseline was updated by supplementary traffic data are also shown. There are no changes to other forecast flows presented in the main TA and SES and AP2 TA.

3.2.16 The SES3 and AP4 revised scheme has resulted in the following changes to forecast traffic flows within CFA8 during construction, in comparison to the SES scheme:

- A413, between the B485 Frith Hill/Chesham Road (in CFA9) and the A355 Gore Hill - a decrease in all construction vehicles by approximately 75 two-way trips a day. There is also a decrease in all construction vehicles on the A413 south of theA355 Gore Hill, but by a marginal amount (approximately two two-way trips a day); and
- A355 Gore Hill / /Amersham Road - a decrease in all construction vehicles by approximately 75 two-way trips a day.

Strategic road network

3.2.17 Table 7-30 and Table 7-31 of the SES and AP2 TA are partially replaced.

Table 7-30: The Chalfonts and Amersham strategic road network construction traffic flows (vehicles) - AM peak – partial replacement

Location	Direction	2012 baseline	2021 baseline	2021 with HS2 construction traffic		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles		All vehicles	HGVs	All vehicles	HGVs	All vehicles	HGVs
A413 Amersham Bypass between A355 Gore Hill and A404 Whielden Lane (Amersham)	EB	1396	1539	1564	109	25	22	2%	25%
	WB	876	965	1031	110	65	22	7%	25%
A413 Amersham Road, between A404 Whielden Lane and Hyde Lane (in CFA9) (Great Missenden)	EB	1135	1237	1268	51	31	21	2%	72%
Named 'A413 Amersham Road, between A404 Whielden Lane and B485 Frith Hill/Chesham Road (Little Missenden) (in CFA9)' in SES and AP2 TA	WB	659	718	815	34	97	21	14%	164%
A355 Gore Hill/Amersham Road, between A413 Amersham Bypass and M40	NB	840	917	964	35	47	22	5%	170%
	SB	936	1022	1048	29	26	22	3%	314%
A413 Amersham Road (between Joiners Lane and Chalfont St Giles)	NB	686	743	769	10	25	2	3%	35%
	SB	1044	1132	1135	15	3	2	0%	19%
A40 London Road, between London End and Pyebush Roundabout	EB	1398	1511	1537	46	26	22	2%	94%
	WB	1370	1481	1521	53	40	22	3%	72%
A404 Whielden Lane, between A413 Amersham Bypass and Whielden Street	EB	874	964	1011	61	47	11	5%	23%
	WB	733	808	824	17	16	11	2%	209%

Table 7-31: The Chalfonts and Amersham strategic road network construction traffic flows (vehicles) - PM peak – partial replacement

Location	Direction	2012 baseline	2021 baseline	2021 with HS2 construction traffic		With HS2 actual change from 2021 baseline		With HS2 % change from 2021 baseline	
		All vehicles		All vehicles	HGVs	All vehicles	HGVs	All vehicles	HGVs
A413 Amersham Bypass between A355 Gore Hill and A404 Whielden Lane (Amersham)	EB	868	958	1015	53	58	16	6%	45%
	WB	1529	1686	1704	85	18	16	1%	24%
A413 Amersham Road, between A404 Whielden Lane and Hyde Lane (in CFA9) (Great Missenden)	EB	591	643	734	26	90	16	14%	162%
Named 'A413 Amersham Road, between A404 Whielden Lane and B485 Frith Hill/Chesham Road (Little Missenden) (in CFA9)' in SES and AP2 TA	WB	1195	1301	1325	38	24	16	2%	75%
A355 Gore Hill/Amersham Road, between A413 Amersham Bypass and M40	NB	939	1024	1042	23	18	17	2%	254%
	SB	699	762	801	19	39	17	5%	662%
A413 Amersham Road (between Joiners Lane and Chalfont St Giles)	NB	1017	1103	1105	6	2	2	0%	47%
	SB	662	718	742	5	25	2	3%	75%
A40 London Road, between London End and Pyebush Roundabout	EB	1093	1181	1213	21	32	17	3%	342%
	WB	1306	1410	1428	46	18	17	1%	56%
A404 Whielden Lane, between A413 Amersham Bypass and Whielden Street	EB	602	664	680	33	16	11	2%	49%
	WB	915	1009	1055	16	46	11	5%	212%

3.2.18 The SES3 and AP4 revised scheme has resulted in a decrease in forecast construction traffic on the A413 across the area and on the A355 Gore Hill/ Amersham Road. This is related to a difference in trips generated by compounds associated with the Chiltern Tunnel extension within CFA9. Additional or revised baseline data and forecast construction traffic flows are provided on A413 Amersham Road (between Joiners Lane and Chalfont St Giles) and A40 London Road, between London End and Pyebush Roundabout, based upon the supplementary traffic data collected.

3.2.19 Paragraph 3.2.18 of the SES and AP2 TA is amended to remove "The A404 Whielden Lane, between the A413 Amersham Bypass and Whielden Street, is also no longer used for the movement of excavated material". This section of road is used for the movement of excavated material. Paragraph 3.2.19 of the SES and AP2 TA is amended to include additional bullet point to recognise the use of this road as a construction route:

- "A404 Whielden Lane, between A413 Amersham Bypass and Whielden Street".

Junction capacity

3.2.20 Additional traffic surveys have been undertaken at the following junctions to supplement the information reported in the main TA and SES and AP2 TA:

- A413 with School Lane (Amersham Old Town) /Shardeloes;
- A413 Amersham Bypass/ A404 Whielden Lane;
- A40 London Road/A355 Pyebush Roundabout;
- A404 Whielden Lane/ Whielden Street;
- A355/Ledborough Lane; and
- A40 London Road/ A355 London End.

3.2.21 Using the supplementary survey data, a further assessment of the A413/School Lane (Amersham Old Town)/ Shardeloes and A413 Amersham Bypass/A404 Whielden Lane junctions has been carried out, using industry standard software. The results are shown in Tables 7-33.1 and 7-33.2, and updates the assessment within the main TA and SES and AP2 TA for these junctions.

3.2.22 Revision to paragraph 3.2.20 of the SES and AP2 TA , with the deletion of text for the A413/School Lane (Amersham Old Town) and Shardeloes junction "increased traffic during the most intensive periods of construction has high potential to cause additional intermittent traffic congestion and delay at these junctions during peak periods". The modelling results indicate that the junction will operate within capacity during construction of the revised scheme within the AM peak, with the highest percentage of flow to capacity at 72% on the A413 (north arm). Within the PM peak, the highest percentage of flow to capacity is 87% on the A413 (south arm). However, this arm is forecast to operate at 84% flow to capacity in the 2021 baseline, which indicates that the revised scheme traffic is unlikely to result in a substantial change in operation.

3.2.23 The modelling results indicate that the A413 with Whielden Lane junction is predicted to operate within capacity during construction of the revised scheme in the AM Peak, with the highest percentage of flow to capacity predicted as 78% on the A413 (east) arm. Within the PM Peak, however, the highest percentage of flow to capacity is predicted as 106% on the A413 (east) arm. This indicates that the junction will experience significant traffic congestion and delay during the evening peak, during construction. However, the junction is forecast to operate over capacity in the 2021 baseline (101%) and therefore, although there is an increase in maximum queue lengths, there would be significant delays regardless of HS2 construction.

Table 7-33.1: Forecast baseline and construction scenario performance at A413 with School Lane (Amersham Old Town)/Shardeloes junction

0800-09:00	**2021 baseline**			**2021 with HS2 construction traffic**		
Approach (from)	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**
High Street	161	22%	0	161	23%	0
A413 South	676	39%	1	801	46%	1
Shardeloes	6	1%	0	6	1%	0
A413 North	1686	69%	2	1744	72%	3
Total	N/A	69%	N/A	N/A	72%	N/A
17:00-18:00	**2021 baseline**			**2021 with HS2 construction traffic**		
Approach (from)	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**
High Street	399	34%	1	399	36%	1
A413 South	1323	84%	5	1368	87%	7
Shardeloes	9	3%	0	9	4%	0
A413 North	713	29%	0	824	34%	1
Total	N/A	84%	N/A	N/A	87%	N/A

Table 7-33.2: Forecast baseline and construction scenario performance at A413 Amersham Bypass/A404 Whielden Lane junction

0800-09:00	**2021 baseline**			**2021 with HS2 construction traffic**		
Approach (from)	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**
A413 East	1136	71%	3	1250	78%	4
Whielden Ln.	914	52%	1	977	58%	2
A413 West	1384	52%	1	1437	53%	1

Total	N/A	71%	N/A	N/A	78%	N/A
17:00-18:00	**2021 baseline**			**2021 with HS2 construction traffic**		
Approach (from)	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**
A413 East	1804	101%	53	1868	106%	125
Whielden Ln.	1170	81%	4	1199	83%	5
A413 West	606	11%	0	717	17%	0
Total	N/A	101%	N/A	N/A	106%	N/A

3.2.24 Using the supplementary survey data, assessment of the A40 London Road/A355 Pyebush Roundabout, A404 Whielden Lane/ Whielden Street, A355/Ledborough Lane and A40 London Road/A355 London End junctions has been undertaken. The results are shown in Tables 7-33.3 to 7-33.6.

3.2.25 The modelling results indicate that the junctions of A40 London Road/A355 Pyebush Roundabout, A404 Whielden Lane/Whielden Street, and A355/Ledborough Lane will operate within capacity during construction of the revised scheme. The highest percentage of flow to capacity at each of these junctions is below 85%, (below which congestion would not be expected), with construction traffic resulting in a maximum increase of 3%. The impact of the revised scheme is therefore not considered to have a material impact on capacity at this junction.

3.2.26 The modelling results indicate that the junction of A40 London Road/A355 London End will experience intermittent traffic congestion and delay during construction, with the A40 London Road and A355 Park Lane arms over 85% percentage of flow to capacity during both AM and PM peaks. However, these arms are also forecast to operate at similar levels of flow to capacity ratio in the 2021 baseline, which indicates that revised scheme traffic will not result in a substantial change in operation.

Table 7-33.3: Forecast baseline and construction scenario performance at A40 London Road/A355 Pyebush Roundabout junction

0800-09:00	**2021 baseline**			**2021 with HS2 construction traffic**		
Approach (from)	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**
A40 London Road East	1037	67%	2	1037	69%	3
A355 Pyebush	1797	74%	3	1866	77%	4
A40 London Road West	1501	78%	4	1557	81%	5
Total	N/A	78%	N/A	N/A	81%	N/A

17:00-18:00	2021 baseline			2021 with HS2 construction traffic		
Approach (from)	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**
A40 London Road East	819	50%	1	819	52%	1
A355 Pyebush	1821	75%	3	1861	77%	3
A40 London Road West	1404	72%	3	1457	75%	3
Total	N/A	75%	N/A	N/A	77%	N/A

Table 7-33.4: Forecast baseline and construction scenario performance at A404 Whielden Lane/Whielden Street junction

0800-09:00	2021 baseline			2021 with HS2 construction traffic		
Approach (from)	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**
A404 East	1014	0	0	1047	0	0
Whielden Lane	196	37%	1	222	39%	1
A404 West	1025	0	0	1063	0	0
Total	N/A	37%	N/A	N/A	39%	N/A
17:00-18:00	**2021 baseline**			**2021 with HS2 construction traffic**		
Approach (from)	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**
A404 East	932	0	0	992	0	0
Whielden Lane	234	42%	1	266	45%	1
A404 West	839	0	0	839	0	0
Total	N/A	42%	N/A	N/A	45%	N/A

Table 7-33.5: Forecast baseline and construction scenario performance at A355/ Ledborough Lane junction

0800-09:00	2021 baseline			2021 with HS2 construction traffic		
Approach (from)	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**
A355 South	820	0	0	896	0	0
Ledborough Ln.	225	35%	1	225	37%	1
A355 North	1199	37%	1	1254	38%	1
Total	N/A	37%	N/A	N/A	38%	N/A

17:00-18:00	2021 baseline			2021 with HS2 construction traffic		
Approach (from)	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**
A355 South	1262	0	0	1301	0	0
Ledborough Ln.	151	29%	0	151	30%	0
A355 North	805	34%	1	866	34%	1
Total	N/A	34%	N/A	N/A	34%	N/A

Table 7-33.6: Forecast baseline and construction scenario performance at A40 London Road/A355 London End junction

0800-09:00	2021 baseline			2021 with HS2 construction traffic		
Approach (from)	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (All PCU)**	**Flow/ capacity %**	**Max queue**
Minerva Way	11	12%	0	11	15%	0
A40 London Road	1740	98%	31	1809	102%	68
A40 London End	880	77%	3	888	80%	4
A355 Park Ln.	1049	90%	9	1105	95%	16
Total	N/A	98%	N/A	N/A	102%	N/A
17:00-18:00	**2021 baseline**			**2021 with HS2 construction traffic**		
Approach (from)	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**	**Flow (all PCU)**	**Flow/ capacity %**	**Max queue**
Minerva Way	13	8%	0	13	15%	0
A40 London Road	1762	94%	14	1802	104%	88
A40 London End	857	74%	3	857	83%	5
A355 Park Ln.	1052	80%	4	1112	93%	12
Total	N/A	94%	N/A	N/A	104%	N/A

Operation description and assessment of operation impacts

3.2.27 There is no change to the section 7.4 of the main TA and section 3.2 of the SES and AP2 TA with regard to the assessment of the original scheme during operation.