

High Speed Rail (West Midlands - Crewe)

Supplementary Environmental Statement 2 and
Additional Provision 2 Environmental Statement

Volume 5: Technical appendices

Transport assessment addendum
Part 2 (TR-001-000)

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Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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A report prepared for High Speed Two (HS2) Limited:

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4 Stone and Swynnerton (CA3)

4.1 SES2 changes and AP2 amendments

4.1.1 The assessment includes all changes to construction traffic, including the movement of excavated material and changes to the construction programme. It includes measures to reduce the need to move construction materials on the road network and the use of site haul routes to limit construction traffic on the road network.

4.1.2 The original scheme is described in Section 6 of the main TA and Sections 2 to 5 of the Volume 2, community area reports provide details of all the proposed SES2 changes and AP2 amendments. The following SES2 changes and AP2 amendments have the greatest contribution to the assessment of changes in traffic flows in the Stone and Swynnerton area:

- changes to the movement of excavated material and to the construction programme;
- Additional land and a change to Bill powers required along the A34 Stone Road for the provision of a new access to Yarlet School (AP2-002-027);
- Additional land required for the provision of a new permanent left turn filter lane on the roundabout connecting the A51 Stone Bypass to the south-eastern arm of the A34 Stafford Road (AP2-003-003);
- Additional land required for the provision of new permanent traffic signals at the junction of Yarnfield Lane and the A34 The Fillybrooks (AP2-003-007);
- Additional land required for modifications to the Yarnfield Lane M6 overbridge replacement (AP2-003-008);
- Additional land required for provision of a power supply to Whitmore Heath tunnel (AP2-004-001);
- Additional land required and a change to Bill powers for the provision of a roundabout at the junction of the A51 Stone Road diversion/Tittensor Road diversion (AP2-003-012);
- Additional land required for modifications to the roundabout junction of the A500 Queensway/A519 Newcastle Road/A519 Clayton Road (Hanchurch Interchange) and the signalised crossroads junction of the A519 Newcastle Road/A5182 Trentham Road/B5038 Whitmore Road and a new temporary satellite construction compound (AP2-003-017);
- Additional land required and a change to Bill powers for the stopping up of Bent Lane (South) 400m west of Dog Lane overbridge (AP2-003-018); and
- A change to Bill powers for a new permanent diversion of G2084 Shelton under Harley Lane to form a new junction with Bent Lane (North) diversion (AP2-003-019).

4.1.3 There are a number of other SES2 changes and AP2 amendments in the area, which impact on construction traffic flows and these include:

- Local placement of surplus excavated material to the south of Yarlet embankments (SES2-003-001);
- Local placement of surplus excavated material to the north of Swynnerton North cutting (SES2-003-005);
- Local placement of surplus excavated material to the north and south of Hatton South cutting (SES2-003-006);
- Landscape earthworks in the vicinity of the Stone Infrastructure Maintenance Base-Rail (IMB-R) (SES2-003-002);
- amendments to utilities and new utility compounds as set out in Table 275 below;
- Additional land required for a water treatment facility at the Severn Trent Water Limited Swynnerton Pumping Station (AP2-003-009);
- Additional land required for a water treatment facility at the Severn Trent Water Limited Mill Meece Pumping Station (AP2-003-013);
- Additional land required for a water treatment facility at the Severn Trent Water Limited Hanchurch Distribution and Storage Reservoir (AP2-003-015);
- Additional land required and a change to Bill powers for changes to the vertical and horizontal alignment between Hatton South cutting and Madeley Bridleway 1 accommodation green overbridge (AP2-004-002);
- A change to Bill powers to move the stopping up point of Bottom Lane to the existing junction between the A519 Newcastle Road and Bottom Lane and the provision of a new permanent agricultural access from the diverted A51 Stone Road (AP2-003-014); and
- corrections to the main ES: there are corrections in CA3 regarding reported traffic volumes on the A500 Queensway between the M6 and A519 Newcastle Road and reported impacts at the M6 junction 15 north-bound off slip. These are corrected in this report.

4.1.4 The construction assessment also includes consideration of any impacts in the Stone and Swynnerton area that arise from construction of the AP2 revised scheme in the adjoining community areas.

4.2 Existing baseline

4.2.1 Baseline conditions are described in Section 5.5 of the main TA.

4.2.2 Supplementary traffic surveys were undertaken in September 2017 and June 2018. The supplementary TA baseline survey data is included in the Background Information and Data which accompanies the SES2 and AP2 ES (see BID TR-001-000 SES2 and AP2 ES).

4.2.3 The September 2017 survey was undertaken by SCC at the junction of the A34 The Fillybrooks/Yarnfield Lane. The June 2018 surveys were undertaken at locations not previously surveyed but potentially now affected by the AP2 revised scheme or at locations where the highway network has been amended since the original scheme

assessment was undertaken. This includes the A34 The Fillybrooks/Meaford Road junction, which has recently been upgraded from a priority junction to a roundabout.

- 4.2.4 Additional junction modelling has been undertaken to assess traffic impacts at locations potentially affected by the AP2 revised scheme, such as the new construction route along the A51 corridor between A34 Stone Road and Weston.

Baseline traffic flows

- 4.2.5 Table 55 in the main TA summarises the 2016 baseline AM (08:00 – 09:00) peak, PM (17:00 – 18:00) peak and AADT traffic flows. Table 55 in the main TA is partially amended, as shown below.
- 4.2.6 The majority of the traffic flows are unchanged, except for the inclusion of the additional link on the A51 and the amended flows on the A500 Queensway (between A519 Newcastle Road and the M6).

Table 55: Stone and Swynnerton strategic and primary 'A' road network 2016 baseline flows (vehicles)

Location	Direction	2016 baseline AM peak (08:00 – 09:00)		2016 baseline PM peak (17:00 – 18:00)		AADT	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A51 Stone Bypass/Butterhill Bank/Lichfield Road (between A34 Stone Road and Church Lane)	NB	553	51	681	33	7796	529
	SB	587	52	609	23	7557	470
A500 Queensway (between Newcastle Road and M6)	WB	2375	271	2277	171	279356	3653
	EB	1621	185	1587	119	19262	2513
A51 Bury Bank (between Winghouse Lane and Old Winghouse Lane)	WB	374	9	350	5	3118	68
	EB	358	7	380	5	3048	74

Baseline junction operation

4.2.7 The junction operation and modelling criteria applied is summarised in Section 5.5 of the main TA.

A34 The Fillybrooks/Yarnfield Lane

4.2.8 Table 66 of the main TA summarises the baseline junction modelling of the A34 The Fillybrooks/Yarnfield Lane using 2016 traffic survey data. HS2 Ltd has since agreed to reassess this junction using the 2017 traffic survey data supplied by SCC.

4.2.9 The operation of the junction has been assessed for the AM and PM peaks, where Table 66 in the main TA is replaced by Table 66 below.

Table 66: 2017 baseline performance at A34 The Fillybrooks/Yarnfield Lane junction

Approach	Flow, PCU/hr	RFC	Queue, PCU
	2017 AM (08:00 – 09:00) baseline results		
Yarnfield Lane (left)	186	0.34	1
Yarnfield Lane (right)	52	0.16	0
A34 The Fillybrooks (north) (ahead)	1009	-	-
A34 The Fillybrooks (north) (right)	147	0.23	0
A34 The Fillybrooks (south) (left)	109	-	-
A34 The Fillybrooks (south) (ahead)	936	-	-
2017 PM (17:00 – 18:00) baseline results			
Yarnfield Lane (left)	168	0.32	1
Yarnfield Lane (right)	44	0.15	0
A34 The Fillybrooks (north) (ahead)	975	-	-
A34 The Fillybrooks (north) (right)	187	0.31	1
A34 The Fillybrooks (south) (left)	127	-	-
A34 The Fillybrooks (south) (ahead)	1094	-	-

4.2.10 The conclusions drawn in paragraph 5.5.42 of the main TA are unchanged, with the junction operating within capacity during the AM and PM peak periods.

A34 The Fillybrooks/Meaford Road

4.2.11 Table 67 of the main TA summarises baseline junction modelling of the A34 The Fillybrooks/Meaford Road when it was operating as a three-arm priority controlled (give way) T-junction with 'ghost island' right turn facilities.

4.2.12 Following completion of the main TA, the junction has been upgraded to a three-arm roundabout arrangement. This junction has been modelled in order to assess the operation of the revised junction arrangement.

4.2.13 The operation of the junction has been assessed for the AM and PM peaks, where Table 67 in the main TA is replaced by Table 67 below.

Table 67: 2018 baseline performance at A34 The Fillybrooks/Meaford Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU
	2018 AM (08:00 – 09:00) baseline results		
A34 The Fillybrooks (north)	1191	0.54	1
Meaford Road	316	1.04	17
A34 The Fillybrooks (south)	1196	0.64	2
2018 PM (17:00 – 18:00) baseline results			
A34 The Fillybrooks (north)	1343	0.62	2
Meaford Road	157	0.74	3
A34 The Fillybrooks (south)	1161	0.61	2

4.2.14 The conclusions drawn in paragraph 5.5.44 of the main TA are replaced by:

“The results show that the junction currently operates above capacity in the AM peak and approaching capacity in the PM peak, with the Meaford Road arm RFC value of 1.04 and a queue length of 17 PCUs in the AM peak and an RFC value of 0.74 and a queue length of three PCUs in the PM peak.

Both A34 The Fillybrooks arms operate within capacity with minimal queuing in the AM and PM peak periods.”

M6 Junction 15

4.2.15 Table 75 of the main TA summarises junction model performance at M6 Junction 15 for a 2012 baseline year. Table 75 is partly amended as a result of errors in reporting construction traffic impacts on the M6 north-bound off-slip.

Table 75: 2012 baseline results for the M6 junction 15

Approach	Flow, PCU/hr	V/C	Queue, PCU
	2012 AM (08:00 – 09:00) baseline results		
North-bound off-slip	1496	81%	6
2012 PM (17:00 – 18:00) baseline results			
North-bound off-slip	1193	59%	3

4.2.16 The conclusions drawn in paragraph 5.4.56 of the main TA remain unchanged.

A51/B5027 Lichfield Road

- 4.2.17 This junction has been modelled to assess the operation of the junction with the AP2 revised scheme construction traffic being routed along the A51 between the A34 Stone Road and Weston.
- 4.2.18 This junction is a three-arm priority controlled (give way) T-junction with a right-turn ghost island on the A51 and no controlled pedestrian crossing facilities. Table 75.1 summarises the 2018 baseline junction performance in the AM and PM peak periods.

Table 75.1: 2018 baseline performance at A51/B5027 Lichfield Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU
2018 AM (08:00 – 09:00) baseline results			
Lichfield Road (left)	152	0.29	0
Lichfield Road (right)	97	0.32	1
A51 (south) (ahead + right)	92	0.17	0
A51 (south) (ahead)	494	-	-
A51 (north) (left)	12	-	-
A51 (north) (ahead)	417	-	-
2018 PM (17:00 – 18:00) baseline results			
Lichfield Road (left)	100	0.18	0
Lichfield Road (right)	34	0.16	0
A51 (south) (ahead + right)	283	0.57	1
A51 (south) (ahead)	402	-	-
A51 (north) (left)	99	-	-
A51 (north) (ahead)	519	-	-

- 4.2.19 The results show that the junction operates within capacity in the AM and PM peak periods with minimal queuing.

A51/Aston Bridge Lane staggered junctions

- 4.2.20 This junction has been modelled in order to assess the operation of the junction with the AP2 revised scheme construction traffic being routed along the A51 between the A34 Stone Road and Weston.
- 4.2.21 This junction is formed of two staggered three-arm priority controlled (give way) T-junctions with no controlled pedestrian crossing facilities. Table 75.2 summarises the 2018 baseline junction performance in the AM and PM peak periods.

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Table 75.2: 2018 baseline performance at A51/Aston Bridge Lane staggered junctions

Approach	Flow, PCU/hr	RFC	Q, PCU
2018 AM (08:00 – 09:00) baseline results			
Aston Bridge (south) (left)	5	0.01	0
Aston Bridge (south) (ahead + right)	4	0.02	0
A51 (east) (ahead + left + right)	1	0	0
A51 (east) (left)	1	-	-
A51 (east) (ahead)	592	-	-
Aston Bridge (north)	233	0.94	8
A51 (west) (ahead + left + right)	1	0	0
A51 (west) (left)	195	-	-
A51 (west) (ahead)	428	-	-
2018 PM (17:00 – 18:00) baseline results			
Aston Bridge (south) (left)	1	0	0
Aston Bridge (south) (ahead + right)	6	0.03	0
A51 (east) (ahead + left + right)	1	0	0
A51 (east) (left)	2	-	-
A51 (east) (ahead)	436	-	-
Aston Bridge (north)	142	0.67	2
A51 (west) (ahead + left + right)	1	0	0
A51 (west) (left)	501	-	-
A51 (west) (ahead)	615	-	-

4.2.22 The results show that the junction is operating at capacity in the AM peak and within capacity in the PM peak, while the A51 operates within capacity.

4.2.23 In the AM peak, the Aston Bridge (north) arm has an RFC of 0.94 and a queue length of eight PCUs.

4.3 Assessment methodology

4.3.1 The assessment methodology is described in Section 3 of the main TA with the future year baseline detailed in Section 9.2 of the main TA. The construction assessment

considers the traffic and transport impacts in the peak month of construction activity at each location, based on the proposed phasing of construction works. The assessment also includes cumulative impacts arising from construction in the adjoining community areas as well as construction movements through the area.

4.4 CA3 AP2 revised scheme future baseline

4.4.1 Future baseline traffic and transport conditions are described in Section 9.2 of the main TA. This section of the main TA is unchanged unless stated otherwise.

4.4.2 Where a junction has been assessed in which the observed baseline is different to the 2016 baseline, the revised background traffic growth factors have been calculated to determine traffic growth in the construction and operational years, which have been extrapolated from the agreed TEMPRO growth factors applied locally within the main TA.

Highway network

4.4.3 Future baseline traffic and transport conditions are described in Section 9.2 of the main TA. The future baseline assessment includes committed highway scheme improvements to junctions at the A51 Stone Bypass/A34 Stafford Road/Brooms Road and the roundabout upgrade at the A34 The Fillybrooks/Meaford Road.

Strategic road network and primary 'A' road traffic flows

4.4.4 Table 254 in the main TA summarises the 2016, 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows. Table 254 in the main TA is partially amended in Table 254 below.

4.4.5 The majority of the traffic flows are unchanged, except for the inclusion of the new construction route on the A51 and the amended flows on the A500 Queensway (between A519 Newcastle Road and the M6).

Local road network traffic flows

4.4.6 Table 255 in the main TA summarises the 2016, 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows. Table 255 in the main TA remains unchanged.

Table 254: Strategic and primary road network AM peak hour (08:00 – 09:00) and PM peak hour (17:00 – 18:00) future baseline traffic flows

Location	Direction	AM (08:00 – 09:00)								PM (17:00 – 18:00)							
		2016		2023		2027		2041		2016		2023		2027		2041	
		Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV
A51 Stone Bypass/Butterhill Bank/Lichfield Road (between A34 Stone Road and Church Lane)	NB	553	51	596	55	613	56	661	60	681	33	735	36	756	37	788	38
	SB	587	52	632	56	651	57	701	62	609	23	657	25	676	25	705	26
A500 Queensway (between Newcastle Road and M6)	WB	2375	271	2572	293	2649	302	2877	328	2277	171	2477	186	2551	191	2806	210
	EB	1621	185	1756	200	1808	206	1964	224	1587	119	1726	129	1777	133	1955	147

Junction operation – future baseline

- 4.4.7 The operation of the key junctions, which form the main access route for the strategic road network through the study area to the construction sites or affected by the operation of the AP2 revised scheme, have been assessed using the future baseline traffic flows and the results are summarised in the following tables, where these differ from or are additional to the main TA.
- 4.4.8 Where a junction will be affected by the construction of the AP2 revised scheme, future baseline results are included for 2023.
- 4.4.9 Where a junction will be affected by the operation of the AP2 revised scheme as a result of permanent junction improvements, results are included for 2027 and 2041.
- 4.4.10 The AP2 revised scheme provides for a new construction route along the A51 between Stone and Weston. Consequently, additional junctions along this corridor have been assessed, namely the A51/B5027 Lichfield Road junction and the A51/ Aston Bridge Lane staggered junction.
- 4.4.11 The recent upgrading of the A34 The Fillybrooks/Meaford Road junction to a roundabout is assessed.
- 4.4.12 The AP2 revised scheme includes the provision of permanent upgrading of the A51 Stone Bypass/A34 Stafford Road/Brooms Road junction; the A34 The Fillybrooks/Yarnfield Lane junction; the A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange); and the A519 Newcastle Road/A5182 Trentham Road/B5038 Whitmore Road junction.

A51 Stone Bypass/A34 Stafford Road/Brooms Road

- 4.4.13 The local highway authority, SCC, has identified works associated with committed development that have been approved by the Council (junction works referenced as 'SCC mitigation'). The future baseline assessment includes these works.
- 4.4.14 The AP2 revised scheme includes the permanent upgrading of this junction. The upgrade will include a left turn filter lane that will allow traffic turning left from the west-bound A51 Stone Bypass onto the south-bound A34 Stafford Road without the need to give way to traffic on the roundabout. The carriageways of the A51 Stone Bypass and A34 Stafford Road will be widened in the vicinity of the roundabout to accommodate the new left turn filter lane.
- 4.4.15 As there are permanent upgrades to the junction, future baseline results are presented for 2023, 2027 and 2041. Table 256 of the main TA summarises the future baseline performance of the existing junction. Table 256 in the main TA is replaced by Table 256 below, which summarises the future baseline performance with the SCC mitigation at 2023, 2027 and 2041. The 2016 performance remains unchanged from Table 256 of the main TA.

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Table 256: Future baseline performance at A51 Stone Bypass/A34 Stafford Road/Brooms Road junction (SCC mitigation)

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM			2027 AM			2041 AM		
A34 Stafford Road (north)	1780	0.61	2	1962	0.68	2	2020	0.70	2	2176	0.76	3
A51 Stone Bypass	949	0.89	8	1044	1.00	24	1075	1.06	48	1158	1.26	137
A34 Stafford Road (south)	805	0.42	1	899	0.48	1	925	0.50	1	997	0.53	1
Brooms Road	167	0.11	0	184	0.13	0	189	0.13	0	203	0.14	0
	2016 PM			2023 PM			2027 PM			2041 PM		
A34 Stafford Road (north)	1289	0.49	1	1427	0.55	1	1468	0.57	1	1577	0.62	2
A51 Stone Bypass	526	0.37	1	580	0.39	1	597	0.40	1	642	0.45	1
A34 Stafford Road (south)	1264	0.54	1	1405	0.61	2	1446	0.63	2	1553	0.69	2
Brooms Road	566	0.5	1	625	0.62	2	643	0.66	2	691	0.79	4

4.4.16 The conclusions drawn in paragraph 9.2.16 of the main TA are replaced by:

“The results show that the junction is approaching capacity in 2016 in the AM peak and within capacity in the PM peak.

The junction is at or above capacity in the 2023, 2027 and 2041 baseline in the AM peak. In the PM peak, the junction is within capacity in the 2023 and 2027 baseline and approaching capacity in the 2041 baseline.

The A51 Stone Bypass approach has an RFC value of 1.00 in the 2023 baseline, which increases to 1.26 in the 2041 baseline with the queue length rising from 24 to 137 PCUs between 2023 and 2041.

In the PM peak, the Brooms Road arm has an RFC value of 0.79 and a queue length of four PCUs in the 2041 baseline. All other arms operate within capacity in the future baseline.”

A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange)

4.4.17 The AP2 revised scheme includes permanent upgrading of this junction and the A519 Newcastle/A5182 Trentham Road signal crossroads to the south of Hanchurch Interchange. The upgrade includes segregated left turn filter lanes on the north-western and the north-eastern quadrants of the roundabout and widening of the A500 Queensway and A519 Newcastle Road approaches and carriageway.

4.4.18 As these are permanent changes, future baseline results are presented for 2023, 2027 and 2041.

4.4.19 Table 262 of the main TA summarises the results of the 2023 baseline performance of the junction. Table 262 and the conclusions drawn in section 9.2.28 in the main TA remain unchanged. Table 262.1 below summarises the performance of the junction in 2027 and 2041.

Table 262.1: Future year baseline performance at A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange) junction (2027 and 2041)

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2027 AM			2041 AM		
Clayton Road	596	1.47	110	651	1.63	186
A500 Queensway (east)	1998	1.00	37	2183	1.09	119
A519 Newcastle Road	604	0.95	11	660	1.06	31
M6 junction 16 to A500 Hanchurch Roundabout (west)	2909	1.05	93	3179	1.15	243
	2027 PM			2041 PM		
Clayton Road	701	1.13	50	776	1.61	161
A500 Queensway (east)	2030	1.11	118	2247	1.21	237
A519 Newcastle Road	637	0.93	10	705	1.01	23
M6 junction 16 to A500 Hanchurch Roundabout (west)	2715	0.88	8	3004	0.99	31

4.4.20 In addition to the conclusions drawn in section 9.2.28 of the main TA for the 2023 baseline, the results show that the junction continues to operate above capacity in 2027 and 2041 baseline in the AM and PM peak periods.

4.4.21 RFC values in excess of 1.00 are shown on all approaches in the 2041 baseline in the AM peak. In the PM peak, the RFC values exceed 1.00 on the Clayton Road, M6 junction 16 to A500 Hanchurch Roundabout (west) and the A515 Newcastle Road arms. All have substantial queuing in the 2027 and 2041 baseline in the AM and PM peak periods.

A34 The Fillybrooks/Yarnfield Lane

4.4.22 The AP2 revised scheme includes the permanent upgrading of this junction that includes the signalisation of the junction. As there are permanent changes, future baseline results are presented for 2023, 2027 and 2041. Table 265 of the main TA summarises the future baseline performance of the junction.

4.4.23 Table 265 in the main TA is replaced by Table 265 below, which summarises the future baseline performance at the 2023, 2027 and 2041 baseline. The future baseline traffic flows have been extracted from traffic survey data provided by SCC, the local highway

authority. The 2016 baseline assessment remains unchanged from Table 265 in the main TA.

Table 265: Future year baseline performance at A34 The Fillybrooks/Yarnfield Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2017 AM			2023 AM			2027 AM			2041 AM		
Yarnfield Lane (left)	186	0.34	1	201	0.38	1	208	0.39	1	227	0.45	1
Yarnfield Lane (right)	52	0.16	0	56	0.18	0	58	0.2	0	63	0.24	0
A34 The Fillybrooks (north) (ahead)	1009	-	-	1088	-	-	1127	-	-	1231	-	-
A34 The Fillybrooks (north) (right)	147	0.23	0	159	0.26	0	164	0.27	0	179	0.31	1
A34 The Fillybrooks (south) (left)	109	-	-	118	-	-	122	-	-	133	-	-
A34 The Fillybrooks (south) (ahead)	936	-	-	1010	-	-	1045	-	-	1142	-	-
	2017 PM			2023 PM			2027 PM			2041 PM		
Yarnfield Lane (left)	168	0.32	1	181	0.36	1	188	0.38	1	205	0.43	1
Yarnfield Lane (right)	44	0.15	0	48	0.18	0	49	0.19	0	54	0.24	0
A34 The Fillybrooks (north) (ahead)	975	-	-	1053	-	-	1090	-	-	1189	-	-
A34 The Fillybrooks (north) (right)	187	0.31	1	202	0.35	1	209	0.37	1	228	0.42	1
A34 The Fillybrooks (south) (left)	127	-	-	137	-	-	142	-	-	155	-	-
A34 The Fillybrooks (south) (ahead)	1094	-	-	1182	-	-	1223	-	-	1334	-	-

4.4.24 The conclusions drawn in paragraph 9.2.34 of the main TA remain unchanged with the junction operating within capacity.

A34 The Fillybrooks/Meaford Road

4.4.25 Table 266 of the main TA summarises the results of the 2023 future baseline performance of the previous priority junction. The priority junction has recently been upgraded to a roundabout and Table 266 in the main TA is replaced by Table 266 below. As the junction is not affected by the operation of the AP2 revised scheme, future baseline results are presented for 2023 only.

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Table 266: Future year baseline performance at A34 The Fillybrooks/Meaford Road junction (roundabout)

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2018 AM			2023 AM		
A34 The Fillybrooks (north)	1191	0.54	1	1270	0.58	1
Meaford Road	316	1.04	17	337	1.31	48
A34 The Fillybrooks (south)	1196	0.64	2	1275	0.68	2
	2018 PM			2023 PM		
A34 The Fillybrooks (north)	1343	0.62	2	1432	0.67	2
Meaford Road	157	0.74	3	167	1.04	11
A34 The Fillybrooks (south)	1161	0.61	2	1238	0.65	2

4.4.26 The conclusions drawn in paragraph 9.2.36 of the main TA are replaced by:

“The results show that the junction operates above capacity in the 2023 baseline in the AM and PM peak periods. Both A34 The Fillybrooks arms operate within capacity with minimal queuing during the AM and PM peak periods.

While the A34 The Fillybrooks operates within capacity, Meaford Road has an RFC value of 1.31 with a corresponding queue length of 48 PCUs in the AM peak and an RFC value of 1.04 and queue of 11 PCUs in the PM peak.”

A5182 Whitmore Road/A519 Newcastle Road

4.4.27 The AP2 revised scheme includes the permanent upgrading of this junction along with the A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange) located to the north of this junction. The upgrade includes widening of the A519 Newcastle Road carriageway and increased number of approach lanes.

4.4.28 As these are permanent changes, future baseline results are presented for 2023, 2027 and 2041. Table 271 of the main TA summarises the results of the 2023 future baseline performance of the junction. Table 271 in the main TA and the conclusions drawn in section 9.2.47 in the main TA remain unchanged.

4.4.29 Table 271.1 below summarises the performance of the junction in the 2027 and 2041 baseline.

Table 271.1: Future year baseline performance at A5182 Whitmore Road/A519 Newcastle Road junction (2027 and 2041)

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
	2027 AM			2041 AM		
A519 Newcastle Road (north)	648	125%	82	707	128%	97
B5038 Whitmore Road (east)	255	131%	40	278	144%	53
A519 Newcastle Road (south)	392	122%	48	428	134%	68

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Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
	2027 AM			2041 AM		
A5182 Whitmore Road (west)	326	70%	9	356	80%	10
HGV Depot access	0	0%	0	0	0%	0
	2027 PM			2041 PM		
A519 Newcastle Road (north)	839	113%	70	929	125%	118
B5038 Whitmore Road (east)	186	114%	20	206	126%	30
A519 Newcastle Road (south)	428	111%	36	473	123%	60
A5182 Whitmore Road (west)	360	109%	29	398	120%	48
HGV Depot access	0	0%	0	0	0%	0

4.4.30 In addition to the conclusions drawn in section 9.2.47 of the main TA for the 2023 baseline, the results show that the junction continues to operate above capacity in the 2027 and 2041 baseline in the AM and PM peak periods.

4.4.31 The DoS values and queues continue to increase, with the A519 Newcastle Road (north) arm having a queue in the 2041 baseline of 118 PCUs in the PM peak.

M6 Junction 15

4.4.32 Table 274 of the main TA summarises the junction model performance at M6 Junction 15. Table 274 is partly amended as a result of errors in reporting construction traffic impacts on the M6 north-bound off slip as presented below.

Table 274: Future baseline performance at M6 junction 15

Approach	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
	2012 AM			2023 AM		
North-bound off slip	1496	81%	6	1599	87%	7
	2012 PM			2023 PM		
North-bound off slip	1193	59%	3	1432	71%	4

4.4.33 The conclusions drawn in paragraph 9.2.53 of the main TA remain unchanged.

A51 Lichfield Road/B5027 Lichfield Road

4.4.34 The AP2 revised scheme construction traffic will route along the A51 between the A34 Stone Road and Weston. Table 274.1 below summarises future baseline performance of the junction. As the junction is not affected by the operation of the AP2 revised scheme, future baseline results are presented for 2023 only.

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Table 274.1: Future year baseline performance at A51 Lichfield Road/B5027 Lichfield Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2018 AM			2023 AM		
B5027 Lichfield Road (left)	152	0.29	0	160	0.31	1
B5027 Lichfield Road (right)	97	0.32	1	102	0.35	1
A51 Lichfield Road (south) (ahead + right)	92	0.17	0	97	0.18	0
A51 Lichfield Road (south) (ahead)	494	-	-	521	-	-
A51 Lichfield Road (north) (left)	12	-	-	13	-	-
A51 Lichfield Road (north) (ahead)	417	-	-	440	-	-
	2018 PM			2023 PM		
B5027 Lichfield Road (left)	100	0.18	0	106	0.20	0
B5027 Lichfield Road (right)	34	0.16	0	36	0.18	0
A51 Lichfield Road (south) (ahead + right)	283	0.57	1	299	0.62	2
A51 Lichfield Road (south) (ahead)	402	-	-	425	-	-
A51 Lichfield Road (north) (left)	99	-	-	105	-	-
A51 Lichfield Road (north) (ahead)	519	-	-	548	-	-

4.4.35 The results show that this junction operates within capacity in the 2023 baseline in the AM and PM peak periods with minimal queuing.

A51 Stone Bypass/Aston Bridge Lane staggered junction

4.4.36 The AP2 revised scheme construction traffic will route along the A51 between the A34 Stone Road and Weston. Table 274.2 below summarises future baseline performance of the A51 Stone Bypass/Aston Bridge Lane staggered junction. As the junction is not affected by the operation of the AP2 revised scheme, future baseline results are presented for 2023 only.

Table 274.2: Future year baseline performance at A51 Stone Bypass/Aston Bridge Lane staggered junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2018 AM			2023 AM		
Aston Bridge (south) (left)	5	0.01	0	5	0.01	0

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Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2018 AM			2023 AM		
Aston Bridge (south) (ahead + right)	4	0.02	0	4	0.02	0
A51 Stone Bypass (east) (ahead + left + right)	1	0	0	1	0	0
A51 Stone Bypass (east) (left)	1	-	-	1	-	-
A51 Stone Bypass (east) (ahead)	592	-	-	624	-	-
Aston Bridge (north)	233	0.94	8	246	1.03	14
A51 Stone Bypass (west) (ahead + left + right)	1	0	0	1	0	0
A51 Stone Bypass (west) (left)	195	-	-	206	-	-
A51 Stone Bypass (west) (ahead)	438	-	-	451	-	-
	2018 PM			2023 PM		
Aston Bridge (south) (left)	1	0	0	1	0	0
Aston Bridge (south) (ahead + right)	6	0.03	0	6	0.03	0
A51 Stone Bypass (east) (ahead + left + right)	1	0	0	1	0	0
A51 Stone Bypass (east) (left)	2	-	-	2	-	-
A51 Stone Bypass (east) (ahead)	436	-	-	461	-	-
Aston Bridge (north)	142	0.67	2	150	0.74	3
A51 Stone Bypass (west) (ahead + left + right)	1	0	0	1	0	0
A51 Stone Bypass (west) (left)	501	-	-	529	-	-
A51 Stone Bypass (west) (ahead)	615	-	-	650	-	-

4.4.37 The results show the junction will operate above capacity in the 2023 baseline in the AM peak and approaching capacity in the PM peak.

- 4.4.38 In the AM peak, the Aston Bridge (south) arm has an RFC value of 1.03 and a queue of 14 PCUs. In the PM peak the arm has an RFC value of 0.74 and a queue of three PCUs.

Accidents and safety

- 4.4.39 Accidents and safety are reported in Section 9.2 of the main TA. This section of the main TA is unchanged.

Parking and loading

- 4.4.40 Parking and safety are reported in Section 9.2 of the main TA. This section of the main TA is unchanged.

Public transport

Rail

- 4.4.41 Rail services are reported in Section 9.2 of the main TA. This section of the main TA is unchanged.

Local bus services

- 4.4.42 Local bus services are reported in Section 9.2 of the main TA. This section of the main TA is unchanged.

Public transport interchanges

- 4.4.43 Public transport interchanges are reported in Section 9.2 of the main TA. This section of the main TA is unchanged.

Pedestrians, cyclists and equestrians

- 4.4.44 Pedestrians, cyclists and equestrians are reported in Section 9.2 of the main TA. This section of the main TA is unchanged.

Waterways and canals

- 4.4.45 Waterways and canals are reported in Section 9.2 of the main TA. This section of the main TA is unchanged.

4.5 CA3 AP2 revised scheme construction description

- 4.5.1 A number of changes to the original scheme reported in Section 4.1 of this report means that Section 9.3 of the main TA and Section 4.5 of the SES1 and AP1 ES TA Addendum are replaced in Section 4.5 of this document unless otherwise specified.
- 4.5.2 This section provides an overview of the construction traffic and transport impacts for the section of the AP2 revised scheme that will pass through the Stone and Swynnerton area.
- 4.5.3 The construction period for the whole route is programmed for 2020 to 2027, although activity in 2027 is limited to testing and commissioning. Construction activities have been assessed against 2023 baseline traffic flows, irrespective of when they occur during the construction period. The year 2023 has been adopted as a common base year and the impact of individual or overlapping activities are considered against this single year. The year 2023 also broadly represents the likely

typical peak periods during construction of the AP2 revised scheme and therefore it is considered to be reasonably representative.

Construction activities

4.5.4 Construction activities are reported in Section 9.3 of the main TA. This section of the main TA is unchanged.

Compounds and construction sites

4.5.5 Details of the construction works and the main construction works and the time periods when each compound is operational are summarised in the indicative construction programme found in Volume 2, Stone and Swynnerton, Section 2.3.

4.5.6 The location of the construction compounds and the associated access routes are shown in the SES2 and AP2 ES Volume 5 Map Book, Map Series TR-08 that reflect the transport activity at each site during the busy period as summarised in Table 276 below.

4.5.7 Table 275 in the main TA summarises the anticipated average and peak workforce required at each construction compound for the original scheme. Table 275 in the main TA is replaced by Table 275 below for the AP2 revised scheme. This includes the anticipated average and peak workforce at each of the civils, utility and rail systems compounds. Generally, the utility compound activities will occur in advance of the main civils and the rail systems compound activities will occur following the main civils activities.

Table 275: Assumed workforce at compounds

Compound type	Location	Total number of workers		Number of staff
		Average	Peak	
Utility	Yarlet utility compound	15	20	3
Satellite	Yarlet Embankment satellite compound	28	42	7
Satellite	Yarlet North Cutting satellite compound	76	114	19
Satellite	Yarnfield North Embankment satellite compound	132	198	33
Satellite	M6 Meaford Viaduct satellite compound	12	18	3
Satellite	Meaford North Embankment satellite compound	36	54	9
Utility	Swynnerton utility compounds - 1no North and 1no South of M6	15	20	3
Utility	Tittensor Road utility compound	15	20	3
Satellite	Swynnerton Embankment satellite compound	12	18	3
Rail systems		41	74	10

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Compound type	Location	Total number of workers		Number of staff
		Average	Peak	
Main	Swynnerton North Cutting main compound	200	300	50
Utility	Trentham Road off route highway modifications compound	10	20	3
Satellite	Hatton South Cutting satellite compound	24	36	6
Satellite	Hatton North Cutting satellite compound	12	18	3
Utility	Bent Lane utility compound	15	20	3
Utility	Severn Trent Water Whitmore borehole: Swynnerton	12	20	3
Utility	Severn Trent Water Whitmore borehole: Mill Meece	13	20	3
Utility	Severn Trent Water Whitmore borehole: Hanchurch	14	20	3
Rail systems	Stone crossovers satellite compound	8	13	1
Rail systems	Stone connection satellite compound	41	100	5
Rail systems	Stone railhead main compound	205	289	46
Rail systems	Stableford ATS satellite compound	26	38	4

4.5.8 Table 276 of the main TA summarises the typical vehicle trip generation for construction site compounds in this area for the original scheme. Table 276 in the main TA is replaced by Table 276 below, which summarises the typical vehicle trip generation for construction site compounds for the AP2 revised scheme.

4.5.9 For each compound in Table 276, the peak month of activity is the month within which HGV traffic is at its highest for that compound. The busy period is the period during which HGV traffic serving that compound will be greater than 50% of the HGV traffic in the peak month. The average daily combined two-way vehicle trips shown for the busy period is the lower end of the range. The upper end of the range is the average daily combined two-way vehicle trips for the peak month.

Table 276: Typical vehicle trip generation for construction sites in the Stone and Swynnerton area

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Yarlet Embankment satellite compound (including Stone crossovers satellite compound)	Pirehill Lane to B5026 Eccleshall Road, A34 Stone Road for site setup and servicing, followed by site haul route to the A34 Stone Road	Civil engineering – January 2021	Four years and three months	9	56-77	41-52
			Site reinstatement – January 2026	Three months	3		
			Rail systems – December 2025	Three months	2	7-9	up to 10
Satellite	Yarlet utility compound	A34 Stone Road north-bound	March 2023	Six months	1	23-30	23-23
Satellite	Yarlet North cutting satellite compound	B5026 Eccleshall Road to A34 Stone Road	Civil engineering – September 2020	Four years nine months	17	152-209	48-71
			Site reinstatement – September 2026	Three months	1		
Satellite	Stone connection satellite compound	B5026 Eccleshall Road to A34 Stone Road	September 2021	Six months	4	72-94	12-16
Main	Stone railhead main compound	M6 via railhead	July 2024	Two years	6	236-300	141-202

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Yarnfield North embankment satellite compound	Yarnfield Lane to A34 The Fillybrooks for early works and servicing, followed by site haul route to Stone railhead and to the M6	Civil engineering – July 2020	Four years nine months for civils but compound remains a further one year and nine months due to worker accommodation	19	264-363	76-153
			Site reinstatement – November 2026	Three months	2		56-64
Transfer node	Transfer node associated with Yarnfield North embankment satellite compound	Yarnfield Lane to A34 The Fillybrooks for early works followed by site haul route to Stone railhead to the M6	October 2020	Four years three months	5	N/A	1886-2329
Satellite	M6 Meaford viaduct satellite compound	Yarnfield Lane and onto A34 The Fillybrooks for early works and servicing, followed by site haul route to Stone railhead to the M6	Civil engineering – October 2020	Three years six months	18	24-33	44-66
			Site reinstatement – February 2026	Six months	3		30-33
Satellite	Meaford North embankment satellite compound	Tittensor Road to A51 Stone Road for site setup, main access via site haul route to Stone railhead to the M6	Civil engineering – November 2020	Four years and three months	5	72-99	49-75
			Site reinstatement – May 2026	Three months	2		31-37
Satellite	Swynnerton utility compound North	Stone Rural BOAT 34 to A51 Bury Bank	April 2021	Nine months	6	23-30	9-14

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Swynnerton utility compound South	Stone Rural BOAT 34 to A51 Bury Bank and via site haul route and to Tittensor Road	April 2021	Nine months	6	23-30	9-14
Satellite	Severn Trent Water (STW) Whitmore borehole mitigation compound – Swynnerton	A51 Stone Road	July 2020	Six months	1	23-30	24-24
Satellite	Swynnerton Embankment satellite compound	Tittensor Road to A51 Stone Road for site setup, main access via site haul route to A519 Newcastle Road	Civil engineering – October 2020	Three years and nine months	4	24-33	79-82
			Site reinstatement – July 2026	Three months	1		52-52
			Railway systems – August 2024	One year and three months	4		67-91
Satellite	STW Whitmore borehole mitigation compound – Mill Meece	Mill Meece Marsh to A519 Newcastle Road	July 2020	Six months	1	20-30	40-40

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Main	Swynnerton North cutting main compound	A519 Newcastle Road and A51 Stone Road for site setup with a limited continued access. Main access via site haul route to A519 Newcastle Road	Civil engineering – July 2020	Five years	13	400-550	65-86
			Site reinstatement – August 2026	Three months	2		66-79
Transfer node	Transfer node associated with Swynnerton North cutting main compound	A519 Newcastle Road	October 2021	Three years three months	8	N/A	186-265
	Tittensor Road utility compound	Tittensor Road, to A51 Stone Road	March 2023	Six months	1	23-30	42-42
Satellite	Hatton South cutting satellite compound	Bent Lane to A51 The Rowe for site setup, main access via site haul route to A519 Newcastle Road	Civil engineering – October 2020	Four years and three months	11	48-66	42-54
			Site reinstatement – January 2026	Three months	2		34-35
Satellite	Hatton North cutting satellite compound	Bent Lane to A51 The Rowe initially and then the realigned Bent Lane to the A51 The Rowe	Civil engineering – October 2020	Four years and six months	7	24-33	51-73
			Site reinstatement – March 2026	Three months	1		19
	Bent Lane utility compound	Realigned Bent Lane to A51 The Rowe	September 2021	One year and three months	1	23-30	18-18

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
	STW Whitmore borehole mitigation compound – Hanchurch	Drayton Road to A519 Newcastle Road	July 2020	Six months	1	21-30	40-40
Satellite	Stableford auto-transformer station satellite compound	Realigned Bent Lane to A51 The Rowe	August 2024	One year and three months	7	32-44	up to 10
Satellite	Trentham Road off-route highway modifications compound	A519 Clayton Road	July 2020	One year	12	30-30	12-20

Construction HGV routes

- 4.5.10 Construction vehicle movements required to construct the AP2 revised scheme will include the delivery of plant and materials, movement of excavated materials and site worker trips. Works will include utilities diversions, earthworks, underpass, viaduct, Stone railhead, bridge and highway construction.
- 4.5.11 The AP2 revised scheme will introduce a new construction route in CA3, the A51 between Stone and Weston, which will reduce construction traffic on the A513 Beaconside.
- 4.5.12 Changes to the construction approach in the AP2 revised scheme will result in the new slip roads at Yarnfield being in place earlier than previously reported for the original scheme. Earlier access from the M6 to the compounds in the vicinity of the railhead will reduce the need to use the A34 and Yarnfield Lane as construction routes.
- 4.5.13 HGVs have been routed where reasonably practicable along the strategic or primary road network, although some access locations will be off secondary roads. In the Stone and Swynnerton area, the SRN and primary construction traffic routes are as follows: the M6, the A51 Stone Road, the A34 Stafford Road, the A519 Newcastle Road, the A5182 Trentham Road and the A500 Queensway. Where reasonably practicable the use of the local road network has been limited to site setup, access for environmental surveys and on-going servicing (including refuse collection and general deliveries).
- 4.5.14 In addition, roads may have some low level (less than 10 HGV movements per day) construction traffic associated with highway works including utilities works. However, in Table 277 below, this traffic is assigned to the construction compound from which the works will be managed.
- 4.5.15 Table 277 in the main TA summarises the peak daily construction traffic flow, both in HGVs and total vehicles on each link within the Stone and Swynnerton area that is on a construction route for the original scheme. Table 277 of the main TA is replaced by Table 277 below.
- 4.5.16 The introduction of the construction route along the A51 between A34 Stone Road and Weston as part of the AP2 revised scheme and changes to the movement and use of surplus excavated material will remove or reduce construction traffic from a number of routes.
- 4.5.17 Table 277 indicates an increase in construction traffic, when comparing the AP2 revised scheme against the original scheme, at locations such as the M6 (between junction 15 and junction 16), A51 Stone Bypass, the A34 Stafford Road (between Stone Bypass and Eccleshall Road), the A34 The Fillybrooks, the A51 Bury Bank/Stone Road and the A519 Newcastle Road.
- 4.5.18 Table 277 also indicates a reduction in construction traffic, when compared to the original scheme, at locations such as the M6 (between Yarnfield Lane and M6 junction 15 slip road), A34 Stone Road, A500 Queensway (between M6 and Stone Road), A51 The Rowe, A5182 Trentham Road and B5026 Eccleshall Road.
- 4.5.19 Where zero 'all vehicle' and/or 'HGV' construction flows are indicated, these represent links that are no longer a main construction route when considering the AP2 revised

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scheme. These links may, however, be subject to occasional or infrequent use by AP2 revised scheme construction traffic.

Table 277: CA3 peak daily construction traffic flow

Location	Direction	Peak HGV	Peak all vehicles
M6 (between Yarnfield Lane and M6 junction 15 slip road)	NB	1325	1701
	SB	1325	1701
M6 (between M6 junction 15 slip road and M6 junction 16 slip road)	NB	1325	2013
	SB	1325	2013
M6 (mainline flow on M6 within junction 15)	NB	1226	1382
	SB	1226	1382
A51 Stone Bypass/Butterhill Bank/Lichfield Road (between A34 Stone Road and Church Lane)	NB	253	443
	SB	253	443
A34 Stafford Road (between Stone Bypass and Eccleshall Road)	NB	135	630
	SB	135	630
A34 Stone Road (between Queensway and Longton Road)	SB	2	258
	NB	2	258
A34 Stone Road (between Winghouse Lane and Longton Road)	SB	2	258
	NB	2	258
A34 Stone Road (between A51 Bury Bank and Winghouse Lane)	SB	2	258
	NB	2	258
A34 The Fillybrooks (between Eccleshall Road and Yarnfield Lane)	WB	116	633
	EB	116	633
A34 The Fillybrooks (between Newcastle Road and Meaford Road)	NB	28	402
	SB	28	402
A34 The Fillybrooks (between Trent Road and Newcastle Road)	NB	28	402
	SB	28	402

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Location	Direction	Peak HGV	Peak all vehicles
A500 Queensway (between Newcastle Road and Stone Road)	EB	2	588
	WB	2	588
A500 Queensway (between Newcastle Road and M6)	WB	404	1126
	EB	404	1126
A51 Bury Bank (between Stone Road and east of Winghouse Lane)	WB	28	163
	EB	28	163
A51 Bury Bank (between Winghouse Lane and east of Winghouse Lane)	WB	24	156
	EB	24	156
A51 Lichfield Road (between Uttoxeter Road and Church Lane)	SB	2	258
	NB	2	258
A51 Stone Road (between Coombsdale and road from A51 Stone Road to Clayalders Bank)	WB	0	15
	EB	0	15
A51 Stone Road (between the AP2 revised scheme and Newcastle Road)	WB	82	179
	EB	82	179
A51 Stone Road (between the AP2 revised scheme and Tittensor Road)	WB	23	177
	EB	23	177
A51 Stone Road (between Newcastle Road and Common Lane)	WB	42	63
	EB	42	63
A51 Stone Road (between road from A51 Stone Road to Clayalders Bank and Nantwich Road)	WB	0	15
	EB	0	15
A51 Stone Road (between Tittensor Road and the AP2 revised scheme)	WB	23	177
	EB	23	177
A51 Stone Road (between Winghouse Lane and Tittensor Road)	WB	24	156
	EB	24	156

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Location	Direction	Peak HGV	Peak all vehicles
A51 The Rowe (between Bent Lane and Stableford Bank)	WB	0	15
	EB	0	15
A51 The Rowe (between Common Lane and Dog Lane)	NB	42	63
	SB	42	63
A51 through Stableford (between Stableford Bank and Coombsdale)	WB	0	15
	EB	0	15
A519 Newcastle Road (between Drayton Road and Hanchurch Lane)	NB	162	456
	SB	162	456
A519 Newcastle Road (between Hanchurch Lane and Whitmore Road)	NB	162	456
	SB	162	456
A519 Newcastle Road (between Long Lane and Drayton Road)	NB	162	456
	SB	162	456
A519 Newcastle Road (between Long Lane and the AP2 revised scheme)	NB	159	782
	SB	159	782
A519 Newcastle Road (between Station Road and Stone Road)	SB	20	173
	NB	20	173
A519 Newcastle Road (between Stone Road and the AP2 revised scheme)	NB	159	782
	SB	159	782
A519 Newcastle Road (between Whitmore Road and Queensway)	NB	404	874
	SB	404	874
A5020 Stafford Road (between The Fillybrooks and Radford Street)	NB	0	30
	SB	0	30
A5182 Trentham Road (between Whitmore Road and Newcastle Road)	WB	359	449
	EB	359	449

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Location	Direction	Peak HGV	Peak all vehicles
B5026 Eccleshall Road (between Meece Road and the AP2 revised scheme)	NB	0	0
	SB	0	0
B5026 Eccleshall Road (between Pirehill Lane and the AP2 revised scheme)	SWB	39	151
	NEB	39	151
B5026 Eccleshall Road (between The Fillybrooks and Pirehill Lane)	SWB	40	191
	NEB	40	191
Long Lane (between Stone Road and Newcastle Road)	NB	0	0
	SB	0	0
Tittensor Road current alignment (between Stab Lane and the AP2 revised scheme)	SB	81	191
	NB	81	191
Tittensor Road realigned (between Stab Lane and the AP2 revised scheme)	SB	81	106
	NB	81	106
Yarnfield Lane (between The Fillybrooks and the AP2 revised scheme)	WB	99	297
	EB	99	297
Bent Lane (between The Rowe and the AP2 revised scheme)	NB	42	51
	SB	42	51
Bent Lane (south of the AP2 revised scheme)	NB	42	51
	SB	42	51
Dog Lane (between The Rowe and the AP2 revised scheme)	EB	25	41
	WB	25	41
Pirehill Lane (between Coombe Park Road and AP2 revised scheme)	SB	21	59
	NB	21	59
Pirehill Lane (between Eccleshall Road and Coombe Park Road)	SB	21	59
	NB	21	59

Location	Direction	Peak HGV	Peak all vehicles
Pirehill Lane (between the AP2 revised scheme and Green Lane)	SB	21	59
	NB	21	59

Traffic management, road closures and diversions

4.5.20 The approach to traffic management, road closures and diversions is reported in Section 9.3 of the main TA. This section of the main TA is unchanged.

PRoW closures and diversions

4.5.21 The approach to PRoW closures and diversions is reported in Section 9.3 of the main TA. This section of the main TA is unchanged.

4.6 CA3 AP2 revised scheme assessment of construction impacts

4.6.1 A number of changes to the original scheme reported in Section 4.1 of this report mean that Section 9.4 of the main TA and Section 4.6 of the SES1 and AP1 ES TA Addendum are generally replaced by Section 4.6 of this document unless stated otherwise.

Key construction transport issues

4.6.2 The temporary traffic and transport impacts in this area will include:

- road closures and associated diversions;
- diversions and alternative routes for PRoW; and
- construction vehicle movements to and from the various worksites.

4.6.3 The construction assessment has also considered any impacts in this area that arise from construction of the AP2 revised scheme in the adjoining community areas.

4.6.4 The AP2 revised scheme includes greater usage of site haul roads by construction traffic, which generally results in reduced usage on the local road network. Local placement, greater utilisation of borrow pit material as well as refinements to the construction process and programme will result in further reductions to traffic on the local road network.

Highway network

Highway closures and diversions

4.6.5 The AP2 revised scheme includes the permanent junction upgrades and amendments at the A51 Stone Bypass/A34 Stafford Road and the A34 The Fillybrooks/Yarnfield Lane junctions. The temporary construction works to implement the changes at these junctions are expected to take three months to implement under associated traffic management measures that are likely to result in a temporary reduction in capacity and increased delays.

4.6.6 The AP2 revised scheme includes permanent junction upgrades at the A500 Queensway/A519 Newcastle Road junction and the A519 Newcastle Road/A5182 Trentham Road junctions. The temporary construction works at these junctions are

expected to take up to one year by way of intermittent lane and night-time closures under traffic signal control that are likely to result in a temporary reduction in capacity and increased delays. HS2 Ltd will work with the local highway authorities to ensure that any traffic management works will be well planned and communicated and will not have a substantial impact on traffic flows and delays for vehicle occupants.

- 4.6.7 The AP2 revised scheme includes a power connection for the tunnel boring machine (TBM) used for the construction of Whitmore Heath tunnel. The power connection will also be used for the operation of the tunnel post-construction. The power supply will come from Western Power Distribution's existing sub-station at the Meaford Bulk Supply Point (BSP), with the majority of the works contained in the existing roads and the power cables installed in either the verge or the carriageway.
- 4.6.8 The TBM power supply works will involve individual road, lane or partial lane closures under traffic control during a series of individual works over limited distances. Closures and diversions will be restricted to short-term and/or weekend closures where reasonably practicable. While the impact of these off-peak closures on traffic flows and consequent delays to vehicles as a result of congestion is not likely to be substantial, an overview of the individual and cumulative impact along the route of the TBM power supply works is summarised in Table 304.1.
- 4.6.9 The majority of the TBM route is contained in the Stone and Swynnerton area but it also includes the northern section of Bent Lane and the A51 Newcastle Road that are located within the Whitmore Heath to Madeley area. The TBM route is assessed in Table 304.1 individually and cumulatively in this and the adjacent community area.

Table 304.1: Meaford BSP to Whitmore TBM construction works impact assessment

Location	Type of traffic management	Activity	Duration (days)	Approximate distance (m)	Impact
Meaford Road	One-way shuttle (off-peak)	Duct installation	10	1150	Not significant individually or cumulatively. Available alternative routes and traffic management will minimise delays
Tittensor Road	One-way shuttle (off-peak)	Duct installation	10	1150	Not significant individually or cumulatively. Available alternative routes and traffic management will minimise delays
A34 Stone Road	Lane closure	Duct installation	1	250	Not significant individually or cumulatively. Alternative routes available. Bus stops to be retained or use of temporary bus stops. Single lane operation may cause limited peak period delay, not significant given the short duration and traffic management
Chase Lane	Full closure	Duct installation	10	2000	Diversion length via Winghouse Lane not significant and traffic impact minimal given low traffic volume on both routes. Short duration. Not significant individually or cumulatively
A51 Stone Road	One-way shuttle (off-peak)	Duct installation	29	3500	Potential cumulative impact mitigated through off-peak working, traffic management and availability of alternative routes
A51 Stone Road	One-way shuttle (off-peak)	Duct installation	19	2250	Potential cumulative impact mitigated through off-peak working, traffic management and availability of alternative routes
Bent Lane	Full closure	Duct installation	13	2500	Diversion length via Hill Chorlton not significant and traffic impact minimal. Short duration. Not significant individually or cumulatively
A53 Newcastle Road	Within the area of land required for construction of the AP2 revised scheme	Duct installation	6	1200	Not significant individually or cumulatively.
Whole route		Cable pulling and jointing	29	17400	Not significant individually and cumulatively.

- 4.6.10 Given the short-term duration of the works during the off-peak and night-time periods, short length of the individual works and the availability of suitable alternative routes, the assessment concludes that the TBM power connection works will not give rise to a substantial impact on traffic flows and delays for vehicle occupants. HS2 Ltd will work with the local highway authorities to minimise any impact.
- 4.6.11 Temporary road or lane closures and associated diversions will be required in a number of locations for the AP2 revised scheme in addition to the B5026 Eccleshall Road, Yarnfield Lane, the M6, Tittensor Road, Dog Lane and Bent Lane reported in the main TA, including:
- A500 Queensway/A519 Newcastle Road (in the vicinity of the M6 junction 15);
 - A51 Stone Bypass/A34 Stone Road;
 - A53 Newcastle Road;
 - A519 Newcastle Road;
 - Common Lane;
 - Pirehill Lane;
 - Meaford Road; and
 - Chase Lane.
- 4.6.12 These may involve lane closures and partial lane closures under traffic control for the tie-in of new alignments, intermittent lane restrictions and temporary road closures. Closures and diversions will be restricted to short-term overnight and/or weekend closures where reasonably practicable. The impact of these off-peak closures on traffic flows and consequent delays to vehicles as a result of congestion is not likely to be substantial.

PRoW closures and diversions

- 4.6.13 The PRoW closures and diversions are reported in Section 9.4 of the main TA.
- 4.6.14 Table 278 in the main TA summarises the temporary PRoW diversions and realignments required to accommodate the construction of the original scheme. Table 278.1 summarises changes to the temporary amendments to the PRoWs to support the construction of the AP2 revised scheme and supersede the associated data in Table 278 of the main TA for the original scheme. Those not listed in Table 278.1 remain unchanged to those identified by Table 278 of the main TA.

Table 278.1: CA3 temporary amended PRoW diversions

PRoW name	Description	Change in length (compared to baseline)
Stone Rural Footpath 28	Relocation of the Stone Rural Footpath 28 accommodation overbridge will remove the need for a temporary diversion.	No change in length during construction.

Strategic and local road network flows

- 4.6.15 During the construction period there will be a number of highway links that will be affected by the construction of the AP2 revised scheme. An assessment of the impact

of construction related vehicle movements and temporary diversions has been undertaken and is detailed below. This assessment considers the peak month of activity in each particular location. However, the flows outlined in the following sections will not necessarily occur concurrently as impacts on different parts of the network will occur at different times.

- 4.6.16 Table 279 and 280 of the main TA summarise the 2023 traffic flows on highway links affected by construction traffic associated with the original scheme for the AM and PM peak hour respectively.
- 4.6.17 Tables 279 and 280 in the main TA are replaced by Tables 279 and Table 280 below, which set out the 2023 traffic flows on highway links affected by AP2 revised scheme construction traffic for the AM and PM peak hour respectively. For completeness, all links identified in the main TA are included even where they are no longer proposed as construction routes.
- 4.6.18 To show the impact of the construction of the AP2 revised scheme in these locations, traffic flows on affected links are presented for the 2023 future baseline and for the 2023 future baseline with the AP2 revised scheme, alongside the percentage increase from the future baseline.
- 4.6.19 Where there is a 'zero percentage' change in construction 'Vehicles' and/or 'HGV' traffic in the table, this represents a link that is not identified as a main construction route for the AP2 revised scheme. Such links may, however, be subject to occasional or infrequent use by AP2 revised scheme construction traffic.
- 4.6.20 Where a link indicates a change annotated by 'N/A', this represents a link with zero HGVs in the baseline. Such links either indicate no change or a small change in the number of HGVs as a result of the AP2 revised scheme. Such changes are not generally substantial.

Table 279: 2023 future baseline and with the AP2 revised scheme construction traffic (vehicles) – AM peak hour (08:00 – 09:00)

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
M6 (between Yarnfield Lane and M6 junction 15 slip road)	NB	4525	848	4768	980	5.4%	15.6%
	SB	4079	723	4322	856	6.0%	18.3%
M6 (between M6 junction 15 slip road and M6 junction 16 slip road)	NB	3613	770	3918	903	8.4%	17.2%
	SB	3815	711	4120	844	8.0%	18.6%
M6 (mainline flow on M6 within junction 15)	NB	2536	619	2707	742	6.8%	19.8%
	SB	2421	459	2592	581	7.1%	26.7%
A51 Stone Bypass/Butterhill Bank/Lichfield Road (between A34 Stone Road and Church Lane)	NB	596	55	668	80	12.2%	46.3%
	SB	632	56	705	81	11.5%	45.4%
A34 Stafford Road (between Stone Bypass and Eccleshall Road)	NB	1148	95	1286	109	12.0%	14.2%
	SB	1786	100	1924	114	7.7%	13.5%
A34 Stone Road (between Queensway and Longton Road)	SB	1112	90	1180	90	6.1%	0.3%
	NB	1259	89	1327	89	5.4%	0.3%
A34 Stone Road (between Winghouse Lane and Longton Road)	SB	1083	65	1151	65	6.3%	0.4%
	NB	1136	67	1204	68	6.0%	0.4%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A34 Stone Road (between A51 Bury Bank and Winghouse Lane)	SB	1030	67	1098	67	6.6%	0.4%
	NB	1023	65	1091	65	6.6%	0.4%
A34 The Fillybrooks (between Eccleshall Road and Yarnfield Lane)	WB	999	73	1142	84	14.3%	15.9%
	EB	965	70	1108	82	14.8%	16.5%
A34 The Fillybrooks (between Newcastle Road and Meaford Road)	NB	1331	119	1432	122	7.5%	2.3%
	SB	1560	103	1660	106	6.4%	2.7%
A34 The Fillybrooks (between Trent Road and Newcastle Road)	NB	958	76	1058	79	10.5%	3.7%
	SB	1472	85	1573	88	6.8%	3.3%
A500 Queensway (between Newcastle Road and Stone Road)	EB	2435	259	2598	259	6.7%	0.1%
	WB	1524	216	1688	217	10.7%	0.1%
A500 Queensway (between Newcastle Road and M6)	WB	2572	293	2795	334	8.7%	13.8%
	EB	1756	200	1978	241	12.7%	20.2%
A51 Bury Bank (between Stone Road and east of Winghouse Lane)	WB	184	20	220	23	19.9%	14.0%
	EB	318	12	354	15	11.5%	23.1%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A51 Bury Bank (between Winghouse Lane and east of Winghouse Lane)	WB	408	10	443	12	8.6%	24.2%
	EB	391	8	426	11	9.0%	29.7%
A51 Lichfield Road (between Uttoxeter Road and Church Lane)	SB	1030	67	1098	67	6.6%	0.4%
	NB	1023	65	1091	65	6.6%	0.4%
A51 Stone Road (between Coombsdale and road from A51 Stone Road to Clayalders Bank)	WB	170	7	174	7	2.2%	0.0%
	EB	206	5	210	5	1.8%	0.0%
A51 Stone Road (between the AP2 revised scheme and Newcastle Road)	WB	215	12	256	20	18.7%	67.0%
	EB	302	12	342	21	13.4%	66.2%
A51 Stone Road (between the AP2 revised scheme and Tittensor Road)	WB	236	12	277	14	17.2%	18.4%
	EB	299	14	340	16	13.6%	16.5%
A51 Stone Road (between Newcastle Road and Common Lane)	WB	201	7	211	11	4.6%	61.0%
	EB	213	6	223	10	4.4%	76.6%
A51 Stone Road (between road from A51 Stone Road to Clayalders Bank and Nantwich Road)	WB	180	9	184	9	2.1%	0.0%
	EB	172	5	175	5	2.2%	0.0%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A51 Stone Road (between Tittensor Road and the AP2 revised scheme)	WB	236	12	277	14	17.2%	18.4%
	EB	299	14	340	16	13.6%	16.5%
A51 Stone Road (between Winghouse Lane and Tittensor Road)	WB	408	10	443	12	8.6%	24.2%
	EB	391	8	426	11	9.0%	29.7%
A51 The Rowe (between Bent Lane and Stableford Bank)	WB	166	7	170	7	2.3%	0.0%
	EB	190	4	194	4	2.0%	0.0%
A51 The Rowe (between Common Lane and Dog Lane)	NB	254	17	263	21	3.7%	25.5%
	SB	258	11	267	16	3.6%	36.9%
A51 through Stableford (between Stableford Bank and Coombsdale)	WB	173	6	177	6	2.2%	0.0%
	EB	209	5	213	5	1.8%	0.0%
A519 Newcastle Road (between Drayton Road and Hanchurch Lane)	NB	273	7	372	23	36.3%	238.2%
	SB	278	13	378	29	35.6%	123.0%
A519 Newcastle Road (between Hanchurch Lane and Whitmore Road)	NB	337	6	436	23	29.4%	250.1%
	SB	337	5	436	21	29.5%	349.0%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A519 Newcastle Road (between Long Lane and Drayton Road)	NB	283	24	382	40	35.1%	68.1%
	SB	278	27	377	43	37.5%	60.5%
A519 Newcastle Road (between Long Lane and the AP2 revised scheme)	NB	231	20	405	36	75.1%	79.0%
	SB	195	25	368	40	89.0%	64.6%
A519 Newcastle Road (between Station Road and Stone Road)	SB	231	25	272	27	17.7%	7.9%
	NB	262	21	302	23	15.6%	9.2%
A519 Newcastle Road (between Stone Road and the AP2 revised scheme)	NB	231	20	405	36	75.1%	79.0%
	SB	195	25	368	40	89.0%	64.6%
A519 Newcastle Road (between Whitmore Road and Queensway)	NB	530	16	698	56	31.7%	252.8%
	SB	496	15	664	55	33.8%	271.2%
A5020 Stafford Road (between The Fillybrooks and Radford Street)	NB	755	51	761	51	0.9%	0.0%
	SB	796	49	803	49	0.9%	0.0%
A5182 Trentham Road (between Whitmore Road and Newcastle Road)	WB	319	38	392	74	22.7%	94.7%
	EB	276	26	349	62	26.3%	138.1%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
B5026 Eccleshall Road (between Meece Road and the AP2 revised scheme)	NB	212	7	212	7	0.0%	0.0%
	SB	212	5	212	5	0.0%	0.0%
B5026 Eccleshall Road (between Pirehill Lane and the AP2 revised scheme)	SWB	207	22	239	26	15.7%	17.6%
	NEB	256	13	288	17	12.7%	31.2%
B5026 Eccleshall Road (between The Fillybrooks and Pirehill Lane)	SWB	438	15	481	19	9.6%	26.8%
	NEB	723	15	765	20	5.8%	26.1%
B5027 Newcastle Road (between Trent Road and The Fillybrooks)	NB	252	14	252	14	0.0%	0.0%
	SB	51	1	51	1	0.0%	0.0%
Winghouse Lane (between Chase Lane and Bury Bank)	NB	157	2	157	2	0.0%	0.0%
	SB	170	11	170	11	0.0%	0.0%
Winghouse Lane (between Chase Lane and Stone Road)	NB	157	2	157	2	0.0%	0.0%
	SB	170	11	170	11	0.0%	0.0%
Long Lane (between Stone Road and Newcastle Road)	NB	52	4	52	4	0.0%	0.0%
	SB	84	2	84	2	0.0%	0.0%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
Stab Lane (between Tittensor Road and AP2 revised scheme)	SB	67	4	67	4	0.0%	0.0%
	NB	78	4	78	4	0.0%	0.0%
Tittensor Road current alignment (between Stab Lane and AP2 revised scheme)	SB	139	3	177	11	28.1%	307.6%
	NB	207	8	246	16	18.8%	106.4%
Tittensor Road realigned (between Stab Lane and AP2 revised scheme)	SB	139	3	161	11	16.3%	307.6%
	NB	207	8	229	16	10.9%	106.4%
Chase Lane (between Winghouse Lane and Stone Road)	EB	64	2	64	2	0.0%	0.0%
	WB	106	3	106	3	0.0%	0.0%
Trent Road (between The Fillybrooks and Newcastle Road)	EB	218	8	278	18	27.2%	123.7%
	WB	254	5	313	15	23.4%	209.5%
Yarnfield Lane (between The Fillybrooks and the AP2 revised scheme)	WB	218	8	228	18	4.5%	123.7%
	EB	254	5	263	15	3.9%	209.5%
Unnamed road from A51 Stone Road to Clayalders Bank (between Stone Road and Haddon Lane)	SB	20	1	20	1	0.0%	0.0%
	NB	40	0	40	0	0.0%	0.0%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
Bent Lane (between The Rowe and the AP2 revised scheme)	NB	108	2	114	6	5.7%	263.3%
	SB	35	1	41	5	17.5%	438.8%
Bent Lane (south of the AP2 revised scheme)	NB	108	2	114	6	5.7%	263.3%
	SB	35	1	41	5	17.5%	438.8%
Dog Lane (between The Rowe and the AP2 revised scheme)	EB	18	1	26	3	40.2%	338.3%
	WB	6	0	14	3	114.5%	1184.0%
Common Lane (between Biddles Lane and AP2 revised scheme)	NB	4	0	4	0	0.0%	N/A
	SB	3	0	3	0	0.0%	0.0%
Hanchurch Lane (between Newcastle Road and Peacock Lane)	SB	27	1	27	1	0.0%	0.0%
	NB	23	0	23	0	0.0%	0.0%
Pirehill Lane (between Coombe Park Road and the AP2 revised scheme)	SB	3	0	15	2	368.0%	993.0%
	NB	8	0	20	2	147.2%	1489.4%
Pirehill Lane (between Eccleshall Road and Coombe Park Road)	SB	158	2	170	4	7.4%	128.2%
	NB	295	13	307	15	4.0%	16.2%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
Pirehill Lane (between the AP2 revised scheme and Green Lane)	SB	3	0	15	2	368.0%	993.0%
	NB	8	0	20	2	147.2%	1489.4%

Table 280: 2023 future baseline and with the AP2 revised scheme construction traffic (vehicles) – PM peak hour (17:00 – 18:00)

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
M6 (between Yarnfield Lane and M6 junction 15 slip road)	NB	4389	623	4598	755	4.8%	21.3%
	SB	4281	718	4490	851	4.9%	18.5%
M6 (between M6 junction 15 slip road and M6 junction 16 slip road)	NB	3745	598	4050	730	8.1%	22.2%
	SB	4047	716	4352	849	7.5%	18.5%
M6 (mainline flow on M6 within junction 15)	NB	2936	423	3088	545	5.2%	29.0%
	SB	3050	438	3202	560	5.0%	28.0%
A51 Stone Bypass/Butterhill Bank/Lichfield Road (between A34 Stone Road and Church Lane)	NB	735	36	807	61	9.9%	70.7%
	SB	657	25	730	50	11.1%	102.9%
A34 Stafford Road (between Stone Bypass and Eccleshall Road)	NB	1500	40	1639	54	9.3%	33.8%
	SB	1161	35	1300	49	12.0%	38.4%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A34 Stone Road (between Queensway and Longton Road)	SB	1945	55	2006	55	3.2%	0.5%
	NB	1155	49	1216	49	5.3%	0.5%
A34 Stone Road (between Winghouse Lane and Longton Road)	SB	1319	32	1380	32	4.7%	0.8%
	NB	1136	31	1197	31	5.4%	0.8%
A34 Stone Road (between A51 Bury Bank and Winghouse Lane)	SB	1162	23	1224	23	5.3%	1.1%
	NB	1127	33	1188	33	5.4%	0.8%
A34 The Fillybrooks (between Eccleshall Road and Yarnfield Lane)	WB	888	26	1029	37	15.9%	44.8%
	EB	1340	39	1482	51	10.6%	29.7%
A34 The Fillybrooks (between Newcastle Road and Meaford Road)	NB	1382	49	1478	52	6.9%	5.7%
	SB	1684	38	1780	40	5.7%	7.4%
A34 The Fillybrooks (between Trent Road and Newcastle Road)	NB	987	34	1083	36	9.7%	8.3%
	SB	1318	25	1414	28	7.3%	11.2%
A500 Queensway (between Newcastle Road and Stone Road)	EB	1728	158	1859	158	7.6%	0.2%
	WB	1671	127	1802	127	7.8%	0.2%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A500 Queensway (between Newcastle Road and M6)	WB	2477	186	2705	226	9.2%	21.8%
	EB	1726	129	1954	170	13.2%	31.2%
A51 Bury Bank (between Stone Road and east of Winghouse Lane)	WB	205	5	242	7	18.0%	61.7%
	EB	186	7	223	10	19.8%	39.8%
A51 Bury Bank (between Winghouse Lane and east of Winghouse Lane)	WB	383	5	418	7	9.3%	47.7%
	EB	416	5	451	8	8.6%	44.8%
A51 Lichfield Road (between Uttoxeter Road and Church Lane)	SB	1162	23	1224	23	5.3%	1.1%
	NB	1127	33	1188	33	5.4%	0.8%
A51 Stone Road (between Coombsdale and road from A51 Stone Road to Clayalders Bank)	WB	220	4	224	4	1.9%	0.0%
	EB	171	3	176	3	2.4%	0.0%
A51 Stone Road (between the AP2 revised scheme and Newcastle Road)	WB	238	4	280	13	17.5%	183.8%
	EB	220	10	262	18	19.0%	81.8%
A51 Stone Road (between the AP2 revised scheme and Tittensor Road)	WB	253	4	294	6	16.2%	55.9%
	EB	226	10	267	12	18.1%	22.1%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A51 Stone Road (between Newcastle Road and Common Lane)	WB	235	4	245	9	4.2%	97.5%
	EB	153	3	162	8	6.4%	125.8%
A51 Stone Road (between road from A51 Stone Road to Clayalders Bank and Nantwich Road)	WB	343	6	347	6	1.2%	0.0%
	EB	160	3	164	3	2.6%	0.0%
A51 Stone Road (between Tittensor Road and the AP2 revised scheme)	WB	253	4	294	6	16.2%	55.9%
	EB	226	10	267	12	18.1%	22.1%
A51 Stone Road (between Winghouse Lane and Tittensor Road)	WB	383	5	418	7	9.3%	47.7%
	EB	416	5	451	8	8.6%	44.8%
A51 The Rowe (between Bent Lane and Stableford Bank)	WB	238	3	242	3	1.7%	0.0%
	EB	156	6	160	6	2.6%	0.0%
A51 The Rowe (between Common Lane and Dog Lane)	NB	247	6	257	11	4.0%	65.3%
	SB	198	6	208	10	5.0%	67.9%
A51 through Stableford (between Stableford Bank and Coombsdale)	WB	224	4	228	4	1.8%	0.0%
	EB	173	3	177	3	2.4%	0.0%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A519 Newcastle Road (between Drayton Road and Hanchurch Lane)	NB	312	7	419	24	34.1%	220.4%
	SB	348	8	455	24	30.6%	208.2%
A519 Newcastle Road (between Hanchurch Lane and Whitmore Road)	NB	387	9	494	26	27.5%	174.3%
	SB	378	6	485	22	28.2%	267.6%
A519 Newcastle Road (between Long Lane and Drayton Road)	NB	305	9	412	25	34.9%	178.1%
	SB	293	10	399	26	36.3%	166.4%
A519 Newcastle Road (between Long Lane and the AP2 revised scheme)	NB	210	8	384	24	82.6%	200.2%
	SB	240	9	413	25	72.5%	170.3%
A519 Newcastle Road (between Station Road and Stone Road)	SB	273	8	314	10	15.0%	23.7%
	NB	229	8	270	10	17.8%	23.7%
A519 Newcastle Road (between Stone Road and the AP2 revised scheme)	NB	210	8	384	24	82.6%	200.2%
	SB	240	9	413	25	72.5%	170.3%
A519 Newcastle Road (between Whitmore Road and Queensway)	NB	501	19	678	60	35.4%	211.1%
	SB	661	13	838	53	26.8%	311.4%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A5020 Stafford Road (between The Fillybrooks and Radford Street)	NB	687	18	695	18	1.2%	0.0%
	SB	806	23	814	23	1.1%	0.0%
A5182 Trentham Road (between Whitmore Road and Newcastle Road)	WB	326	12	397	48	21.9%	310.0%
	EB	251	13	323	49	28.4%	282.3%
B5026 Eccleshall Road (between Meece Road and the AP2 revised scheme)	NB	246	2	246	2	0.0%	0.0%
	SB	259	2	259	2	0.0%	0.0%
B5026 Eccleshall Road (between Pirehill Lane and the AP2 revised scheme)	SWB	213	7	245	11	15.2%	58.6%
	NEB	260	8	292	12	12.5%	50.6%
B5026 Eccleshall Road (between The Fillybrooks and Pirehill Lane)	SWB	501	7	543	11	8.4%	55.3%
	NEB	567	11	609	15	7.4%	36.4%
B5027 Newcastle Road (between Trent Road and The Fillybrooks)	NB	285	8	285	8	0.0%	0.0%
	SB	66	1	66	1	0.0%	0.0%
Winghouse Lane (between Chase Lane and Bury Bank)	NB	166	6	166	6	0.0%	0.0%
	SB	140	1	140	1	0.0%	0.0%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
Winghouse Lane (between Chase Lane and Stone Road)	NB	166	6	166	6	0.0%	0.0%
	SB	140	1	140	1	0.0%	0.0%
Long Lane (between Stone Road and Newcastle Road)	NB	96	1	96	1	0.0%	0.0%
	SB	54	0	54	0	0.0%	0.0%
Stab Lane (between Tittensor Road and AP2 revised scheme)	SB	106	4	106	4	0.0%	0.0%
	NB	50	1	50	1	0.0%	0.0%
Tittensor Road current alignment (between Stab Lane and AP2 revised scheme)	SB	204	6	243	15	19.0%	126.1%
	NB	127	1	166	9	30.6%	945.8%
Tittensor Road realigned (between Stab Lane and AP2 revised scheme)	SB	204	6	227	15	11.0%	126.1%
	NB	127	1	150	9	17.7%	945.8%
Chase Lane (between Winghouse Lane and Stone Road)	EB	92	1	92	1	0.0%	0.0%
	WB	59	0	59	0	0.0%	0.0%
Trent Road (between The Fillybrooks and Newcastle Road)	EB	398	6	398	6	0.0%	0.0%
	WB	119	1	119	1	0.0%	0.0%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
Yarnfield Lane (between The Fillybrooks and the AP2 revised scheme)	WB	224	3	284	13	26.4%	341.4%
	EB	170	3	229	13	35.0%	349.9%
Unnamed road from A51 Stone Road to Clayalders Bank (between Stone Road and Haddon Lane)	SB	27	0	27	0	0.0%	0.0%
	NB	22	1	22	1	0.0%	0.0%
Bent Lane (between The Rowe and the AP2 revised scheme)	NB	27	1	34	5	24.0%	621.9%
	SB	58	0	65	5	11.3%	1181.6%
Bent Lane (south of the AP2 revised scheme)	NB	27	1	34	5	24.0%	621.9%
	SB	58	0	65	5	11.3%	1181.6%
Dog Lane (between The Rowe and the AP2 revised scheme)	EB	12	0	20	3	59.6%	1180.7%
	WB	12	0	19	3	60.6%	N/A
Common Lane (between Biddles Lane and AP2 revised scheme)	NB	4	1	4	1	0.0%	0.0%
	SB	4	0	4	0	0.0%	0.0%
Hanchurch Lane (between Newcastle Road and Peacock Lane)	SB	23	0	23	0	0.0%	0.0%
	NB	25	0	25	0	0.0%	0.0%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
Pirehill Lane (between Coombe Park Road and the AP2 revised scheme)	SB	5	0	17	2	236.9%	2964.2%
	NB	4	0	15	2	322.2%	N/A
Pirehill Lane (between Eccleshall Road and Coombe Park Road)	SB	201	2	212	5	5.8%	83.5%
	NB	191	5	203	7	6.1%	43.6%
Pirehill Lane (between the AP2 revised scheme and Green Lane)	SB	5	0	17	2	236.9%	2964.2%
	NB	4	0	15	2	322.2%	N/A

Summary of link flows

- 4.6.21 The AP2 revised scheme includes changes to construction traffic flows as a consequence of new construction traffic routes and changes to the movement and use of surplus excavated material. This has resulted in reductions in the number of all construction vehicles on routes including the A500 Queensway and A51 corridors and also on roads such as A5182 Trentham Road, Eccleshall Road, Bent Lane, Yarnfield Lane and Tittensor Road.
- 4.6.22 The results show that in the AM and PM peak periods the strategic and primary roads such as the M6, A34 The Fillybrooks/Stafford Road, A500 Shavington Bypass, A51 Stone Bypass/Bury Bank/The Rowe and A519 Newcastle Road generally have an increase in total vehicular traffic of less than 12%. Percentage increases in HGV traffic are generally higher.
- 4.6.23 Other roads identified as construction routes show a similar pattern, with higher percentage increases in HGVs but with generally minor increases in total vehicular flow.
- 4.6.24 A summary of routes/corridors with percentage increases of over 30% in either total vehicle movements or HGVs is set out below:
- A51 Stone Bypass/Butterhill Bank/Lichfield Road between A34 Stone Road and Church Lane – (HGVs);
 - A34 Stafford Road between A51 Stone Bypass and Eccleshall Road – (HGVs);
 - A34 The Fillybrooks between Eccleshall Road and Yarnfield Lane – (HGVs);
 - A500 Queensway between Newcastle Road and M6 Junction 15 – (HGVs);
 - A51 Bury Bank between Stone Road and east of Winghouse Lane – (HGVs);
 - A51 Stone Road between Common Lane and Winghouse Lane – (HGVs);
 - A51 The Rowe between Common Lane and Dog Lane – (HGVs);
 - A519 Newcastle Road between A51 Stone Road and Queensway – (all vehicles and HGVs);
 - A5182 Trentham Road between Whitmore Road and Newcastle Road – (HGVs);
 - Tittensor Road between Stab Lane and the A51 Stone Road – (HGVs);
 - Yarnfield Lane between The Fillybrooks and AP2 revised scheme – (HGVs);
 - Dog Lane between the A51 The Rowe and the AP2 revised scheme – (all vehicles and HGVs);
 - Bent Lane between the A51 The Rowe and the AP2 revised scheme – (HGVs); and
 - Pirehill Lane between Eccleshall Road and Whitgreave Lane – (all vehicles and HGVs).

4.6.25 It should be noted that, unless identified in the next section of this report, these increases in traffic will not result in increased congestion or delay.

Junction performance 2023

4.6.26 The following tables and commentary set out the performance at junctions where there is the potential for the AP2 revised scheme to have substantial impacts that are different from the main TA. The results are presented in the same order as presented in the main TA, with junctions that were not modelled in the main TA provided at the end of the junction performance section. The results for the AM and PM peak hours are presented and the 2023 future baseline results are included for comparison. The models developed to assess the existing and future baseline have been used, except where otherwise stated.

A51 Stone Bypass/A34 Stafford Road/Brooms Road

4.6.27 Table 281 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 281 in the main TA is replaced by Table 281 below, which summarises the results of the changes to the performance of the junction with the SCC mitigation as a result of the AP2 revised scheme construction traffic.

4.6.28 The AP2 revised scheme includes permanent upgrades to the junction, which have been discussed with the local highway authority. Table 281 also summarises the performance of the AP2 revised scheme with the associated junction upgrades.

Table 281: A51 Stone Bypass/A34 Stafford Road/Brooms Road 2023 future baseline (SCC mitigation), AP2 revised scheme (SCC mitigation) and AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline (SCC mitigation)			2023 with AP2 revised scheme (SCC mitigation)			2023 with AP2 revised scheme (revised junction)		
A34 Stafford Road (north)	1962	0.68	2	2094	0.75	3	2094	0.75	3
A51 Stone Bypass	1044	1.00	24	1209	1.23	131	1209	0.79	4
A34 Stafford Road (south)	899	0.48	1	1095	0.57	2	1095	0.61	2
Brooms Road	184	0.13	0	183	0.14	0	183	0.15	0
17:00 – 18:00	2023 future baseline (SCC mitigation)			2023 with AP2 revised scheme (SCC mitigation)			2023 with AP2 revised scheme (revised junction)		
A34 Stafford Road (north)	1427	0.55	1	1559	0.62	2	1559	0.62	2
A51 Stone Bypass	580	0.39	1	745	0.52	1	745	0.35	1
A34 Stafford Road (south)	1405	0.61	2	1602	0.71	3	1602	0.71	3

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
Brooms Road	625	0.62	2	625	0.75	3	625	0.75	3

4.6.29 The conclusions drawn in paragraphs 9.4.22 and 9.4.23 of the main TA are replaced by:

“The results show that the junction operates at capacity in the 2023 baseline and above capacity with the addition of the AP2 revised scheme construction traffic in the AM peak. In the PM peak the junction operates within capacity in the 2023 baseline and is approaching capacity with the addition of the AP2 revised scheme construction traffic.

In the AM peak, the A51 Stone Bypass arm RFC value increases from 1.00 to 1.23 with a corresponding increase in queue length from 24 to 131 PCUs. All other arms operate under capacity with minimal queues. In the PM peak, the Brooms Road arm RFC value increases from 0.62 to 0.75 with a corresponding increase in queue length from two to three PCUs.”

4.6.30 The results show the AP2 revised scheme will substantially improve the performance of the junction to the extent that the junction no longer operates above capacity in the AM peak. As a result of the AP2 revised scheme, and in comparison to the future baseline, the A51 Stone Bypass RFC value is reduced from 1.00 to 0.79 with a corresponding reduction in queue length from 24 to four PCUs.

4.6.31 In the PM peak, while the AP2 revised scheme does not substantially change the overall performance of the junction. Table 281 shows that the junction will continue to approach capacity with the Brooms Road approach RFC value of 0.75 and a queue of three PCUs.

A34 The Fillybrooks/A520 Stafford Road/A34 Stafford Road/B5026 Eccleshall Road

4.6.32 Table 282 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 282 in the main TA is replaced by Table 282 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 282: A34 The Fillybrooks/A520 Stafford Road/A34 Stafford Road/B5026 Eccleshall Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 The Fillybrooks (north)	1381	1.21	139	1538	1.36	236
A520 Stafford Road	935	0.97	16	939	0.98	18
A34 Stafford Road (south)	1314	0.57	1	1447	0.63	2
B5026 Eccleshall Road	883	0.78	4	921	0.88	7
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 The Fillybrooks (north)	1171	1.06	50	1326	1.15	105

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A520 Stafford Road	810	0.72	3	817	0.74	3
A34 Stafford Road (south)	2103	0.95	15	2239	1.01	45
B5026 Eccleshall Road	746	1.19	67	785	1.39	121

4.6.33 The conclusions drawn in paragraphs 9.4.25 and 9.4.26 of the main TA are replaced by:

“The results show that the junction operates above capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.

In the AM peak, the A34 The Fillybrooks (north) arm RFC value increases from 1.21 to 1.36, with the queue length increasing from 139 to 236 PCUs. In the PM peak, the B5026 Eccleshall Road arm RFC value increases from 1.19 to 1.39 with the queue length increasing from 67 to 121 PCUs with the addition of the AP2 revised scheme construction traffic.

The increase in traffic flow, in the peak month of construction traffic activity, at the junction is not substantial in comparison to the 2023 future baseline (with the increase in flow as a result of the AP2 revised scheme across all arms less than 6% in the AM or PM peak).”

4.6.34 The performance of the junction with the AP2 revised scheme has changed little from the main TA.

A34 The Fillybrooks/B5027 Newcastle Road

4.6.35 Table 283 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 283 in the main TA is replaced by Table 283 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 283: A34 The Fillybrooks/B5027 Newcastle Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 The Fillybrooks (north)	1469	0.47	1	1572	0.51	1
B5027 Newcastle Road	336	0.31	1	336	0.32	1
A34 The Fillybrooks (south)	1049	0.46	1	1152	0.51	1
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 The Fillybrooks (north)	1595	0.51	1	1695	0.55	1
B5027 Newcastle Road	368	0.34	1	368	0.36	1
A34 The Fillybrooks (south)	1115	0.5	1	1217	0.54	1

4.6.36 The conclusions drawn in paragraph 9.4.28 of the main TA are replaced by:

“The results show that this junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods without any substantial increases in queuing or RFC.”

A51 Bury Bank/A34 Stone Road/A34 The Fillybrooks/Jervis Lane

4.6.37 Table 284 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 284 in the main TA is replaced by Table 284 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 284: A51 Bury Bank/A51 Stone Road/A34 The Fillybrooks/A51/Jervis Lane junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr		RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00		2023 future baseline			2023 with the AP2 revised scheme		
A34 Stone Road (north)	1256		0.52	1	1322	0.56	1
A34 The Fillybrooks (south)	1358		0.43	1	1463	0.46	1
Jervis Lane	-		-	-	-	-	-
A51 Bury Bank	292		0.26	0	331	0.32	1
17:00 – 18:00		2023 future baseline			2023 with the AP2 revised scheme		
A34 Stone Road (north)	1286		0.51	1	1350	0.55	1
A34 The Fillybrooks (south)	1589		0.50	1	1693	0.53	1
Jervis Lane	-		-	-	-	-	-
A51 Bury Bank	209		0.24	0	248	0.31	1

4.6.38 The conclusions drawn in paragraph 9.4.30 of the main TA are replaced by:

“The results show that this junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods, without any substantial increases in queuing or RFC.”

A34 Stone Road/A5035 Longton Road

4.6.39 Table 285 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 285 in the main TA is replaced by Table 285 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

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Table 285: A34 Stone Road/A5035 Longton Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 Stone Road (north)	1361	0.50	1	1431	0.53	1
A5035 Longton Road	731	0.44	1	731	0.46	1
A34 Stone Road (south)	1212	0.67	2	1283	0.71	3
Trentham Centre access	63	0.05	0	63	0.06	0
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 Stone Road (north)	1815	0.73	3	1878	0.76	3
A5035 Longton Road	884	0.65	2	887	0.67	2
A34 Stone Road (south)	1210	0.74	3	1274	0.78	4
Trentham Centre access	210	0.20	0	210	0.22	0

4.6.40 The conclusions drawn in paragraph 9.4.32 of the main TA are replaced by:

“The results show that this junction operates within capacity in the 2023 baseline and approaches capacity with the addition of the AP2 revised scheme construction traffic in the AM peak. In the PM peak, the junction approaches capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic.

In the AM peak, the A34 Stone Road (south) arm RFC increases from 0.67 to 0.71 and the queue increases from two to three PCUs. In the PM peak the RFC value increases from 0.74 to 0.78 and a corresponding increase in queue from three to four PCUs with the addition of the AP2 revised scheme construction traffic.

The addition of the AP2 revised scheme construction traffic does not result in any substantial increases in queuing or RFC from the 2023 future baseline.”

A51 Stone Road/A519 Newcastle Road

4.6.41 Table 286 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 286 in the main TA is replaced by Table 286 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 286: A51 Stone Road/A519 Newcastle Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A519 Newcastle Road (north)	243	0.21	0	341	0.29	0
A51 Stone Road (east)	298	0.23	0	340	0.27	0

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Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A519 Newcastle Road (south)	308	0.19	0	349	0.23	0
A51 Stone Road (west)	273	0.22	0	287	0.24	0
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A519 Newcastle Road (north)	262	0.22	0	360	0.30	0
A51 Stone Road (east)	324	0.25	0	368	0.29	0
A519 Newcastle Road (south)	259	0.17	0	300	0.20	0
A51 Stone Road (west)	218	0.17	0	232	0.19	0

4.6.42 The conclusions drawn in paragraph 9.4.34 of the main TA are replaced by:

“The results show that this junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.”

A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange)

4.6.43 Table 287 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 287 in the main TA is replaced by Table 287 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

4.6.44 The AP2 revised scheme includes permanent upgrades to the junction and the adjacent A5182 Whitmore Road/A519 Newcastle Road junction, which have been discussed both with Highways England and the local highway authority. Table 287 also summarises the performance of the AP2 revised scheme with the associated junction upgrades.

Table 287: A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch) 2023 future baseline, AP2 revised scheme and AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2023 future baseline – AM			2023 with AP2 revised scheme – AM			2023 with AP2 revised scheme (revised junction) – AM		
Clayton Road	576	1.38	84	576	1.51	133	576	0.86	5
A500 Queensway (east)	1930	0.97	22	2084	1.08	104	2084	0.82	5
A519 Newcastle Road	583	0.89	7	767	1.15	62	767	0.75	3
M6 junction 15 to A500 Hanchurch Roundabout (west)	2810	1.01	49	3060	1.09	157	3060	1.02	57

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2023 future baseline – PM			2023 with AP2 revised scheme – PM			2023 with AP2 revised scheme (revised junction) – PM		
Clayton Road	678	1.01	21	678	1.34	96	678	0.66	2
A500 Queensway (east)	1962	1.07	85	2087	1.18	188	2087	0.88	7
A519 Newcastle Road	615	0.9	8	828	1.12	60	828	0.8	4
M6 junction 15 to A500 Hanchurch Roundabout (west)	2623	0.85	6	2890	0.93	13	2890	0.79	4

4.6.45 The conclusions drawn in paragraphs 9.4.36 and 9.4.37 of the main TA are replaced by:

“The results show that the junction will operate above capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.

The AP2 revised scheme construction traffic without the proposed junction upgrades will increase queuing and delay through this junction, although the junction is shown to already operate above capacity in the AM and PM peak in the 2023 future baseline.

The AP2 revised scheme with junction upgrades will improve the performance of the junction with all approaches, except the M6 junction 15 to A500 Hanchurch Roundabout (west) arm, which has a minor increase in queuing from 49 to 57 PCUs. In the PM peak the junction will be at capacity with the addition of the AP2 revised scheme, but with a substantial improvement in performance compared to the future baseline.

The Clayton Road RFC value will reduce from 1.38 in the future baseline to 0.86 with a corresponding reduction in queue from 84 to five PCUs in the AM peak. In the PM peak a similar reduction to RFC value and queues will occur as a result of the AP2 revised scheme.

In the PM peak, the A500 Queensway (east) arm RFC value will reduce from 1.07 in the future baseline to 0.88 with a corresponding reduction in queue length from 85 to seven PCUs with the addition of the AP2 revised scheme.”

4.6.46 With the AP2 revised scheme junction proposals, the level of queuing is substantially reduced on most arms in the AM and PM peak periods compared to the future baseline. This substantially reduces the potential for queues to stretch back to adjacent junctions.

A34 The Fillybrooks/Millennium Way

4.6.47 Table 288 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 288 in the main TA is replaced by Table 288 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

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Table 288: A34 The Fillybrooks/Millennium Way junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 The Fillybrooks (north)	1431	0.5	1	1534	0.54	1
Millennium Way	209	0.4	1	209	0.44	1
A34 The Fillybrooks (south)	1321	0.42	1	1425	0.46	1
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 The Fillybrooks (north)	1502	0.53	1	1602	0.57	1
Millennium Way	315	0.67	2	315	0.73	3
A34 The Fillybrooks (south)	1433	0.47	1	1535	0.50	1

4.6.48 The conclusions drawn in paragraph 9.4.39 of the main TA are replaced by:

“The results show that the junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM Peak. In the PM peak the junction is within capacity in the 2023 baseline and approaching capacity with the addition of the AP2 revised scheme construction traffic.

In the PM peak, the Millennium Way RFC value marginally increases from 0.67 to 0.73 and the queue increases from two to three PCUs with the addition of the AP2 revised scheme construction traffic. There are no substantial increases in queuing or RFC compared to the 2023 future baseline.”

B5016 Eccleshall Road/Pirehill Lane/Lamb Lane

4.6.49 Table 289 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 289 in the main TA is replaced by Table 289 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 289: B5016 Eccleshall Road/Pirehill Lane/Lamb Lane junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Pirehill Lane (ahead + left + right)	311	0.90	7	320	0.97	11
B5026 Eccleshall Road (north-east) (ahead + left + right)	6	0.01	0	6	0.01	0
B5026 Eccleshall Road (north-east) (left)	146	-	-	155	-	-

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Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
B5026 Eccleshall Road (north-east) (ahead)	323	-	-	358	-	-
Lamb Lane (ahead + left + right)	8	0.02	0	8	0.02	0
B5026 Eccleshall Road (south-west) (ahead + left + right)	108	0.13	0	115	0.14	0
B5026 Eccleshall Road (south-west) (left)	0	-	-	0	-	-
B5026 Eccleshall Road (south-west) (ahead)	499	-	-	526	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Pirehill Lane (ahead + left + right)	173	0.51	1	183	0.57	1
B5026 Eccleshall Road (north-east) (ahead + left + right)	6	0.01	0	7	0.01	0
B5026 Eccleshall Road (north-east) (left)	178	-	-	187	-	-
B5026 Eccleshall Road (north-east) (ahead)	463	-	-	497	-	-
Lamb Lane (ahead + left + right)	0	0	0	0	0	0
B5026 Eccleshall Road (south-west) (ahead + left + right)	57	0.08	0	61	0.08	0
B5026 Eccleshall Road (south-west) (left)	0	-	-	0	-	-
B5026 Eccleshall Road (south-west) (ahead)	418	-	-	447	-	-

4.6.50 The conclusions drawn in paragraph 9.4.41 of the main TA are replaced by:

“The junction operates at capacity in the AM peak in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM peak. In the PM peak the junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic.

In the AM peak, the Pirehill Lane arm RFC value increases from 0.90 to 0.97 with the queue length increasing from seven to 11 PCUs as a result of the AP2 revised scheme construction traffic.

Although the junction moves closer to capacity in the AM peak, this is not considered a substantial increase taking into account that Pirehill Lane is already approaching capacity in the 2023 future baseline.”

A34 The Fillybrooks/Yarnfield Lane

- 4.6.51 Table 290 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 290 in the main TA is replaced by Table 290 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.
- 4.6.52 The AP2 revised scheme includes permanent upgrades to the junction, which have been discussed with the local highway authority. Table 290.1 summarises the performance of the AP2 revised scheme with the associated junction upgrades, which include the introduction of signal control.

Table 290: A34 The Fillybrooks/Yarnfield Lane junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Yarnfield Lane (left)	201	0.38	1	207	0.43	1
Yarnfield Lane (right)	56	0.18	0	91	0.33	1
A34 The Fillybrooks (north) (ahead)	1088	-	-	1211	-	-
A34 The Fillybrooks (north) (right)	159	0.26	0	177	0.30	0
A34 The Fillybrooks (south) (left)	118	-	-	190	-	-
A34 The Fillybrooks (south) (ahead)	1010	-	-	1095	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Yarnfield Lane (left)	181	0.36	1	200	0.48	1
Yarnfield Lane (right)	48	0.18	0	120	0.47	1
A34 The Fillybrooks (north) (ahead)	1053	-	-	1136	-	-
A34 The Fillybrooks (north) (right)	202	0.35	1	208	0.38	1
A34 The Fillybrooks (south) (left)	137	-	-	172	-	-
A34 The Fillybrooks (south) (ahead)	1182	-	-	1302	-	-

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Table 290.1: A34 The Fillybrooks/Yarnfield Lane 2023 AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU
	2023 AP2 revised scheme (revised junction) – AM		
A34 The Fillybrooks (south) (ahead + left)	633	65%	13
A34 The Fillybrooks (south) (ahead)	652	65%	13
Yarnfield Lane	298	66%	8
A34 The Fillybrooks (north) (ahead)	658	50%	9
A34 The Fillybrooks (north) (ahead + right)	730	65%	9
	2023 AP2 revised scheme (revised junction) – PM		
A34 The Fillybrooks (south) (ahead + left)	728	70%	15
A34 The Fillybrooks (south) (ahead)	746	70%	15
Yarnfield Lane	320	78%	9
A34 The Fillybrooks (north) (ahead)	1112	81%	23
A34 The Fillybrooks (north) (ahead + right)	232	79%	7

4.6.53 The conclusions drawn in paragraph 9.4.43 of the main TA are replaced by:

“The results show that this junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods, without any substantial increases in queuing.”

4.6.54 The results show that with the AP2 revised scheme upgrade that provides signalisation, the junction will operate within capacity in the AM peak and will be approaching capacity in the PM peak. However, the signalisation will deliver safer conditions for turning traffic within the junction.

A34 The Fillybrooks/Meaford Road

4.6.55 Table 291 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme based upon the then junction layout. Subsequently, the local highway authority has implemented a revised roundabout, which the AP2 revised scheme assessment is based upon. Table 291 in the main TA is replaced by Table 291 below, which summarises the results of the changes to the performance of the revised roundabout as a result of the AP2 revised scheme construction traffic.

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Table 291: A34 The Fillybrooks/Meaford Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 The Fillybrooks (north)	1270	0.58	1	1373	0.62	2
Meaford Road	337	1.31	48	337	1.73	82
A34 The Fillybrooks (south)	1275	0.68	2	1378	0.73	3
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 The Fillybrooks (north)	1432	0.67	2	1533	0.72	3
Meaford Road	167	1.04	11	167	1.68	39
A34 The Fillybrooks (south)	1238	0.65	2	1339	0.70	2

4.6.56 The conclusions drawn in paragraph 9.4.45 of the main TA are replaced by:

“The results show the junction operates above capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.

In the AM peak, the Meaford Road arm RFC value increases from 1.31 to 1.73 with a corresponding increase in queue length from 48 to 82 PCUs. In the PM peak the RFC value increases from 1.04 to 1.68 with a corresponding increase in queue length from 11 to 39 PCUs.

Both of the A34 The Fillybrooks arms operate under capacity in the 2023 baseline and approach capacity with the addition of the AP2 revised scheme construction traffic.”

A34 Stone Road/Tittensor Road

4.6.57 Table 292 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 292 in the main TA is replaced by Table 292 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 292: A34 Stone Road/Tittensor Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Tittensor Road (left)	122	0.26	0	122	0.27	0
Tittensor Road (right)	70	0.23	0	70	0.24	0
A34 Stone Road (south) (ahead)	858	-	-	929	-	-
A34 Stone Road (south) (right)	86	0.16	0	86	0.16	0

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Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A34 Stone Road (north) (left)	125	-	-	125	-	-
A34 Stone Road (north) (ahead)	956	-	-	1027	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Tittensor Road (left)	81	0.19	0	81	0.19	0
Tittensor Road (right)	34	0.15	0	34	0.17	0
A34 Stone Road (south) (ahead)	1030	-	-	1094	-	-
A34 Stone Road (south) (right)	133	0.29	0	133	0.30	0
A34 Stone Road (north) (left)	215	-	-	215	-	-
A34 Stone Road (north) (ahead)	1262	-	-	1326	-	-

4.6.58 The conclusions drawn in paragraph 9.4.47 of the main TA are replaced by:

“The results show that this junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.”

A51 The Rowe/Dog Lane/Bent Lane

4.6.59 The AP1 revised scheme includes permanent upgrades to improve the safety of the junction with the provision of a four-arm roundabout. Table 293 of the SES1 and AP1 ES TA Addendum replaced Table 293 in the main TA and summarises the changes to the performance of the proposed roundabout as a result of construction traffic.

4.6.60 Table 293 in the SES1 and AP1 ES TA Addendum is replaced by Table 293 below, which summarises the results of changes to the performance of the AP1 revised scheme roundabout as a result of the AP2 revised scheme construction traffic and the AP2 revised scheme stopping up of Brent Lane (South) 400m west of Dog Lane overbridge.

Table 293: A51 The Rowe/Dog Lane/Bent Lane junction 2023 future baseline (AP1 revised junction) and with the AP2 revised scheme (AP1 revised junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline (AP1 revised scheme revised junction)			2023 with AP2 revised scheme (AP1 revised scheme revised junction)		
A51 The Rowe (south)	272	0.21	0	286	0.22	0
A51 The Rowe (west)	234	0.20	0	237	0.20	0
Bent Lane	0	0	0	10	0.01	0
Dog Lane	38	0.04	0	38	0.04	0

17:00 – 18:00	2023 future baseline (AP1 revised scheme revised junction)			2023 with AP2 revised scheme (AP1 revised scheme revised junction)		
A51 The Rowe (south)	283	0.22	0	293	0.22	0
A51 The Rowe (west)	180	0.15	0	184	0.15	0
Bent Lane	0	0	0	8	0.01	0
Dog Lane	76	0.08	0	83	0.09	0

4.6.61 The conclusions drawn in paragraph 9.4.50 of the main TA and paragraph 4.6.10 of SES1 and AP1 ES TA Addendum are replaced by:

“The results show that the AP1 revised scheme roundabout will operate within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods, without any substantial increases in RFC.”

A51 Stone Road/Tittensor Road (diverted)

4.6.62 Table 294 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 294 in the main TA is replaced by Table 294 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic. The AP2 revised scheme assumes Stab Lane is closed and all traffic that would otherwise use Stab Lane will use the diverted Tittensor Road.

4.6.63 The AP2 revised scheme includes the implementation of a new permanent roundabout on the realigned A51 Stone Road and the new alignment of Tittensor Road. Table 294.1 summarises the performance of the AP2 revised scheme, which includes the introduction of the roundabout.

Table 294: A51 Stone Road/Tittensor Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00			
2023 with the AP2 revised scheme			
Tittensor Road (left)	62	0.13	0
Tittensor Road (right)	138	0.43	1
A51 Stone Road (west) (ahead + right)	237	0.37	1
A51 Stone Road (west) (ahead)	212	-	-
A51 Stone Road (east) (left)	207	-	-
A51 Stone Road (east) (ahead)	315	-	-
17:00 – 18:00			
2023 with the AP2 revised scheme			
Tittensor Road (left)	196	0.45	1
Tittensor Road (right)	239	0.68	2

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Approach	Flow, PCU/hr	RFC	Q, PCU
A51 Stone Road (west) (ahead + right)	110	0.17	0
A51 Stone Road (west) (ahead)	221	-	-
A51 Stone Road (east) (left)	152	-	-
A51 Stone Road (east) (ahead)	315	-	-

Table 294.1: A51 Stone Road/Tittensor Road 2023 future baseline and with the AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00			
2023 with the AP2 revised scheme (revised junction)			
A51 Stone Road (east)	505	0.33	1
Tittensor Road	188	0.1	0
A51 Stone Road (west)	433	0.29	0
17:00 – 18:00			
2023 with the AP2 revised scheme (revised junction)			
A51 Stone Road (east)	468	0.30	0
Tittensor Road	391	0.40	1
A51 Stone Road (west)	332	0.23	0

4.6.64 The conclusions drawn in paragraph 9.4.52 of the main TA are replaced by:

“The results show that the existing junction will operate within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods without any substantial increases in queuing.”

4.6.65 The AP2 revised scheme upgraded junction will operate within capacity in the AM and PM peak periods, with minimal queuing and RFC values.

A34 Stone Road/Winghouse Lane

4.6.66 Table 295 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 295 in the main TA is replaced by Table 295 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 295: A34 Stone Road/Winghouse Lane junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00				2023 with the AP2 revised scheme		
2023 future baseline						
Winghouse Lane (left + right)	227	0.49	1	227	0.51	1
A34 Stone Road (south) (ahead)	796	-	-	867	-	-

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Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A34 Stone Road (south) (right)	171	0.31	1	171	0.32	1
A34 Stone Road (north) (left)	49	-	-	49	-	-
A34 Stone Road (north) (ahead)	877	-	-	948	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Winghouse Lane (left + right)	187	0.41	1	187	0.42	1
A34 Stone Road (south) (ahead)	1050	-	-	1114	-	-
A34 Stone Road (south) (right)	169	0.32	1	169	0.33	1
A34 Stone Road (north) (left)	56	-	-	56	-	-
A34 Stone Road (north) (ahead)	1000	-	-	1064	-	-

4.6.67 The conclusions drawn in paragraph 9.4.54 of the main TA are replaced by:

4.6.68 “The results show that this junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods without any substantial increases in queuing.”

A5182 Whitmore Road/A519 Newcastle Road

4.6.69 Table 296 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 296 in the main TA is replaced by Table 296 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

4.6.70 The AP2 revised scheme includes permanent upgrades to the junction together with upgrades to the adjacent A5000 Queensway/A519 Newcastle Road/Clayton Road junction (Hanchurch Interchange). These have been discussed with the local highway authority. Table 296 also summarises the performance of the AP2 revised scheme with the associated junction upgrades.

Table 296: A5182 Whitmore Road/A519 Newcastle Road 2023 future baseline, AP2 revised scheme and AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
	2023 future baseline – AM			2023 with AP2 revised scheme – AM			2023 with AP2 revised scheme (revised junction) – AM		
A519 Newcastle	625	120%	69	817	112%	65	817	84%	27

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Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
Road (north)									
B5038 Whitmore Road (east)	246	118%	29	246	161%	56	246	63%	5
A519 Newcastle Road (south)	378	118%	41	487	114%	46	487	83%	12
A5182 Whitmore Road (west)	315	68%	8	398	158%	88	398	84%	13
HGV Depot Access	0	0%	0	0	0%	0	0	0%	0
	2023 future baseline – PM			2023 with AP2 revised scheme – PM			2023 with AP2 revised scheme (revised junction) – PM		
A519 Newcastle Road (north)	811	109%	56	1025	136%	166	1025	86%	32
B5038 Whitmore Road (east)	180	111%	17	180	111%	17	180	40%	3
A519 Newcastle Road (south)	413	108%	29	529	135%	87	529	85%	12
A5182 Whitmore Road (west)	347	105%	23	445	143%	83	445	86%	15
HGV Depot Access	0	0%	0	0	0%	0	0	0%	0

4.6.71 The conclusions drawn in paragraphs 9.4.56 and 9.4.57 of the main TA are replaced by:

“The results show that the junction operates above capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic without junction upgrades in the AM and PM peak periods. With the addition of the AP2 revised scheme construction traffic, the DoS and queuing increases across all arms (except for the HGV depot access).

In the AM peak, the AP2 revised scheme with junction upgrades results in the A519 Newcastle Road (north) RFC value reducing from 120% to 84% with a corresponding reduction in queue length from 69 to 27 PCUs. The B5038 Whitmore Road (east) RFC value will reduce from 118% to 63% and the queue length from 29 to five PCUs. Similar reductions are indicated for the PM peak.

The AP2 revised scheme will deliver significant capacity benefits and reduce the overall queuing and delay on the main arms. This reduces the potential for queues to stretch back to adjacent junctions.”

A34 Stone Road/B5038 Whitmore Road

4.6.72 Table 297 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 297 in the main TA is replaced by Table 297 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 297: A34 Stone Road/B5038 Whitmore Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 Stone Road (north) (left turn ahead) (at Allerton Road Junction)	488	47%	8	523	49%	8
A34 Stone Road (north) (ahead) (at Allerton Road Junction)	569	48%	9	605	50%	10
A34 Stone Road (north) (ahead) (at Whitmore Road Junction)	452	41%	5	489	44%	5
A34 Stone Road (north) (right turn ahead) (at Whitmore Road Junction)	647	52%	2	681	53%	2
B5038 Whitmore Road	486	79%	12	486	81%	13
A34 Stone Road (south) (left turn ahead)	938	81%	15	981	82%	14
A34 Stone Road (south) (ahead)	408	53%	7	436	55%	7
Allerton Road	212	40%	5	212	41%	5
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A34 Stone Road (north) (left turn ahead) (at Allerton Road Junction)	722	81%	17	769	86%	20
A34 Stone Road (north) (ahead) (at Allerton Road Junction)	834	82%	20	851	84%	21
A34 Stone Road (north) (ahead) (at Whitmore Road Junction)	587	62%	3	643	68%	4
A34 Stone Road (north) (right turn ahead) (at Whitmore Road Junction)	851	81%	3	859	81%	3
B5038 Whitmore Road	652	86%	17	652	86%	17
A34 Stone Road (south) (left turn ahead)	792	73%	10	1004	86%	14
A34 Stone Road (south) (ahead)	589	88%	17	441	66%	9

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
Allerton Road	100	15%	2	100	15%	2

4.6.73 The conclusions drawn in paragraph 9.4.59 of the main TA are replaced by:

“The results show the junction is close to capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods. The addition of the AP2 revised scheme construction traffic does not result in any substantial increases in queuing of RFC from the 2023 future baseline”

A34 Stone Road/A500 Queensway

4.6.74 Table 298 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 298 in the main TA is replaced by Table 298 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 298: A34 Stone Road/A500 Queensway 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A500 Queensway (west) (off slip left turn ahead)	757	57%	6	658	52%	6
A500 Queensway (west) (off slip ahead)	438	40%	7	537	49%	9
A34 Stone Road (north) (left turn ahead)	735	97%	19	792	99%	30
A34 Stone Road (north) (ahead)	501	95%	19	539	99%	23
A500 Queensway (east) (off slip left turn)	285	111%	26	380	81%	11
A500 Queensway (east) (off slip ahead)	79	29%	2	150	30%	3
A34 Stone Road (south) (left turn ahead)	759	62%	12	1042	95%	31
A34 Stone Road (south) (ahead)	1255	101%	53	1043	95%	32
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A500 Queensway (west) (off slip left turn ahead)	924	85%	13	817	70%	9
A500 Queensway (west) (off slip ahead)	302	33%	5	409	42%	7

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
A34 Stone Road (north) (left turn ahead)	686	60%	7	854	70%	8
A34 Stone Road (north) (ahead)	577	70%	9	479	71%	8
A500 Queensway (east) (off slip left turn)	191	47%	5	261	42%	5
A500 Queensway (east) (off slip ahead)	149	34%	3	212	32%	4
A34 Stone Road (south) (left turn ahead)	422	40%	6	674	59%	11
A34 Stone Road (south) (ahead)	931	86%	22	742	65%	13

4.6.75 The conclusions drawn in paragraphs 9.4.61 to 9.4.63 of the main TA are replaced by:

“The results show that the A34 Stone Road (north), A500 Queensway (east) and A34 Stone Road (south) arms operate close to or above capacity in the 2023 future baseline in the AM peak. The addition of the AP2 revised scheme construction traffic has no substantial impact on the performance of the junction.

In the AM peak, the A34 Stone Road (north) arm shows an increase in DoS value from 0.95 to 0.99 and a corresponding increase in queue length from 19 to 23 PCUs with the addition of the AP2 revised scheme construction traffic. This is offset by reductions in the DoS value from 111% to 81% and a corresponding queue length from 26 to 11 PCUs on the on A500 Queensway (east).

The AP2 revised scheme construction traffic does not have a substantial impact on the junction when compared to the 2023 future baseline. The principal impacts result from the expected use of the junction by worker traffic, with HS2 HGV construction traffic use limited. The impacts would be addressed through a combination of measures arising from the Local Traffic Management Plan, workforce Travel Plans and refinement of the signal timings that would balance queues on each approach.”

Yarnfield junction – temporary M6 access

4.6.76 Table 299 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 299 in the main TA is replaced by Table 299 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

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Table 299: Proposed temporary Yarnfield junction between M6 junction 14 and 15 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
South-bound off slip	-	-	-	139	80%	0
South-bound on slip	-	-	-	86	43%	1
North-bound off slip	-	-	-	86	6%	0
North-bound on slip	-	-	-	139	55%	1
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
South-bound off slip	-	-	-	146	8%	0
South-bound on slip	-	-	-	86	41%	1
North-bound off slip	-	-	-	86	6%	0
North-bound on slip	-	-	-	139	99%	4

4.6.77 The conclusions drawn in paragraph 9.4.66 of the main TA are replaced by:

“The results show that the connection to the M6 operates within capacity with the addition of the AP2 revised scheme construction traffic.”

M6 junction 15

4.6.78 Table 300 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 300 in the main TA is replaced by Table 300 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 300: M6 junction 15 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
South-bound off slip	867	70%	5	927	74%	5
South-bound on slip	1478	62%	0	1532	69%	0
North-bound off slip	1599	70%	0	1667	91%	7
North-bound on slip	853	41%	0	877	41%	0
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
South-bound off slip	801	75%	5	860	81%	5
South-bound on slip	1340	65%	0	1394	70%	1
North-bound off slip	1432	63%	0	1393	69%	4

Approach	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
North-bound on slip	831	40%	0	838	39%	0

4.6.79 The conclusions drawn in paragraph 9.4.68 of the main TA are replaced by:

“The results show that the junction operates within capacity in the 2023 baseline in the AM and PM peak periods, without any substantial changes to the queuing or volume over capacity ratio (V/C), except in the AM peak for the north-bound off slip with an increase in V/C from 70% to 91% and an increase in queue to seven PCUs.

In the PM peak, the south-bound off slip V/C increases from 75% to 81%, while the queue remains at five PCUs with the addition of the AP2 revised scheme construction traffic.

The AP2 revised scheme construction traffic will not result in a substantial impact at this location.”

A51 Lichfield Road/B5027 Lichfield Road

4.6.80 Table 300.1 summarises the results the junction capacity assessments required to address potential impacts of the AP2 revised scheme construction traffic routeing along the A51 between A34 Stafford Road and Weston.

Table 300.1: A51 Lichfield Road/B5027 Lichfield Road 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
B5027 Lichfield Road (left)	160	0.31	0	160	0.33	1
B5027 Lichfield Road (right)	102	0.35	1	102	0.40	1
A51 Lichfield Road (south) (ahead + right)	97	0.18	0	97	0.19	0
A51 Lichfield Road (south) (ahead)	521	-	-	621	-	-
A51 Lichfield Road (north) (left)	13	-	-	13	-	-
A51 Lichfield Road (north) (ahead)	440	-	-	540	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
B5027 Lichfield Road (left)	106	0.20	0	106	0.21	0
B5027 Lichfield Road (right)	36	0.18	0	36	0.22	0
A51 Lichfield Road (south) (ahead + right)	299	0.62	2	299	0.65	2
A51 Lichfield Road (south) (ahead)	425	-	-	525	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 Lichfield Road (north) (left)	105	-	-	105	-	-
A51 Lichfield Road (north) (ahead)	548	-	-	649	-	-

4.6.81 The results show that this junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods, without any substantial increases in queuing or RFC.

A51/Aston Bridge staggered junction

4.6.82 Table 300.2 summarises the results the junction capacity assessments required to address potential impacts of the AP2 revised scheme construction traffic routing along the A51 between A34 Stafford Road and Weston.

Table 300.2: A51/Aston Bridge staggered junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Aston Bridge (south) (left)	5	0.01	0	5	0.01	0
Aston Bridge (south) (ahead + right)	4	0.02	0	4	0.02	0
A51 Stone Bypass (east) (ahead + left + right)	1	0	0	1	0	0
A51 Stone Bypass (east) (left)	1	-	-	1	-	-
A51 Stone Bypass (east) (ahead)	624	-	-	725	-	-
Aston Bridge (north)	246	1.03	14	246	1.16	25
A51 (west) (ahead + left + right)	1	0	0	1	0	0
A51 Stone Bypass (west) (left)	206	-	-	206	-	-
A51 Stone Bypass (west) (ahead)	451	-	-	552	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Aston Bridge (south) (left)	1	0	0	1	0	0
Aston Bridge (south) (ahead + right)	6	0.03	0	6	0.04	0
A51 Stone Bypass (east) (ahead + left + right)	1	0	0	1	0	0
A51 Stone Bypass (east) (left)	2	-	-	2	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 Stone Bypass (east) (ahead)	461	-	-	561	-	-
Aston Bridge (north)	150	0.74	3	150	0.86	5
A51 (west) (ahead + left + right)	1	0	0	1	0	0
A51 Stone Bypass (west) (left)	529	-	-	529	-	-
A51 Stone Bypass (west) (ahead)	650	-	-	750	-	-

4.6.83 The results show that the junction operates above capacity in the 2023 baseline in the AM peak and with the addition of the AP2 revised scheme construction traffic. In the PM peak the junction is approaching capacity in the 2023 baseline and close to capacity with the addition of the AP2 revised scheme construction traffic.

4.6.84 In the AM peak, the Aston Bridge (north) arm RFC value increases from 1.03 to 1.16 with a corresponding increase in queue length from 14 to 25 PCUs with the addition of the AP2 revised scheme construction traffic.

Summary of junction impacts

4.6.85 The introduction of the AP2 revised scheme junction upgrades at the A51 Stone Bypass/A34 Stafford Road/Brooms Road, Hanchurch Interchange, the A5182 Whitmore Road/A519 Newcastle Road, the A34 The Fillybrooks/Yarnfield Lane and the A51 The Rowe/Dog Lane/Bent Lane junctions, will substantially reduce the increase in capacity indicators at these locations. As a result of the AP2 revised scheme, the number of junctions that will experience substantial increases in the capacity indicators will be reduced when compared to the original scheme. However, there will be increased congestion at the following junctions as a result of the AP2 revised scheme:

- A34 The Fillybrooks/Meaford Road; and
- A51/Aston staggered junction.

4.6.86 In each of these locations the junctions are shown to operate at or over capacity in the future baseline regardless of the AP2 revised scheme, with increases in queue length and RFC/DoS reported as a result of the AP2 revised scheme construction traffic. It should be noted that the assessment considers the peak level of construction traffic and these conditions would not be present across the whole construction period.

Accidents and safety

4.6.87 The impacts on accident and safety risks during construction are reported in Section 9.4 of the main TA. This section of the main TA is unchanged.

Parking and loading

4.6.88 The impacts on parking and loading during construction are reported in Section 9.4 of the main TA. This section of the main TA is unchanged.

Public transport

Rail

- 4.6.89 The impacts on the rail network and service provision during construction is reported in Section 9.4 of the main TA. This section of the main TA is unchanged.

Local bus services

- 4.6.90 The impacts on bus services during construction are reported in Section 9.4 of the main TA. A number of the works within the AP2 revised scheme, including junction changes and utility works will result in limited disruption to highway users. However, no local bus routes are expected to be affected by or require any diversion affecting bus route length or additional operating time requirements.
- 4.6.91 There are no changes to the text reported in Section 9.4 of the main TA. There is, however, one addition as follows:

“There are no bus routes that pass through the permanent junction improvements at the A500 Queensway/A519 Newcastle Road, A519 Newcastle Road/A5182 Trentham Road, A51 Stone Bypass/A34 Stafford Road and the A34 Stone Road/Yarnfield Road junction.”

Public transport interchanges

- 4.6.92 The impacts on public transport interchanges during construction are reported in Section 9.4 of the main TA. This section of the main TA is unchanged.

Pedestrians, cyclists and equestrians

- 4.6.93 Table 302 in the main TA summarises the changes on public rights of way for non-motorised users required to accommodate the construction of the original scheme. Table 302.1 summarises the amendments associated with the AP2 revised scheme and replaces the associated changes noted in Table 302 in the main TA. Those not listed in Table 302.1 remain unchanged from those identified in Table 302 of the main TA.

Table 302.1: CA3 AP2 revised scheme construction changes on public rights of way for non-motorised users

PRoW name	Change in travel distance (compared to baseline)	Duration
Stone Rural Footpath 28	Relocation of the Stone Rural Footpath 28 accommodation overbridge will remove the need for a temporary diversion.	N/A

Waterways and canals

- 4.6.94 The impacts on waterways and canals during construction is reported in Section 9.4 of the main TA. This section of the main TA is unchanged.

4.7 CA3 AP2 revised scheme operational description and assessment of operation impacts

- 4.7.1 The operation description for the original scheme in the Stone and Swynnerton area is reported in Section 9.5 of the main TA. This section of the main TA is unchanged.

Key operation transport issues

- 4.7.2 The key operation transport issues are reported in Section 9.6 of the main TA. This section of the main TA is unchanged.

Highway network

Highway diversions, realignments and closures

- 4.7.3 The permanent road diversions, realignments and extensions required to accommodate the original scheme are reported in Section 9.6 of the main TA. This section of the main TA is unchanged.

PRoW diversions, realignments and closures

- 4.7.4 Table 306 in the main TA summarises the permanent PRoW diversions required to accommodate the original scheme. Table 306.1 summarises the amendments associated with the AP2 revised scheme and replaces the associated changes noted in Table 306 in the main TA. Those not listed in Table 306.1 remain unchanged to those identified in Table 306 of the main TA.

Table 306.1: CA3 AP2 revised scheme permanent PRoW changes

PRoW name	Description	Change in travel distance (compared to baseline)
Stone Rural Footpath 28	Major diversion on to new overbridge	Diversion is 1.4km longer
Stone Rural Footpath 32	Major diversion between M6 underpass and around Walton Heath Farm	Diversion is 720m longer
Whitgreave Footpath 3	Major diversion to accommodate the relocation of the Stone Rural Footpath 28 accommodation overbridge	Diversion is 600m longer

Strategic and local road network traffic flows 2027 and 2041

- 4.7.5 The traffic flows in 2027 and 2041 on road links in the Stone and Swynnerton area are reported in Section 9.6 of the main TA. This section of the main TA is unchanged.

Junction performance 2027 and 2041

- 4.7.6 The AP2 revised scheme includes the permanent upgrades to the A51 Stone Bypass/A34 Stafford Road/Brooms Road, A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange), A34 The Fillybrooks/Yarnfield Lane, A51 Stone Road/Tittensor Road and the A5182 Whitmore Road/A519 Newcastle Road junctions. Although there is no change in the traffic at these junctions as a result of the AP2 revised scheme, these upgrades are retained permanently. This section summarises the changes in performance of the AP2 revised scheme at these junctions.
- 4.7.7 With the exception of the A51 Stone Road/Tittensor Road (new junction), these junctions were not assessed in the main TA as they were not affected by the original scheme.

A51 Stone Road/Tittensor Road (new junction)

4.7.8 Table 309 of the main TA summarises the results of the changes in performance of the proposed junction as a result of the original scheme. Table 309 in the main TA is replaced by Table 309 below, which summarises the results of the changes to the performance as a result of the AP2 revised scheme with the revised junction in 2027 and 2041.

Table 309: A51 Stone Road/Tittensor Road new junction 2027 and 2041 AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2027 with the AP2 revised scheme (revised junction)			2041 with the AP2 revised scheme (revised junction)		
A51 Stone Road (east)	488	0.32	1	533	0.35	1
Tittensor Road	194	0.2	0	212	0.22	0
A51 Stone Road (west)	399	0.26	0	436	0.29	0
17:00 – 18:00	2027 with the AP2 revised scheme (revised junction)			2041 with the AP2 revised scheme (revised junction)		
A51 Stone Road (east)	463	0.30	0	505	0.33	1
Tittensor Road	369	0.37	1	405	0.42	1
A51 Stone Road (west)	310	0.21	0	340	0.23	0

4.7.9 The conclusions drawn in paragraphs 9.6.13 and 9.6.30 of the main TA are unchanged with the junction operating within capacity in 2027 and 2041 with the addition of the AP2 revised scheme.

A51 Stone Bypass/A34 Stafford Road/Brooms Road

4.7.10 The AP2 revised scheme includes permanent upgrades to the junction, which have been discussed with the local highway authority. The upgrades include localised widening of carriageway and the introduction of a left-slip filter lane from the A51 Stone Bypass to A34 Stone Road. Table 324.1 and 324.2 summarise the performance of the AP2 revised scheme with the associated junction upgrades in 2027 and 2041 respectively. The AP2 revised scheme will not increase the 2027 or 2041 baseline traffic conditions and is consequently not shown separately.

Table 324.1: A51 Stone Bypass/A34 Stafford Road/Brooms Road 2027 future baseline (SCC mitigation), AP2 revised scheme (SCC mitigation) and AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2027 future baseline (SCC mitigation) and AP2 revised scheme			2027 with AP2 revised scheme (revised junction)		
A34 Stafford Road (north)	2020	0.70	2	2020	0.70	2
A51 Stone Bypass	1075	1.06	48	1075	0.74	3
A34 Stafford Road (south)	925	0.50	1	925	0.51	1

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Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
Brooms Road	189	0.13	0	189	0.14	0
17:00 – 18:00	2027 future baseline (SCC mitigation) and AP2 revised scheme			2027 with AP2 revised scheme (revised junction)		
A34 Stafford Road (north)	1468	0.57	1	1468	0.57	1
A51 Stone Bypass	597	0.40	1	597	0.32	1
A34 Stafford Road (south)	1446	0.63	2	1446	0.63	2
Brooms Road	643	0.66	2	643	0.66	2

Table 324.2: A51 Stone Bypass/A34 Stafford Road/Brooms Road 2041 future baseline (SCC mitigation), AP2 revised scheme (SCC mitigation) and AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2041 future baseline (SCC mitigation) and AP2 revised scheme			2041 with AP2 revised scheme (revised junction)		
A34 Stafford Road (north)	2176	0.76	3	2176	0.76	3
A51 Stone Bypass	1158	1.26	137	1158	0.88	7
A34 Stafford Road (south)	997	0.53	1	997	0.57	1
Brooms Road	203	0.14	0	203	0.15	0
17:00 – 18:00	2041 future baseline (SCC mitigation) and AP2 revised scheme			2041 with AP2 revised scheme (revised junction)		
A34 Stafford Road (north)	1577	0.62	2	1577	0.62	2
A51 Stone Bypass	642	0.45	1	642	0.36	1
A34 Stafford Road (south)	1553	0.69	2	1553	0.69	2
Brooms Road	691	0.79	4	691	0.79	4

- 4.7.11 The results show that the SCC mitigation junction will operate above capacity in the 2027 and 2041 baseline in the AM peak. In the PM peak, the junction will operate within capacity in the 2027 baseline and approach capacity in the 2041 baseline.
- 4.7.12 In the AM peak, the A51 Stone Bypass has an RFC value of 1.26 and a queue length of 137 PCUs in 2041.
- 4.7.13 In the AM peak, the AP2 revised scheme junction modifications will substantially improve the performance of the junction, bringing it from above capacity in the 2027 and 2041 baseline to that of approaching capacity in 2027 and close to capacity in 2041. As a result of the AP2 revised scheme, the A51 Stone Bypass RFC value will be reduced from 1.26 to 0.88 with a corresponding reduction in the queue length from 137 to seven PCUs in 2041.

4.7.14 In the PM peak, while the AP2 revised scheme mitigation does not materially change the overall performance of the junction, it reduces the RFC value on A51 Stone Bypass from 0.45 to 0.36 in 2041.

A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange)

4.7.15 The AP2 revised scheme includes permanent upgrades to the junction. Table 324.3 and 324.4 summarise the performance of the AP2 revised scheme with the associated junction upgrades in 2027 and 2041 respectively. The AP2 revised scheme will not increase the 2027 or 2041 baseline traffic conditions and is consequently not shown separately.

Table 324.3: A500 Queensway/A519 Newcastle Road/Clayton Road junction (Hanchurch Interchange) 2027 future baseline, the AP2 revised scheme and the AP2 revised scheme (revised junction) junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2027 future baseline and AP2 revised scheme			2027 with AP2 revised scheme (revised junction)		
Clayton Road	596	1.47	110	596	0.74	3
A500 Queensway (east)	1998	1.00	37	1999	0.76	4
A519 Newcastle Road	604	0.95	11	604	0.58	1
M6 junction 16 to A500 Hanchurch Roundabout (west)	2909	1.05	93	2916	0.96	19
17:00 – 18:00	2027 future baseline and AP2 revised scheme			2027 with AP2 revised scheme (revised junction)		
Clayton Road	701	1.13	50	701	0.55	1
A500 Queensway (east)	2030	1.11	118	2030	0.81	5
A519 Newcastle Road	637	0.93	10	637	0.61	2
M6 junction 16 to A500 Hanchurch Roundabout (west)	2715	0.88	8	2715	0.72	3

Table 324.4: A500 Queensway/A519 Newcastle Road/Clayton Road junction (Hanchurch Interchange) 2041 future baseline, the AP2 revised scheme and the AP2 revised scheme (revised junction) junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2041 future baseline and AP2 revised scheme			2041 with AP2 revised scheme (revised junction)		
Clayton Road	651	1.63	186	651	0.97	10
A500 Queensway (east)	2183	1.09	119	2183	0.83	6
A519 Newcastle Road	660	1.06	31	660	0.7	3

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
M6 junction 16 to A500 Hanchurch Roundabout (west)	3179	1.15	243	3179	1.06	102
17:00 – 18:00	2041 future baseline and AP2 revised scheme			2041 with AP2 revised scheme (revised junction)		
Clayton Road	776	1.61	161	776	0.79	4
A500 Queensway (east)	2247	1.21	237	2247	0.92	11
A519 Newcastle Road	705	1.01	23	705	0.76	3
M6 junction 16 to A500 Hanchurch Roundabout (west)	3004	0.99	31	3004	0.82	5

- 4.7.16 The results show that the junction will operate above capacity in the 2027 and 2041 baseline in the AM and PM peak periods
- 4.7.17 In 2027, the addition of the AP2 revised scheme junction upgrades results in the junction operating at capacity in the AM peak and approaching capacity in the PM peak. In 2041, the addition of the AP2 revised scheme and junction upgrades results in the junction operating above capacity in the AM and at capacity in the PM peak, although the performance of the junction improves compared to the baseline.
- 4.7.18 In the AM peak in 2041, the AP2 revised scheme with junction upgrades will result in the Clayton Road arm RFC reducing from 1.63 to 0.97 with a corresponding reduction in queue length from 186 to ten PCUs. A similar reduction in RFC and queue lengths are indicated in the PM peak.
- 4.7.19 In the PM peak in 2041, the AP2 revised scheme mitigation will result in the A500 Queensway (east) arm RFC reducing from 1.21 to 0.92 with a reduction in queue length from 237 to 11 PCUs.
- 4.7.20 The level of queuing is substantially reduced in the AM and PM peak periods in 2027 and in 2041, reducing the potential for queuing back to the adjacent junctions.

A34 The Fillybrooks/Yarnfield Lane

- 4.7.21 The AP2 revised scheme includes permanent upgrades to the junction, which include the signalisation of the junction and localised widening at approaches. The junction is signalised in order to address safety concerns with this junction rather than to address capacity issues. The AP2 revised scheme does not increase the 2027 or 2041 baseline traffic conditions and is consequently not shown separately.
- 4.7.22 Table 324.5 and 324.6 summarise the performance of the current junction arrangement in 2027 and 2041 respectively. Table 324.7 summarises the performance of the AP2 revised scheme in 2027 and 2041.

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Table 324.5: A34 The Fillybrooks/Yarnfield Lane junction 2027 future baseline and the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00			
2027 future baseline and AP2 revised scheme			
Yarnfield Lane (left)	208	0.39	1
Yarnfield Lane (right)	58	0.2	0
A34 The Fillybrooks (north) (ahead)	1127	-	-
A34 The Fillybrooks (north) (right)	164	0.27	0
A34 The Fillybrooks (south) (left)	122	-	-
A34 The Fillybrooks (south) (ahead)	1045	-	-
17:00 – 18:00			
2027 future baseline and AP2 revised scheme			
Yarnfield Lane (left)	188	0.38	1
Yarnfield Lane (right)	49	0.19	0
A34 The Fillybrooks (north) (ahead)	1090	-	-
A34 The Fillybrooks (north) (right)	209	0.37	1
A34 The Fillybrooks (south) (left)	142	-	-
A34 The Fillybrooks (south) (ahead)	1223	-	-

Table 324.6: A34 The Fillybrooks/Yarnfield Lane junction 2041 future baseline and the AP2 revised scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00			
2041 future baseline and AP2 revised scheme			
Yarnfield Lane (left)	227	0.45	1
Yarnfield Lane (right)	63	0.24	0
A34 The Fillybrooks (north) (ahead)	1231	-	-
A34 The Fillybrooks (north) (right)	179	0.31	1
A34 The Fillybrooks (south) (left)	133	-	-
A34 The Fillybrooks (south) (ahead)	1142	-	-
17:00 – 18:00			
2041 future baseline and AP2 revised scheme			
Yarnfield Lane (left)	205	0.43	1
Yarnfield Lane (right)	54	0.24	0

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Approach	Flow, PCU/hr	RFC	Q, PCU
A34 The Fillybrooks (north) (ahead)	1189	-	-
A34 The Fillybrooks (north) (right)	228	0.42	1
A34 The Fillybrooks (south) (left)	155	-	-
A34 The Fillybrooks (south) (ahead)	1334	-	-

Table 324.7: A34 The Fillybrooks/Yarnfield Lane junction 2027 and 2041 AP2 revised scheme (revised junction) junction capacity assessment results

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2027 with the AP2 revised scheme (revised junction)			2041 with the AP2 revised scheme (revised junction)		
A34 The Fillybrooks (south) (ahead + left)	577	70%	8	631	77%	9
A34 The Fillybrooks (south) (ahead)	590	70%	8	644	77%	9
Yarnfield Lane	266	66%	4	290	72%	5
A34 The Fillybrooks (north) (ahead)	589	50%	5	648	56%	6
A34 The Fillybrooks (north) (ahead + right)	702	57%	5	762	61%	6
17:00 – 18:00	2027 with the AP2 revised scheme (revised junction)			2041 with the AP2 revised scheme (revised junction)		
A34 The Fillybrooks (south) (ahead + left)	675	65%	9	737	73%	11
A34 The Fillybrooks (south) (ahead)	690	65%	9	752	73%	11
Yarnfield Lane	237	77%	5	259	85%	7
A34 The Fillybrooks (north) (ahead)	1067	79%	15	1189	88%	19
A34 The Fillybrooks (north) (ahead + right)	232	74%	3	228	73%	3

4.7.23 The results show that the existing junction operates within capacity in the 2027 and 2041 baseline, without any substantial queuing or RFC.

4.7.24 With the AP2 revised scheme upgrades the junction will remain within overall capacity in 2027 but approaching capacity in 2041. However, the introduction of the AP2 revised scheme upgrade will create safer conditions for turning traffic within the junction and manage queuing and delay across all approach arms.

A5182 Whitmore Road/A519 Newcastle Road

4.7.25 The AP2 revised scheme includes permanent upgrades to the junction, which includes carriageway and approach arm widening. Table 324.8 and 324.9 summarise the performance of the AP2 revised scheme with the associated junction upgrades in 2027 and 2041 respectively. The AP2 revised scheme does not increase the 2027 or 2041 baseline traffic conditions and is consequently not shown separately.

Table 324.8: A5182 Whitmore Road/A519 Newcastle Road junction 2027 future baseline, the AP2 revised scheme and the AP2 revised scheme (revised junction) junction capacity assessment results

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2027 future baseline and AP2 revised scheme			2027 with AP2 revised scheme (revised junction)		
A519 Newcastle Road (north)	648	125%	82	648	65%	16
B5038 Whitmore Road (east)	255	131%	40	255	63%	7
A519 Newcastle Road (south)	392	122%	48	392	66%	11
A5182 Whitmore Road (west)	326	70%	9	326	65%	9
HGV Depot Access	0	0%	0	0	0%	0
17:00 – 18:00	2027 future baseline and AP2 revised scheme			2027 with AP2 revised scheme (revised junction)		
A519 Newcastle Road (north)	839	113%	70	839	70%	22
B5038 Whitmore Road (east)	186	114%	20	186	49%	5
A519 Newcastle Road (south)	428	111%	36	428	71%	13
A5182 Whitmore Road (west)	360	109%	29	360	71%	11
HGV Depot Access	0	0%	0	0	0%	0

Table 324.9: A5182 Whitmore Road/A519 Newcastle Road junction 2041 future baseline, the AP2 revised scheme and the AP2 revised scheme (revised junction) junction capacity assessment results

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2041 future baseline and AP2 revised scheme			2041 with AP2 revised scheme (revised junction)		
A519 Newcastle Road (north)	707	128%	97	707	75%	20
B5038 Whitmore Road (east)	278	144%	53	278	75%	8
A519 Newcastle Road (south)	428	134%	68	428	73%	12
A5182 Whitmore Road (west)	356	80%	10	356	65%	10
HGV Depot Access	0	0%	0	0	0%	0

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
17:00 – 18:00	2041 future baseline and AP2 revised scheme			2041 with AP2 revised scheme (revised junction)		
A519 Newcastle Road (north)	929	125%	118	929	78%	27
B5038 Whitmore Road (east)	206	126%	30	206	58%	6
A519 Newcastle Road (south)	473	123%	60	473	78%	15
A5182 Whitmore Road (west)	398	120%	48	398	78%	13
HGV Depot Access	0	0%	0	0	0%	0

4.7.26 The results show that the existing junction will operate above capacity in the 2027 and 2041 baseline in the AM and PM peak periods. All approach arms (except for the HGV depot access) operate with substantial queuing, which is also likely to queue back to the adjacent A500 Queensway (Hanchurch Interchange) junction.

4.7.27 The addition of the AP2 revised scheme junction upgrades will result in the junction being within but approaching capacity in the AM and PM peak periods in 2027 and 2041. These are substantial reductions in queuing and delay on all approach arms, reducing the likelihood of queuing back to the adjacent junctions, including the Hanchurch Interchange.

4.7.28 In the AM peak in 2041, the AP2 revised scheme will reduce the DoS value on the A519 Newcastle Road (north) arm from 128% to 75% with a corresponding reduction in queue length from 97 to 20 PCUs and will reduce the DoS value on the B5038 Whitmore Road (east) arm from 144% to 75% with a corresponding reduction in queue from 53 to eight PCUs. Similar reductions are indicated in the PM peak.

Accidents and safety

4.7.29 The impacts on accidents and safety during operation are reported in Section 9.6 of the main TA. This section remains unchanged.

Parking and loading

4.7.30 The impacts on parking are during operation are reported in Section 9.6 of the main TA. This section remains unchanged.

Public transport

4.7.31 The impacts on public transport during operation are reported in Section 9.6 of the main TA. This section remains unchanged.

Pedestrians, cyclists and equestrian

4.7.32 Table 323 in the main TA summarises the permanent changes to PRow for non-motorised users required to accommodate the original scheme. Table 323.1 summarises the amendments associated with the AP2 revised scheme and replaces the associated changes noted in Table 323 in the main TA. Those not listed in Table 323.1 remain unchanged from those identified in Table 323 of the main TA.

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Table 323.1: CA3 AP2 revised scheme permanent changes to public rights of way for non-motorised users

PRoW name	Change in travel distance	New over-or under bridge
Stone Rural Footpath 28	Diversion is 1.4km longer	Stone Rural Footpath 28 accommodation overbridge crossing at ground level.
Stone Rural Footpath 32	Diversion is 750m longer	Stone Rural Footpath 32 accommodation overbridge
Whitgreave Footpath 3	Diversion is 600m longer	None

Waterways and canals

4.7.33 The impacts on waterways and canals during operation are reported in Section 9.6 of the main TA. This section remains unchanged.

5 Whitmore Heath to Madeley (CA4)

5.1 SES2 changes and AP2 amendments

- 5.1.1 The assessment includes all changes to construction traffic, including the movement of excavated material and changes to the construction programme. It includes measures to reduce the need to move construction materials on the road network and the use of site haul routes to limit construction traffic on the local road network.
- 5.1.2 The original scheme is described in Section 6 of the main TA and Sections 2 to 5 of the Volume 2, community area reports provide details of all the proposed changes and amendments. The following SES2 changes and AP2 amendments have the greatest contribution to the assessment of changes in traffic flows in the Whitmore Heath to Madeley area. These changes are located within the Whitmore Heath to Madeley area, except for the modifications to the roundabout junction of the A500 Queensway/A519 Newcastle Road/A519 Clayton Road (Hanchurch Interchange), the signalised crossroads junction of the A519 Newcastle Road/A5182 Trentham Road/B5038 Whitmore Road and a new temporary satellite construction compound (AP2-003-017), which are located in the Stone and Swynnerton area:
- changes to the movement of excavated material and to the construction programme;
 - Additional land required for provision of a power supply to Whitmore Heath tunnel (AP2-004-001);
 - Additional land required for modifications to the roundabout junction of the A500 Queensway/A519 Newcastle Road/A519 Clayton Road (Hanchurch Interchange) and the signalised crossroads junction of the A519 Newcastle Road/A5182 Trentham Road/B5038 Whitmore Road and a new temporary satellite construction compound (AP2-003-017); and
 - Additional land required and a change to Bill powers for modifications to the A51 Stone Road/Nantwich Road/A53 Newcastle Road junction (AP2-004-003).
- 5.1.3 There are a number of other SES2 changes and AP2 amendments in the area that impact on construction traffic flows and these include:
- Local placement of surplus excavated material to the north of Whitmore South cutting (SES2-004-001);
 - amendments to utilities and new utility compounds as set out in Table 336 below;
 - Additional land required and changes to Bill powers for changes to the vertical and horizontal alignment between Hatton South cutting and Madeley Bridleway 1 accommodation green overbridge (AP2-004-002);
 - Additional land required for provision of a power supply to Madeley tunnel (AP2-004-007); and
 - corrections to the main ES: there are corrections in CA4 regarding reported traffic volumes on the A53 Newcastle Road between Madeley Road and Holly Bush Lane. These are corrected in this report.

- 5.1.4 The construction assessment also includes consideration of any impacts in the Whitmore Heath to Madeley area that arise from construction of the AP2 revised scheme in the adjoining community areas.

5.2 Existing baseline

- 5.2.1 Baseline conditions are described in Section 5.6 of the main TA.
- 5.2.2 Details of the SES2 changes and AP2 amendments in this area are provided in Sections 2 to 5 of Volume 2 of the SES2 and AP2 ES.
- 5.2.3 Supplementary PRow surveys were undertaken in August 2018. The supplementary TA baseline survey data is included in the Background Information and Data which accompanies the SES2 and AP2 ES (see BID TR-001-000 SES2 and AP2 ES).
- 5.2.4 The supplementary PRow surveys were undertaken to refine the possible impact on non-motorised users at A53 Newcastle Road between Holly Bush Lane and Wharmadine Lane and also on Snape Hall Road.

Baseline traffic flows

- 5.2.5 Table 76 in the main TA summarises the 2016 baseline AM (08:00 – 09:00) peak, PM (17:00 – 18:00) peak and AADT traffic flows. Table 76 in the main TA is partially amended BY Table 76 below.
- 5.2.6 The majority of the traffic flows are unchanged, except for the amended flows on the A53 Newcastle Road (between Madeley Road and Holly Bush Lane).

Table 76: Whitmore Heath to Madeley strategic and primary 'A' road network 2016 baseline flows (vehicles)

Location	Direction	2016 baseline AM peak (08:00 – 09:00)		2016 baseline PM peak (17:00 – 18:00)		AADT	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A53 Newcastle Road (between Madeley Road and Holly Bush Lane)	WB	430	48	694	20	6071	436
	EB	773	25	449	23	6601	312

5.3 Assessment methodology

- 5.3.1 The assessment methodology is described in Section 3 of the main TA with the future year baseline detailed in Section 10.2 of the main TA. The construction assessment considers the traffic and transport impacts in the peak month of construction activity at each location, based on the proposed phasing of construction works. The assessment also includes cumulative impacts arising from construction in the adjoining community areas as well as construction movements through the area.

5.4 CA4 AP2 revised scheme future baseline

Highway network

- 5.4.1 Future baseline traffic and transport conditions are described in Section 10.2 of the main TA. This section, including related traffic growth factors, remains unchanged with the exception of those changes set out below.

Strategic road network and primary 'A' road traffic flows

- 5.4.2 Table 326 in the main TA summarises the 2016, 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows. Table 326 remains unchanged except for the amended flows on the A53 Newcastle Road (between Madeley Road and Holly Bush Lane) as shown in Table 326 below.

Local road network traffic flows

- 5.4.3 Table 327 in the main TA summarises the 2016, 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows. Table 327 remains unchanged.

Table 326: Strategic and primary road network AM peak hour (08:00 – 09:00) and PM peak hour future baseline traffic flows

Location	Direction	AM (08:00 – 09:00)								PM (17:00 – 18:00)							
		2016		2023		2027		2041		2016		2023		2027		2041	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV	Vehicle	HGV	Vehicle	HGV	Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A53 Newcastle Road (between Madeley Road and Holly Bush Lane)	WB	430	48	458	51	470	52	505	56	694	20	737	21	755	22	793	23
	EB	773	25	823	27	844	27	908	29	449	23	477	25	488	25	513	27

Junction operation – future baseline

- 5.4.4 The performance of the key junctions that form the main access route for the strategic road network through the study area to the construction sites or are affected by the operation of the AP2 revised scheme, have been assessed using the future baseline traffic flows and the results are summarised in the following tables where these differ from or are additional to the main TA.
- 5.4.5 Where a junction will be affected by the AP2 revised scheme construction traffic, future baseline results are included for 2023.
- 5.4.6 Where a junction will be affected by the operation of the AP2 revised scheme, all of which are a result of permanent junction improvements, results are included for 2027 and 2041.

A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road

- 5.4.7 Table 329 of the main TA summarises 2023 future baseline performance of the junction. As the junction is affected by the operation of the AP2 revised scheme with the introduction of permanent upgrades, the future baseline results are presented for the 2027 and 2041 in Table 329.1 below. Table 329 and the conclusions drawn in section 10.2.16 in the main TA remain unchanged.

Table 329.1: Future year baseline performance at A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road junction (2027 and 2041)

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2027 AM			2041 AM		
A53 Newcastle Road (left)	7	1.09	1	7	1.22	2
A53 Newcastle Road (right)	414	1.07	25	445	1.19	47
A51 Stone Road (east) (ahead + right)	0	0	0	0	0	0
A51 Stone Road (east) (ahead)	204	-	-	220	-	-
A51 Nantwich Road (west) (left)	758	-	-	815	-	-
A51 Nantwich Road (west) (ahead)	178	-	-	191	-	-
	2027 PM			2041 PM		
A53 Newcastle Road (left)	3	1.00	1	4	1.07	1
A53 Newcastle Road (right)	502	1.29	72	527	1.38	100
A51 Stone Road (east) (ahead + right)	0	0	0	0	0	0
A51 Stone Road (east) (ahead)	397	-	-	418	-	-
A51 Nantwich Road (west) (left)	456	-	-	480	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 Nantwich Road (west) (ahead)	164	-	-	172	-	-

5.4.8 The conclusions drawn in paragraph 10.2.16 are supplemented by:

“The results show that the junction operates above capacity in the 2027 and 2041 baseline in the AM and PM peak periods.

In the PM peak, the A53 Newcastle Road arm RFC value increases to 1.38 and a combined queue of 101 PCUs in 2041.”

A51 Nantwich Road/A53 Newcastle Road (west)

5.4.9 Table 335 of the main TA summarises the 2023 future baseline performance of the junction. As the junction is affected by the operation of the AP2 revised scheme with the introduction of permanent upgrades, the future baseline results are presented for the 2027 and 2041 in Table 335.1 below. Table 335 and the conclusions drawn in section 10.2.28 in the main TA remain unchanged.

Table 335.1: Future year baseline performance at A51 Nantwich Road/A53 Newcastle Road (west) junction (2027 and 2041)

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2027 AM			2041 AM		
A53 Newcastle Road (left + right)	378	1.10	27	407	1.23	50
A51 Nantwich Road (west) (ahead + right)	8	0.01	0	10	0.01	0
A51 Nantwich Road (west) (ahead)	556	-	-	597	-	-
A51 Nantwich Road (east) (left)	432	-	-	464	-	-
A51 Nantwich Road (east) (ahead)	166	-	-	179	-	-
17:00 – 18:00	2027 PM			2041 PM		
A53 Newcastle Road (left + right)	344	1.00	14	362	1.08	24
A51 Nantwich Road (west) (ahead + right)	4	0.01	0	4	0.01	0
A51 Nantwich Road (west) (ahead)	275	-	-	289	-	-
A51 Nantwich Road (east) (left)	611	-	-	642	-	-
A51 Nantwich Road (east) (ahead)	285	-	-	299	-	-

- 5.4.10 The conclusions drawn in paragraph 10.2.28 of the main TA are supplemented by:
 “The results show that the junction operates at or over capacity in the 2027 and 2041 baseline in the AM and PM peak periods.

In the AM peak, the A53 Newcastle Road arm has an RFC value of 1.23 and a corresponding queue of 50 PCUs in 2041.”

Accidents and safety

- 5.4.11 Accidents and safety are reported in Section 10.2 of the main TA. This section of the main TA is unchanged.

Parking and loading

- 5.4.12 Parking and loading are reported in Section 10.2 of the main TA. This section of the main TA is unchanged.

Public transport

Rail

- 5.4.13 Rail services are reported in Section 10.2 of the main TA. This section of the main TA is unchanged.

Local bus services

- 5.4.14 The local bus services are reported in Section 10.2 of the main TA. This section of the main TA is unchanged.

Public transport interchanges

- 5.4.15 The public transport interchanges are reported in Section 10.2 of the main TA. This section of the main TA is unchanged.

Pedestrians, cyclists and equestrians

- 5.4.16 Pedestrians, cyclists and equestrians are reported in Section 10.2 of the main TA. This section of the main TA is unchanged.

Waterways and canals

- 5.4.17 Waterways and canals are reported in Section 10.2 of the main TA. This section of the main TA is unchanged.

5.5 CA4 AP2 revised scheme construction description

- 5.5.1 A number of changes to the original scheme reported in Section 5.1 of this report mean that Section 10.3 of the main TA and Section 5.5 of the SES1 and AP1 ES TA Addendum are replaced by Section 5.5 in this document unless otherwise specified.
- 5.5.2 This section provides an overview of the construction traffic and transport impacts for the section of the SES2 scheme and AP2 revised scheme that will pass through the Whitmore Heath to Madeley area.
- 5.5.3 The construction period for the whole route is programmed for 2020 to 2027, although activity in 2027 is limited to testing and commissioning.

Construction activities have been assessed against 2023 baseline traffic flows, irrespective of when they occur during the construction period. The year 2023 has been adopted as a common base year and the impact of individual or overlapping activities are considered against this single year. The year 2023 also broadly represents the likely typical peak periods during construction of the AP2 revised scheme and therefore it is considered to be reasonably representative.

Construction activities

- 5.5.4 Construction activities are reported in Section 10.3 of the main TA. This section of the main TA is unchanged.

Compounds and construction sites

- 5.5.5 Details of the main construction works and the time periods when each compound is operational are summarised in the indicative construction programme found in Volume 2, Whitmore Heath to Madeley community area, Section 2.3.
- 5.5.6 The location of the construction compounds and the associated access routes are shown in the the SES2 and AP2 ES Volume 5 Map Book, Map Series TR-08 that reflect the transport activity at each site during the busy period as summarised in Table 337.
- 5.5.7 Table 336 in the main TA summarises the anticipated average and peak workforce required at each construction compound for the original scheme. Table 336 in the main TA is replaced by Table 336 below for the AP2 revised scheme. This includes the anticipated average and peak workforce at each of the civils, utility and rail systems compounds. Generally, the utility compound activities will occur in advance of the main civils and the rail systems compound activities will occur following the main civils activities.

Table 336: Assumed workforce at compounds

Compound type	Location	Total number of workers		Number of staff
		Average	Peak	
Satellite	Stableford North embankment satellite compound	24	36	6
Highway	A53/A51 off route highway modifications compound	8	15	3
Rails systems	Whitmore Heath tunnel south portal satellite compound	28	50	8
Rails systems	Whitmore Heath tunnel north portal satellite compound	23	38	6
Rails systems	Whitmore North ATS satellite compound	26	38	4
Satellite	Whitmore Heath tunnel satellite compound	80	120	20
Satellite	Whitmore North cutting satellite compound	28	42	7
Satellite	River Lea viaduct satellite compound	40	60	10

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Satellite	Madeley cutting satellite compound	12	18	3
Satellite	Madeley tunnel (south) satellite compound (includes Madeley tunnel north portal satellite compound)	84	126	21
Rail systems		18	30	5
Satellite	Madeley tunnel (north) satellite compound	12	18	3
Rail systems		27	64	7
Satellite	Checkley South embankment satellite compound	28	42	7

5.5.8 Table 337 of the main TA summarises the typical vehicle trip generation for construction site compounds in this area for the original scheme. Table 337 in the main TA is replaced by Table 337 below, which summarises the typical vehicle trip generation for construction site compounds for the AP2 revised scheme.

5.5.9 For each compound in Table 337, the peak month of activity is the month within which HGV traffic is at its highest for that compound. The busy period is the period during which HGV traffic serving that compound will be greater than 50% of the HGV traffic in the peak month. The average daily combined two-way vehicle trips for the busy period is the lower end of the range. The upper end of the range is the average daily combined two-way vehicle trips for the peak month.

Table 337: Typical vehicle trip generation for construction site compounds in the Whitmore Heath to Madeley area

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Stableford North embankment satellite compound	Bent Lane (North) to A51 The Rowe for site setup and servicing, followed by site haul route and after that to the A53 Newcastle Road	Civil engineering – October 2020	Four years and three months	10	66-66	48-74
			Site reinstatement – January 2026	Nine months	2		43-56
Satellite	Whitmore Heath tunnel satellite compound	A53 Newcastle Road	Civil engineering – October 2020	Four years and three months	12	217-220	63-97
			Site reinstatement – January 2026	Three months	2		52-52
Satellite	A53/A51 off-route highway modifications compound	A53 Newcastle Road	July 2020	Six months	5	22-23	11-17
Satellite	Whitmore Heath tunnel south portal satellite compound	A53 Newcastle Road	December 2024	One year	5	49-65	110-152
Transfer node	Transfer node associated with Whitmore Heath tunnel satellite compound	A53 Newcastle Road	October 2021	Three years and three months	14	N/A	382-550

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
Satellite	Whitmore Heath tunnel north portal satellite compound	Snape Hall Road/site haul route to A53 Newcastle Road	January 2025	One year and six months	2	34-44	11-11
Satellite	Whitmore North cutting satellite compound	A53 Newcastle Road	Civil engineering – October 2020	Three years and six months	6	77-77	60-96
			Site reinstatement – January 2026	Three months	2		46-48
Satellite	Whitmore north auto-transformer station satellite compound	Snape Hall Road/site haul route to A53 Newcastle Road	August 2024	One year and three months	7	32-44	up to 10
Satellite	River Lea viaduct satellite compound	Manor Road to A525 Bar Hill Road	Civil engineering – October 2020	Four years and six months	33	110-110	50-70
			Site reinstatement – March 2026	Six months	4		61-61
Satellite	Madeley cutting satellite compound	A525 Bar Hill Road	Civil engineering – October 2020	Four years and six months	19	33-33	25-40
			Site reinstatement – May 2026	Three months	1		18-18

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
Transfer node	Transfer node associated with Madeley cutting satellite compound	A525 Bar Hill Road	October 2021	Three years and three months	9	N/A	125-171
Satellite	Madeley tunnel (south) satellite compound	A525 Bar Hill Road	Civil engineering – April 2020	Four years and nine months	16	228-231	45-58
			Site reinstatement – May 2026	Three months	1		42-42
			Railway systems – December 2024	Nine months	2		33-40
Satellite	Madeley tunnel (north) satellite compound	A525 Bar Hill Road	April 2020	Four years and nine months	6	33-33	32-34
Satellite	Madeley tunnel north portal satellite compound	A525 Bar Hill Road	August 2024	Two years	2	53-78	90-98
Satellite	Checkley South embankment satellite compound	A525 Bar Hill for site setup and serving, followed by site haul route to the A500 Shavington Bypass	Civil engineering – October 2020	Four years and six months	5	77-77	29-45
			Site reinstatement – June 2026	Three months	1		38-38

Construction HGV routes

- 5.5.10 Construction vehicle movements required to construct the AP2 revised scheme will include the delivery of plant and materials, movement of excavated materials and site worker trips. Works will include utilities diversions, earthworks, underpass, viaduct, bridge and highway construction.
- 5.5.11 HGVs have been routed where reasonably practicable along the strategic or primary road network, although some access locations will be off secondary roads. In the Whitmore Heath to Madeley area, the strategic road network and primary construction traffic routes are as follows: the M6, the A53 Newcastle Road, the A51 London Road and the A525 Bar Hill Road. Where reasonably practicable, the use of the local road network has been limited to site setup, access for environmental surveys and on-going servicing (including refuse collection and general deliveries).
- 5.5.12 Other roads may have some low level (less than 10 HGV movements per day) construction traffic associated with highway works including utilities works. However, in Table 338 below this traffic is assigned to the construction compound from which the works will be managed.
- 5.5.13 Table 338 of the main TA summarises the peak daily construction traffic flow, both in HGVs and total vehicles, on each link within the Whitmore Heath to Madeley area that is on a construction route for the original scheme. Table 338 in the main TA is replaced by Table 338 below.
- 5.5.14 Table 338 indicates an increase in construction traffic, when comparing the AP2 revised scheme against the original scheme, at locations such as the A53 from Trentham Road to Bent Lane, A53 Newcastle Road (between Bent Lane and the AP2 revised scheme).
- 5.5.15 Table 338 also indicates a reduction in construction traffic, when compared to the original scheme, at locations such as the A51 at Willoughbridge, the A51 London Road/Nantwich Road, A53 Newcastle Road (between the AP2 revised scheme and Nantwich Road), A525 Bar Hill Lane/Newcastle Road, Madeley Road, Manor Road, Holly Bush Lane and Common Lane.
- 5.5.16 Where zero 'all vehicle' and/or 'HGV' construction flows are indicated, these represent links that are no longer a main construction route when considering the AP2 revised scheme. These links may, however, be subject to occasional or infrequent use by AP2 revised scheme construction traffic.

Table 338: CA4 peak daily construction traffic flow

Location	Direction	Peak HGV	Peak all vehicles
A51 at Willoughbridge (between Maerway Lane and London Road)	NB	129	156
	SB	129	156
A51 London Road (between Newcastle Road and Yew Tree Lane)	NB	25	46
	SB	25	46

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Location	Direction	Peak HGV	Peak all vehicles
A51 London Road (between London Road and Newcastle Road)	NB	129	156
	SB	129	156
A51 London Road (between Yew Tree Lane and Checkley Lane)	NB	25	46
	SB	25	46
A51 Nantwich Road (between Newcastle Road and Maerway Lane)	WB	129	156
	EB	129	156
A51 Nantwich Road (between Newcastle Road and Stone Road)	WB	129	156
	EB	129	156
A53 from A5192 Trentham Road to Bent Lane (between Trentham Road and Bent Lane)	SWB	359	487
	NEB	359	487
A53 Newcastle Road (between Bent Lane and AP2 revised scheme)	WB	357	445
	EB	357	445
A53 Newcastle Road (between AP2 revised scheme and Common Lane)	WB	130	200
	EB	130	200
A53 Newcastle Road (between Madeley Road and Holly Bush Lane)	WB	129	137
	EB	129	137
A53 Newcastle Road (between Holly Bush Lane and Nantwich Road)	WB	129	137
	EB	129	137
A525 Bar Hill Lane (between Red Lane and AP2 revised scheme)	EB	35	245
	WB	35	245
A525 Bar Hill Lane (between Red Lane and Manor Road)	EB	35	245
	WB	35	245
A525 Bar Hill Road (between Gravenhunger Moss and AP2 revised scheme)	EB	128	134
	WB	128	134

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Location	Direction	Peak HGV	Peak all vehicles
A525 Newcastle Road (between Gravenhunger Moss and London Road)	EB	128	134
	WB	128	134
Madeley Road (between Holly Bush Lane and Newcastle Road)	WB	0	0
	EB	0	0
Manor Road (between Bar Hill and AP2 revised scheme)	SB	35	97
	NB	35	97
Manor Road (between AP2 revised scheme and Camp Hill)	NB	0	0
	SB	0	0
Bower End Lane (between Moss Lane and AP2 revised scheme)	WB	0	0
	EB	0	0
Holly Bush Lane (between Newcastle Road and Madeley Road)	NB	0	0
	SB	0	0
Snape Hall Road (between Common Lane Road and AP2 revised scheme)	NB	2	88
	SB	2	88
Common Lane (between Newcastle Road and Heath Road)	WB	2	86
	EB	2	86

Traffic management, road closures and diversions

5.5.17 The approach to traffic management, road closures and diversions is reported in Section 10.3 of the main TA. This section of the main TA is unchanged.

PRoW closures and diversions

5.5.18 The approach to PRoW closures and diversions is reported in Section 10.3 of the main TA. This section of the main TA is unchanged.

5.6 CA4 AP2 revised scheme assessment of construction impacts

5.6.1 A number of changes to the original scheme reported in Section 5.1 of this report mean that Section 10.4 of the main TA and Section 5.6 of the SES1 and AP1 ES TA Addendum are generally replaced by Section 5.6 unless stated otherwise.

Key construction transport issues

- 5.6.2 The temporary traffic and transport impacts in this area will include:
- road closures and associated diversions;
 - diversions and alternative routes for PRow; and
 - construction vehicle movements to and from the various worksites.
- 5.6.3 The construction assessment has also considered any impacts in the Whitmore to Madeley area that arise from construction of the AP2 revised scheme in the adjoining community areas.
- 5.6.4 The AP2 revised scheme includes greater usage of haul roads by construction traffic which generally results in reduced usage on the local road network. Local placement, greater utilisation of borrow pit material as well as refinements to the construction process and programme will result in further reductions to traffic on the local road network.

Highway network

Highway closures and diversions

- 5.6.5 The AP2 revised scheme includes changes to the Whitmore Heath tunnel in the vicinity of the A53 Newcastle Road, which will remove the need to temporarily divert the A53 Newcastle Road.
- 5.6.6 The AP2 revised scheme includes temporary utility works to provide a power connection to the Whitmore Heath tunnel. The majority of these utility works are located in the Stone and Swynnerton area and addressed in Section 4.6 of this report. A full closure to through traffic on Bent Lane will be required with associated local diversion routes. However, these will be for a short duration of no more than four weeks. The works will be undertaken on short sections of Bent Lane at any given time and move along the route so that full closure of Bent Lane can be avoided and access to properties maintained. The closure of Bent Lane will increase journey distance by up to 6.5km for the short duration of the works.
- 5.6.7 Permanent junction upgrade works at the A51 Stone Road/Nantwich Road/A53 Newcastle Road and the A51 London Road/A53 Newcastle Road junctions are included within the AP2 revised scheme. The temporary construction works to implement the changes at these junctions are expected to take nine months to implement under associated traffic management measures that are likely to result in a temporary reduction in capacity and increased delays. HS2 Ltd will work with the local highway authorities to ensure that any traffic management works will be well planned and communicated and will not have a substantial impact on traffic flows and delays for vehicle occupants.
- 5.6.8 The AP2 revised scheme also includes provision for a power connection to the tunnel boring machine (TBM) for the construction of Madeley tunnel. The power connection will then be used for the operation of the tunnel post-construction. The power supply will come from Western Power Distribution's existing sub-station at the Newcastle Bulk Supply Point (BSP), with the majority of the works contained in the existing roads and the power cables installed in either the verge or the carriageway.

- 5.6.9 These works will involve individual road, lane or partial lane closures under traffic control during a series of individual works over limited distances. Closures and diversions will be restricted to short-term and/or weekend closures where reasonably practicable. While the impact of these off-peak closures on traffic flows and consequent delays to vehicles as a result of congestion is not likely to be substantial, an overview of the individual and cumulative impact along the route of the TBM works is summarised in Table 352.1.

Table 352.1: Newcastle BSP to Madeley TBM construction works impact assessment

Location	Type of traffic management	Activity	Duration (days)	Approximate distance (m)	Impact
Brymbo Road	One-way shuttle	Duct installation	5	400	Not significant individually or cumulatively. Night-time operation, temporary bus stops if necessary
A34 Liverpool Road	Lane closure	Duct installation	3	500	Not significant individually or cumulatively. Off-peak operation, temporary bus stops and maintain private access. Multiple alternative routes available
Lower Milestone Lane and Church Lane	One-way shuttle (off-peak)	Duct installation	16	1900	Not significant individually or cumulatively. Reduced off-peak capacity at mini-roundabouts on High Street and at main signalised junctions. Alternative routes available. Possible minor combined delay on bus services and users on 429 and Orange 1A (Routes 2 and 3)
High Street	One-way shuttle (off-peak)	Duct installation	14	1700	Not significant individually or cumulatively. Alternative routes available. Possible minor combined delay on bus services and users on 429 and Orange 1A (Routes 2 and 3)
B5044 Pepper Street	One-way shuttle (off-peak)	Duct installation	12	1400	Not significant individually or cumulatively. 3-way shuttle signals likely at side roads with increased delay on northern section. Alternative routes available
A525 Station Road	One-way shuttle (off-peak)	Duct installation	13	1500	Potential cumulative impact mitigated through off-peak working, traffic management and availability of alternative routes
A525 Keele Road and A525 Newcastle Road	One-way shuttle (off-peak)	Duct installation	14	1700	Not significant individually or cumulatively. Diversion length via Hill Chorlton not substantial and traffic impact minimal. Short duration.
A525 Newcastle Road	One-way shuttle (off-peak)	Duct installation	6	700	Not significant individually but potential for cumulative impact. Alternative routes available. Possible minor combined delay on bus services and users on bus service 85
Station Road	Within the area of land required for construction of the AP2 revised scheme	Duct installation	5	1000	Not significant individually but potential for cumulative impact

Location	Type of traffic management	Activity	Duration (days)	Approximate distance (m)	Impact
A525 Bar Hill Road	Within the area of land required for construction of the AP2 revised scheme	Duct installation	7	650	Not significant individually but potential for cumulative impact
Whole route		Cable pulling and jointing	19	11,450	Not significant individually or cumulatively.

- 5.6.10 Given the short-term duration of the works during the off-peak and night-time periods, short length of the individual works and the availability of suitable alternative routes, the assessment concludes that the TBM power connection works will not give rise to a substantial impact on traffic flows and delays for vehicle occupants. HS2 Ltd will work with the local highway authorities to minimise any impact.
- 5.6.11 Temporary road or lane closures and associated diversions will be required in a number of locations for the AP2 revised scheme in addition to Snape Hall Road, Manor Road and the A525 Bar Hill Road reported in the main TA, including:
- Bent Lane;
 - A34 Liverpool Road;
 - B5368 Lower Milehouse Lane;
 - Mill Street;
 - B5367 High Street;
 - B5368 Church Lane;
 - B5044 Pepper Street;
 - Keele Road;
 - Poolside;
 - Woore Road; and
 - A525 Station Road.
- 5.6.12 These may involve lane closures and partial lane closures under traffic control for the tie in of new alignments, intermittent lane restrictions and temporary road closures. Closures and diversions will be restricted to short-term overnight and/or weekend closures where reasonably practicable. The impact of these off-peak closures on traffic flows and consequent delays to vehicles as a result of congestion is not likely to be substantial.

PRoW closures and diversions

- 5.6.13 PRoW closures and diversions are reported in Section 10.4 of the main TA.
- 5.6.14 Table 339 in the main TA summarises the temporary PRoW diversions and realignments required to accommodate the construction of the original scheme. Table 339.1 summarises changes to the temporary amendments to the PRoWs to support the construction of the AP2 revised scheme and supersedes the associated data in Table 339 of the main TA. Those not listed in Table 339.1 remain unchanged to those identified by Table 339 of the main TA.

Table 339.1: CA4 temporary PRow AP2 revised scheme

PRow name	Description	Change in travel distance (compared to baseline)
Whitmore Footpath 4	Stage 1 – diversion around tunnel construction removed in AP2 revised scheme Stage 2 – diversion around satellite compound unchanged from Table 339 in the main TA	Stage 1 – no diversion Stage 2 – unchanged from Table 339 in the main TA
Whitmore Footpath 6	Diverted slightly west from junction with Whitmore Footpath 5 around site boundary, crosses HS2 route south of Whitmore Wood overbridge and continues east of alignment to Footpath 14	Temporary diversion is 225m longer

Strategic and local road network traffic flows

- 5.6.15 During the construction period there will be a number of highway links that will be affected by the construction of the AP2 revised scheme. An assessment of the impact of construction related vehicle movements and diversions has been undertaken and is detailed below. This assessment considers the peak month of activity in each particular location. However, the flows outlined in the following sections will not necessarily occur concurrently as impacts on different parts of the network will occur at different times.
- 5.6.16 Table 340 and Table 341 set out the 2023 traffic flows on highway links affected by construction traffic associated with the original scheme for the AM and PM peak hour respectively.
- 5.6.17 Tables 340 and 341 in the main TA are replaced by Tables 340 and Table 341 below, which set out the 2023 traffic flows on highway links affected by the AP2 revised scheme construction traffic for the AM and PM peak hour respectively. For completeness, all links identified in the main TA are included even where they are no longer proposed as construction routes.
- 5.6.18 To show the impact of the construction of the AP2 revised scheme in these locations, traffic flows on affected links are presented for the 2023 future baseline and the 2023 future baseline with the AP2 revised scheme, alongside the percentage increase from the future baseline.
- 5.6.19 Where there is a 'zero percentage' change in construction 'vehicles' and/or 'HGV' traffic, this represents a link that is not, or no longer represents, a main construction route for the AP2 revised scheme. Such links may, however, be subject to occasional or infrequent use by AP2 revised scheme construction traffic.
- 5.6.20 Where a link indicates a change annotated by 'N/A', this represents a link with zero HGVs in the baseline. Such links either indicate no change or a small change in the number of HGVs as a result of the AP2 revised scheme. Such changes are not generally substantial.

Table 340: 2023 future baseline and with the AP2 revised scheme construction traffic (vehicles) – AM peak hour (08:00 – 09:00)

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A51 at Willoughbridge (between Maerway Lane and London Road)	NB	154	5	174	18	13.0%	270.6%
	SB	208	4	228	17	9.6%	313.3%
A51 London Road (between Newcastle Road and Yew Tree Lane)	NB	285	4	295	6	3.3%	66.6%
	SB	177	7	186	9	5.3%	36.0%
A51 London Road (between London Road and Newcastle Road)	NB	351	15	371	28	5.7%	86.3%
	SB	297	6	317	18	6.7%	233.4%
A51 London Road (between Yew Tree Lane and Checkley Lane)	NB	242	6	251	8	3.9%	44.3%
	SB	202	6	211	9	4.6%	38.3%
A51 Nantwich Road (between Newcastle Road and Maerway Lane)	WB	156	4	176	17	12.8%	287.3%
	EB	475	5	495	18	4.2%	251.4%
A51 Nantwich Road (between Newcastle Road and Stone Road)	WB	865	65	885	78	2.3%	19.9%
	EB	537	40	557	53	3.7%	32.1%
A53 from A5192 Trentham Road to Bent Lane (between Trentham Road and Bent Lane)	SWB	495	47	577	83	16.4%	75.8%
	NEB	781	31	862	67	10.4%	116.8%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A53 Newcastle Road (between Bent Lane and the AP2 revised scheme)	WB	458	51	529	86	15.5%	70.4%
	EB	823	27	894	62	8.6%	134.1%
A53 Newcastle Road (between the AP2 revised scheme and Common Lane)	WB	458	51	492	64	7.6%	25.6%
	EB	823	27	858	40	4.2%	48.7%
A53 Newcastle Road (between Madeley Road and Holly Bush Lane)	WB	458	51	472	64	3.2%	25.4%
	EB	823	27	838	40	1.8%	48.3%
A53 Newcastle Road (between Holly Bush Lane and Nantwich Road)	WB	363	47	377	60	4.1%	27.2%
	EB	626	25	641	38	2.3%	51.2%
A525 Bar Hill Lane (between Red Lane and the AP2 revised scheme)	EB	178	6	235	9	31.5%	59.0%
	WB	152	5	208	9	37.1%	69.0%
A525 Bar Hill Lane (between Red Lane and Manor Road)	EB	194	1	250	5	28.9%	251.0%
	WB	144	4	200	7	38.9%	96.0%
A525 Bar Hill Road (between Gravenhunger Moss and the AP2 revised scheme)	EB	185	8	199	21	7.7%	163.5%
	WB	150	9	165	22	9.5%	143.1%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A525 Newcastle Road (between Gravenhunger Moss and London Road)	EB	151	2	165	14	9.5%	843.7%
	WB	106	3	120	16	13.4%	393.7%
Madeley Road (between Holly Bush Lane and Newcastle Road)	WB	108	8	108	8	0.0%	0.0%
	EB	63	5	63	5	0.0%	0.0%
Manor Road (between Bar Hill and the AP2 revised scheme)	SB	57	3	76	6	33.7%	120.1%
	NB	61	3	80	7	31.3%	109.6%
Manor Road (between the AP2 revised scheme and Camp Hill)	NB	64	5	64	5	0.0%	0.0%
	SB	99	3	99	3	0.0%	0.0%
Three Mile Lane (between Newcastle Road and Lymes Road)	NB	122	1	122	1	0.0%	0.0%
	SB	35	1	35	1	0.0%	0.0%
Bower End Lane (between Moss Lane and AP2 revised scheme)	WB	3	0	3	0	0.0%	0.0%
	EB	3	0	3	0	0.0%	0.0%
Moss Lane (between Bar Hill and Bower End Lane)	NB	27	0	27	0	0.0%	0.0%
	SB	18	0	18	0	0.0%	N/A

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Holly Bush Lane (between Newcastle Road and Madeley Road)	NB	64	5	64	5	0.0%	0.0%
	SB	99	3	99	3	0.0%	0.0%
Heath Road (between Common Lane and the AP2 revised scheme)	NB	3	0	3	0	0.0%	0.0%
	SB	6	0	6	0	0.0%	0.0%
Snape Hall Road (between Common Lane Road and the AP2 revised scheme)	NB	0	0	22	0	5575.4%	115.8%
	SB	1	0	23	0	3407.2%	N/A
Common Lane (between Newcastle Road and Heath Road)	WB	28	2	50	2	75.5%	11.3%
	EB	8	0	29	1	280.5%	42.0%
Red Lane (between Bar Hill and north of the AP2 revised scheme)	SB	2	0	2	0	0.0%	N/A
	NB	1	0	1	0	0.0%	N/A

Table 34.1: 2023 future baseline and with the AP2 revised scheme construction traffic (vehicles) – PM peak hour (17:00 – 18:00)

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A51 at Willoughbridge (between Maerway Lane and London Road)	NB	193	2	213	15	10.3%	518.6%
	SB	205	3	225	16	9.7%	441.8%
A51 London Road (between Newcastle Road and Yew Tree Lane)	NB	233	3	242	5	4.0%	94.6%
	SB	307	4	316	7	3.1%	56.7%
A51 London Road (between London Road and Newcastle Road)	NB	363	11	383	24	5.5%	120.5%
	SB	357	2	377	15	5.6%	568.0%
A51 London Road (between Yew Tree Lane and Checkley Lane)	NB	263	4	272	6	3.5%	64.4%
	SB	248	2	258	4	3.7%	125.2%
A51 Nantwich Road (between Newcastle Road and Maerway Lane)	WB	231	3	251	16	8.6%	432.2%
	EB	247	4	267	16	8.1%	355.9%
A51 Nantwich Road (between Newcastle Road and Stone Road)	WB	568	23	588	36	3.5%	55.2%
	EB	854	35	874	48	2.3%	36.6%
A53 from A5192 Trentham Road to Bent Lane (between Trentham Road and Bent Lane)	SWB	719	16	800	52	11.2%	222.6%
	NEB	518	28	599	64	15.5%	130.3%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A53 Newcastle Road (between Bent Lane and the AP2 revised scheme)	WB	737	21	807	57	9.5%	170.1%
	EB	477	25	547	60	14.7%	144.7%
A53 Newcastle Road (between AP2 revised scheme and Common Lane)	WB	737	21	772	34	4.8%	61.8%
	EB	477	25	512	38	7.4%	52.5%
A53 Newcastle Road (between Madeley Road and Holly Bush Lane)	WB	737	21	752	34	2.1%	61.3%
	EB	477	25	492	38	3.2%	52.1%
A53 Newcastle Road (between Holly Bush Lane and Nantwich Road)	WB	409	17	424	30	3.7%	76.8%
	EB	413	26	429	39	3.7%	49.1%
A525 Bar Hill Lane (between Red Lane and the AP2 revised scheme)	EB	132	6	188	9	42.7%	63.1%
	WB	165	1	221	5	34.1%	252.2%
A525 Bar Hill Lane (between Red Lane and Manor Road)	EB	156	2	213	5	35.9%	192.2%
	WB	164	0	220	4	34.3%	816.9%
A525 Bar Hill Road (between Gravenhunger Moss and the AP2 revised scheme)	EB	163	3	178	16	8.8%	382.1%
	WB	189	6	203	18	7.6%	229.3%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A525 Newcastle Road (between Gravenhunger Moss and London Road)	EB	120	2	134	15	12.0%	657.5%
	WB	146	1	160	14	9.9%	1479.5%
Madeley Road (between Holly Bush Lane and Newcastle Road)	WB	65	4	65	4	0.0%	0.0%
	EB	77	4	77	4	0.0%	0.0%
Manor Road (between Bar Hill and the AP2 revised scheme)	SB	55	2	74	5	34.7%	180.2%
	NB	50	1	69	4	38.2%	560.5%
Manor Road (between the AP2 revised scheme and Camp Hill)	NB	75	1	75	1	0.0%	0.0%
	SB	54	2	54	2	0.0%	0.0%
Three Mile Lane (between Newcastle Road and Lymes Road)	NB	55	1	55	1	0.0%	0.0%
	SB	89	0	89	0	0.0%	0.0%
Bower End Lane (between Moss Lane and the AP2 revised scheme)	WB	5	0	5	0	0.0%	0.0%
	EB	3	0	3	0	0.0%	0.0%
Moss Lane (between Bar Hill and Bower End Lane)	NB	26	0	26	0	0.0%	N/A
	SB	19	0	19	0	0.0%	0.0%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Holly Bush Lane (between Newcastle Road and Madeley Road)	NB	75	1	75	1	0.0%	0.0%
	SB	54	2	54	2	0.0%	0.0%
Heath Road (between Common Lane and the AP2 revised scheme)	NB	2	0	2	0	0.0%	N/A
	SB	2	0	2	0	0.0%	N/A
Snape Hall road (between Common Lane road and the AP2 revised scheme)	NB	1	0	23	0	2792.5%	N/A
	SB	1	0	22	0	4388.2%	N/A
Common Lane (between Newcastle Road and Heath Road)	WB	15	1	37	1	140.7%	37.1%
	EB	22	1	43	1	98.5%	26.0%
Red Lane (between Bar Hill and north of the AP2 revised scheme)	SB	1	0	1	0	0.0%	0.0%
	NB	1	0	1	0	0.0%	0.0%

Summary of link flows

- 5.6.21 The AP2 revised scheme includes changes to construction traffic flows as a consequence of new construction traffic routes and changes to the movement and use of surplus excavated material. This has resulted in reductions to construction vehicles on a number of routes including the A51, A53 and A525 corridors and on roads such as Manor Road, Snape Hall Road, Madeley Road, Holly Bush Lane and Common Lane.
- 5.6.22 Many of the roads affected in the Whitmore Heath to Madeley area have low future baseline traffic flows in the AM and PM peak periods, which often results in relatively large percentage increases due to construction traffic associated with the AP2 revised scheme.
- 5.6.23 The results show that in the AM and PM peak periods the strategic and primary roads such as the A51 London Road, the A53 Newcastle Road and the A525 Bar Hill Lane generally have a percentage increase of less than 10% in total vehicles. Percentage increases in HGV traffic are generally higher.
- 5.6.24 Other roads identified as construction routes show a similar pattern, with high percentage increases in HGVs but with generally minor increases in total vehicular flow. A summary of routes/corridors with percentage increases of over 30% in either total vehicle movements or HGVs is set out below:
- A51 at Willoughbridge Lane between Maerway Lane and London Road – (HGVs);
 - A51 London Road/Nantwich Road between Dog Lane and Checkley Lane – (HGVs);
 - A53 Newcastle Road between the Trentham Road and Nantwich Road – (HGVs);
 - A525 Bar Hill Road between the Manor Road and Nantwich Road – (HGVs);
 - Manor Road between the AP2 revised scheme and the A525 Bar Hill Road – (all vehicles and HGVs);
 - Snape Hall Road between Common Lane and the AP2 revised scheme – (all vehicles and HGVs); and
 - Common Lane between Newcastle Road and the AP2 revised scheme – (all vehicles and HGVs).
- 5.6.25 It should be noted that, unless identified in the next section of this report, these increases in traffic will not result in increased congestion or delay.

Junction performance 2023

- 5.6.26 The results are presented in the same order as presented in the main TA. Junctions that were not modelled in the main TA are provided at the end of the junction performance section. The results for the AM and PM peak hours are presented and the 2023 future baseline results are included for comparison. The models developed to assess the existing and future baseline have been used, except where otherwise stated.

A53 Whitmore Road/A5182 Trentham Road

5.6.27 Table 342 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 342 in the main TA is replaced by Table 342 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 342: A53 Whitmore Road/A5182 Trentham Road Roundabout 2023 future baseline and with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A53 Whitmore Road	271	0.20	0	281	0.22	0
A5182 Trentham Road	331	0.25	0	429	0.33	1
A53 from A5192 Trentham Road to Bent Lane	919	0.46	1	1027	0.52	2
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A53 Whitmore Road	515	0.39	1	524	0.41	1
A5182 Trentham Road	415	0.36	1	512	0.45	2
A53 from A5192 Trentham Road to Bent Lane	601	0.30	1	708	0.35	1

5.6.28 The conclusions drawn in paragraph 10.4.21 of the main TA are replaced by:

“The results show that this junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic, without any substantial increases in queuing or RFC.”

A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road

5.6.29 Table 343 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 343 in the main TA is replaced by Table 343 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

5.6.30 The AP2 revised scheme includes permanent upgrades to the junction, which have been discussed with the local highway authority. Table 343.1 summarises the performance of the AP2 revised scheme with the associated junction upgrades that include the implementation of traffic signal control.

Table 343: A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment (existing junction)

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A53 Newcastle Road (left)	7	1.05	1	7	1.14	1
A53 Newcastle Road (right)	403	1.03	19	432	1.11	34

SES2 and AP2 ES Appendix TR-001-000

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 Stone Road (east) (ahead + right)	0	0	0	0	0	0
A51 Stone Road (east) (ahead)	199	-	-	201	-	-
A51 Nantwich Road (west) (left)	739	-	-	763	-	-
A51 Nantwich Road (west) (ahead)	173	-	-	175	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A53 Newcastle Road (left)	3	1.25	1	3	1.03	1
A53 Newcastle Road (right)	490	1.24	62	518	1.33	85
A51 Stone Road (east) (ahead + right)	0	0	0	0	0	0
A51 Stone Road (east) (ahead)	388	-	-	390	-	-
A51 Nantwich Road (west) (left)	445	-	-	474	-	-
A51 Nantwich Road (west) (ahead)	160	-	-	162	-	-

Table 343.1: A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2023 with AP2 revised scheme (revised junction)		
A51 Stone Road (east)	202	44%	2
A53 Newcastle Road	437	47%	4
A51 Nantwich Road (west)	941	47%	2
17:00 – 18:00	2023 with AP2 revised scheme (revised junction)		
A51 Stone Road (east)	390	63%	5
A53 Newcastle Road	521	66%	6
A51 Nantwich Road (west)	635	38%	2

5.6.31 The conclusions drawn in paragraph 10.4.23 of the main TA are replaced by:

“The results show that the junction operates above capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.

In the PM peak, the A53 Newcastle Road arm RFC value increases from 1.24 to 1.33 and the queue increases from 62 to 85 PCUs with the addition of the AP2 revised scheme construction traffic.”

- 5.6.32 The results show that the junction will operate within capacity with the addition of the AP2 revised scheme in the AM and PM peak, significantly reducing the queuing on the A53 Newcastle Road arm when compared to the 2023 future baseline. The AP2 revised scheme will also provide safety benefits for turning traffic movements through the junction.

A51 Nantwich Road/A53 Newcastle Road (west)

- 5.6.33 Table 344 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 344 in the main TA is replaced by Table 344 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.
- 5.6.34 The AP2 revised scheme includes permanent upgrades to the junction, which have been discussed with the local highway authority. Table 344.1 summarises the performance of the AP2 revised scheme with the associated junction upgrades that include the implementation of traffic signal control.

Table 344: A51 Nantwich Road/A53 Newcastle Road (west) junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment (existing junction)

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A53 Newcastle Road (left + right)	369	1.05	21	397	1.17	40
A51 Nantwich Road (west) (ahead + right)	8	0.01	0	45	0.06	0
A51 Nantwich Road (west) (ahead)	542	-	-	540	-	-
A51 Nantwich Road (east) (left)	421	-	-	435	-	-
A51 Nantwich Road (east) (ahead)	162	-	-	183	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A53 Newcastle Road (left + right)	336	0.96	11	365	1.08	24
A51 Nantwich Road (west) (ahead + right)	4	0.01	0	29	0.05	0
A51 Nantwich Road (west) (ahead)	269	-	-	279	-	-
A51 Nantwich Road (east) (left)	596	-	-	610	-	-

SES2 and AP2 ES Appendix TR-001-000

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 Nantwich Road (east) (ahead)	278	-	-	299	-	-

Table 344.1: A51 Nantwich Road/A53 Newcastle Road (west) AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00			
2023 with AP2 revised scheme (revised junction)			
A51 Nantwich Road (east)	618	54%	8
A53 Newcastle Road	397	78%	9
A51 Nantwich Road (west)	585	73%	11
17:00 – 18:00			
2023 with AP2 revised scheme (revised junction)			
A51 Nantwich Road (east)	909	78%	14
A53 Newcastle Road	365	79%	8
A51 Nantwich Road (west)	308	63%	6

5.6.35 The conclusions drawn in paragraphs 10.4.25 and 10.4.26 of the main TA are replaced by:

“The results show that the junction operates at or above capacity in 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.

In the AM peak, with the existing junction the A53 Newcastle Road arm RFC value increases from 1.05 to 1.17 and the queue increases from 21 to 40 PCUs with the addition of the AP2 revised scheme construction traffic.

The results show that with the AP2 revised scheme junction it will be within but approaching capacity with the addition of the AP2 revised scheme in the AM and PM peak, significantly reducing the queuing on the A53 Newcastle Road arm when compared to the 2023 future baseline. The AP2 revised scheme will also provide safety benefits for turning traffic movements through the junction.”

A51 Nantwich Road/A525 Audlem Road

5.6.36 Table 345 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 345 in the main TA is replaced by Table 345 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 345: A51 Nantwich Road/A525 Audlem Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00				2023 with the AP2 revised scheme		
2023 future baseline						
A525 Audlem Road (west) (left + right)	155	0.38	1	155	0.39	1

SES2 and AP2 ES Appendix TR-001-000

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 Nantwich Road (south) (ahead + right)	6	0.01	0	7	0.01	0
A51 Nantwich Road (south) (ahead)	213	-	-	238	-	-
A51 Nantwich Road (north) (left)	98	-	-	98	-	-
A51 Nantwich Road (north) (ahead)	344	-	-	370	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A525 Audlem Road (west) (left + right)	78	0.20	0	78	0.21	0
A51 Nantwich Road (south) (ahead + right)	26	0.04	0	27	0.04	0
A51 Nantwich Road (south) (ahead)	317	-	-	340	-	-
A51 Nantwich Road (north) (left)	111	-	-	111	-	-
A51 Nantwich Road (north) (ahead)	255	-	-	280	-	-

5.6.37 The conclusions drawn in paragraph 10.4.28 of the main TA are replaced by:

“The results show that this junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic, without any substantial increases in queuing or RFC.”

A51 Nantwich Road/A51 London Road/A525 Newcastle Road

5.6.38 Table 346 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 346 in the main TA is replaced by Table 346 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 346: A51 Nantwich Road/A51 London Road/A525 Newcastle Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A525 Newcastle Road (left + right)	162	0.37	1	189	0.43	1
A51 London Road (ahead + right)	182	0.25	1	233	0.32	1

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 London Road (ahead)	282	-	-	263	-	-
A51 Nantwich Road (left)	81	-	-	81	-	-
A51 Nantwich Road (ahead)	256	-	-	262	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A525 Newcastle Road (left + right)	163	0.36	1	190	0.42	1
A51 London Road (ahead + right)	98	0.15	0	142	0.21	1
A51 London Road (ahead)	241	-	-	230	-	-
A51 Nantwich Road (left)	66	-	-	67	-	-
A51 Nantwich Road (ahead)	332	-	-	338	-	-

5.6.39 The conclusions drawn in paragraph 10.4.30 of the main TA are replaced by:

“The results show that this junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic, without any substantial increases in queuing or RFC.”

A525 Bar Hill/Manor Road

5.6.40 Table 347 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 347 in the main TA is replaced by Table 347 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 347: A525 Bar Hill/Manor Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Manor Road (left + right)	71	0.17	0	94	0.23	0
A525 Bar Hill (west) (ahead + right)	9	0.02	0	44	0.07	0
A525 Bar Hill (west) (ahead)	196	-	-	220	-	-
A525 Bar Hill (east) (left)	54	-	-	54	-	-
A525 Bar Hill (east) (ahead)	144	-	-	180	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Manor Road (left + right)	54	0.13	0	76	0.18	0

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A525 Bar Hill (west) (ahead + right)	7	0.01	0	39	0.07	0
A525 Bar Hill (west) (ahead)	149	-	-	176	-	-
A525 Bar Hill (east) (left)	46	-	-	46	-	-
A525 Bar Hill (east) (ahead)	164	-	-	201	-	-

5.6.41 The conclusions drawn in paragraph 10.4.32 of the main TA are replaced by:

“The results show that the junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic.”

A53 Newcastle Road/Common Lane

5.6.42 Table 348 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 348 in the main TA is replaced by Table 348 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 348: A53 Newcastle Road/Common Lane junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Common Lane (left + right)	28	0.11	0	50	0.17	0
A53 Newcastle Road (east) (ahead + right)	13	0.02	0	81	0.12	0
A53 Newcastle Road (east) (ahead)	511	-	-	488	-	-
A53 Newcastle Road (west) (left)	3	-	-	3	-	-
A53 Newcastle Road (west) (ahead)	935	-	-	958	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Common Lane (left + right)	15	0.04	0	36	0.09	0
A53 Newcastle Road (east) (ahead + right)	97	0.1	0	208	0.22	1
A53 Newcastle Road (east) (ahead)	786	-	-	719	-	-
A53 Newcastle Road (west) (left)	1	-	-	1	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A53 Newcastle Road (west) (ahead)	550	-	-	574	-	-

5.6.43 The conclusions drawn in paragraph 10.4.34 of the main TA are replaced by:

“The results show that the junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic, without any substantial increases in queuing or RFC.”

A51 London Road/Gravenhunger Lane/A51 Pipegate/B5206 London Road

5.6.44 Table 349 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 349 in the main TA is replaced by Table 349 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 349: A51 London Road/Gravenhunger Lane/A51 Pipegate/B5206 London Road junction 2023 future baseline and with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Gravenhunger Lane (left + right)	7	0.01	0	7	0.01	0
A51 London Road (north) (left)	2	-	-	2	-	-
A51 London Road (north) (ahead)	170	-	-	202	-	-
A51 London Road (north) (right)	142	-	-	142	-	-
A51 London Road (north) (ahead + right)	194	0.30	1	205	0.32	1
A51 London Road (north) (ahead)	124	-	-	146	-	-
B5026 London Road (left + right)	229	0.41	1	229	0.42	1
A51 Pipegate (south) (left)	24	-	-	24	-	-
A51 Pipegate (south) (ahead)	148	-	-	180	-	-
A51 Pipegate (south) (right)	0	-	-	0	-	-
A51 Pipegate (south) (straight + right)	6	0.01	0	6	0.01	0
A51 Pipegate (south) (ahead)	331	-	-	363	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Gravenhunger Lane (left + right)	0	0	0	0	0	0
A51 London Road (north) (left)	2	-	-	2	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 London Road (north) (ahead)	216	-	-	248	-	-
A51 London Road (north) (right)	186	-	-	186	-	-
A51 London Road (north) (ahead + right)	266	0.41	1	282	0.42	1
A51 London Road (north) (ahead)	136			153		
B5026 London Road (left + right)	192	0.34	1	192	0.34	1
A51 Pipegate (south) (left)	22	-	-	22	-	-
A51 Pipegate (south) (ahead)	195	-	-	227	-	-
A51 Pipegate (south) (right)	3	-	-	3	-	-
A51 Pipegate (south) (straight + right)	17	0.02	0	18	0.02	0
A51 Pipegate (south) (ahead)	358	-	-	389	-	-

5.6.45 The conclusions drawn in paragraph 10.4.36 of the main TA are replaced by:

“The results show that the junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic, without any substantial increases in queuing or RFC”

Summary of junction impacts

5.6.46 The AP2 revised scheme increase in traffic described in the summary of link flows section above does not result in substantial increases in capacity indicators such as RFC or DoS and queue lengths at the junctions assessed.

5.6.47 The AP2 revised scheme will introduce permanent junction upgrades at the A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road and the A51 Nantwich Road/A53 Newcastle Road (west) junctions, which will remove the substantial increase in capacity indicators reported for the original scheme and will deliver safer conditions for turning traffic at these locations.

Accidents and safety

5.6.48 The impacts on accident and safety risks during construction are reported in Section 10.4 of the main TA. This section of the main TA is unchanged.

Parking and loading

5.6.49 The impacts on parking and loading during construction are reported in Section 10.4 of the main TA. This section of the main TA is unchanged.

Public transport

Rail network

- 5.6.50 The impacts on the rail network and service provision during construction is reported in Section 10.4 of the main TA. This section of the main TA is unchanged.

Local bus services

- 5.6.51 The impacts on the local bus services during construction is reported in Section 10.4 of the main TA. A number of the works within the AP2 revised scheme, including junction changes and utility works will result in limited disruption to highway users. However, no local bus routes are expected to be affected by the AP2 revised scheme or require any diversion affecting bus route length or additional operating time requirements.

Public transport interchanges

- 5.6.52 Section 10.4 of the main TA concludes there are no substantial public transport interchanges in the Whitmore Heath to Madeley area and therefore no construction activity impacts on public transport interchange facilities. This section of the main TA is unchanged.

Pedestrian, cyclists and equestrians

- 5.6.53 Table 352 in the main TA summarises the changes on public rights of way for non-motorised users required to accommodate the construction of the original scheme. Table 352.2 summarises the amendments associated with the AP2 revised scheme and replaces the associated changes noted in Table 352 in the main TA. Those not listed in Table 352.2 remain unchanged to those identified in Table 352 of the main TA.

Table 352.2: CA4 AP2 revised scheme construction changes on PRoW for non-motorised users

PRoW name	Change in travel distance (compared to baseline)	Duration
Whitmore Footpath 4	Stage 1 no diversion	Stage 1 N/A
	Stage 2 unchanged from Table 352 in main TA	Stage 2 unchanged from Table 352 in main TA
Whitmore Footpath 6	Temporary diversion is 225m longer	36 months

Waterways and canals

- 5.6.54 The impacts waterways and canals during construction is reported in Section 10.4 of the main TA. This section of the main TA is unchanged.

5.7 CA4 AP2 revised scheme operational description and assessment of operation impacts

- 5.7.1 The changes to the original scheme reported in Section 5.1 of this report mean that Section 10.5 and 10.6 of the main TA are replaced by Section 5.7 in this document unless stated otherwise.

- 5.7.2 The CA4 operation description for the original scheme is reported in Section 10.5 of the main TA. This section of the main TA is unchanged.

Key operation transport issues

- 5.7.3 The key operation transport issues are reported in Section 10.6 of the main TA. This section of the main TA is unchanged.

Highway network

Highway diversions, realignments and closures

- 5.7.4 Table 353 in the main TA summarises the permanent highway diversions, realignments and extensions required to accommodate the original scheme. Table 353.1 summarises the changes in the highway diversions to those in Table 353 in the main TA, identifying new or different permanent changes required to support the AP2 revised scheme.

Table 353.1: CA4 AP2 revised scheme permanent highway diversion/realignment/stopping-up

Highway name	Description	Change in length
A53 Newcastle Road	The Whitmore tunnel south extension retains the existing A53 Newcastle Road alignment	no change in travel distance

- 5.7.5 The AP2 revised scheme will retain the existing alignment of the A53 Newcastle Road, which results in no change in length, in accordance with Table 353 in the main TA.

PRoW diversions, realignments and closures

- 5.7.6 Section 10.6 in the main TA summarises the permanent PRoW diversions and realignments required to accommodate the original scheme. This section remains unchanged.

Strategic and local road network traffic flows 2027 and 2041

- 5.7.7 Section 10.6 in the main TA summarises the permanent impacts on the road network required to accommodate the original scheme. This section remains unchanged.

Junction performance 2027 and 2041

- 5.7.8 The AP2 revised scheme includes the permanent upgrades of the A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road and the A51 Nantwich Road/A53 Newcastle Road (west) junctions.

A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road

- 5.7.9 Tables 356.1 and 356.2 summarise the results of the performance of the existing junction in 2027 and 2041 respectively. Table 356.3 summarises the results of the changes to the performance of the upgraded junction as a result of the AP2 revised scheme in 2027 and 2041. The AP2 revised scheme does not increase the 2027 or 2041 baseline traffic conditions and consequently is not shown separately.

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Table 356.1: A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road junction 2027 future baseline and with the AP2 revised scheme (existing junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2027 future baseline and the AP2 revised scheme		
A53 Newcastle Road (left)	7	1.09	1
A53 Newcastle Road (right)	414	1.07	25
A51 Stone Road (east) (ahead + right)	0	0.00	0
A51 Stone Road (east) (ahead)	204	-	-
A51 Nantwich Road (west) (left)	758	-	-
A51 Nantwich Road (west) (ahead)	178	-	-
17:00 – 18:00	2027 future baseline and the AP2 revised scheme		
A53 Newcastle Road (left)	3	1.00	1
A53 Newcastle Road (right)	502	1.29	72
A51 Stone Road (east) (ahead + right)	0	0.00	0
A51 Stone Road (east) (ahead)	397	-	-
A51 Nantwich Road (west) (left)	456	-	-
A51 Nantwich Road (west) (ahead)	164	-	-

Table 356.2: A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road junction 2041 future baseline and with the AP2 revised scheme (existing junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2041 future baseline and the AP2 revised scheme		
A53 Newcastle Road (left)	7	1.22	2
A53 Newcastle Road (right)	445	1.19	47
A51 Stone Road (east) (ahead + right)	0	0.00	0
A51 Stone Road (east) (ahead)	220	-	-
A51 Nantwich Road (west) (left)	815	-	-
A51 Nantwich Road (west) (ahead)	191	-	-
17:00 – 18:00	2041 future baseline and the AP2 revised scheme		
A53 Newcastle Road (left)	4	1.07	1
A53 Newcastle Road (right)	527	1.38	100

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Approach	Flow, PCU/hr	RFC	Q, PCU
A51 Stone Road (east) (ahead + right)	0	0.00	0
A51 Stone Road (east) (ahead)	418	-	-
A51 Nantwich Road (west) (left)	480	-	-
A51 Nantwich Road (west) (ahead)	172	-	-

Table 356.3: A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road junction 2027 and 2041 AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2027 with the AP2 revised scheme (revised junction)			2041 with the AP2 revised scheme (revised junction)		
A51 Stone Road (east)	204	44%	2	220	47%	3
A53 Newcastle Road	420	46%	3	451	49%	4
A51 Nantwich Road (west)	935	48%	2	1005	51%	2
17:00 – 18:00	2027 with the AP2 revised scheme (revised junction)			2041 with the AP2 revised scheme (revised junction)		
A51 Stone Road (east)	397	64%	5	417	67%	5
A53 Newcastle Road	505	64%	5	531	68%	6
A51 Nantwich Road (west)	619	38%	5	651	40%	2

5.7.10 The results show that the existing junction operates above capacity in the AM and PM peak periods in the 2027 and 2041 baselines.

5.7.11 The addition of the AP2 revised scheme junction changes will result in the junction operating within capacity in 2027 and 2041 in the AM and PM peak periods. The AP2 revised scheme junction will result in substantial reductions in queuing on the A53 Newcastle Road during the AM and PM peak periods and improve safety for turning traffic through the junction.

A51 Nantwich Road/A53 Newcastle Road (west)

5.7.12 Tables 356.4 and 356.5 summarise the results of the performance of the existing junction in 2027 and 2041 respectively. Table 356.6 summarises the results of the changes to the performance of the upgraded junction as a result of the AP2 revised scheme in 2027 and 2041. The AP2 revised scheme does not increase the 2027 or 2041 baseline traffic conditions and consequently is not shown separately.

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Table 356.4: A51 Nantwich Road/A53 Newcastle Road (west) junction 2027 future baseline and with the AP2 revised scheme (existing junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00			
2027 future baseline and the AP2 revised scheme			
A53 Newcastle Road (left + right)	378	1.10	27
A51 Nantwich Road (west) (ahead + right)	8	0.01	0
A51 Nantwich Road (west) (ahead)	556	-	-
A51 Nantwich Road (east) (left)	432	-	-
A51 Nantwich Road (east) (ahead)	166	-	-
17:00 – 18:00			
2027 future baseline and the AP2 revised scheme			
A53 Newcastle Road (left + right)	344	1.00	14
A51 Nantwich Road (west) (ahead + right)	4	0.01	0
A51 Nantwich Road (west) (ahead)	275	-	-
A51 Nantwich Road (east) (left)	611	-	-
A51 Nantwich Road (east) (ahead)	285	-	-

Table 356.5: A51 Nantwich Road/A53 Newcastle Road (west) junction 2041 future baseline and with the AP2 revised scheme (existing junction) junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00			
2041 future baseline and the AP2 revised scheme			
A53 Newcastle Road (left + right)	407	1.23	50
A51 Nantwich Road (west) (ahead + right)	10	0.01	0
A51 Nantwich Road (west) (ahead)	597	-	-
A51 Nantwich Road (east) (left)	464	-	-
A51 Nantwich Road (east) (ahead)	179	-	-
17:00 – 18:00			
2041 future baseline and the AP2 revised scheme			
A53 Newcastle Road (left + right)	362	1.08	24
A51 Nantwich Road (west) (ahead + right)	4	0.01	0
A51 Nantwich Road (west) (ahead)	289	-	-
A51 Nantwich Road (east) (left)	642	-	-
A51 Nantwich Road (east) (ahead)	299	-	-

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Table 356.6: A51 Nantwich Road/A53 Newcastle Road (west) junction 2027 and 2041 future baseline and with the AP2 revised scheme (revised junction) junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2027 with the AP2 revised scheme (revised junction)			2041 with the AP2 revised scheme (revised junction)		
A51 Nantwich Road (east)	598	54%	8	643	57%	8
A53 Newcastle Road	378	72%	8	407	82%	10
A51 Nantwich Road (west)	564	73%	11	607	79%	12
17:00 – 18:00	2027 with the AP2 revised scheme (revised junction)			2041 with the AP2 revised scheme (revised junction)		
A51 Nantwich Road (east)	896	77%	13	941	81%	15
A53 Newcastle Road	344	76%	7	363	80%	8
A51 Nantwich Road (west)	279	53%	5	293	66%	6

5.7.13 The results show that the existing junction operates above capacity in the AM and PM peak periods in the 2027 and 2041 baselines.

5.7.14 The addition of the AP2 revised scheme junction changes will result in the junction being within but approaching capacity in 2027 and 2041 in the AM and PM peak periods. The AP2 revised scheme junction will result in substantial reductions in queuing on the A53 Newcastle Road during the AM and PM peak periods and improve safety for turning traffic through the junction.

Accidents and safety

5.7.15 The impacts on accidents and safety during operation are reported in Section 10.6 of the main TA. This section remains unchanged

Parking and loading

5.7.16 The impacts on parking and loading during operation are reported in Section 10.6 of the main TA. This section remains unchanged.

Public transport

5.7.17 The impacts on public transport during operation are reported in Section 10.6 of the main TA. This section remains unchanged.

Pedestrians, cyclists and equestrian

5.7.18 Table 356 in the main TA summarises the permanent changes to roads for non-motorised users required to accommodate the original scheme. Table 356.7 summarises the amendments associated with the AP2 revised scheme and replaces the associated changes noted in Table 356 in the main TA. Those not listed in Table 356.7 remain unchanged to those identified in Table 356 of the main TA.

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Table 356.7: CA4 AP2 revised scheme permanent changes to roads for non-motorised users

Road name	Change in travel distance (compared to baseline)	New over/under bridge
A53 Newcastle Road	The Whitmore tunnel south extension retains the existing A53 alignment with no change in travel distance	None
Snape Hall Road	Introduction of the stepped Whitmore New Footpath to maintain pedestrian access along Snape Hall Road. Diversion of 170m, reduced from approximately 1.5km	Whitmore New Footpath provision over the raised embankment at the southern Whitmore Heath tunnel northern porous portal

Waterways and canals

- 5.7.19 The impacts on waterways and canals during operation are reported in Section 10.6 of the main TA. This section remains unchanged.

6 South Cheshire (CA5)

6.1 SES2 changes and AP2 amendments

6.1.1 The assessment includes all changes to construction traffic, including the movement of excavated material and changes to the construction programme. It includes measures to reduce the need to move material by the road network and the use of site haul routes to limit construction traffic on the road network.

6.1.2 The original scheme is described in Section 6 of the main TA, and Sections 2 to 5 of the SES2 and AP2 ES Volume 2, Community area reports provide details of the proposed changes and amendments. The following design changes and amendments have the greatest contribution to the assessment of changes in traffic flows in the South Cheshire area:

- changes to the movement of excavated material and to the construction programme; and
- Additional land required for a construction traffic route at the A500 Shavington Bypass (AP2-005-001).

6.1.3 However, there are a number of other design changes and amendments in the South Cheshire area which impact on construction traffic flows and these include:

- Local placement of surplus excavated material to the south-west of Blakenhall cutting (SES2-005-003);
- Local placement of surplus excavated material to the north and south of Chorlton Footpath 3 (SES2-005-005);
- Local placement of surplus excavated material to east of the Casey Lane diversion (SES2-005-006);
- amendments to utilities and new utility compounds as set out in Table 376 below; and
- Additional land required for material stockpile relocations at Lower Den Farm and the reorientation of Blakenhall cutting satellite compound (AP2-005-008).

6.1.4 The construction assessment also includes consideration of any impacts in the South Cheshire area that arise from construction of the AP2 revised scheme in the adjoining community areas.

6.2 Existing baseline

6.2.1 Baseline conditions are described in Section 5.7 of the main TA.

6.2.2 A supplementary traffic survey was undertaken in June 2018. One PRow survey was undertaken in August 2018. The supplementary TA baseline survey data is included in the Background Information and Data which accompanies the SES2 and AP2 ES (see BID TR-001-000 SES2 and AP2 ES).

6.2.3 The June 2018 traffic survey was undertaken at a location not previously surveyed but potentially now affected by the AP2 revised scheme.

- 6.2.4 Additional junction modelling has been undertaken to assess the traffic impacts at locations potentially affected by the AP2 revised scheme including the access to the haul road for the A500 Shavington Bypass and the B5071.
- 6.2.5 The PRow survey was undertaken to further refine the assessment of possible impacts on non-motorised users at Den Lane.

Baseline junction operation

Crewe Road/B5071 junction

- 6.2.6 This junction has been modelled to assess the operation with the AP2 revised scheme and the AP2 revised scheme construction traffic routed along the A500 corridor and the B5071 via the proposed construction site access that will connect to the B5071 and the A500 Shavington Bypass.
- 6.2.7 This junction is a four-arm signalised crossroads with a controlled pedestrian crossing facility on the B5071 eastern approach. The existing operation of the junction has been assessed for the AM and PM peaks as shown in Table 101.1.

Table 101.1: 2018 baseline performance at Crewe Road/B5071 junction

Approach	Flow, PCU/hr	DoS	Q, PCU
	2018 AM (08:00 – 09:00) baseline results		
Private access (west)	4	1%	0
Crewe Road (north)	216	23%	2
B5071 (east)	167	30%	2
Crewe Road (south)	397	31%	2
2018 PM (17:00 – 18:00) baseline results			
Private access (west)	5	1%	0
Crewe Road (north)	272	40%	4
B5071 (east)	341	40%	3
Crewe Road (south)	343	37%	3

- 6.2.8 The results show that the junction operates within capacity in the AM and PM peak periods with minimal queuing.

6.3 Assessment methodology

- 6.3.1 The assessment methodology is described in Section 3 of the main TA with the future year baseline detailed in Section 11.2 of the main TA. The construction assessment considers the traffic and transport impacts in the peak month of construction activity at each location, based on the proposed phasing of construction works. The assessment also includes cumulative impacts arising from construction in the adjoining community areas as well as construction movements through the area.

6.4 CA5 AP2 revised scheme future baseline

6.4.1 Future baseline traffic and transport conditions are described in Section 11.2 of the main TA. This section of the main TA is unchanged unless stated otherwise.

6.4.2 Where a junction has been assessed in which the observed baseline is different to the 2016 baseline, the revised background traffic growth factors have been calculated to determine traffic growth in the construction and operational years, which have been extrapolated from the agreed TEMPRO¹ growth factors applied locally within the main TA.

Highway network

6.4.3 Future baseline traffic and transport conditions are described in Section 11.2 of the main TA.

Strategic road network and primary road traffic flows

6.4.4 Table 358 in the main TA summarises the 2016, 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows. Table 358 in the main TA remains unchanged.

Local road network traffic flows

6.4.5 Table 359 in the main TA summarises the 2016, 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows. Table 359 in the main TA remains unchanged.

Junction operation – future baseline

6.4.6 The performance of the key junctions that form the main access route for the strategic road network through the study area to the construction sites or are affected by the operation of the AP2 revised scheme, have been assessed using the future baseline traffic flows and the results are summarised where these are additional to the main TA.

Where a junction will be affected by the AP2 revised scheme construction traffic future baseline results are included for 2023. Where a junction will be affected by the operation of the AP2 revised scheme, all of which are a result of permanent junction improvements, results are included for 2027 and 2041.

Crewe Road/B5071 junction

6.4.7 The performance of the junction has been assessed as it is potentially affected by the AP2 revised scheme. This includes a new construction access junction located on the B5071 approximately 90m east of the Crewe Road signal junction. This junction will be signalised and linked with the existing Crewe Road/B5071 junction.

6.4.8 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 375.1. As the junction is not affected by the operation of the AP2 revised scheme future baseline results are presented for 2023 only.

¹ TEMPRO growth factors previously agreed with road authorities as part of hB main TA.

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Table 375.1: 2023 future baseline performance at A51 Crewe Road/B5071 junction

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
	2018 existing baseline – AM			2023 future baseline – AM		
Private access (west)	4	1%	0	4	1%	0
Crewe Road (north)	216	23%	2	227	24%	2
B5071 (east)	167	30%	2	176	32%	2
Crewe Road (south)	397	31%	2	417	33%	2
	2018 existing baseline – PM			2023 future baseline – PM		
Private access (west)	5	1%	0	5	1%	0
Crewe Road (north)	272	40%	4	285	42%	4
B5071 (east)	341	40%	3	358	42%	4
Crewe Road (south)	343	37%	3	359	39%	3

6.4.9 The results show that the junction operates within capacity in the 2023 baseline in the AM and PM peak periods, with minimal queuing.

Accidents and safety

6.4.10 Accidents and safety are reported in Section 11.2 of the main TA. This section of the main TA is unchanged.

Parking and loading

6.4.11 Parking and loading are reported in Section 11.2 of the main TA. This section of the main TA is unchanged.

Public transport

Rail network

6.4.12 Rail network is reported in Section 11.2 of the main TA. This section of the main TA is unchanged.

Local bus services

6.4.13 Local bus services are reported in Section 11.2 of the main TA. This section of the main TA is unchanged.

Public transport interchanges

- 6.4.14 Public transport interchanges are reported in Section 11.2 of the main TA. This section of the main TA is unchanged.

Pedestrians, cyclists and equestrians

- 6.4.15 Pedestrians, cyclists and equestrians are reported in Section 11.2 of the main TA. This section of the main TA is unchanged.

Taxis

- 6.4.16 Taxis are reported in Section 11.2 of the main TA. This section of the main TA is unchanged.

Waterways and canals

- 6.4.17 Waterways and canals are reported in Section 11.2 of the main TA. This section of the main TA is unchanged.

6.5 CA5 AP2 revised scheme construction description

- 6.5.1 A number of changes to the original scheme reported in Section 6.1 of this report mean that Section 11.3 of the main TA and Section 6.5 of the SES1 and AP1 ES TA Addendum are replaced by Section 6.5 in this document unless otherwise specified.
- 6.5.2 This section provides an overview of the construction traffic and transport impacts for the section of the AP2 revised scheme that will pass through the South Cheshire area.
- 6.5.3 The construction period for the whole route is programmed for 2020 to 2027, although activity in 2027 is limited to testing and commissioning. Construction activities have been assessed against 2023 baseline traffic flows, irrespective of when they occur during the construction period. The year 2023 has been adopted as a common base year and the impact of individual or overlapping activities are considered against this single year. The year 2023 also broadly represents the likely typical peak periods during construction of the AP2 revised scheme and is therefore considered to be reasonably representative.

Construction activities

- 6.5.4 Construction activities are reported in Section 11.3 of the main TA. This section of the main TA is unchanged.

Compounds and construction sites

- 6.5.5 Details of the construction works and the time periods when each compound is operational are summarised in the indicative construction programme found in SES2 and AP2 ES Volume 2, South Cheshire Community area, Section 2.3.
- 6.5.6 The location of the construction compounds and the associated access routes are shown in the the SES2 and AP2 ES Volume 5 Map Book, Map Series TR-o8, these reflect the transport activity at each site during the busy period as summarised in Table 377.
- 6.5.7 Table 376 in the main TA summarises the anticipated average and peak workforce required at each construction compound for the original scheme. Table 376 in the

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main TA is replaced by Table 376 below for the AP2 revised scheme. This includes the anticipated average and peak workforce at each of the civils, utility and rail systems compounds. Generally, the utility compound activities will occur in advance of the main civils and the rail systems compound activities will occur following the main civils activities.

Table 376: Assumed workforce at compounds

Compound type	Location	Total number of workers		Number of staff
		Average	Peak	
Satellite	Checkley North embankment satellite compound	16	24	4
Utility	Checkley Lane utility compound	15	20	3
Rail systems	Checkley Lane West satellite compound	6	15	3
Rail systems	Checkley Lane East main compound	15	18	10
Utility	Den Lane utility compound A	15	20	3
Rail systems	Den Lane Welfare satellite compound	23	100	5
Rail systems	Den Lane East satellite compound	8	8	0
Rail systems	Den Lane West satellite compound	17	100	5
Satellite	Blackenhall northbound spur embankment satellite compound (WCML)	68	102	17
Utility	Den Lane utility compound B	15	20	3
Satellite	Blackenhall cutting Satellite compound	28	42	7
Satellite	Crewe South cutting satellite compound	64	96	16
Utility	Chorlton Lane utility compound	3	4	1
Utility	Newcastle Road utility compound	12	16	3
Main	Chorlton cutting main compound	16	24	4
Satellite	Crewe South portal satellite compound	12	18	3
Main	Basford cutting main compound	200	300	50
Rail systems	Betley crossovers satellite compound	16	100	5
Rail systems	Delta Junction satellite compound	6	8	1
Rail systems	South Crewe MPATS satellite compound	26	38	4

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Compound	Location	Total number of workers		Number of
Rail systems	Waybutt Lane satellite compound	26	38	4
Rail systems	Swill Brook satellite compound	8	13	1
Rail systems	Chorlton TSL satellite compound	23	38	6
Rail systems	Heath Farm satellite compound	11	24	4
Rail systems	Creamery Bridge satellite compound	11	50	0
Rail systems	Casey Lane West satellite compound	10	50	5
Rail systems	Casey Lane East satellite compound	8	8	0
Rail systems	Basford Hall southbound satellite compound	13	50	0
Rail systems	Motorail Terminal main compound	60	100	15
Rail systems	Tommy's Lane RRAP compound	25	100	5
Rail systems	Crewe Retail Park compound	11	50	0
Rail systems	Rookery Bridge RRAP compound	8	8	0

6.5.8 Table 377 of the main TA summarises the typical vehicle trip generation for construction site compounds in this area for the original scheme. Table 377 in the main TA is replaced by Table 377 below, which summarises the typical vehicle trip generation for construction site compounds for the AP2 revised scheme.

6.5.9 For each compound in Table 377 the peak month of activity is the month within which HGV traffic is at its highest for that compound. The busy period is that period during which HGV traffic serving that compound will be greater than 50% of the HGV traffic in the peak month. The average daily combined two-way vehicle trips for the busy period is the lower end of the range. The upper end of the range in Table 377 is the average daily combined two-way vehicle trips for the peak month.

Table 377: Typical vehicle trip generation for construction site compounds in the South Cheshire area

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Main and satellite	Checkley Lane East main compound (including Checkley North embankment satellite compound)	Checkley Lane to A51 London Road for site setup and servicing, followed by site haul route to the A500 Shavington Bypass	Civil engineering – October 2020	Four years and three months	10	32-44	32-48
			Site reinstatement – January 2026	Three months	2		40-41
			Rail systems – December 2024	Nine months	2	19-20	44-48
Satellite	Checkley Lane utility compound	Checkley Lane to A51 London Road for site setup and servicing, followed by site haul route to the A500 Shavington Bypass	Sept 2021	One year	3	29-30	48-53
Satellite	Checkley Lane West satellite compound	Checkley Lane to A51 London Road for site setup and servicing, followed by site haul route to the A500 Shavington Bypass	December 2024	One year and three months	2	15-19	44-48

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Den Lane Welfare satellite compound	Den Lane to site haul route, A500 Shavington Bypass	February 2025	Nine months	2	90-90	up to 10
Satellite	Den Lane East satellite compound	Den Lane to site haul route, A500 Shavington Bypass	January 2024	Two years and three months	7	6-6	up to 10
Satellite	Den Lane West satellite compound	Den Lane to site haul route, A500 Shavington	January 2024	One year and three months	4	60-96	up to 10
Utility	Den Lane utility compound A	Den Lane to Wrinehill Road, B5071 Bridge Street, B5071 Wybunbury Road, A51 London Road for site setup, followed by site haul route toto A500 Shavington Bypass	April 2021	One year and three months	1	30-30	23-23
Utility	Den Lane utility compound B	Den Lane to Wrinehill Road, B5071 Bridge Street, B5071 Wybunbury Road, A51 London Road for site setup, followed by site haul route toto A500 Shavington Bypass	May 2021	One year and three months	1	30-30	57-57

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Blakenhall north-bound spur embankment satellite compound	Wrinehill Road to B5071 Bridge Street, B5071 Wybunbury Road, A51 London Road for site setup, followed by site haul route to A500 Shavington Bypass	Civil engineering – October 2020	Four years and six months	11	185-187	60-84
			Site reinstatement – January 2026	Six months	4		58-62
Satellite	Blakenhall cutting satellite compound	Chorlton Lane to Newcastle Road, A531 Newcastle Road for site setup and servicing, followed by site haul route to Newcastle Road, A531 Newcastle Road	Civil engineering – October 2020	Three years	4	77-77	38-47
			Site reinstatement – January 2026	Three months	2		37-37
Satellite	Betley crossovers satellite compound	Den Lane to site haul route, A500 Shavington	January 2024	Two years and three months	4	60-97	up to 10
Satellite	Delta Junction satellite compound	Den Lane to site haul route, A500 Shavington	January 2025	One year and three months	11	2-2	up to 10

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Crewe South cutting satellite compound	Wrinehill Road to B5071 Bridge Street, B5071 Wybunbury Road, A51 London for site setup and servicing, followed by site haul route to the A500 Shavington Bypass	Civil engineering – October 2020	Four years and three months	3	186-187	313-322
			Site reinstatement – January 2026	Six months	2		52-68
Satellite	South Crewe ATS Satellite compound	Site haul route to the A500 Shavington Bypass	August 2024	One year and three months	7	32-44	up to 10
Satellite	Waybutt Lane satellite compound	Site haul route to the A500 Shavington Bypass	January 2025	One year	7	33-44	up to 10
Satellite	Swill Brook satellite compound	Site haul route to the A500 Shavington Bypass	December 2025	Three months	3	up to 10	up to 10
Satellite	Chorlton TSL satellite compound	Chorlton Lane to Newcastle Road, A531 Newcastle Road	January 2025	One year	7	Up to 10	Up to 10
Satellite	Heath Farm satellite compound	Site haul route to the A500 Shavington Bypass	December 2024	Nine months	2	26-30	140-160

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Utility	Chorlton Lane utility compound	Chorlton Lane to Newcastle Road, A531 Newcastle Road	March 2021	Nine months	6	6-6	up to 10
Utility	Newcastle Road utility compound	Site haul route to the A500 Shavington Bypass	March 2021	Nine months	1	24-24	66-66
Main	Chorlton cutting main compound	Newcastle Road to A531 Newcastle Road	Civil engineering – October 2020	Three years	6	44-44	69-92
			Site reinstatement – February 2026	Three months	1		50-50
Satellite	Creamery Bridge satellite compound	Newcastle Road to the A531 Newcastle Road	January 2024	Two years three months	2	37-41	up to 10
Satellite	Crewe South portal satellite compound (including Casey Lane West satellite compound)	Site haul route to the A500 Shavington Bypass	Civil engineering – October 2020	Four years	7	33-33	52-64
			Site reinstatement – January 2026	Three months	1		24-24
			Rail systems – January 2024	Two years	1	36-36	up to 10

Compound type	Location	Access to/from compound to main road network	Indicative start/setup date	Estimated duration of use (years)	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Casey Lane East satellite compound	Site haul route to the A500 Shavington Bypass	January 2024	One year and six months	2	5-5	up to 10
Satellite	Basford Hall south-bound satellite compound	Site haul route to the A500 Shavington Bypass	January 2024	Two years and three months	5	34-124	up to 10
Main	Basford cutting main compound	A500 Shavington Bypass	Civil engineering July 2020	Four years and nine months Civils is 3 years, with 3 years 3 months for worker accommodation and continued use as a main compound	7	547-550	61-81
			Site reinstatement – January 2026	Three months	1		59-59
Transfer node	Transfer node associated with Basford cutting main compound	A500 Shavington Bypass	January 2021	Four years	9	N/A	1078-1320
Main	Motorail Terminal main compound	A534 Nantwich Road	January 2021	Four years and nine months	2	50-78	13-13

Construction HGV routes

- 6.5.10 Construction vehicle movements required to construct the AP2 revised scheme will include the delivery of plant and materials, movement of excavated materials and site worker trips. Works will include utilities diversions, earthworks, underpass, viaduct, bridge and highway construction. Improved access and egress between the A500 and the site haul route will generally result in reduced usage on other local roads in the South Cheshire area.
- 6.5.11 HGVs have been routed where reasonably practicable along the strategic or primary road network, although some access locations will be off secondary roads. In the South Cheshire area, the SRN and primary construction traffic routes are as follows: the M6; the A500 Newcastle Road/Shavington Bypass; the A5020 David Whitby Way and the A532 Weston Road; the A534 Crewe Road/Nantwich Road; and the A51 Nantwich Bypass and the B5071 Crewe Road/Jack Mills Way/Gresty Road.
- 6.5.12 Where reasonably practicable the use of the local road network has been limited to site setup, access for environmental surveys and on-going servicing (including refuse collection and general deliveries).
- 6.5.13 Other roads may have some low level (less than 10 HGV movements per day) construction traffic associated with highway works including utilities works. However, in Table 378 below this traffic is assigned to the construction compound from which the works will be managed.
- 6.5.14 Table 378 of the main TA summarises the peak daily construction traffic flow, both in HGVs and total vehicles, on each link within the South Cheshire area that is on a construction route for the original scheme. Table 378 in the main TA is replaced by Table 378 below.
- 6.5.15 The introduction of the site haul route connection to the A500 as part of the AP2 revised scheme and changes to the movement and use of surplus excavated material will remove or reduce the construction traffic from a number of routes.
- 6.5.16 Table 378 indicates an increase in construction traffic, when comparing the AP2 revised scheme against the original scheme, at locations such as the A500 Newcastle Road (between the M6 junction 16 and Meremoor Roundabout) and the A51 London Road and Wrinehill Road.
- 6.5.17 Table 378 also indicates a reduction in construction traffic, when compared to the original scheme, at locations such as the M6 (between the M6 junction 16 and B5078 Radway Green Road); the A500 Shavington Bypass (between A5020 David Whitby Way and B5071 Jack Mills Road); the A531 Main Road/Newcastle Road; the A532 Weston Road; the A534 Nantwich Road; the A5020 David Whitby Way; Checkley Lane; Casey Lane; Den Lane; Newcastle Road; and Weston Lane.
- 6.5.18 Where zero 'all vehicle' and/or 'HGV' construction flows are indicated, these represent links that are no longer a main construction route when considering the AP2 revised scheme. These links may, however, be subject to occasional or infrequent use by AP2 revised scheme construction traffic.

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Table 378: CA5 peak daily construction traffic flow

Location	Direction	Peak HGV	Peak all vehicles
M6 (between M6 junction 16 slip road and Radway Green Road)	NB	1071	1995
	SB	1071	1995
A500 Newcastle Road (between M6 and Meremoor Roundabout)	WB	786	1273
	EB	786	1273
A500 Shavington Bypass (between A5020 David Whitby Way and the AP2 revised scheme)	WB	765	1049
	EB	765	1049
A500 Shavington Bypass (between the AP2 revised scheme and Jack Mills Way)	WB	765	1049
	EB	765	1049
A500 Shavington Bypass (between Jack Mills Way and Rope Lane)	WB	54	54
	EB	54	54
A500 Shavington Bypass (between Rope Lane and Nantwich Bypass)	WB	54	54
	EB	54	54
A51 Elwood Way (between Newcastle Road and London Road)	SB	54	54
	NB	54	54
A51 London Road (between Annions Lane and First Dig Lane)	NB	54	54
	SB	54	54
A51 London Road (between Crewe Road and Annions Lane)	NB	54	54
	SB	54	54
A51 London Road (between Back Lane and Wybunbury Road)	NB	25	25
	SB	25	25
A51 London Road (between Checkley Lane and Mill Lane)	NB	25	68
	SB	25	68

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Location	Direction	Peak HGV	Peak all vehicles
A51 London Road (between First Dig Lane and Wybunbury Lane)	NB	54	54
	SB	54	54
A51 London Road (between Mill Lane and Back Lane)	NB	25	56
	SB	25	56
A51 London Road (between Wybunbury Lane and A51 Elwood Way)	NB	54	54
	SB	54	54
A51 Newcastle Road (between Nantwich Bypass and Elwood Way)	WB	54	54
	EB	54	54
A531 Crewe Road (between Bowsey Wood Road and A525 Newcastle Road)	NB	0	132
	SB	0	132
A531 Main Road (between Checkley Lane and Bowsey Wood Road)	SB	0	261
	NB	0	261
A531 Main Road (between Waybutt Lane and Checkley Lane)	SB	0	221
	NB	0	221
A531 Newcastle Road (between A500 Shavington Bypass and Main Road)	SB	47	337
	NB	47	337
A531 Newcastle Road (between Main Road and B5500 Four Lanes End)	EB	0	221
	WB	0	221
A531 Newcastle Road (between Waybutt Lane and B5500 Balterley Green Road)	EB	0	221
	WB	0	221
A532 Weston Rd (between Nantwich Rd and University Way)	NB	6	29
	SB	6	29

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Location	Direction	Peak HGV	Peak all vehicles
A534 Nantwich Road (between A532 Weston Road and A5019 Mill Street)	WB	6	41
	EB	6	41
A5020 David Whitby Way (between Shavington Bypass and Weston Rd)	NB	6	92
	SB	6	92
B5071 Bridge Street (between Back Lane and Wrinehill Road)	NB	33	57
	SB	33	57
B5071 Crewe Road (between Weston Lane and Link Road)	SB	0	13
	NB	0	13
B5071 Crewe Road (between Weston Lane and Newcastle Rd)	SB	0	13
	NB	0	13
B5071 Crewe Rd (between Gresty Rd and Shavington Bypass)	WB	0	6
	EB	0	6
B5071 Wybunbury Road (middle of Wybunbury Road and London Road)	NB	33	33
	SB	33	33
B5071 Wybunbury Road (between Back Lane and middle of Wybunbury Road)	NB	33	33
	SB	33	33
Checkley Lane (between the AP2 revised scheme and Main Road)	EB	0	0
	WB	0	0
Casey Lane (between Back Lane and the AP2 revised scheme)	NB	0	0
	SB	0	0
Casey Lane (between the AP2 revised scheme and Weston Lane)	NB	0	0
	SB	0	0

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Location	Direction	Peak HGV	Peak all vehicles
Checkley Lane (between London Road and the AP2 revised scheme)	EB	24	65
	WB	24	65
Chorlton Lane (between AP2 revised scheme and Waybutt Lane)	EB	0	1
	WB	0	1
Chorlton Lane (between Waybutt Lane and Newcastle Road)	NB	7	45
	SB	7	45
Den Lane (between Mill Lane and Den Lane)	EB	22	211
	WB	22	211
Mill Lane (between Beech Farm and London Road)	WB	0	12
	EB	0	12
Mill Lane (between Den Lane and Beech Farm)	SB	0	12
	NB	0	12
Middle section of Wrinehill Road	EB	33	80
	WB	33	80
Newcastle Road (between Casey Lane and the AP2 revised scheme)	WB	0	69
	EB	0	69
Newcastle Road (between Chorlton Lane and the AP2 revised scheme)	WB	47	160
	EB	47	160
Newcastle Road (between Chorlton Lane and Newcastle Road)	WB	47	160
	EB	47	160
Weston Lane (between Crewe Road and the AP2 revised scheme)	WB	0	0
	EB	0	0
Weston Lane (between Casey Lane and Cemetery Road)	WB	0	0
	EB	0	0

Location	Direction	Peak HGV	Peak all vehicles
Weston Lane (between Casey Lane and Larch Avenue)	WB	0	0
	EB	0	0
Wrinehill Road (between Bridge Street and Wrinehill Road/east-bound)	EB	33	47
	WB	33	47
Wrinehill Road (between Wrinehill Road/east-bound and Cobbs Lane)	EB	33	47
	WB	33	47
Wrinehill Road (Between Cobbs Lane and Bridleway 12)	SB	33	80
	NB	33	80
Wrinehill Road (between Mill Lane and Bridleway 12)	EB	22	63
	WB	22	63

Traffic management, road closures and diversions

6.5.19 The approach to traffic management, road closures and diversions is reported in Section 11.3 of the main TA. This section of the main TA is unchanged.

PRoW closures and diversions

6.5.20 The approach to PRoW closures and diversions is reported in Section 11.3 of the main TA. This section of the main TA is unchanged.

6.6 CA5 AP2 revised scheme assessment of construction impacts

6.6.1 A number of changes to the original scheme reported in Section 6.1 mean that Section 11.4 of the main TA and Section 6.6 of the SES1 and AP1 ES TA are replaced by Section 6.6 in this document unless stated otherwise.

Key construction transport issues

6.6.2 The temporary traffic and transport impacts in this area will include:

- road closures and associated diversions;
- diversions and alternative routes for PRoW; and
- construction vehicle movements to and from the various worksites.

6.6.3 The construction assessment has also considered impacts in this area that arise from construction of the AP2 revised scheme in the adjoining community areas.

6.6.4 The AP2 revised scheme includes greater usage of haul roads by construction traffic which generally results in reduced usage of the local road network. Local placement, greater utilisation of borrow pit material as well as refinements to the construction

process and programme will result in further reductions to traffic on the local road network. In the South Cheshire area, improved access and egress between the A500 and the site haul route will generally result in reduced usage on other local roads.

Highway network

Highway closures and diversions

- 6.6.5 Temporary road or lane closures and associated diversions will be required in a number of locations for the AP2 revised scheme. In addition to Checkley Lane; Den Lane; Chorlton Lane; Newcastle Road; and Casey Lane reported in the main TA, these include:
- Weston Lane; and
 - A500/B5071.
- 6.6.6 These may involve lane closures and partial lane closures under traffic control for the tie in of new alignments, intermittent lane restrictions and temporary road closures. Closures and diversions will be restricted to short-term overnight and/or weekend closures where reasonably practicable. The impact of these off-peak closures on traffic flows and consequent delays to vehicles as a result of congestion is not likely to be substantial.
- 6.6.7 The AP2 revised scheme includes amendments to, and the refinement of, utility works some of which will cross roads and PRow. This includes utility works crossing Checkley Lane and Wrinehall Road. This would result in disruption to the users and vehicle occupants on these roads. However, as any disruption would be of short duration and limited to where the utility crosses the roads, there will not be a substantial impact to road users or vehicle occupants.

PRow closures and diversions

- 6.6.8 PRow closures and diversions are reported in Section 11.3 of the main TA.
- 6.6.9 The AP2 revised scheme includes amendments to, and the refinement of, utility works some of which will cross roads and PRow. This includes the utility works across Checkley-cum-Wrinehill Footpath 15, Blakenhall Footpath 9 and Blakenhall Footpath 17. This would result in disruption to the non-motorised users of these PRow. However, as any disruption would be of short duration and limited to where the utility crosses the PRow, there will not be a substantial impact to non-motorised users.
- 6.6.10 Table 379 in the main TA summarises the temporary PRow diversions required to accommodate the original scheme. Table 379.1 summarises changes to the temporary amendments to the PRows to support the construction of the AP2 revised scheme and supersedes the associated data in Table 379 of the main TA. Those not listed in Table 379.1 remain unchanged to those identified by Table 379 of the main TA.

Table 379.1: CA5 AP2 revised scheme temporary PRoW diversions

PRoW name	Description	Change in travel distance
Blakenhall Bridleway 8	Diverted locally around haul routes and construction work sites in three locations. First, diversion 100m to the north around Den Lane diversion work site; then south of works at the access to the replacement WCML overbridge; and finally, around the haul routes east of the WCML by Lower Den Farm	Temporary diversion is 50m longer

Strategic and local road network traffic flows

- 6.6.11 During the construction period there will be a number of highway links that will be affected by the construction of the AP2 revised scheme. An assessment of the impact of construction related vehicle movements and diversions has been undertaken and is detailed below. This assessment considers the peak month of activity in each location. However, the flows outlined in the following sections will not necessarily occur concurrently as impacts on different parts of the network will occur at different times.
- 6.6.12 Table 380 and 381 of the main TA summarise the 2023 traffic flows on highway links affected by construction traffic associated with the original scheme for the AM and PM peak hour respectively.
- 6.6.13 Tables 380 and 381 in the main TA are replaced by Tables 380 and Table 381 below, which set out the 2023 traffic flows on highway links, including those affected by the AP2 revised scheme construction traffic for the AM and PM peak hour respectively. For completeness, all links identified in the main TA are included even where they are no longer proposed as construction routes for the AP2 revised scheme.
- 6.6.14 To show the impact of the construction of the AP2 revised scheme in these locations, traffic flows on affected links are presented for the 2023 future baseline and the 2023 future baseline with the AP2 revised scheme, alongside the percentage increase from the future baseline.
- 6.6.15 Where there is a 'zero percentage' change in construction 'vehicles' and/or 'HGV' traffic, this represents a link that is not, or no longer represents, a main construction route for the AP2 revised scheme. Such links may, however, be subject to occasional or infrequent use by AP2 revised scheme construction traffic.
- 6.6.16 Where a link indicates a change annotated by 'N/A', this represents a link with zero HGVs in the baseline. Such links either indicate no change or a small change in the number of HGVs as a result of the AP2 revised scheme. Such changes are not generally substantial.

Table 380: 2023 future baseline and with the AP2 revised scheme construction traffic (vehicles) – AM peak hour (08:00 – 09:00)

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
M6 (between M6 junction 16 slip road and Radway Green Road)	NB	4057	869	4416	976	8.8%	12.3%
	SB	4293	879	4651	986	8.3%	12.2%
A500 Newcastle Road (between M6 and Meremoor Roundabout)	WB	1394	111	1615	189	15.8%	71.0%
	EB	1405	113	1625	192	15.7%	69.4%
A500 Shavington Bypass (between A5020 David Whitby Way and the AP2 revised scheme)	WB	1452	81	1599	157	10.1%	94.8%
	EB	1505	70	1651	147	9.8%	109.0%
A500 Shavington Bypass (between the AP2 revised scheme and B5071 Jack Mills Way)	WB	1452	81	1599	157	10.1%	94.8%
	EB	1505	70	1651	147	9.8%	109.0%
A500 Shavington Bypass (between B5071 Jack Mills Way and Rope Lane)	WB	1295	81	1300	86	0.4%	6.6%
	EB	1186	52	1192	57	0.5%	10.3%
A500 Shavington Bypass (between Rope Lane and A51 Nantwich Bypass)	WB	1295	81	1300	86	0.4%	6.6%
	EB	1186	52	1192	57	0.5%	10.3%
A51 Elwood Way (between A51 Newcastle Road and A51 London Road)	SB	391	18	397	24	1.4%	29.2%
	NB	202	9	207	14	2.7%	62.2%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A51 London Road (between Annions Lane and First Dig Lane)	NB	60	2	65	7	9.0%	275.9%
	SB	111	3	116	8	4.8%	193.1%
A51 London Road (between B5071 Crewe Road and Annions Lane)	NB	60	2	65	7	9.0%	275.9%
	SB	111	3	116	8	4.8%	193.1%
A51 London Road (between Back Lane and Wybunbury Road)	NB	163	2	165	5	1.5%	115.5%
	SB	222	2	224	4	1.1%	134.4%
A51 London Road (between Checkley Lane and Mill Lane)	NB	163	2	176	5	8.2%	115.5%
	SB	222	2	235	4	6.0%	134.4%
A51 London Road (between First Dig Lane and Wybunbury Lane)	NB	307	9	313	14	1.7%	59.0%
	SB	364	10	369	15	1.5%	55.1%
A51 London Road (between Mill Lane and Back Lane)	NB	163	2	173	5	6.5%	115.5%
	SB	222	2	232	4	4.7%	134.4%
A51 London Road (between Wybunbury Lane and A51 Elwood Way)	NB	41	2	46	7	13.1%	355.1%
	SB	118	3	124	8	4.5%	201.2%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A51 Newcastle Road (between A51 Nantwich Bypass and A51 Elwood Way)	WB	979	35	985	41	0.5%	15.2%
	EB	902	15	907	20	0.6%	36.5%
A531 Crewe Road (between Bowsey Wood Road and A525 Newcastle Road)	NB	423	4	456	4	7.8%	0.0%
	SB	195	2	228	2	16.8%	0.0%
A531 Main Road (between Checkley Lane and Bowsey Wood Road)	SB	174	7	239	7	37.5%	0.0%
	NB	159	2	224	2	41.0%	0.0%
A531 Main Road (between Waybutt Lane and Checkley Lane)	SB	366	6	421	6	15.1%	0.0%
	NB	363	4	418	4	15.2%	0.0%
A531 Newcastle Road (between A500 Shavington Bypass and Main Road)	SB	144	2	225	7	56.4%	261.5%
	NB	194	0	275	5	41.7%	1183.1%
A531 Newcastle Road (between Main Road and B5500 Four Lanes End)	EB	554	20	609	20	10.0%	0.0%
	WB	601	22	656	22	9.2%	0.0%
A531 Newcastle Road (between Waybutt Lane and B5500 Balterley Green Road)	EB	554	20	609	20	10.0%	0.0%
	WB	601	22	656	22	9.2%	0.0%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A532 Weston Road (between Nantwich Road and University Way)	NB	839	32	849	32	1.2%	2.0%
	SB	529	26	539	26	1.9%	2.4%
A534 Nantwich Road (between A532 Weston Road and A5019 Mill Street)	WB	798	23	809	24	1.3%	2.7%
	EB	956	26	966	27	1.1%	2.4%
A5020 David Whitby Way (between A500 Shavington Bypass and A532 Weston Road)	NB	927	66	938	66	1.1%	0.0%
	SB	457	43	467	43	2.2%	0.0%
B5071 Bridge Street (between Back Lane and Wrinehill Road)	NB	112	2	122	5	9.1%	164.2%
	SB	120	1	130	4	8.5%	380.7%
B5071 Crewe Road (between Weston Lane and B5071 Jack Mills Way)	SB	261	12	264	12	1.1%	0.0%
	NB	721	7	724	7	0.4%	0.0%
B5071 Crewe Road (between Weston Lane and Newcastle Road)	SB	180	2	183	2	1.6%	0.0%
	NB	295	3	298	3	1.0%	0.0%
B5071 Crewe Road (between Gresty Road and Shavington Bypass)	WB	149	7	149	7	0.0%	0.0%
	EB	517	5	517	5	0.0%	0.0%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
B5071 Wybunbury Road (middle of Wybunbury Road and London Road)	NB	112	2	115	5	2.9%	164.2%
	SB	120	1	123	4	2.7%	380.7%
B5071 Wybunbury Road (between Back Lane and middle of Wybunbury Road)	NB	112	2	115	5	3.0%	164.2%
	SB	120	1	123	4	2.8%	380.7%
Bowsey Wood Road (between Main Road and Newcastle Road)	NB	97	0	97	0	0.0%	0.0%
	SB	73	2	73	2	0.0%	0.0%
Checkley Lane (between the AP2 revised scheme and A531 Main Road)	EB	68	2	68	2	0.0%	0.0%
	WB	50	2	50	2	0.0%	0.0%
Casey Lane (between Back Lane and the AP2 revised scheme)	NB	57	0	57	0	0.0%	0.0%
	SB	19	0	19	0	0.0%	0.0%
Casey Lane (between the AP2 revised scheme and Weston Lane)	NB	57	0	57	0	0.0%	0.0%
	SB	19	0	19	0	0.0%	0.0%
Checkley Lane (between A51 London Road and the AP2 revised scheme)	EB	73	3	89	5	22.2%	75.2%
	WB	51	3	67	5	31.8%	80.6%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Chorlton Lane (between AP2 revised scheme and Waybutt Lane)	EB	5	0	6	0	6.3%	0.0%
	WB	5	0	6	0	6.2%	0.0%
Chorlton Lane (between Waybutt Lane and Newcastle Road)	NB	18	1	28	1	59.9%	109.7%
	SB	9	1	20	1	116.2%	124.4%
Den Lane (between Mill Lane and Den Lane)	EB	23	5	72	7	216.1%	46.6%
	WB	1	0	51	3	3736.3%	484.0%
Mill Lane (between Beech Farm and London Road)	WB	12	0	15	0	25.4%	0.0%
	EB	7	0	10	0	40.6%	0.0%
Mill Lane (between Den Lane and Beech Farm)	SB	7	0	10	0	40.6%	N/A
	NB	9	0	12	0	34.9%	N/A
Middle section of Wrinehill Road	EB	23	5	38	8	65.7%	67.9%
	WB	1	0	16	4	1136.1%	705.4%
Newcastle Road (between Casey Lane and the AP2 revised scheme)	WB	320	23	337	23	5.4%	0.0%
	EB	598	18	615	18	2.9%	0.0%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Newcastle Road (between Chorlton Lane and the AP2 revised scheme)	WB	320	23	337	23	5.4%	0.0%
	EB	598	18	615	18	2.9%	0.0%
Newcastle Road (between Chorlton Lane and Newcastle Road)	WB	390	18	426	23	9.4%	26.5%
	EB	392	18	428	23	9.3%	26.4%
Waybutt Lane (south of Chorlton Lane)	SB	1	0	1	0	0.0%	0.0%
	NB	0	0	0	0	0.0%	N/A
Waybutt Lane (west of Newcastle Road)	EB	5	0	5	0	0.0%	0.0%
	WB	11	1	11	1	0.0%	0.0%
Weston Lane (between B5071 Crewe Road and the AP2 revised scheme)	WB	101	2	101	2	0.0%	0.0%
	EB	65	0	65	0	0.0%	0.0%
Weston Lane (between Casey Lane and Cemetery Road)	WB	120	2	120	2	0.0%	0.0%
	EB	122	0	122	0	0.0%	0.0%
Weston Lane (between Casey Lane and Larch Avenue)	WB	101	2	101	2	0.0%	0.0%
	EB	65	0	65	0	0.0%	0.0%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Wrinehill Road (between Bridge Street and Wrinehill Road/east-bound)	EB	29	5	38	8	32.8%	66.5%
	WB	8	1	17	4	120.4%	489.1%
Wrinehill Road (between Wrinehill Road/east-bound and Cobbs Lane)	EB	29	5	38	8	32.8%	66.5%
	WB	8	1	17	4	120.4%	489.1%
Wrinehill Road (between Cobbs Lane and Blakenhall Bridleway 12)	SB	23	5	38	8	65.7%	67.9%
	NB	1	0	16	4	1136.1%	705.4%
Wrinehill Road (Between Mill Lane and Blakenhall Bridleway 12)	EB	23	5	35	7	54.8%	46.6%
	WB	1	0	14	3	948.0%	484.0%

Table 381: 2023 future baseline and with the AP2 revised scheme construction traffic (vehicles) – PM peak hour (17:00 – 18:00)

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
M6 (between M6 junction 16 slip road and Radway Green Road)	NB	4406	678	4724	785	7.2%	15.8%
	SB	4841	846	5159	953	6.6%	12.7%
A500 Newcastle Road (between M6 and Meremoor Roundabout)	WB	1518	69	1698	147	11.9%	114.5%
	EB	1345	53	1525	131	13.4%	148.6%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A500 Shavington Bypass (between A5020 David Whitby Way and the AP2 revised scheme)	WB	1789	32	1938	109	8.3%	237.4%
	EB	1626	48	1774	124	9.1%	160.0%
A500 Shavington Bypass (between the AP2 revised scheme and B5071 Jack Mills Way)	WB	1789	32	1938	109	8.3%	237.4%
	EB	1626	48	1774	124	9.1%	160.0%
A500 Shavington Bypass (between B5071 Jack Mills Way and Rope Lane)	WB	1371	32	1377	38	0.4%	16.5%
	EB	1158	39	1163	45	0.5%	13.6%
A500 Shavington Bypass (between Rope Lane and A51 Nantwich Bypass)	WB	1371	32	1377	38	0.4%	16.5%
	EB	1158	39	1163	45	0.5%	13.6%
A51 Elwood Way (between A51 Newcastle Road and A51 London Road)	SB	325	8	331	14	1.6%	65.8%
	NB	299	12	304	17	1.8%	46.6%
A51 London Road (between Annions Lane and First Dig Lane)	NB	79	1	85	7	6.8%	442.1%
	SB	84	1	90	7	6.4%	393.1%
A51 London Road (between B5071 Crewe Road and Annions Lane)	NB	79	1	85	7	6.8%	442.1%
	SB	84	1	90	7	6.4%	393.1%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A51 London Road (between Back Lane and Wybunbury Road)	NB	242	3	245	5	1.0%	86.8%
	SB	232	2	234	4	1.1%	138.4%
A51 London Road (between Checkley Lane and Mill Lane)	NB	242	3	256	5	5.5%	86.8%
	SB	232	2	245	4	5.8%	138.4%
A51 London Road (between First Dig Lane and Wybunbury Lane)	NB	343	4	349	9	1.6%	135.2%
	SB	267	3	273	8	2.0%	192.3%
A51 London Road (between Mill Lane and Back Lane)	NB	242	3	253	5	4.3%	86.8%
	SB	232	2	242	4	4.5%	138.4%
A51 London Road (between Wybunbury Lane and A51 Elwood Way)	NB	40	3	46	8	13.3%	186.3%
	SB	75	1	80	6	7.2%	561.6%
A51 Newcastle Road (between A51 Nantwich Bypass and A51 Elwood Way)	WB	1211	19	1216	24	0.4%	28.2%
	EB	983	21	988	27	0.5%	25.4%
A531 Crewe Road (between Bowsey Wood Road and A525 Newcastle Road)	NB	251	1	284	1	13.1%	0.0%
	SB	306	1	338	1	10.8%	0.0%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A531 Main Road (between Checkley Lane and Bowsey Wood Road)	SB	216	3	282	3	30.1%	0.0%
	NB	120	3	185	3	54.2%	0.0%
A531 Main Road (between Waybutt Lane and Checkley Lane)	SB	422	2	477	2	13.1%	0.0%
	NB	338	2	393	2	16.3%	0.0%
A531 Newcastle Road (between A500 Shavington Bypass and Main Road)	SB	315	3	396	7	25.7%	174.5%
	NB	158	6	239	11	51.3%	74.5%
A531 Newcastle Road (between Main Road and B5500 Four Lanes End)	EB	776	9	831	9	7.1%	0.0%
	WB	644	24	699	24	8.6%	0.0%
A531 Newcastle Road (between Waybutt Lane and B5500 Balterley Green Road)	EB	776	9	831	9	7.1%	0.0%
	WB	644	24	699	24	8.6%	0.0%
A532 Weston Road (between Nantwich Road and University Way)	NB	550	9	554	10	0.8%	7.0%
	SB	656	9	661	9	0.7%	7.3%
A534 Nantwich Road (between A532 Weston Road and A5019 Mill Street)	WB	1060	10	1065	11	0.4%	6.2%
	EB	634	6	638	6	0.7%	11.0%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A5020 David Whitby Way (between A500 Shavington Bypass and A532 Weston Road)	NB	813	53	813	53	0.0%	0.0%
	SB	1267	22	1267	22	0.0%	0.0%
B5071 Bridge Street (between Back Lane and Wrinehill Road)	NB	185	2	196	5	5.5%	169.6%
	SB	170	1	180	4	6.0%	452.8%
B5071 Crewe Road (between Weston Lane and B5071 Jack Mills Way)	SB	554	3	558	3	0.7%	0.0%
	NB	409	6	413	6	1.0%	0.0%
B5071 Crewe Road (between Weston Lane and Newcastle Road)	SB	292	1	296	1	1.4%	0.0%
	NB	247	1	251	1	1.6%	0.0%
B5071 Crewe Road (between Gresty Road and Shavington Bypass)	WB	457	2	460	2	0.6%	0.0%
	EB	250	5	253	5	1.2%	0.0%
B5071 Wybunbury Road (middle of Wybunbury Road and London Road)	NB	185	2	189	5	1.8%	169.6%
	SB	170	1	173	4	1.9%	452.8%
B5071 Wybunbury Road (between Back Lane and middle of Wybunbury Road)	NB	185	2	189	5	1.8%	169.6%
	SB	170	1	173	4	2.0%	452.8%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Bowsey Wood Road (between Main Road and Newcastle Road)	NB	66	1	66	1	0.0%	0.0%
	SB	105	0	105	0	0.0%	0.0%
Checkley Lane (between the AP2 revised scheme and A531 Main Road)	EB	47	1	47	1	0.0%	0.0%
	WB	48	0	48	0	0.0%	0.0%
Casey Lane (between Back Lane and the AP2 revised scheme)	NB	63	0	63	0	0.0%	0.0%
	SB	76	0	76	0	0.0%	0.0%
Casey Lane (between the AP2 revised scheme and Weston Lane)	NB	63	0	63	0	0.0%	0.0%
	SB	76	0	76	0	0.0%	0.0%
Checkley Lane (between A51 London Road and the AP2 revised scheme)	EB	44	1	60	3	36.7%	222.0%
	WB	47	1	63	3	34.4%	333.1%
Chorlton Lane (between AP2 revised scheme and Waybutt Lane)	EB	4	0	4	0	9.1%	N/A
	WB	2	0	3	0	15.5%	0.0%
Chorlton Lane (between Waybutt Lane and Newcastle Road)	NB	8	0	19	1	133.2%	928.9%
	SB	13	0	24	1	79.3%	464.4%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Den Lane (between Mill Lane and Den Lane)	EB	11	2	61	4	438.1%	119.7%
	WB	1	1	50	3	6938.8%	351.0%
Mill Lane (between Beech Farm and London Road)	WB	14	1	17	1	21.8%	0.0%
	EB	12	0	15	0	25.8%	N/A
Mill Lane (between Den Lane and Beech Farm)	SB	8	0	11	0	39.3%	N/A
	NB	7	0	10	0	44.4%	0.0%
Middle section of Wrinehill Road	EB	11	2	26	5	133.2%	174.5%
	WB	1	1	16	4	2109.8%	511.5%
Newcastle Road (between Casey Lane and the AP2 revised scheme)	WB	517	27	534	27	3.3%	0.0%
	EB	415	8	432	8	4.1%	0.0%
Newcastle Road (between Chorlton Lane and the AP2 revised scheme)	WB	517	27	534	27	3.3%	0.0%
	EB	415	8	432	8	4.1%	0.0%
Newcastle Road (between Chorlton Lane and Newcastle Road)	WB	408	6	444	11	8.8%	76.0%
	EB	413	6	449	11	8.7%	75.1%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Waybutt Lane (south of Chorlton Lane)	SB	0	0	0	0	0.0%	N/A
	NB	1	0	1	0	0.0%	N/A
Waybutt Lane (west of Newcastle Road)	EB	2	0	2	0	0.0%	N/A
	WB	2	0	2	0	0.0%	N/A
Weston Lane (between B5071 Crewe Road and the AP2 revised scheme)	WB	103	0	103	0	0.0%	0.0%
	EB	80	1	80	1	0.0%	0.0%
Weston Lane (between Casey Lane and Cemetery Road)	WB	179	0	179	0	0.0%	0.0%
	EB	143	1	143	1	0.0%	0.0%
Weston Lane (between Casey Lane and Larch Avenue)	WB	103	0	103	0	0.0%	0.0%
	EB	80	1	80	1	0.0%	0.0%
Wrinehill Road (between Bridge Street and Wrinehill Road/east-bound)	EB	70	2	79	6	12.1%	145.7%
	WB	27	1	35	4	32.3%	432.3%
Wrinehill Road (between Wrinehill Road/east-bound and Cobbs Lane)	EB	70	2	79	6	12.1%	145.7%
	WB	27	1	35	4	32.3%	432.3%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Wrinehill Road (between Cobbs Lane and Blakenhall Bridleway 12)	SB	11	2	26	5	133.2%	174.5%
	NB	1	1	16	4	2109.8%	511.5%
Wrinehill Road (Between Mill Lane and Blakenhall Bridleway 12)	EB	11	2	24	4	111.2%	119.7%
	WB	1	1	13	3	1760.5%	351.0%

Summary of link flows

- 6.6.17 The AP2 revised scheme includes changes to construction traffic flows as a consequence of new construction traffic routes and changes to the movement and use of surplus excavated material that includes the site haul route connection to the A500. This has resulted in reductions in the number of all construction vehicles on routes including the A531 and A532 corridors and on roads such as Checkley Lane, Casey Lane, Den Lane, Newcastle Road and Weston Lane.
- 6.6.18 The results show that in the AM and PM peak periods the strategic and primary roads such as the A500 Shavington Bypass, the A51 London Road and the A51 Newcastle Road mostly have a percentage increase of less than 10% in total vehicles. Percentage increases in HGV traffic are generally higher.
- 6.6.19 Other roads identified as construction routes show a similar pattern, with high percentage increases in HGVs but with generally minor increases in total vehicular flow. A summary of routes/corridors with percentage increases of over 30% in either total vehicle movements or HGVs is set out below:
- A500 Newcastle Road between M6 Junction 16 and Meremoor Roundabout – (HGVs);
 - A500 Shavington Bypass between A5020 David Whitby Way and Jack Mills Way – (HGVs);
 - A51 Elwood Way between A51 Newcastle Road and A51 London Road – HGVs);
 - A51 London Road between Checkley Lane and the A500 Shavington Bypass – (HGVs);
 - A51 Newcastle Road between Nantwich Bypass and Elwood Way – (HGVs);
 - A531 Newcastle Road between the A500 Shavington Bypass and Main Road – (all vehicles and HGVs);
 - B5071 Bridge Street between Back Lane and Wrinehill Road – (HGVs);
 - Wybunbury Road between Back Lane and A51 London Road – (HGVs);
 - Checkley Lane between the A51 London Road and AP2 revised scheme – (all vehicles and HGVs);
 - Den Lane between Mill Lane and the WCML – (all vehicles and HGVs);
 - Mill Lane between A51 London Road and Den Lane – (all vehicles);
 - Newcastle Road between Chorlton Lane and A531 Newcastle Road – (HGVs);
 - Chorlton Lane between Waybutt Lane and Newcastle Road – (all vehicles and HGVs); and
 - Wrinehill Road between Bridge Street and Den Lane – (all vehicles and HGVs).
- 6.6.20 It should be noted that, unless identified in the next section of this report, these increases in traffic will not result in increased congestion or delay.

Junction performance 2023

6.6.21 The following tables and commentary set out the performance at junctions where there is the potential for the AP2 revised scheme to have substantial impacts that are different from the main TA. The results for the South Cheshire area are presented in the same order as presented in the main TA with the junction that was not modelled in the main TA, the Crewe Road/B5071 junction provided at the end of the junction performance section. The results for the AM and PM peak hours are presented and the 2023 future baseline results are included for comparison. The models developed to assess the existing and future baseline have been used, except where otherwise stated.

A51 Newcastle Road/A51 Nantwich Bypass/A500 Shavington Bypass

6.6.22 Table 382 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 382 in the main TA is replaced by Table 382 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 382: A51 Newcastle Road/A51 Nantwich Bypass/A500 Shavington Bypass junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 baseline			2023 with the AP2 revised scheme		
A51 Nantwich Bypass	765	0.57	2	765	0.57	2
Cheerbrook Road	279	0.30	0	278	0.30	0
A500 Shavington Bypass	1850	0.76	4	1860	0.77	4
A51 Newcastle Road (north)	465	0.67	2	465	0.67	3
Newcastle Road (west)	1039	0.94	13	1049	0.95	14
17:00 – 18:00	2023 baseline			2023 with the AP2 revised scheme		
A51 Nantwich Bypass	906	0.72	3	906	0.72	3
Cheerbrook Road	355	0.45	1	355	0.45	1
A500 Shavington Bypass	1664	0.78	4	1675	0.78	4
A51 Newcastle Road (north)	376	0.55	2	376	0.55	2
Newcastle Road (west)	1165	0.95	14	1176	0.96	16

6.6.23 The conclusions drawn in paragraphs 11.4.17 and 11.4.18 of the main TA are replaced by:

“The results show that the junction operates at capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.

In the AM peak, the Newcastle Road (west) arm RFC value increases from 0.94 to 0.95 with a corresponding increase in queue from 13 to 14 PCUs. In the PM peak the RFC value increases from 0.95 to 0.96 with a corresponding increase in queue from 14 to 16 PCUs.

The addition of the AP2 revised scheme construction traffic will not have a substantial impact and will not result in any substantial increases in queuing or RFC.”

A500 Shavington Bypass/B5071 Jack Mills Way

- 6.6.24 Table 383 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 383 in the main TA is replaced by Table 383 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 383: A500 Shavington Bypass/B5071 Jack Mills Way junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 baseline			2023 with the AP2 revised scheme		
B5071 Jack Mills Way (north)	675	0.49	1	675	0.54	1
A500 Shavington Bypass (east)	2043	0.91	11	2048	0.91	12
B5071 Road (south)	394	0.60	2	547	0.84	6
A500 Shavington Bypass (west)	1555	0.71	3	1556	0.75	4
17:00 – 18:00	2023 baseline			2023 with the AP2 revised scheme		
B5071 Jack Mills Way (north)	825	0.59	2	825	0.70	2
A500 Shavington Bypass (east)	2143	0.97	20	2143	0.97	20
B5071 Road (south)	280	0.43	1	577	0.89	8
A500 Shavington Bypass (west)	1494	0.71	3	1495	0.79	4

- 6.6.25 The conclusions drawn in paragraphs 11.4.20 and 11.4.21 of the main TA are replaced by:

“The results show that the junction operates at capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.

In the AM peak, the B5071 Road (south) arm RFC will increase from 0.60 to 0.84 and a corresponding queue length increasing from two to six PCUs. In the PM peak, the RFC will increase from 0.43 to 0.89 and a corresponding queue length increase from one to eight PCUs.

The AP2 revised scheme construction traffic will not have a substantial impact on the junction, which operates at capacity in the AM and PM peak in the 2023 future baseline.”

A500 Shavington Bypass/B5472 Weston Road/A500 Newcastle Road/A531 Newcastle Road (Meremoor Roundabout)

6.6.26 Table 384 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 384 in the main TA is replaced by Table 384 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 384: A500 Shavington Bypass/B5472 Weston Road/A500 Newcastle Road/A531 Newcastle Road junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A5020 Weston Road	509	0.61	2	509	0.75	4
A500 Shavington Bypass (east)	2079	0.84	7	2377	0.96	22
A531 Newcastle Road	207	0.37	1	287	0.62	2
A500 Newcastle Road (west)	1710	0.73	3	1923	0.85	7
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A5020 Weston Road	412	0.45	1	412	0.52	1
A500 Shavington Bypass (east)	2021	0.82	5	2279	0.93	13
A531 Newcastle Road	191	0.29	0	269	0.46	1
A500 Newcastle Road (west)	1546	0.71	3	1725	0.81	5

6.6.27 The conclusions drawn in paragraphs 11.4.23 and 11.4.24 of the main TA are replaced by:

“The results show that the junction operates close to capacity in the 2023 baseline and at capacity with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.

A500 Shavington Bypass (east) arm of the junction is approaching capacity in the 2023 future baseline during the AM and PM peaks. The addition of the AP2 revised scheme construction traffic results in an increase of RFC and queuing levels on this approach, with the RFC increasing in the AM peak from 0.84 to 0.96 and a corresponding increase in queue length from seven to 22 PCUs.”

6.6.28 While the AP2 revised scheme construction traffic will increase queuing and delay through this junction, the junction is already close to capacity in the 2023 future baseline. When compared to the original scheme, the AP2 revised scheme will also approximately halve the peak construction vehicles travelling through the junction in the AM and PM peak periods.

Newcastle Road/Main Road/A531 Newcastle Road (Weston Roundabout)

6.6.29 Table 385 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 385 in the main TA is replaced by

Table 385 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 385: Newcastle Road/Main Road/A531 Newcastle Road junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Main Road	439	0.34	1	444	0.36	1
A531 Newcastle Road (east)	178	0.17	0	263	0.26	0
A531 Newcastle Road (south)	1136	0.71	3	1191	0.76	4
Newcastle Road (west)	738	0.60	2	774	0.64	2
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Main Road	662	0.49	1	667	0.51	1
A531 Newcastle Road (east)	367	0.38	1	453	0.47	1
A531 Newcastle Road (south)	1046	0.67	2	1101	0.71	3
Newcastle Road (west)	525	0.38	1	561	0.41	1

6.6.30 The conclusions drawn in paragraph 11.4.26 of the main TA are replaced by:

“The results show that the junction will operate within capacity in the 2023 future baseline and with the addition of the AP2 revised scheme construction traffic, without any substantial increases in queuing or RFC.

In the AM peak, the A531 Newcastle Road (south) arm RFC value increases from 0.71 to 0.76 and the queue increases from three to four PCUs. A similar change is shown in the PM peak.”

A500 Shavington Bypass/A5020 David Whitby Way

6.6.31 Table 386 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 386 in the main TA is replaced by Table 386 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 386: A500 Shavington Bypass/A5020 David Whitby Way junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A5020 David Whitby Way	1212	0.71	3	1217	0.75	3
A500 Shavington Bypass (east)	2016	1.02	46	2234	1.13	152
A500 Shavington Bypass (west)	1963	0.98	25	2186	1.07	96

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Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A5020 David Whitby Way	981	0.6	2	1026	0.67	2
A500 Shavington Bypass (east)	1544	0.79	4	1723	0.89	9
A500 Shavington Bypass (west)	2043	0.88	8	2267	0.98	28

6.6.32 The conclusions drawn in paragraphs 11.4.28 and 11.4.29 of the main TA are replaced by:

“The results show the junction will operate above capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic. In the PM peak, the junction operates close to capacity in the 2023 baseline and at capacity with the addition of the AP2 revised scheme construction traffic.

In the AM peak, the Shavington Bypass (east) RFC value increases from 1.02 to 1.13 with a corresponding queue length increase from 46 to 152 PCUs. The Shavington Bypass (west) RFC value increases from 0.98 to 1.07 with a corresponding queue length increase from 25 to 96 PCUs.”

6.6.33 While the AP2 revised scheme construction traffic will increase queuing and delay through this junction, the junction is already close to or above capacity in the 2023 future baseline. When compared to the original scheme, the AP2 revised scheme will reduce the peak construction vehicles travelling through the junction by a third in the AM peak and in the PM peak by half.

A51 London Road/Checkley Lane/Hunsterson Road

6.6.34 Table 387 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 387 in the main TA is replaced by Table 387 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 387: A51 London Road/Checkley Lane/Hunsterson Road junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Checkley Lane (ahead + left + right)	44	0.09	0	57	0.12	0
A51 London Road (north) (ahead + left + right)	41	0.06	0	42	0.07	0
A51 London Road (north) (left)	21	-	-	30	-	-
A51 London Road (north) (ahead)	164	-	-	170	-	-
Hunsterson Road (ahead + left + right)	55	0.11	0	55	0.12	0

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 London Road (south) (ahead + left + right)	52	0.08	0	57	0.08	1
A51 London Road (south) (left)	20	-	-	19	-	-
A51 London Road (south) (ahead)	203	-	-	207	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Checkley Lane (ahead + left + right)	48	0.09	0	61	0.12	0
A51 London Road (north) (ahead + left + right)	16	0.02	0	16	0.02	0
A51 London Road (north) (left)	7	-	-	16	-	-
A51 London Road (north) (ahead)	200	-	-	206	-	-
Hunsterson Road (ahead + left + right)	41	0.08	0	41	0.08	0
A51 London Road (south) (ahead + left + right)	41	0.06	0	46	0.07	0
A51 London Road (south) (left)	9	-	-	9	-	-
A51 London Road (south) (ahead)	205	-	-	210	-	-

6.6.35 The conclusions drawn in paragraph 11.4.31 of the main TA are replaced by:

“The results show that the junction will operate within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods, without any substantial increases in RFC or queuing.”

A51 London Road/Mill Lane

6.6.36 Table 388 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 388 in the main TA is replaced by Table 388 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 388: A51 London Road/Mill Lane junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Mill Lane (left + right)	10	0.02	0	13	0.03	0
A51 London Road (south) (straight + right)	0	0	0	4	0.01	0
A51 London Road (south) (ahead)	241	-	-	252	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 London Road (north) (left)	2	-	-	2	-	-
A51 London Road (north) (ahead)	219	-	-	232	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Mill Lane (left + right)	7	0.02	0	10	0.02	0
A51 London Road (south) (straight + right)	10	0.01	0	14	0.02	0
A51 London Road (south) (ahead)	243	-	-	254	-	-
A51 London Road (north) (left)	11	-	-	11	-	-
A51 London Road (north) (ahead)	221	-	-	234	-	-

6.6.37 The conclusions drawn in paragraph 11.4.33 of the main TA are replaced by:

“The results show that the junction will operate within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.”

A51 London Road/B5071 Wybunbury Road/B5071 Crewe Road

6.6.38 Table 389 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 389 in the main TA is replaced by Table 389 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 389: A51 London Road/B5071 Wybunbury Road/B5071 Crewe Road junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
B5071 Wybunbury Road (ahead + left + right)	105	0.27	0	112	0.29	0
A51 London Road (north) (ahead + left + right)	23	0.03	0	24	0.03	0
A51 London Road (north) (left)	42	-	-	48	-	-
A51 London Road (north) (ahead)	140	-	-	144	-	-
B5071 Crewe Road (ahead + left + right)	94	0.23	0	94	0.23	0
A51 London Road (south) (ahead + left + right)	18	0.03	0	18	0.03	0
A51 London Road (south) (left)	5	-	-	5	-	-

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Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 London Road (south) (ahead)	180	-	-	184	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
B5071 Wyburnbury Road (ahead + left + right)	95	0.23	0	102	0.25	0
A51 London Road (north) (ahead + left + right)	9	0.01	0	10	0.01	0
A51 London Road (north) (left)	7	-	-	13	-	-
A51 London Road (north) (ahead)	123	-	-	127	-	-
B5071 Crewe Road (ahead + left + right)	114	0.26	0	114	0.26	0
A51 London Road (south) (ahead + left + right)	11	0.02	0	21	0.03	0
A51 London Road (south) (left)	2	-	-	2	-	-
A51 London Road (south) (ahead)	141	-	-	145	-	-

6.6.39 The conclusions drawn in paragraph 11.4.35 of the main TA are replaced by:

“The results show that the junction will operate within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic.”

Newcastle Road/Chorlton Lane

6.6.40 Table 390 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 390 in the main TA is replaced by Table 390 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 390: Newcastle Road/Chorlton Lane junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Chorlton Lane (left + right)	22	0.05	0	22	0.05	0
Newcastle Road (west) (ahead + right)	19	0.03	0	20	0.03	0
Newcastle Road (west) (ahead)	403	-	-	437	-	-
Newcastle Road (east) (left)	10	-	-	10	-	-
Newcastle Road (east) (ahead)	408	-	-	443	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Chorlton Lane (left + right)	12	0.03	0	12	0.03	0
Newcastle Road (west) (ahead + right)	6	0.01	0	6	0.01	0
Newcastle Road (west) (ahead)	371	-	-	406	-	-
Newcastle Road (east) (left)	7	-	-	7	-	-
Newcastle Road (east) (ahead)	509	-	-	545	-	-

6.6.41 The conclusions drawn in paragraph 11.4.37 of the main TA are replaced by:

“The results show that the junction will operate within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic.”

Newcastle Road/Casey Lane

6.6.42 Table 391 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 391 in the main TA is replaced by Table 391 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 391: Newcastle Road/Casey Lane junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Casey Lane (left + right)	42	0.09	0	42	0.09	0
Newcastle Road (east) (ahead + right)	72	0.10	0	74	0.10	0
Newcastle Road (east) (ahead)	338	-	-	353	-	-
Newcastle Road (west) (left)	9	-	-	9	-	-
Newcastle Road (west) (ahead)	396	-	-	414	-	-
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Casey Lane (left + right)	68	0.14	0	68	0.14	0
Newcastle Road (east) (ahead + right)	91	0.12	0	94	0.12	0
Newcastle Road (east) (ahead)	436	-	-	450	-	-
Newcastle Road (west) (left)	11	-	-	11	-	-
Newcastle Road (west) (ahead)	320	-	-	338	-	-

6.6.43 The conclusions drawn in paragraph 11.4.39 of the main TA remain unchanged, where the junction operates within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic.

A51 London Road/A530 Peter DeStapleigh Way/A51 Elwood Way

6.6.44 Table 392 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 392 in the main TA is replaced by Table 392 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 392: A51 London Road/A530 Peter DeStapleigh Way/A51 Elwood Way junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A51 London Road (north)	63	52%	2	63	52%	2
A51 Elwood Way	711	57%	9	722	57%	9
A530 Peter DeStapleigh Way	702	72%	13	702	72%	13
A51 London Road (south)	425	70%	11	436	72%	11
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A51 London Road (north)	39	32%	1	39	32%	1
A51 Elwood Way	1089	89%	21	1100	91%	22
A530 Peter DeStapleigh Way	427	44%	6	427	46%	6
A51 London Road (south)	399	90%	14	410	88%	13

6.6.45 The conclusions drawn in paragraph 11.4.41 of the main TA are replaced by:

“The results show that the junction will approach capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM peak. In the PM peak, the junction will operate close to capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic.

In the PM peak, the A51 Elwood Way DoS increases from 89% to 91% with a corresponding queue of 22 PCUs in the baseline and with the addition of the AP2 revised scheme construction traffic. The AP2 revised scheme construction traffic will not have a substantial impact on the junction.”

A51 Elwood Way/B5074 Newcastle Road/A51 Newcastle Road

6.6.46 Table 393 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 393 in the main TA is replaced by Table 393 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

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Table 393: A51 Elwood Way/B5074 Newcastle Road/A51 Newcastle Road junction with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
A51 Elwood Way	947	98%	32	958	99%	34
A51 Newcastle Road	1006	96%	27	1017	97%	28
B5074 Newcastle Road	451	87%	7	451	87%	7
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
A51 Elwood Way	634	98%	23	645	100%	27
A51 Newcastle Road	1228	100%	38	1239	100%	40
B5074 Newcastle Road	676	83%	9	676	83%	9

6.6.47 The conclusions drawn in paragraph 11.4.43 of the main TA are replaced by:

“The results show that the junction will operate at capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods.

The addition of the AP2 revised scheme construction traffic does not result in substantial increases in queuing or RFC from the future baseline. In the PM peak, the A51 Newcastle Road arm DoS value is unchanged at 100% with an increase in queue from 38 to 40 PCUs.

The AP2 revised scheme construction traffic will not have a substantial impact on the junction, which already operates at capacity in the AM and PM peak in the 2023 baseline.”

M6 junction 16

6.6.48 Table 394 of the main TA summarises the results of the changes in performance of the junction as a result of the original scheme. Table 394 in the main TA is replaced by Table 394 below, which summarises the results of the changes to the performance of the junction as a result of the AP2 revised scheme construction traffic.

Table 394: M6 junction 16 with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
South-bound off slip	1511	70%	24	1586	73%	30
South-bound on slip	595	29%	0	673	28%	0
North-bound off slip	526	27%	3	626	32%	4
North-bound on slip	979	47%	0	1120	52%	0
A500(T) exit to east	2184	56%	0	2204	57%	0

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Approach	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
A500(T) west-bound approach	1871	102%	29	1874	102%	30
A500 Newcastle Road east-bound approach	882	64%	4	1008	73%	5
A500 Newcastle Road exit to west	1368	99%	2	1433	104%	28
B5078 approach	586	44%	1	609	47%	1
B5078 exit	175	13%	0	184	14%	0
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
South-bound off slip	1368	63%	8	1366	63%	7
South-bound on slip	399	20%	0	453	18%	0
North-bound off slip	494	25%	3	608	31%	4
North-bound on slip	1019	54%	0	1131	59%	0
A500(T) exit to east	2203	57%	0	2136	55%	0
A500(T) west-bound approach	1862	102%	24	1880	103%	34
A500 Newcastle Road east-bound approach	923	67%	5	1053	76%	6
A500 Newcastle Road exit to west	1213	88%	0	1361	99%	1
B5078 approach	428	32%	0	440	36%	0
B5078 exit	184	14%	0	191	14%	0

6.6.49 The conclusions drawn in paragraph 11.4.45 of the main TA are replaced by:

“The results show that the A500(T) west-bound approach exceeds capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM peak.

In the AM peak, the A500 Newcastle Road west-bound exit is at capacity in the 2023 baseline and exceeds capacity with the addition of the AP2 revised scheme construction traffic. In the PM peak the approach is at capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic.

The introduction of the AP2 revised scheme construction traffic will result in minor increases to the DoS and will not have a substantial impact on the junction, which operates at or above capacity in the 2023 baseline.”

Crewe Road/B5071

- 6.6.50 The performance of the junction has been assessed to consider the AP2 revised scheme construction traffic. This requires a new construction access junction located on the B5071, approximately 90m east of the junction. The AP2 revised scheme construction access junction will be signalised and linked with the Crewe Road/B5071 junction.
- 6.6.51 Table 394.1 summarises the results of the changes to the performance of the existing Crewe Road/B5071 junction as a result of the AP2 revised scheme. Table 394.2 summarises the performance of the AP2 revised scheme B5071 construction access junction.

Table 394.1: Crewe Road/B5071 2023 future baseline and with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
Private access (west)	4	1%	0	4	1%	0
Crewe Road (north)	227	24%	2	227	27%	3
B5071 (east)	176	32%	2	176	32%	2
Crewe Road (south)	417	33%	2	422	33%	2
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
Private access (west)	5	1%	0	5	1%	0
Crewe Road (north)	285	42%	4	285	42%	4
B5071 (east)	358	42%	4	359	42%	4
Crewe Road (south)	359	39%	3	367	40%	3

Table 394.2: B5071/construction access with the AP2 revised scheme junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	2023 future baseline			2023 with the AP2 revised scheme		
B5071 (west) (ahead + right)	-	-	-	272	21%	4
B5071 (east) (ahead + left)	-	-	-	176	13%	2
Construction access (left + right)	-	-	-	152	36%	5
17:00 – 18:00	2023 future baseline			2023 with the AP2 revised scheme		
B5071 (west) (ahead + right)	-	-	-	179	13%	2
B5071 (east) (ahead + left)	-	-	-	358	26%	5

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
Construction access (left + right)	-	-	-	294	70%	10

6.6.52 The results show that the Crewe Road/B5071 junction will operate within capacity in the 2023 baseline and with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods without any substantial increases in queuing or DoS.

6.6.53 The B5071/construction access junction will operate within capacity with the addition of the AP2 revised scheme construction traffic in the AM and PM peak periods. Both of the B5071 arms operate with minimal queuing during the AM and PM peak periods. In the PM peak, the construction access arm has a DoS of 70% and a queue length of 10 PCUs but this is within the HS2 construction access.

Summary of junction impacts

6.6.54 The AP2 revised scheme increase in traffic described in the summary of link flows section above does not result in substantial increases in capacity indicators such as RFC or DoS and queue lengths at the majority of junctions assessed, with the exception of the following locations on the A500:

- A500 Shavington Bypass/B5472 Weston Road/A500 Newcastle Road/A531 Newcastle Road (Meremoor Roundabout); and
- A500 Shavington Bypass/A5020 David Whitby Way.

6.6.55 However, the AP2 revised scheme will reduce the number of construction vehicles at these locations during the peak periods when compared to the original scheme. It should also be noted that these junctions operate either close to, or at capacity in the future baseline regardless of the AP2 revised scheme and the assessment considers the peak level of construction traffic and these conditions would not be present across the whole construction period.

Accidents and safety

6.6.56 The impacts on accident and safety risks during construction are reported in Section 11.4 of the main TA. This section of the main TA is unchanged.

Parking and loading

6.6.57 The impacts on parking and loading during construction are reported in Section 11.4 of the main TA. This section of the main TA is unchanged.

Public transport

Rail network

6.6.58 The impacts on the rail network and service provision during construction are reported in Section 11.4 of the main TA. This section of the main TA is unchanged.

Local bus services

6.6.59 The impacts on the local bus services during construction are reported in Section 11.4 of the main TA. This section of the main TA is unchanged.

Public transport interchanges

- 6.6.60 Impacts at Crewe Station are reported in Section 11.4 of the main TA. This section of the main TA is unchanged.

Pedestrian, cyclists and equestrians

- 6.6.61 PRow closures and diversions are reported in Section 11.4 of the main TA.
- 6.6.62 Table 396 in the main TA summarises the temporary PRow diversions and realignments required to accommodate the construction of the original scheme. Table 396.1 summarises changes to the temporary amendments to the PRows to support the construction of the AP2 revised scheme and supersede the associated data in Table 396 of the main TA. Those not listed in Table 396.1 remain unchanged to those identified by Table 396 of the main TA.

Table 396.1: CA5 AP2 revised scheme construction changes on PRow for non-motorised users

PRow name	Change in travel distance (compared to baseline)	Duration
Blakenhall Bridleway 8	Temporary diversion route is 60m longer	18 months

Taxis

- 6.6.63 The impacts on taxis during construction are reported in Section 11.4 of the main TA. This section of the main TA is unchanged.

Waterways and canals

- 6.6.64 The impacts on waterways and canals during construction are reported in Section 11.4 of the main TA. This section of the main TA is unchanged.

6.7 CA5 AP2 revised scheme operational description and assessment of operation impacts

- 6.7.1 The changes to the original scheme reported in Section 6.1 of this report mean that Sections 6, 11.5 and 11.6 of the main TA and Section 6 of the SES1 and AP1 ES TA Addendum are replaced by Section 6.7 in this document unless stated otherwise.

Transport demand generated by the AP2 revised scheme

- 6.7.2 Section 11.5 of the main TA summarises the increase in passenger trips to/from Crewe Station. This section of the main TA is unchanged.

Key operation transport issues

- 6.7.3 Section 11.6 of the main TA summarises the potential operational transport issues. This section of the main TA is unchanged.

Highway network

Highway diversions, realignments and closures

- 6.7.4 Section 11.6 of the main TA summarises the permanent road diversions, realignments and extensions required to accommodate the original scheme. This section of the main TA is unchanged.

PRoW diversions and closures

- 6.7.5 Section 11.6 of the main TA summarises the permanent PRoW diversions and realignments required to accommodate the original scheme. This section of the main TA is unchanged.

Strategic and local road network traffic flows 2027 and 2041

- 6.7.6 Section 11.6 of the main TA summarises the traffic flows on the road links in the South Cheshire area. This section of the main TA is unchanged.

Junction performance 2027 and 2041

- 6.7.7 Section 11.6 of the main TA summarises the 2027 and 2041 operational junction performance associated with the original scheme. This section of the main TA remains unchanged.

Accidents and safety

- 6.7.8 Section 11.6 of the main TA summarises the accidents and safety associated with the original scheme. This section of the main TA is unchanged.

Parking and loading

- 6.7.9 Section 11.6 of the main TA summarises the parking and loading associated with the original scheme. This section of the main TA is unchanged.

Public transport

- 6.7.10 Section 11.6 of the main TA summarises the public transport associated with the original scheme. This section of the main TA is unchanged.

Pedestrians, cyclists and equestrian

- 6.7.11 Section 11.6 of the main TA summarises the impact resulting from the operation of the original scheme. This section of the main TA is unchanged.

Waterways and canals

- 6.7.12 Section 11.6 of the main TA summarises the waterways and canals associated with the original scheme. This section of the main TA is unchanged.

6.8 Crewe Hub

- 6.8.1 Section 11.7 of the main TA summarises the impacts associated with the potential cumulative construction impact of both Crewe Hub and the original scheme. This section of the main TA is unchanged.

7 Route-wide and off-route assessment

7.1.1 Section 12 of the main TA presents the assessment of the potential impacts of the original scheme in terms of route-wide and off-route impacts.

7.2 Route-wide construction

Impacts on the strategic road network during construction

7.2.1 Section 12.3 of the main TA confirms that the cumulative impacts of construction vehicles from all construction activities along the original scheme route have been assessed in the relevant sections of the main TA. These considered the impact of traffic generated by the original scheme not only immediately adjacent to the route but as far as necessary to identify impacts along construction traffic routes or as a result of road closures and diversions.

7.2.2 The original scheme includes the use of borrow pits to reduce the impact of construction traffic on the road network. The AP2 revised scheme maintains the use of borrow pits but also includes the use of local placement areas to further reduce the impact of construction traffic on the road network.

7.2.3 Local placement has been used to enable surplus excavated material to be retained locally. The local placement areas are included within the SES2 items listed in Table 431.1. Table 431.1 shows that the use of local placement areas reduces the total volumes of material exported from the scheme by almost 1 million cubic metres.

Table 431.1: Local placement bulk earthworks

Local placement areas ²	Bulk earthworks volume (m ³)
Land south of Pipe Ridware embankment (SES2-001-004)	114,000
Land south-east of Newlands Lane auto-transformer feeder station (SES2-001-007)	123,000
Land south of Moreton South embankment (SES2-001-008)	106,000
Land south of Moreton cutting (SES2-002-002)	22,000
Land north of Moreton cutting (SES2-002-003)	17,000
Land south of Brancote North cutting (SES2-002-007)	49,000
Land north of Marston North embankment (SES2-002-008)	19,000
Land south of Yarlet embankments (SES2-003-001)	82,000
Land north of Swynnerton North cutting (SES2-003-005)	74,000
Land north and south of Hatton South cutting (SES2-003-006)	32,000

² Some of the SES2 design changes in this table include more than one local placement area. Refer to the Volume 2 community area reports for further details.

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Local placement areas ²	Bulk earthworks volume (m ³)
Land north of Whitmore South cutting (SES2-004-001)	197,000
Land south-west of Blakenhall Cutting (SES2-005-003)	49,000
Land north and south of Chorlton Footpath 3 (SES2-005-005)	76,000
Land east of the Casey Lane diversion (SES2-005-006)	17,000
Total	977,000

7.2.4 In the absence of the use of local placement areas, additional surplus material would need to be exported from the AP2 revised scheme. Such material would be transported by site haul roads to the transfer nodes, where the material would need to be transferred to road going vehicles prior to disposal off-site.

7.2.5 A conservative estimate of the impact of this additional traffic indicates that there could be an additional 127,000 HGV trips, adding over 4million HGV vehicle kilometres to the road network in the absence of the local placement areas. Table 431.2 shows the transfer nodes and the road network that would likely be affected by such additional HGV movements. The additional traffic would adversely impact the communities along the A51 Lichfield Road/Butterhill Bank including Weston, Burston and Little Stoke and the A34 Stone Road through Aston-by-Stone and Yarlet and on to the M6 at Junction 14.

Table 431.2: Local placement volume and vehicle numbers

Transfer node	Local road route to strategic road network	Increase in volume through transfer node (m ³)	Additional HGV trips to export material (veh trips)	Additional HGV vehicle kilometres on road network (veh km)
Trent South Embankment	From the Trent South Embankment transfer node north-bound on the A51 Lichfield Road, through Weston and onward on the A51 Lichfield Road/Butterhill Bank through Burston and Little Stoke to the A34 Stone Road then south-bound through Aston-by-Stone and Yarlet and on to the M6 at Junction 14.	389,000	92,000	3,204,000
Yarlet South Cutting	From the Yarlet South Cutting transfer node south-bound through Yarlet and on to the M6 at Junction 14 (note return trips would U-turn at the A34 Stone Road/A51 Stone Bypass roundabout).	150,000	35,000	882,000
Total		539,000	127,000	4,086,000

7.3 Off-route construction

Modifications to the Crewe to Manchester (WCML) conventional railway line at Maw Green and Sandbach

- 7.3.1 Section 12.6 of the main TA considers the modifications during construction of the original scheme to the Crewe to Manchester railway line (part of the WCML). This would enable the conventional train services, which stop at Sandbach and other stations, to be regulated in either direction, allowing HS2 trains to overtake these stopping services and to aid the provision of train paths for freight trains.
- 7.3.2 The original scheme proposed:
- modifications at Crewe Station including a new island platform and associated footbridges;
 - the installation of new at-grade track switches and crossings at Maw Green;
 - reconfiguration of the track layout south of Sandbach Station;
 - raising of an existing footbridge close to Sandbach Station; and
 - modifications to the existing rail systems including new or relocated signalling, overhead line equipment and other assets at Maw Green and Sandbach.
- 7.3.3 The AP2 revised scheme includes amendments to the off-route connections which permanently close the Chester Independent Lines to enable a new single sided platform to the west of Crewe Station. The amendments will result in the Cardiff – Manchester and the Northern services, which use the independent lines between Crewe and Sandbach, calling at the new single-sided platform.
- 7.3.4 As a consequence, the following interventions proposed for the original scheme will no longer be required:
- island platform at Crewe Station;
 - installation of new at-grade track switches and crossings at Maw Green;
 - reconfiguration of the track layout and crossings around Sandbach Station;
 - raising of an existing footbridge close to Sandbach Station; and
 - modifications to the existing rail systems including new or relocated signalling, overhead line equipment and other assets at Maw Green and Sandbach.
- 7.3.5 The removal of these works will also remove the need for the Sandbach Station compound and its associated impacts. The Alexandra Stadium satellite compound, provided for the original scheme, will also not be required with construction activities associated with the Crewe Station being managed from the Motorail Terminal main compound (and assessed as part of the Cheshire South community area). There will also be associated changes to the use of the Tommy's Lane Road Rail Access Point (RRAP) satellite compound, Crewe Retail Park – Aldi satellite compound and Rookery Bridge Road Rail Access Point (RRAP) satellite compound as follows:

- Tommy's Lane Road Rail Access Point (RRAP) satellite compound – there will be an increased duration of use from one year and six months to four years and nine months. However, there will be a reduction in the likely peak month traffic movements reported in the main TA (from up to 230 two-way daily vehicle movements reported in the main TA to up to 105 two-way daily movements for the AP2 revised scheme, of which less than ten movements are expected to be HGVs);
- Crewe Retail Park Aldi satellite compound – there will be an increased duration of use from one year and six months to two years and three months and there will be an increase in the likely peak month traffic movements reported in the main TA (from up to 22 two-way daily vehicle movements reported in the main TA to up to 61 two-way daily movements for the AP2 revised scheme, of which less than ten movements are expected to be HGVs); and
- Rookery Bridge Road Rail Access Point (RRAP) satellite compound – there will be an increased duration of use from eight months to two years and three months. However, there will be a reduction in the likely peak month traffic movements reported in the main TA (from up to 126 two-way daily vehicle movements reported in the main TA to up to ten two-way daily movements for the AP2 revised scheme).

7.3.6

The main traffic movements associated with the works are expected to be worker vehicle movements and occur outside of the local road network peak periods. As a consequence, the additional traffic movements will not be substantial in the context of the surrounding urban environment.

8 References

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