E62-B

High Speed Rail (West Midlands - Crewe)

Environmental Statement

Volume 5: Technical appendices

Traffic and transport

Transport Assessment (TR-001-000) Part 2

July 2017

ES 3.5.0.16.2

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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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Contents

Contents

List of figures

List of tables

6 Scheme description

6.1 Introduction

6.1.1 This section provides a summary description of the Proposed Scheme. Detailed route descriptions at a local level are contained in Section 2.2 of the Volume 2, community area reports, which is also summarised at the start of each CA assessment in Sections 7 to 11. This section includes an overview of the interfaces with HS2 Phase One and the proposed Phase 2b scheme.

6.2 Description of the Proposed Scheme

6.2.1 The HS2 Phase 2a route will comprise a high speed railway line from the end of the HS2 Phase One route at Fradley to Crewe. It will run north-east of Stafford and south-west of Stone, passing through a mainly rural area in Staffordshire and Cheshire East, where a number of small settlements are located.

6.2.2 In CA1, the route will connect with the Manchester spur that forms part of HS2 Phase One at Fradley, to the north-east of Lichfield. It will continue northwards across the River Trent floodplain, over a series of embankments and viaducts, passing south-east of Kings Bromley over Bourne Brook and the A515 Lichfield Road. The route will continue over A513 Rugeley Road and the River Trent on viaduct and will run 500m west of Blithbury through multiple cuttings. It will then pass between the villages of Stockwell Heath and Colton and over Moreton Brook on viaduct.

6.2.3 In CA2 the route will continue in cutting (with a retaining wall) passing Mayfield Children's home, which occupies Moreton House (Grade II listed), and emerge onto embankment. The route will cross the A51 Lichfield Road and the existing Macclesfield to Colwich Line. The route will run adjacent to the Great Haywood Marina, cross the Trent and Mersey Canal and then cross the River Trent, for a second time. The route will then continue on embankment, crossing Lionlodge Covert.

6.2.4 The route will run adjacent to Ingestre Park and through Ingestre Park Golf Club in cutting. The route will run through the southern part of Staffordshire County Showground, passing under the A518 Weston Road. It will then continue through Hopton in a false cutting behind a landscaped retaining wall and then continue to run adjacent to Hopton in cutting. It will pass Marston on embankment; continue past the village of Yarlet in cutting and then passing underneath the A34 Stone Road.

6.2.5 In CA3 the route will continue on a series of embankments and cuttings, passing underneath B5026 Eccleshall Road, broadly following the M6 and crossing Filly Brook and the Norton Bridge to Stone Railway on viaduct.

6.2.6 The route will then cross Yarnfield Lane, in the broad vicinity of where the Stone Infrastructure Maintenance Base Rail (IMB-R) will be located. Reception sidings and loops to connect the route with the IMB-R and existing rail network will run along the western side of the route. The route will cross the M6 near Stone and Yarnfield. Part of the enabling works include the provision of new slip roads, in both directions, to provide direct access from the IMB-R construction compound to the M6. As part of the Proposed Scheme, Yarnfield Lane will be realigned to the north by several metres and

the realigned Yarnfield Lane will continue to bridge the M6 and enable northbound construction vehicles to access the construction compound via Yarnfield Lane. Once the IMB-R is constructed the northbound slip roads will be removed, with an emergency access point only being retained. The southbound slip roads will also retained as permanent access from the M6 to the IMB-R.

6.2.7 The route will pass to the north of Swynnerton on an embankment. Continuing north, the route will pass Swynnerton Old Park in a cutting, crossing both the A51 Stone Road and the A519 Newcastle Road. It will continue into the Meece valley on an embankment and then cross Meece Brook on viaduct, before passing through higher ground west of Whitmore.

6.2.8 In CA4 the route will pass under the A53 Newcastle Road to the south-east of Whitmore Heath, where it will then enter a cut-and-cover tunnel. This will be followed by a twin bore tunnel under the settlement of Whitmore Heath. The route will emerge and pass through Whitmore Wood Ancient Woodland in a cutting with a retaining wall on the north-east side. The route will enter the River Lea valley on an embankment, then cross the WCML, the out of use Silverdale line of the Stoke to Market Drayton Railway, the River Lea and the Madeley Chord Railway on viaduct. The route will then continue on embankment, towards the village of Madeley passing under the A525 Bar Hill Road before entering a twin bore tunnel, at Bar Hill Ancient Woodland. The route will then continue in a shallow cutting before crossing the River Lea and associated floodplain and Checkley Brook on a viaduct.

6.2.9 In CA5 the route will then run on embankment before transitioning into a shallow cutting, passing under Checkley Lane.

6.2.10 To enable the Proposed Scheme to join the WCML south-west of Crewe, it is necessary to undertake modifications to the WCML (including constructing a new section of the WCML) and provide north-bound and south-bound spurs to allow trains to transfer between the Proposed Scheme and the WCML. The north-bound and south-bound spurs will begin after the route passes under Checkley Lane. The route will continue northwards crossing over Den Lane between the north-bound and south-bound spurs, which will both cross Den Lane on viaduct. The route of the Proposed Scheme will then pass under a viaduct which will carry the south-bound spur to the east of the mainline.

6.2.11 The route will travel through cutting running parallel with the north-bound and south-bound spurs, a new section of the WCML (included within the Proposed Scheme) and the existing WCML. The route will then continue in a retained cut for approximately 1.5km before reaching a tunnel headwall after passing under Newcastle Road. The headwall will form the boundary between the Proposed Scheme and HS2 Phase 2b. The final connection between the spurs and existing WCML occurs north of the tunnel headwall.

6.3 Interfaces with HS2 Phase One and HS2 Phase 2b

Interfaces between HS2 Phase One and HS2 Phase 2a

6.3.1 The Phase 2a route will connect with the Manchester spur that forms part of HS2 Phase One 250m north-west of Fradley Wood and continue towards Pyford Book. This

interface has been located and designed as part of HS2 Phase One to enable the Proposed Scheme to be constructed without adversely affecting the operation of HS2 Phase One.

Interface between HS2 Phase 2a and HS2 Phase 2b

6.3.2 Modifications will be made to the WCML which will allow conventional compatible trains using the Proposed Scheme to access Crewe Station and onward connections to the existing rail network towards Manchester, Liverpool, Preston and Scotland.

6.3.3 The HS2 Phase 2a works terminate at a tunnel headwall which will form the southern end of a tunnel beneath Crewe. Provision is made in the design for HS2 to later continue northwards to Manchester using this tunnel, to be constructed as part of the HS2 Phase 2b route.

6.3.4 In order to relieve pressure on bottlenecks, improve reliability and performance, create extra capacity at Crewe Station and accommodate additional high speed services from the Proposed Scheme, the existing Cardiff to Manchester Piccadilly line services will be diverted via the existing Manchester Independent Lines tunnel at Crewe. In addition, a new island platform (and associated footbridge) will be constructed at Crewe railway station to accommodate conventional Cardiff to Manchester Piccadilly line services.

7 CA1 Fradley to Colton – appraising the impact of the Proposed Scheme

7.1 Assessment Methodology

7.1.1 The assessment methodology is as outlined in the overarching methodology section of the report, with specific details and exceptions outlined in the following sections.

7.2 CA1 Proposed Scheme future baseline

Key future baseline issues

7.2.1 The key changes in baseline in relation to the Fradley to Colton area are expected to relate to general background growth in traffic flows (except for certain links that will include construction traffic associated with HS2 Phase One) that will occur irrespective of the Proposed Scheme.

7.2.2 There are no major committed changes to the transport networks.

Land use assumptions

7.2.3 The following sources have been analysed in order to determine the impact of future land uses upon future traffic and transport conditions:

- TEMPro growth rates;
- Local Plan documents (LDC Local Plan); and
- local planning authority planning portals (to obtain details of recently consented, committed development that is not included in the sources above. This allows the impact of these committed developments to be considered at a very local level (i.e. at roads and junctions in close proximity to the committed sites).

7.2.4 The only committed development that needed to be included within these calculations is the Land near Royal Oak, Uttoxeter, Hill Ridware. This residential development comprises of approximately 42 dwellings. Traffic resulting from the committed development was assigned to links using assumptions obtained from supporting planning application documents where available.

7.2.5 The use of TEMPro and local traffic models, with further adjustment for known developments, means that forecast traffic growth will not be uniform on all links and at junctions. Necessarily traffic growth will be aligned to specific vehicle trip generators and attractors and or transport scheme interventions. The result is that growth factors vary across the CA. Notwithstanding this, it is possible to produce an overall average growth factor for links within CA1 calculated using the total link flows for each future year. These overall growth factors are summarised in Table 103 below.

Table 103: CA1 traffic growth summary

Period	AM Peak	PM Peak
2016 - 2023	+10%	+9%
2016 - 2027	+14%	+14%
2016 - 2041	+27%	+29%

7.2.6 In the assessment of the Proposed Scheme construction traffic associated with HS2 Phase One is included in the future baseline in addition to these growth rates. However, for the future baseline cumulative assessment of HS2 Phase One and the Proposed Scheme, construction traffic associated with HS2 Phase One is not included in the future baseline.

Transport supply assumptions

7.2.7 Aside from HS2 Phase One infrastructure, no substantial committed changes to the transport network in Fradley to Colton have been identified. However as part of the HS2 Phase One mitigation in this area, localised temporary and permanent improvements will be required to the transport infrastructure to facilitate the Phase One scheme. A number of these changes are in close proximity to this area and are included in the assessment. Within this transport assessment these include:

- Wood End Lane will be permanently realigned under the route approximately 300m to the south of its existing alignment. A new junction of Wood End Lane with Netherstowe Lane will be provided.
- Temporary use of the existing junction between the A38 Rykneld Street and Wood End Lane at Hilliard's Cross as a route for construction traffic will require improvements to the junction between Wood End Lane and the connection to the southbound slip roads of the A38 Rykneld Street at Hilliard's Cross.
- The Handsacre link, which connects HS2 Phase One to the WCML, crosses the A515 Lichfield Road and a new A515 Lichfield Road underbridge will provide access across the scheme. The Handsacre link will also require the permanent closure of a section of Shaw Lane immediately to the north of the B5014 Lichfield Road.

Highway network

7.2.8 As appropriate and except where otherwise stated, this assessment includes changes in traffic flows or networks arising from the HS2 Phase One scheme in the future baseline on those roads and junctions affected by HS2 Phase One construction traffic.

Strategic road network and primary road traffic flows

7.2.9 Table 104 summarises the 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak future baseline traffic flows, in comparison to the 2016 baseline flows.

Local road network traffic flows

7.2.10 Table 105 summarises the 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak future baseline traffic flows for roads where it is considered that there is

the potential for a substantial impact either during construction or through the operation of the Proposed Scheme.

Table 104: 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
A38(T) Rykneld Street (between Burton Road and Rykneld Street/north bound slip)	SB	417	7	456	7	473	8	526	8	512	7	559	7	581	7	640	8
	NB	443	9	484	10	502	10	558	11	506	6	553	6	574	7	633	7
A51 Birmingham Road (between Friary Road and St John Street)	NB	517	26	573	29	599	30	678	34	850	18	938	20	980	21	1122	24
	SB	681	35	755	38	789	40	893	45	479	10	528	11	552	12	632	13
A51 Brereton Hill (between Brereton Hill Lane and Lea Hall Way)	NB	652	20	716	22	747	23	841	25	937	20	1030	22	1075	23	1242	27
	SB	826	21	908	23	946	24	1066	27	604	15	664	17	692	17	800	20
A51 Friary Avenue (between Friary Island and Birmingham Road)	SB	815	36	904	40	944	41	1069	47	792	14	874	15	913	16	1046	18
	NB	787	34	873	38	912	40	1032	45	741	13	818	14	854	15	979	17
A51 Lea Hall Way (between Armitage Road and Brereton Hill)	NB	667	16	733	18	758	19	842	21	774	19	850	20	879	21	1013	24
	SB	671	21	737	23	762	24	846	27	724	15	795	16	822	17	947	20
A51 Lea Hall Way (between Armitage Road and Wheelhouse Road)	NB	848	16	932	17	972	18	1095	20	813	14	894	15	932	16	1077	18
	SB	777	24	854	26	891	28	1003	31	1006	28	1106	31	1154	32	1333	37
A51 Lea Hall Way (between Wheelhouse Road and Power Station Road)	NB	758	14	832	16	861	16	956	18	983	13	1080	14	1117	15	1287	17
	SB	845	20	928	22	960	23	1066	25	815	13	895	14	926	15	1067	17
A51 Rugeley Eastern Bypass (between Colton Road and Lichfield Road)	WB	521	16	573	18	597	18	673	21	852	10	937	11	977	12	1129	14
	EB	654	18	719	20	750	21	845	23	531	14	584	15	609	16	704	18

* NB = north-bound; NWB = north-west bound; SB = south-bound; SEB = south-east bound; EB = east-bound and WB = west-bound

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 Stafford Road (between Constitution Island and Brereton Hill Lane)	NB	587	19	628	21	643	21	686	23	961	20	1026	21	1051	22	1016	21
	SB	1001	27	1070	29	1097	30	1171	32	629	12	671	13	687	14	664	13
A51 Stafford Road (between Eastern Avenue and Featherbed Lane)	NB	606	11	648	12	664	12	709	13	967	13	1032	14	1057	14	1022	14
	SB	1025	26	1096	27	1124	28	1199	30	677	13	723	14	740	15	716	14
A51 Upper St John Street (between Birmingham Road and Tamworth Road)	SB	650	40	721	44	752	46	847	52	742	16	824	17	860	18	982	21
	NB	650	40	721	44	752	46	847	52	618	13	686	14	716	15	817	17
A515 Lichfield Road (between Common Lane and Proposed Scheme)	NB	187	17	205	18	213	19	237	21	250	5	273	6	284	6	317	6
	SB	323	10	354	11	368	11	410	12	173	6	189	7	197	7	219	8
A515 Lichfield Road (between Crawley Lane and Manor Road)	NB	510	21	559	23	581	24	647	27	449	8	490	9	510	9	568	10
	SB	523	19	573	21	596	22	664	24	505	14	551	15	574	16	639	17
A515 Lichfield Road (between Wood End Lane and Common Lane)	NB	209	11	229	12	238	13	265	14	291	2	318	2	330	3	368	3
	SB	322	8	353	9	367	9	409	10	224	6	244	7	254	7	283	8
A515 Lichfield Road (between Crawley Lane and Rugeley Road)	NB	510	21	559	23	581	24	647	27	449	8	490	9	510	9	568	10
	SB	523	19	573	21	596	22	664	24	505	14	551	15	574	16	639	17
A515 Main Street (between Town Hill and Lodge Lane)	NB	228	23	250	25	259	26	286	29	186	9	205	10	212	11	236	12
	SB	228	17	251	19	259	19	286	21	227	10	250	11	258	11	288	12
A515 Tewnalls Lane (between Stafford Road and Wood End Lane)	NB	369	20	404	22	420	23	468	26	448	16	490	17	509	18	567	20
	SB	411	22	450	25	468	26	521	28	284	10	310	11	323	11	359	13
A515 Yoxal Road (between Manor Road and Lichfield Road)	EB	284	25	312	28	322	28	356	31	287	10	316	11	326	12	364	13
	WB	359	17	394	19	408	20	450	22	264	10	290	11	300	11	334	12

Table 105: Local 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 Western Bypass (between Friary Island and Eastern Avenue)	NB	585	13	648	14	677	15	766	17	435	12	480	13	501	14	574	16
	SB	418	10	464	11	484	12	548	13	616	9	680	10	710	10	813	12
A5127 Trent Valley Road (between Eastern Avenue and Rykneld Street)	EB	474	7	522	7	542	8	605	8	523	5	576	5	599	5	731	7
	WB	614	12	676	13	703	14	784	15	595	8	655	9	682	10	832	12
A513 Alrewas Bypass from Kings Bromley Road to A38 at Croxall Road	EB	405	24	444	26	462	28	515	31	287	12	313	14	326	14	363	16
	WB	266	15	292	17	303	17	338	19	409	13	446	14	465	15	517	16
A513 Alrewas Road (between Yoxall Road and Ogreave Hall Lane)	EB	417	21	457	23	475	24	529	27	296	11	323	12	336	12	374	13
	WB	271	20	297	22	308	23	344	26	409	16	447	18	465	19	518	21
A513 Kings Bromley Lane (between the Proposed Scheme and Uttoxeter Road)	WB	275	10	302	11	315	11	355	13	394	7	433	8	452	8	523	10
	EB	381	11	418	12	436	13	491	14	242	4	266	5	278	5	321	6
A513 Lichfield Road (between Rugeley Road and Proposed Scheme)	NB	187	17	205	18	213	19	237	21	250	5	273	6	284	6	317	6
	SB	323	10	354	11	368	11	410	12	173	6	189	7	197	7	219	8
A513 Rugeley Road (between Shaw Lane and Proposed Scheme)	WB	270	10	296	11	308	11	343	13	392	9	429	10	446	10	497	11
	EB	368	8	403	8	419	9	467	10	242	3	264	4	275	4	306	4
A5192 Cappers Lane (between Austin Cote Lane and Rykneld Street)	EB	384	11	423	12	440	12	490	13	439	7	484	7	503	8	614	9
	WB	391	9	430	10	448	10	499	11	406	8	447	9	465	9	567	11
A5192 Cappers Lane (between Trent Valley Road and Austin Cote Lane)	NB	679	14	747	15	777	16	866	17	729	12	803	13	835	14	1019	17
	SB	714	15	786	17	817	17	911	19	636	14	700	15	728	16	889	19

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
A5192 Eastern Avenue (between Grange Lane and Stafford Road)	NB	585	13	648	14	677	15	766	17	435	12	480	13	501	14	574	16
	SB	418	10	464	11	484	12	548	13	616	9	680	10	710	10	813	12
A5192 Eastern Avenue (between Netherstone Lane and Grange Lane)	WB	423	8	463	9	482	9	537	10	800	7	874	8	909	8	1013	9
	EB	729	14	799	15	831	16	926	18	476	12	520	13	541	14	602	16
A5192 Eastern Avenue (between Trent Valley Road and Netherstowe Lane)	NB	511	10	562	11	584	11	652	13	746	9	822	10	855	10	1043	13
	SB	698	19	768	21	799	22	891	24	650	13	716	14	745	15	908	18
A5206 London Road (between Tamworth Road and A38)	SB	634	20	703	22	733	23	826	25	639	5	709	5	741	6	845	7
	NB	707	22	785	24	818	25	922	28	758	6	842	6	879	7	1003	8
B5013 Abbots Bromley Road (between Newton Hurst Lane and Quee Lane)	NB	221	15	242	17	250	17	276	19	184	5	203	5	210	6	237	6
	SB	204	10	223	11	231	12	255	13	223	4	246	4	254	4	287	5
B5013 Colton Road (between Blithbury Road and Bellamour Way)	NB	328	6	361	6	376	7	423	8	283	2	311	2	324	2	375	3
	SB	263	9	289	10	301	10	340	12	268	1	295	2	307	2	355	2
B5013 Colton Road (between Rugeley Eastern Bypass and Blithbury Road)	EB	394	11	433	12	451	13	509	14	338	4	371	4	387	4	448	5
	WB	406	6	446	6	465	6	524	7	438	2	482	2	503	2	581	3
B5013 Uttoxeter Road (between Uttoxeter Road and Dunstall Lane)	NB	256	10	281	11	291	11	321	12	221	4	243	4	251	4	280	5
	SB	254	12	280	13	289	14	319	15	248	5	273	5	282	5	315	6
B5013 Uttoxeter Road (between Bellamour Lane and Colton Road)	WB	255	19	280	21	292	22	329	25	279	3	307	4	320	4	370	5
	EB	233	18	256	20	267	20	301	23	233	3	256	3	268	3	309	4
B5013 Uttoxeter Road (between Proposed Scheme and Moor Lane)	NB	244	11	268	12	280	13	315	15	230	3	253	4	264	4	305	4
	SB	252	10	277	11	288	11	325	12	258	6	284	6	296	7	342	8

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
B5013 Uttoxeter Road (between Moor Lane and Bellamour Lane)	NB	243	14	267	15	278	16	314	18	233	2	256	2	267	2	309	2
	SB	260	8	285	9	297	10	335	11	263	6	290	6	302	7	349	8
B5013 Uttoxeter Road (between Sherracop Lane and Proposed Scheme)	NB	244	11	268	12	280	13	315	15	230	3	253	4	264	4	305	4
	SB	252	10	277	11	288	11	325	12	258	6	284	6	296	7	342	8
B5013 Uttoxeter Road (between Sherracop Lane and Uttoxeter Road)	NB	225	12	248	13	256	13	283	15	207	4	227	4	235	4	262	5
	SB	215	7	236	8	244	8	269	9	242	4	266	4	275	4	307	5
B5014 Lichfield Road (between Ashbrook Lane and Seedcroft Lane)	SB	101	3	111	4	115	4	127	4	80	1	88	1	91	1	101	2
	NB	92	4	101	4	105	4	116	5	73	2	80	3	83	3	92	3
B5014 Rake End Lane (between School Lane and Stoneyford Lane)	NB	107	5	117	6	122	6	138	7	96	2	105	2	110	2	127	3
	SB	112	5	123	6	128	6	144	7	92	2	102	2	106	2	123	3
B5014 Uttoxeter Road (between Blithbury Road and Proposed Scheme)	NB	72	3	79	4	82	4	92	4	67	1	73	1	77	1	89	1
	SB	90	3	99	3	103	3	116	4	58	1	64	1	67	1	77	1
B5014 Uttoxeter Road (between Blithbury Road and Seedcfroft Lane)	NB	87	4	95	4	99	5	112	5	80	2	88	2	91	2	106	2
	SB	124	6	136	6	142	7	160	7	86	6	95	7	99	7	114	8
B5014 Uttoxeter Road (between Common Lane and School Lane)	WB	116	6	128	6	133	7	150	8	160	2	176	2	183	2	212	3
	EB	193	5	212	5	221	6	249	6	94	2	103	2	108	2	125	3
B5014 Uttoxeter Road (between Kings Bromley Lane and Common Lane)	NB	138	2	152	2	158	2	178	2	191	1	210	1	220	1	254	1
	SB	219	2	240	2	251	2	282	3	134	1	147	1	153	1	177	2
B5014 Uttoxeter Road (between Stoneyford Lane and Proposed Scheme)	NB	72	3	79	4	82	4	92	4	67	1	73	1	77	1	89	1
	SB	90	3	99	3	103	3	116	4	58	1	64	1	67	1	77	1

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
B5234 Ashbrook Lane (between Lichfield Road and Bromley Road)	EB	173	6	190	6	197	6	217	7	94	2	104	2	107	2	120	2
	WB	104	5	114	6	118	6	130	6	151	2	166	2	172	2	191	2
Shaw Lane (between Rugeley Road and Proposed Scheme)	SB	11	0	13	0	13	0	15	0	5	0	6	0	6	0	7	0
	NB	6	0	7	0	7	0	8	0	6	0	7	0	7	0	8	0
Bellamour Lane (between Uttoxeter Road and Main Road)	WB	72	1	78	1	80	1	87	1	58	1	62	1	64	1	70	1
	EB	66	2	71	2	73	2	79	2	49	1	53	1	55	1	59	1
Bellamour Way (between High Street and Uttoxeter Road)	WB	77	1	85	1	89	2	100	2	45	0	49	1	51	1	59	1
	EB	48	2	52	2	55	2	62	3	74	1	81	1	85	1	98	1
Hollow Lane (between High Street and Blithbury Road)	EB	21	1	23	1	24	1	28	1	19	0	21	0	22	0	26	0
	WB	15	0	17	1	17	1	20	1	23	0	25	0	26	0	30	0
Blithbury Road (between Hadley Gate and Proposed Scheme)	WB	41	2	45	2	47	2	53	2	47	1	52	1	54	1	63	1
	EB	68	2	75	2	78	2	88	2	39	1	43	1	45	1	52	1
Blithbury Road (between Hollow Lane and Colton Road)	WB	75	4	82	5	85	5	96	6	76	3	84	3	87	3	101	3
	EB	80	3	87	3	91	3	103	4	62	1	69	1	72	1	83	1
Blithbury Road (between Pipe Lane and Dawson Lane)	EB	12	1	13	1	14	1	15	1	14	0	15	0	16	0	18	0
	WB	18	0	20	0	21	0	23	0	13	1	14	1	15	1	17	1
Blithbury Road (between Stoneyford Lane and Blithbury Road)	WB	80	2	88	3	91	3	103	3	74	1	82	1	85	1	99	1
	EB	101	2	111	2	115	3	130	3	80	1	88	1	92	1	106	1
Blithbury Road (between Uttoxeter Road and Pipe Lane)	EB	40	0	44	0	46	0	52	0	24	0	26	0	27	0	32	0
	WB	26	1	29	1	30	1	34	1	31	0	34	0	36	0	41	0

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
Blithbury Road (between Uttoxeter Road and Proposed Scheme)	WB	41	2	45	2	47	2	53	2	47	1	52	1	54	1	63	1
	EB	68	2	75	2	78	2	88	2	39	1	43	1	45	1	52	1
Wood End Lane (between Lichfield Road and Netherstowe Lane)	SB	370	4	405	5	421	5	469	5	131	5	143	5	148	5	165	6
	NB	154	6	169	7	176	7	196	8	409	4	447	5	465	5	518	5
Wood End Lane (between Gorse Lane and Nanscawen Road)	EB	382	13	419	15	436	15	485	17	168	8	183	9	191	9	212	10
	WB	202	15	222	16	231	17	257	18	459	27	501	30	522	31	581	35
Wood End Lane (between Rykneld Street and Wood End Lane/west-bound)	EB	510	67	559	74	581	77	647	85	429	41	469	45	488	47	543	52
	WB	160	21	175	23	182	24	203	27	217	21	237	23	247	24	275	26
Wood End Lane (between Brookhay Lane and Wood End Lane/west-bound)	WB	160	21	175	23	182	24	203	27	217	21	237	23	247	24	275	26
	EB	510	67	559	74	581	77	647	85	429	41	469	45	488	47	543	52
The Friary (between Friary Island and Upper St John Street)	EB	456	25	506	27	528	28	598	32	651	15	719	17	751	17	860	20
	WB	690	37	765	41	799	43	904	49	585	13	646	15	674	16	773	18
Dawson Lane (between Blithbury Road and Proposed Scheme)	SB	0	0	1	0	1	0	1	0	1	0	1	0	2	0	2	0
	NB	2	0	3	0	3	0	3	0	1	0	1	0	1	0	1	0
Dawson Lane (between Pipe Lane and Proposed Scheme)	NB	2	0	3	0	3	0	3	0	1	0	1	0	1	0	1	0
	SB	0	0	1	0	1	0	1	0	1	0	1	0	2	0	2	0
Pipe Lane (between Blithbury Road and Pipe Lane/south-bound)	SB	2	0	3	0	3	0	3	0	1	0	1	0	1	0	1	0
	NB	2	0	2	0	2	0	3	0	2	0	2	0	2	0	2	0
Pipe Lane (between the Proposed Scheme and Quintons Orchard)	SB	2	0	2	0	3	0	3	0	3	0	3	0	3	0	4	0
	NB	2	0	2	0	2	0	3	0	1	0	1	0	1	0	1	0

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
Pipe Lane (between Pipe Lane/south-bound and Proposed Scheme)	SB	2	0	2	0	3	0	3	0	3	0	3	0	3	0	4	0
	NB	2	0	2	0	2	0	3	0	1	0	1	0	1	0	1	0
Crawley Lane (between Lichfield Road and Common Lane)	SB	5	1	5	1	6	1	6	1	5	1	5	1	6	1	6	1
	NB	4	0	4	0	4	0	5	0	4	0	4	0	4	0	5	0
Common Lane (between Crawley Lane and the Proposed Scheme)	WB	4	0	5	0	5	0	5	0	3	0	3	0	4	0	4	0
	EB	4	1	4	1	4	1	5	1	2	0	2	0	2	0	2	0
Common Lane (between Lichfield Road and the Proposed Scheme)	EB	4	1	4	1	4	1	5	1	2	0	2	0	2	0	2	0
	WB	4	0	5	0	5	0	5	0	3	0	3	0	4	0	4	0
Sherracop Lane (between Uttoxeter Road and Park Lane)	SE	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0
	NW	1	0	1	0	1	0	2	0	4	0	4	0	4	0	5	0
High Street (between Newlands Lane and Heathway)	SB	8	0	9	0	10	0	11	0	12	0	13	0	13	0	15	0
	NB	7	0	8	0	8	0	9	0	5	0	6	0	6	0	7	0
Hadley Gate Lane (between Blithbury Road and Proposed Scheme)	NB	0	0	0	0	0	0	0	0	1	0	1	0	1	0	2	0
	SB	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0
Moor Lane (between the Proposed Scheme and Uttoxeter Road)	WB	9	1	10	1	10	1	11	2	6	0	6	0	7	0	8	0
	EB	4	0	5	0	5	0	5	0	4	0	4	0	5	0	5	0
Moor Lane (between Newlands Lane and Proposed Scheme)	WB	9	1	10	1	10	1	11	2	6	0	6	0	7	0	8	0
	EB	4	0	5	0	5	0	5	0	4	0	4	0	5	0	5	0
Newlands Lane (between Moor Lane and close to Narrow Lane)	SB	4	0	4	0	4	0	5	0	9	0	10	0	10	0	12	0
	NB	3	0	3	0	3	0	3	0	3	0	3	0	3	0	4	0

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
Newlands Lane (between High Street and Proposed Scheme)	SB	4	0	4	0	4	0	5	0	9	0	10	0	10	0	12	0
	NB	3	0	3	0	3	0	3	0	3	0	3	0	3	0	4	0
Newlands Lane (between High Street and the Proposed Scheme/east-bound)	EB	2	0	2	0	2	0	3	0	1	0	1	0	1	0	1	0
	WB	2	0	2	0	2	0	2	0	1	0	1	0	1	0	2	0
Pipe Lane (between Common Lane and Chadwick Crescent)	WB	6	1	7	1	7	1	8	1	7	0	8	0	8	0	9	0
	EB	12	0	14	0	14	0	16	0	11	0	12	0	13	0	15	0
Pipe Lane (north of Common Lane)	WB	25	1	28	1	29	1	33	1	18	0	20	0	21	0	24	0
	EB	14	1	16	1	16	1	18	2	22	1	24	1	25	1	29	1
Pipe Lane (between Dawson Lane and the Proposed Scheme)	EB	12	1	14	1	14	1	16	1	19	1	20	1	21	1	25	1
	WB	21	1	23	1	24	1	27	1	13	0	15	0	15	0	18	1
Stonyford Lane (between Uttoxeter Road and Blithbury Road)	NB	41	0	45	0	47	0	53	1	38	1	42	1	44	1	51	1
	SB	24	1	27	1	28	1	32	1	36	0	39	0	41	0	47	0
Nanscawen Road (south of Wood End Lane)	SB	29	2	32	2	33	2	37	3	14	2	15	2	16	2	18	3
	NB	14	3	15	3	16	3	18	3	24	2	26	2	28	2	31	2
Wood End Lane (between Gorse Lane and Netherstowe Lane)	SB	365	6	400	6	416	7	464	7	161	6	176	7	183	7	204	8
	NB	194	8	212	9	221	10	246	11	414	6	452	6	470	7	524	7
Wood End Lane (between Nanscawen Road and A38 Rykneld Street)	EB	366	26	401	29	417	30	465	34	257	14	281	16	292	16	326	18
	WB	309	26	339	29	352	30	393	33	423	45	462	49	481	51	535	56

Junction operation – future baseline

7.2.11 The operation of the key junctions which form the main access routes from the SRN through the study area to the construction sites, or are affected by the operation of the scheme, have been assessed using the future baseline traffic flows and the results are summarised in the following tables.

7.2.12 Where a junction will be affected by construction of the Proposed Scheme, future baseline results are included for 2023 (both with and without associated construction traffic from HS2 Phase One as appropriate). Where a junction is affected by operation of the Proposed Scheme, which is primarily due to changes in traffic as a result of infrastructure changes in the Proposed Scheme, results are included for 2027 and 2041. Junctions affected by both construction and operation include results for all three assessment years.

7.2.13 As for the existing baseline, the results for CA1 are presented in the order of Roundabout junctions, priority controlled (give-way) and signalised junctions. The results for the AM and PM peak hours are presented and the 2016 baseline results are included for reference. The models developed to assess the existing baseline have been used, except where otherwise stated.

Lancaster Road/Wood End Lane/Wellington Crescent

7.2.14 The future baseline performance of this junction and the results for the AM and PM peak hours are shown in Table 106. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 106: Future baseline performance Lancaster Road/Wood End Lane/Wellington Crescent junction

Approach	**Flow, PCU/hr**	**RFC**	**Q, PCU**	**Flow, PCU/hr**	**RFC**	**Q, PCU**	**Flow, PCU/hr**	**RFC**	**Q, PCU**
	2016 AM			**2023 AM**			**2023 future baseline with Phase One- AM**		
Wood End Lane (west)	83	0.05	0	90	0.06	0	90	0.06	0
Lancaster Road	480	0.17	0	522	0.18	0	573	0.2	0
Wood End Lane (east)	27	0.02	0	29	0.02	0	29	0.02	0
Wellington Crescent	628	0.24	0	682	0.26	0	733	0.28	1
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Wood End Lane (west)	192	0.11	0	209	0.12	0	209	0.13	0
Lancaster Road	391	0.13	0	423	0.14	0	536	0.18	0
Wood End Lane (east)	179	0.11	0	195	0.12	0	195	0.13	0
Wellington Crescent	343	0.13	0	372	0.14	0	486	0.19	0

7.2.15 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

Common Lane/Wood End Lane

7.2.16 The future baseline performance of this junction and the results for the AM and PM peak hours are shown in Table 107. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 107: Future baseline performance at Common Lane/Wood End Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM			2023 future baseline with Phase One - AM		
Wood End Lane (west)	518	0.29	1	563	0.31	1	614	0.34	1
Common Lane	434	0.12	0	472	0.14	0	472	0.14	0
Wood End Lane (east)	276	0.09	0	300	0.1	0	351	0.12	0
	2016 PM			2023 PM			2023 future baseline with Phase One - PM		
Wood End Lane (west)	359	0.2	0	390	0.22	0	504	0.28	0
Common Lane	391	0.13	0	424	0.14	0	424	0.15	0
Wood End Lane (east)	428	0.14	0	463	0.16	0	577	0.19	0

7.2.17 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches. It should be noted that there is no impact at this junction as a result of HS2 Phase One.

Wood End Lane/Gorse Lane/Tesco access

7.2.18 The future baseline performance of this junction and the results for the AM and PM peak hours are shown in Table 108. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 108: Future baseline performance at Wood End Lane/Gorse Lane/Tesco access junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Gorse Lane	93	0.07	0	102	0.08	0	102	0.08	0
Tesco Access	0	0	0	0	0	0	0	0	0
Wood End Lane (east)	233	0.16	0	255	0.17	0	331	0.22	0
Wood End Lane (west)	365	0.26	0	400	0.29	0	476	0.34	1
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Gorse Lane	71	0.05	0	77	0.05	0	77	0.06	0
Tesco Access	0	0	0	0	0	0	0	0	0
Wood End Lane (east)	495	0.33	1	541	0.36	1	731	0.49	1
Wood End Lane (west)	174	0.13	0	190	0.14	0	379	0.28	0

7.2.19 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A515 Featherbed Lane/A51 Stafford Road

7.2.20 The future baseline performance of this junction and the results for the AM and PM peak hours are shown in Table 109. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 109: Future baseline performance at A515 Featherbed Lane/A51 Stafford Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A51 Stafford Road (north)	1288	0.64	2	1370	0.69	2	1370	0.71	3
A515 Featherbed Lane	418	0.37	1	445	0.41	1	555	0.51	1
A51 Stafford Road (south)	878	0.43	1	934	0.46	1	1044	0.52	1
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A51 Stafford Road (north)	684	0.35	1	726	0.37	1	726	0.38	1
A515 Featherbed Lane	406	0.3	0	431	0.32	1	474	0.35	1
A51 Stafford Road (south)	1291	0.65	2	1370	0.7	2	1414	0.72	3

7.2.21 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 Western Bypass/The Friary/Friary Avenue/Friary Road

7.2.22 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 110. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 110: Future baseline performance at A51 Western Bypass/The Friary/Friary Avenue/ Friary Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A51 Western Bypass	918	0.54	1	1013	0.62	2	1013	0.62	2
The Friary	476	0.19	0	526	0.21	0	526	0.21	0
Friary Avenue	35	0.03	0	39	0.04	0	39	0.04	0
A51 The Friary / Friary Road	823	0.38	1	908	0.43	1	908	0.43	1
Friary Road	772	0.41	1	852	0.47	1	852	0.47	1
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A51 Western Bypass	958	0.59	1	1059	0.67	2	1059	0.67	2
The Friary	726	0.31	0	802	0.36	1	802	0.36	1
Friary Avenue	72	0.09	0	80	0.12	0	80	0.12	0
A51 The Friary / Friary Road	747	0.53	1	825	0.65	2	825	0.65	2
Friary Road	593	0.34	1	655	0.4	1	655	0.4	1

7.2.23 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches. It should be noted that there is no impact at this junction as a result of HS2 Phase One.

A51 Lea Hall Way/A51 Brereton Hill/A460 Brereton Hill

7.2.24 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 111 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 111: Future baseline performance at A51 Lea Hall Way/A51 Brereton Hill/A460 Brereton Hill junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A51 Lea Hall Way	955	0.61	2	1048	0.68	2	1048	0.68	2
A51 Brereton Hill (south)	916	0.55	1	1006	0.61	2	1006	0.61	2
A460 Brereton Hill	680	0.4	1	746	0.45	1	746	0.45	1
	2016 PM			**2023 PM**			**2023 future baseline with Phase One -PM**		
A51 Lea Hall Way	751	0.49	1	825	0.55	1	825	0.55	1
A51 Brereton Hill	968	0.55	1	1063	0.61	2	1063	0.61	2
A460 Brereton Hill	984	0.63	2	1080	0.71	3	1080	0.71	3

7.2.25 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches. It should be noted that there is no impact at this junction as a result of HS2 Phase One.

A51 Lea Hall Way/A513 Armitage Road

7.2.26 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 112 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 112: Future baseline performance at A51 Lea Hall Way/A513 Armitage Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A51 Lea Hall Way (north)	838	0.59	2	917	0.66	2	917	0.66	2
A513 Armitage Road (east)	656	0.51	1	718	0.58	1	718	0.58	1
A51 Lea Hall Way (south)	687	0.44	1	751	0.5	1	751	0.49	1
A513 Armitage Road (west)	300	0.3	0	328	0.35	1	328	0.35	1
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A51 Lea Hall Way (north)	1018	0.73	3	1114	0.81	4	1114	0.81	4
A513 Armitage Road (east)	729	0.59	1	797	0.66	2	797	0.66	2
A51 Lea Hall Way (south)	821	0.56	1	898	0.64	2	898	0.64	2
A513 Armitage Road (west)	280	0.3	0	306	0.36	1	306	0.36	1

7.2.27 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches. The A51 Lea Hall Way (north) an RFC of 0.81 and corresponding queue length of four PCUs in the PM peak at 2023 (with and without HS2 Phase One). It should be noted that there is no impact at this junction as a result of HS2 Phase One.

A51 Lea Hall Way/Wheelhouse Road

7.2.28 The future year baseline performance and the results for the AM and PM Peak hours are shown in Table 113 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 113: Future baseline performance at A51 Lea Hall Way/Wheelhouse Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A51 Lea Hall Way (south)	885	0.52	1	936	0.56	1	936	0.56	1
Wheelhouse Road	107	0.1	0	113	0.11	0	113	0.11	0
A51 Lea Hall Way (north)	893	0.47	1	945	0.49	1	945	0.49	1
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A51 Lea Hall Way (south)	956	0.53	1	1012	0.56	1	1012	0.56	1
Wheelhouse Road	332	0.36	1	351	0.39	1	351	0.39	1
A51 Lea Hall Way (north)	798	0.44	1	845	0.47	1	845	0.47	1

7.2.29 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches. It should be noted that there is no impact at this junction as a result of HS2 Phase One.

A51 Rugeley Eastern Bypass/A51 Lea Hall Way/Power Station Road

7.2.30 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 114 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 114: Future baseline performance at A51 Rugeley Eastern Bypass/A51 Lea Hall Way/Power Station Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A51 Rugeley Eastern Bypass	800	0.41	1	846	0.44	1	846	0.44	1
Power Station access	0	0	0	0	0	0	0	0	0
A51 Lea Hall Way	749	0.35	1	791	0.37	1	791	0.37	1
Power Station Road	199	0.11	0	210	0.12	0	210	0.12	0
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A51 Rugeley Eastern Bypass	535	0.28	0	566	0.3	0	566	0.3	0
Power Station access	12	0.01	0	13	0.01	0	13	0.01	0
A51 Lea Hall Way	1056	0.5	1	1116	0.52	1	1116	0.52	1
Power Station Road	277	0.17	0	293	0.18	0	293	0.18	0

7.2.31 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches. It should be noted that there is no impact at this junction as a result of HS2 Phase One.

A51 Rugeley Eastern Bypass/B5013 Station Road

7.2.32 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 115 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 115: Future baseline performance at A51 Rugeley Eastern Bypass/B5013 Station Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A51 Rugeley Eastern Bypass (north)	779	0.45	1	846	0.5	1	846	0.5	1
B5013 Station Road (east)	411	0.3	1	446	0.34	1	446	0.34	1
A51 Rugeley Eastern Bypass (south)	533	0.3	1	579	0.33	1	579	0.33	1
B5013 Station Road (west)	410	0.32	1	445	0.36	1	444	0.35	1
	2016 PM			**2023 PM**			**2023 future baseline with Phase One -PM**		
A51 Rugeley Eastern Bypass (north)	597	0.36	1	647	0.39	1	647	0.39	1
B5013 Station Road (east)	472	0.32	1	511	0.36	1	511	0.36	1
A51 Rugeley Eastern Bypass (south)	745	0.44	1	807	0.49	1	807	0.49	1
B5013 Station Road (west)	451	0.38	1	489	0.43	1	488	0.43	1

7.2.33 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches. It should be noted that there is no impact at this junction as a result of HS2 Phase One.

A5192 Cappers Lane/Austin Cote Lane/Europa Way

7.2.34 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 116 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 116: Future baseline performance at A5192 Cappers Lane/Austin Cote Lane/Europa Way junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Europa Way	227	0.22	0	231	0.23	0	231	0.23	0
A5192 Cappers Road (east)	548	0.45	1	556	0.46	1	604	0.49	1
Austin Cote Lane	531	0.52	1	539	0.54	1	539	0.55	1
A5192 Cappers Road (west)	839	0.66	2	852	0.67	2	900	0.71	3
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Europa Way	415	0.43	1	421	0.43	1	421	0.44	1
A5192 Cappers Road (east)	520	0.48	1	528	0.49	1	547	0.51	1
Austin Cote Lane	393	0.38	1	399	0.39	1	399	0.39	1
A5192 Cappers Road (west)	778	0.55	1	790	0.56	1	810	0.57	1

7.2.35 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A5192 Eastern Avenue/A5127 Burton Road/A5192 Cappers Lane/A5127 Trent Valley Road

7.2.36 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 117 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 117: Future baseline performance at A5192 Eastern Avenue/A5127 Burton Road/ A5192 Cappers Lane/A5127 Trent Valley Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A5192 Eastern Ave (north)	725	0.63	2	736	0.64	2	794	0.69	2
A5127 Burton Road (east)	644	0.66	2	654	0.68	2	674	0.72	3
A5192 Cappers Lane (south)	712	0.7	3	723	0.72	3	763	0.77	3
A5127 Trent Valley Road (west)	567	0.77	3	576	0.79	4	576	0.83	5
Valley Lane	123	0.3	0	125	0.31	1	125	0.34	1
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A5192 Eastern Ave (north)	672	0.53	1	694	0.55	1	697	0.55	1
A5127 Burton Road (east)	846	0.78	4	860	0.8	4	864	0.81	4
A5192 Cappers Lane (south)	757	0.83	5	769	0.85	5	776	0.86	6

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A5127 Trent Valley Road (west)	562	0.88	6	578	0.92	8	578	0.92	9
Valley Lane	82	0.24	0	84	0.25	0	84	0.26	0

7.2.37 The model shows that this junction continues to approach capacity in 2023 with RFC values of 0.92 and a corresponding queue of eight PCUs on the A5127 Trent Valley Road (west) in the PM peak in 2023, which increases to nine PCU following the addition of HS2 Phase One construction traffic.

Blithbury Road/Stoneyford Lane

7.2.38 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 118 below. As the junction is only affected by the operation of the Proposed Scheme and not the construction, future baseline results are presented for 2027 and 2041 only.

Table 118: Future baseline performance Blithbury Road/Stoneyford Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2027 AM**			**2041 AM**		
Stoneyford Lane (left + right)	46	0.08	0	54	0.10	0	61	0.11	0
Blithbury Road (west) (ahead)	74	-	-	87	-	-	98	-	-
Blithbury Road (west) (right)	29	0.05	0	34	0.06	0	38	0.06	0
Blithbury Road (east) (left)	0	-	-	0	-	-	0	-	-
Blithbury Road (east) (ahead)	39	-	-	46	-	-	51	-	-
	2016 PM			**2027 PM**			**2041 PM**		
Stoneyford Road (left + right)	31	0.06	0	36	0.07	0	42	0.08	0
Blithbury Road (west) (ahead)	41	-	-	48	-	-	56	-	-
Blithbury Road (west) (right)	35	0.06	0	41	0.07	0	47	0.08	0
Blithbury Road (east) (left)	2	-	-	2	-	-	3	-	-
Blithbury Road (east) (ahead)	40	-	-	47	-	-	54	-	-

7.2.39 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

Blithbury Lane/Hadley Gate

7.2.40 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 119 and Table 120 below. As the junction is affected by both construction and operation of the Proposed Scheme, future baseline results are presented for 2023 (with and without HS2 Phase One construction traffic), 2027 and 2041.

Table 119: Future baseline performance at Blithbury Lane/Hadley Gate junction (2023)

Approach	Flow, PCU/ hr	RFC	Q, PCU	Flow, PCU/ hr	RFC	Q, PCU	Flow, PCU/ hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Hadley Gt (left + right)	0	0.00	0	0	0	0	0	0.00	0
Blithbury Lane (east) (ahead)	37	-	-	42	-	-	79	-	-
Blithbury Lane (east) (right)	0	0.00	0	0	0	0	0	0.00	0
Blithbury Lane (west) (left)	0	-	-	0	-	-	0	-	-
Blithbury Lane (west) (ahead)	76	-	-	85	-	-	123	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Hadley Gt (left + right)	0	0.00	0	0	0	0	0	0.00	0
Blithbury Lane (east) (ahead)	43	-	-	48	-	-	57	-	-
Blithbury Lane (east) (right)	1	0.00	0	1	0	0	1	0.00	0
Blithbury Lane (west) (left)	1	-	-	1	-	-	1	-	-
Blithbury Lane (west) (ahead)	38	-	-	43	-	-	51	-	-

Table 120: Future baseline performance at Blithbury Lane/Hadley Gate junction (2027 and 2041)

Approach	Flow, PCU/ hr	RFC	Q, PCU	Flow, PCU/ hr	RFC	Q, PCU
	2027 AM			**2041 AM**		
Hadley Gt (left + right)	0	0.00	0	0	0.00	0
Blithbury Lane (east) (ahead)	43	-	-	49	-	-
Blithbury Lane (east) (right)	0	0.00	0	0	0.00	0
Blithbury Lane (west) (left)	0	-	-	0	-	-
Blithbury Lane (west) (ahead)	89	-	-	100	-	-
	2027 PM			**2041 PM**		
Hadley Gt (left + right)	0	0.00	0	0	0.00	0
Blithbury Lane (east) (ahead)	50	-	-	58	-	-
Blithbury Lane (east) (right)	1	0.00	0	1	0.00	0
Blithbury Lane (west) (left)	1	-	-	1	-	-
Blithbury Lane (west) (ahead)	45	-	-	52	-	-

7.2.41 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

Newlands Lane/Moor Lane

7.2.42 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 121 below. As the junction is only affected by the operation of the Proposed Scheme and not the construction, future baseline results are presented for 2027 and 2041 only.

Table 121: Future baseline performance at Newlands Lane/Moor Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2027 AM**			**2041 AM**		
Moor Lane (left + right)	7	0.01	0	8	0.02	0	9	0.02	0
Newlands Lane (north) (ahead + right)	4	0.01	0	5	0.01	0	5	0.01	0
Newlands Lane (north) (ahead)	8	-	-	9	-	-	10	-	-
Newlands Lane (south) (left)	5	-	-	6	-	-	7	-	-
Newlands Lane (south) (ahead)	0	-	-	0	-	-	0	-	-
	2016 PM			**2027 PM**			**2041 PM**		
Moor Lane (left + right)	7	0.02	0	8	0.02	0	9	0.02	0
Newlands Lane (north) (ahead + right)	3	0.01	0	4	0.01	0	4	0.01	0
Newlands Lane (north) (ahead)	5	-	-	6	-	-	7	-	-
Newlands Lane (south) (left)	0	-	-	0	-	-	0	-	-
Newlands Lane (south) (ahead)	0	-	-	0	-	-	0	-	-

7.2.43 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A515 Lichfield Road/Common Lane/Shaw Lane

7.2.44 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 122 and Table 123 below. As the junction is affected by both construction and operation of the Proposed Scheme, future baseline results are presented for 2023 (with and without HS2 Phase One construction traffic), 2027 and 2041.

Table 122: Future baseline performance at A515 Lichfield Road/Common Lane/Shaw Lane junction (2023)

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Common Lane (ahead + left + right)	0	0.00	0	0	0	0	0	0.00	0
A515 Lichfield Road (north) (ahead + left + right)	3	0.00	0	4	0.01	0	4	0.01	0
A515 Lichfield Road (north) (left)	2	-	-	2	-	-	2	-	-
A515 Lichfield Road (north) (ahead)	333	-	-	373	-	-	412	-	-
Shaw Lane (ahead + left + right)	7	0.02	0	8	0.02	0	8	0.02	0
A515 Lichfield Road (south) (ahead + left + right)	3	0.00	0	3	0.01	0	4	0.01	0
A515 Lichfield Road (south) (left)	2	-	-	2	-	-	2	-	-
A515 Lichfield Road (south) (ahead)	212	-	-	237	-	-	276	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Common Lane (ahead + left + right)	0	0.00	0	0	0	0	0	0.00	0
A515 Lichfield Road (north) (ahead + left + right)	0	0.00	0	0	0	0	0	0.00	0
A515 Lichfield Road (north) (left)	2	-	-	2	-	-	2	-	-
A515 Lichfield Road (north) (ahead)	191	-	-	213	-	-	222	-	-
Shaw Lane (ahead + left + right)	8	0.02	0	9	0.02	0	9	0.02	0
A515 Lichfield Road (south) (ahead + left + right)	0	0.00	0	0	0	0	0	0.00	0
A515 Lichfield Road (south) (left)	4	-	-	4	-	-	4	-	-
A515 Lichfield Road (south) (ahead)	246	-	-	275	-	-	284	-	-

Table 123: Future baseline performance at A515 Lichfield Road/Common Lane/Shaw Lane junction (2027 and 2041)

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2027 AM			**2041 AM**		
Common Lane (ahead + left + right)	0	0.00	0	5	0.02	0
A515 Lichfield Road (north) (ahead + left + right)	4	0.01	0	5	0.01	0
A515 Lichfield Road (north) (left)	2	-	-	3	-	-
A515 Lichfield Road (north) (ahead)	388	-	-	432	-	-
Shawn Lane (ahead + left + right)	8	0.02	0	9	0.02	0
A515 Lichfield Road (south) (ahead + left + right)	4	0.01	0	4	0.01	0
A515 Lichfield Road (south) (left)	2	-	-	3	-	-
A515 Lichfield Road (south) (ahead)	246	-	-	274	-	-
	2027 PM			**2041 PM**		
Common Lane (ahead + left + right)	0	0.00	0	0	0.00	0
A515 Lichfield Road (north) (ahead + left + right)	0	0.00	0	0	0.00	0
A515 Lichfield Road (north) (left)	2	-	-	3	-	-
A515 Lichfield Road (north) (ahead)	222	-	-	247	-	-
Shawn Lane (ahead + left + right)	9	0.02	0	10	0.02	0
A515 Lichfield Road (south) (ahead + left + right)	0	0.00	0	0	0.00	0
A515 Lichfield Road (south) (left)	5	-	-	5	-	-
A515 Lichfield Road (south) (ahead)	286	-	-	319	-	-

7.2.45 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 Birmingham Road/A5127 Birmingham Road/A461 Sainte Foy Avenue/A51 The Friary

7.2.46 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 124 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 124: Future baseline performance at A51 Birmingham Road/A5127 Birmingham Road/A461 Sainte Foy Avenue/A51 The Friary junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A51 The Friary Road	808	0.59	2	892	0.67	2	892	0.67	2
A51 Birmingham Road	599	0.48	1	661	0.55	1	661	0.55	1
A5127 Birmingham Road	681	0.58	1	751	0.66	2	751	0.66	2
A461 Sainte Foy Ave	604	0.54	1	667	0.63	2	667	0.63	2
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A51 The Friary Road	742	0.49	1	820	0.55	1	820	0.55	1
A51 Birmingham Road	842	0.67	2	930	0.77	3	930	0.77	3
A5127 Birmingham Road	643	0.66	2	710	0.78	3	711	0.78	3
A461 Sainte Foy Ave	440	0.38	1	486	0.45	1	486	0.45	1

7.2.47 The model shows that this junction is approaching capacity in the PM peak at 2023 (both with and without HS2 Phase One construction traffic), with RFC values of 0.77 and 0.78 on the A51 Birmingham Road and A5127 Birmingham Road. Both arms have a corresponding queue length of three PCUs. It should be noted that there is no impact at this junction as a result of HS2 Phase One.

A515 Lichfield Road/Wood End Lane

7.2.48 The future year baseline performance and the results for the AM and PM peak hours are shown Table 125 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 125: Future baseline performance at A515 Lichfield Road/Wood End Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Wood End Lane (left)	100	0.17	0	112	0.2	0	158	0.30	1
Wood End Lane (right)	46	0.16	0	51	0.19	0	73	0.32	1
A515 Lichfield Road (south) (ahead + right)	356	0.58	2	415	0.67	3	540	0.85	6
A515 Lichfield Road (south) (ahead)	81	-	-	75	-	-	58	-	-
A515 Lichfield Road (north) (left)	112	-	-	125	-	-	148	-	-
A515 Lichfield Road (north) (ahead)	237	-	-	265	-	-	329	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Wood End Lane (left)	339	0.57	1	379	0.65	2	405	0.82	4
Wood End Lane (right)	97	0.27	0	108	0.33	1	196	0.71	2
A515 Lichfield Road (south) (ahead + right)	136	0.21	0	157	0.24	0	196	0.31	1
A515 Lichfield Road (south) (ahead)	131	-	-	141	-	-	136	-	-
A515 Lichfield Road (north) (left)	39	-	-	44	-	-	124	-	-
A515 Lichfield Road (north) (ahead)	162	-	-	181	-	-	189	-	-

7.2.49 The model shows that this junction is approaching capacity in the AM peak hours, but with minimal queuing on all approaches.

A513 Rugeley Road/A515 Lichfield Road/A515 Tewnalls Lane

7.2.50 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 126 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 126: Future baseline performance at A513 Rugeley Road/A515 Lichfield Road/A515 Tewnalls Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A513 Rugeley Road (left + right)	408	0.64	2	457	0.73	3	492	0.84	5
A515 Lichfield Road (north) (ahead + right)	425	0.59	2	505	0.68	3	515	0.71	3
A515 Lichfield Road (north) (ahead)	136	-	-	124	-	-	117	-	-
A515 Tewnalls Lane (left)	14	-	-	16	-	-	58	-	-
A515 Tewnalls Lane (ahead)	205	-	-	230	-	-	230	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A513 Rugeley Road (left + right)	243	0.37	1	272	0.42	1	298	0.49	1
A515 Lichfield Road (north) (ahead + right)	526	0.8	4	612	0.92	10	612	0.92	10
A515 Lichfield Road (north) (ahead)	49	-	-	30	-	-	30	-	-
A515 Tewnalls Lane (left)	45	-	-	50	-	-	50	-	-
A515 Tewnalls Lane (ahead)	206	-	-	230	-	-	230	-	-

7.2.51 The model shows that this junction is approaching capacity in the PM peak, with an RFC value of 0.92 and a corresponding queue length of 10 PCUs on the A515 (north) Lichfield Road arm in 2023.

B5014 Lichfield Road/A515 Tewnalls Lane

7.2.52 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 127 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 127: Future baseline performance at B5014 Lichfield Road/A515 Tewnalls Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
B5014 Lichfield Road (left)	178	0.96	6	194	1.09	14	194	1.29	26
B5014 Lichfield Road (right)	329	0.94	9	359	1.08	23	365	1.26	48
A515 Tewnalls Lane (north) (ahead + right)	92	0.13	0	106	0.15	0	130	0.18	1
A515 Tewnalls Lane (north) (ahead)	303	-	-	324	-	-	405	-	-
A515 Tewnalls Lane (south) (left)	145	-	-	158	-	-	164	-	-
A515 Tewnalls Lane (south) (ahead)	316	-	-	344	-	-	449	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
B5014 Lichfield Road (left)	56	0.13	0	61	0.15	0	61	0.15	0
B5014 Lichfield Road (right)	149	0.47	1	162	0.54	1	168	0.59	2
A515 Tewnalls Lane (north) (ahead + right)	294	0.46	1	339	0.52	2	362	0.55	2
A515 Tewnalls Lane (north) (ahead)	180	-	-	177	-	-	187	-	-
A515 Tewnalls Lane (south) (left)	303	-	-	330	-	-	337	-	-
A515 Tewnalls Lane (south) (ahead)	254	-	-	276	-	-	310	-	-

7.2.53 The model shows that this junction is operating over capacity in the AM peak, with an RFC value of 1.09 and a corresponding queue length of 37 PCUs on the B5014 Lichfield Road arm, across two lanes, in 2023. With the addition of HS2 Phase One construction traffic, the maximum RFC value increases to 1.29 and the queue to 74 PCU.

B5014 Uttoxeter Road/A513 Kings Bromley Lane/A513 Uttoxeter Road

7.2.54 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 128 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 128: Future baseline performance at B5014 Uttoxeter Road/A513 Kings Bromley Lane/A513 Uttoxeter Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A513 Kings Bromley Lane (left)	232	0.36	1	261	0.42	1	261	0.44	1
A513 Kings Bromley Lane (right)	47	0.14	0	53	0.17	0	90	0.30	0
A513 Uttoxeter Road (ahead + right)	380	0.65	2	439	0.76	3	441	0.77	4
A513 Uttoxeter Road (ahead)	42	-	-	35	-	-	34	-	-
B5014 Uttoxeter Road (left)	95	-	-	114	-	-	151	-	-
B5014 Uttoxeter Road (ahead)	149	-	-	179	-	-	179	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A513 Kings Bromley Lane (left)	344	0.52	1	387	0.6	2	387	0.61	2
A513 Kings Bromley Lane (right)	77	0.2	0	94	0.26	0	103	0.29	0
A513 Uttoxeter Road(ahead + right)	249	0.4	1	291	0.46	1	291	0.47	1
A513 Uttoxeter Road (ahead)	67	-	-	75	-	-	75	-	-
B5014 Uttoxeter Road (left)	31	-	-	35	-	-	44	-	-
B5014 Uttoxeter Road (ahead)	71	-	-	80	-	-	80	-	-

7.2.55 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

B5014 Uttoxeter Road/Blithbury Road

7.2.56 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 129 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 129: Future baseline performance at B5014 Uttoxeter Lichfield Road/Blithbury Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Blithbury Road (east) (ahead + left + right)	34	0.06	0	38	0.07	7	104	0.18	0
B5014 Uttoxeter Road (north) (left)	4	-	-	4	-	-	4	-	-
B5014 Uttoxeter Road (north) (ahead)	75	-	-	84	-	-	84	-	-
B5014 Uttoxeter Road (north) (right)	18	-	-	20	-	-	26	-	-
B5014 Uttoxeter Road (north) (ahead + right)	39	0.06	0	44	0.07	6	127	0.21	0
B5014 Uttoxeter Road (north) (ahead)	78	-	-	87	-	-	75	-	-
Blithbury Road (west) (ahead + left + right)	75	0.12	0	84	0.14	7	197	0.35	1
B5014 Uttoxeter Road (south) (left)	2	-	-	2	-	-	44	-	-
B5014 Uttoxeter Road (south) (ahead)	59	-	-	66	-	-	66	-	-
B5014 Uttoxeter Road (south) (right)	15	-	-	17	-	-	17	-	-
B5014 Uttoxeter Road (south) (ahead + right)	65	0.11	0	75	0.12	6	153	0.25	0
B5014 Uttoxeter Road (south) (ahead)	77	-	-	85	-	-	78	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Blithbury Road (east) (ahead + left + right)	29	0.05	0	33	0.05	0	85	0.14	0
B5014 Uttoxeter Road (north) (left)	7	-	-	8	-	-	8	-	-
B5014 Uttoxeter Road (north) (ahead)	43	-	-	48	-	-	48	-	-
B5014 Uttoxeter Road (north) (right)	28	-	-	31	-	-	37	-	-
B5014 Uttoxeter Road (north) (ahead + right)	51	0.09	0	58	0.1	0	121	0.21	0
B5014 Uttoxeter Road (north) (ahead)	45	-	-	50	-	-	44	-	-
Blithbury Road (west) (ahead + left + right)	45	0.07	0	50	0.08	0	161	0.30	1
B5014 Uttoxeter Road (south) (left)	6	-	-	7	-	-	59	-	-
B5014 Uttoxeter Road (south) (ahead)	60	-	-	67	-	-	67	-	-
B5014 Uttoxeter Road (south) (right)	2	-	-	2	-	-	2	-	-
B5014 Uttoxeter Road (south) (ahead + right)	21	0.03	0	24	0.04	0	85	0.14	0
B5014 Uttoxeter Road (south) (ahead)	81	-	-	91	-	-	87	-	-

7.2.57 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 (from Bardy Lane to Stafford Road)/Borough Lane

7.2.58 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 130 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 130: Future baseline performance at A51 from Bardy Lane to Stafford Road/Borough Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Borough Lane (left + right)	181	0.79	3	178	0.76	3	178	0.76	3
A51 from Bardy Lane To Stafford Road (north) (ahead)	1132	-	-	1116	-	-	1117	-	-
A51 from Bardy Lane To Stafford Road (north) (right)	54	0.11	0	53	0.11	0	53	0.11	0
A51 from Bardy Lane To Stafford Road (south) (left)	27	-	-	27	-	-	27	-	-
A51 from Bardy Lane To Stafford Road (south) (ahead)	624	-	-	615	-	-	616	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Borough Lane (left + right)	69	0.39	1	68	0.36	1	68	0.36	1
A51 from Bardy Lane To Stafford Road (north) (ahead)	700	-	-	689	-	-	693	-	-
A51 from Bardy Lane To Stafford Road (north) (right)	64	0.18	0	63	0.17	0	63	0.17	0
A51 from Bardy Lane To Stafford Road (south) (left)	84	-	-	83	-	-	83	-	-
A51 from Bardy Lane To Stafford Road (south) (ahead)	1048	-	-	1031	-	-	1025	-	-

7.2.59 The model shows that this junction is approaching capacity in the AM peak, with an RFC value of 0.76 and a corresponding queue length of three PCUs on the Borough Lane arm in 2023 (with and without HS2 Phase One construction traffic). It should be noted that there is no impact at this junction as a result of HS2 Phase One.

A51 Breretonhill/Breretonhill Lane

7.2.60 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 131 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 131: Future baseline performance at A51 Breretonhill/Breretonhill Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Breretonhill Lane (left + right)	114	0.54	1	125	0.69	2	125	0.69	2
A51 Breretonhill (west) (ahead)	926	-	-	1013	-	-	1013	-	-
A51 Breretonhill (west) (right)	16	0.03	0	17	0.04	0	17	0.04	0
A51 Breretonhill (east) (left)	41	-	-	45	-	-	45	-	-
A51 Breretonhill (east) (ahead)	638	-	-	697	-	-	697	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Breretonhill Lane (left + right)	43	0.23	0	47	0.35	1	47	0.35	1
A51 Breretonhill (west) (ahead)	647	-	-	708	-	-	708	-	-
A51 Breretonhill (west) (right)	0	0	0	28	0.09	0	28	0.09	0
A51 Breretonhill (east) (left)	113	-	-	124	-	-	124	-	-
A51 Breretonhill (east) (ahead)	988	-	-	1081	-	-	1081	-	-

7.2.61 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches. It should be noted that there is no impact at this junction as a result of HS2 Phase One.

B5013 Colton Road/Blithbury Road

7.2.62 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 132 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 132: Future baseline performance at B5013 Colton Road/Blithbury Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM			2023 future baseline with Phase One - AM		
Blithbury Road (left + right)	94	0.16	0	99	0.17	0	142	0.24	0
B5013 Colton Road (south) (ahead + right)	179	0.27	1	195	0.29	1	264	0.40	1
B5013 Colton Road (south) (ahead)	201	-	-	207	-	-	183	-	-
B5013 Colton Road (north-west) (left)	10	-	-	11	-	-	11	-	-
B5013Colton Road (north-west) (ahead)	353	-	-	373	-	-	376	-	-
	2016 PM			2023 PM			2023 future baseline with Phase One - PM		
Blithbury Road (left + right)	112	0.19	0	119	0.2	0	167	0.30	0
B5013 Colton Road (south) (ahead + right)	92	0.14	0	100	0.15	0	155	0.24	1
B5013 Colton Road (south) (ahead)	217	-	-	228	-	-	211	-	-
B5013 Colton Road (north-west) (left)	3	-	-	3	-	-	18	-	-
B5013Colton Road (north-west) (ahead)	361	-	-	382	-	-	387	-	-

7.2.63 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

B5013 Colton Road/Bellamour Way

7.2.64 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 133 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 133: Future baseline performance at B5013 Colton Road/Bellamour Way junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Bellamour Way (left)	87	0.14	0	95	0.16	0	95	0.17	0
Bellamour Way (right)	39	0.1	0	43	0.11	0	80	0.20	0
B5013 Colton Road (south) (ahead + right)	87	0.14	0	99	0.16	0	99	0.16	0
B5013 Colton Road (south) (ahead)	167	-	-	179	-	-	179	-	-
B5013 Colton Road (north-west) (left)	28	-	-	31	-	-	68	-	-
B5013 Colton Road (north-west) (ahead)	268	-	-	293	-	-	293	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Bellamour Way (left)	39	0.06	0	43	0.07	0	43	0.07	0
Bellamour Way (right)	11	0.03	0	12	0.03	0	12	0.03	0
B5013 Colton Road (south) (ahead + right)	67	0.11	0	76	0.12	0	77	0.13	0
B5013 Colton Road (south) (ahead)	180	-	-	194	-	-	202	-	-
B5013 Colton Road (north-west) (left)	24	-	-	26	-	-	26	-	-
B5013 Colton Road (north-west) (ahead)	301	-	-	330	-	-	338	-	-

7.2.65 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A5192 Cappers Lane/A38 (T) Rykneld Street slip road (south-bound)

7.2.66 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 134 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 134: Future baseline performance at A5192 Cappers Lane/A38 (T) Rykneld Street slip road (south-bound) junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM			2023 future baseline with Phase One - AM		
A38 sliproad (south-bound) (left + right)	0	0	0	0	0	0	0	0	0
A5192 Cappers Lane (west) (ahead + right)	507	0.81	5	517	0.82	5	588	0.94	13
A5192 Cappers Lane (west) (ahead)	35	-	-	34	-	-	24	-	-
A5192 Cappers Lane (east) (left)	52	-	-	53	-	-	114	-	-
A5192 Cappers Lane (east) (ahead)	135	-	-	137	-	-	248	-	-
	2016 PM			2023 PM			2023 future baseline with Phase One - PM		
A38 sliproad (south-bound) (left + right)	0	0	0	0	0	0	0	0	0
A5192 Cappers Lane (west) (ahead + right)	556	0.84	6	568	0.86	6	776	1.08	47
A5192 Cappers Lane (west) (ahead)	41	-	-	39	-	-	9	-	-
A5192 Cappers Lane (east) (left)	26	-	-	26	-	-	26	-	-
A5192 Cappers Lane (east) (ahead)	130	-	-	132	-	-	198	-	-

7.2.67 The model shows that this junction is approaching capacity in the AM peak and PM peak in 2023 with an RFC value of 0.82 and 0.86, and corresponding queue lengths of five and six PCUs on the A5192 Cappers Lane arm. With the addition of HS2 Phase One construction traffic, the RFC increases in the PM peak from 0.86 to 1.08 and corresponding queue increases from 6 to 47 PCU.

A5192 Cappers Lane/A38 (T) Rykneld Street slip road (north bound)

7.2.68 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 135 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 135: Future baseline performance at A5192 Cappers Lane/A38 (T) Rykneld Street slip road (north bound) junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A38 sliproad (north bound) (left)	426	0.64	2	433	0.65	2	500	0.76	3
A38 sliproad (north bound) (right)	32	0.07	0	33	0.07	0	33	0.07	0
A5192 Cappers Lane (west) (ahead)	509	-	-	517	-	-	517	-	-
A5192 Cappers Lane (west) (right)	0	0	0	0	0	0	0	0.00	0
A5192 Cappers Lane (east) (left)	0	-	-	0	-	-	0	-	-
A5192 Cappers Lane (east) (ahead)	133	-	-	135	-	-	167	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A38 sliproad (north bound) (left)	373	0.57	1	378	0.58	1	409	0.63	2
A38 sliproad (north bound) (right)	51	0.11	0	52	0.12	0	52	0.12	0
A5192 Cappers Lane (west) (ahead)	543	-	-	552	-	-	552	-	-
A5192 Cappers Lane (west) (right)	0	0	0	0	0	0	0	0.00	0
A5192 Cappers Lane (east) (left)	0	-	-	0	-	-	0	-	-
A5192 Cappers Lane (east) (ahead)	129	-	-	131	-	-	142	-	-

7.2.69 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A5192 Eastern Avenue/Stafford Road

7.2.70 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 136 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 136: Future baseline performance at A5192 Eastern Avenue/Stafford Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Stafford Road (left + right)	172	0.38	1	176	0.4	1	176	0.43	1
Stafford Road (ahead)	657	-	-	672	-	-	787	-	-
A5192 Eastern Ave (west) (right)	227	0.35	1	232	0.36	1	232	0.38	1
A5192 Eastern Ave (west) (left)	105	-	-	107	-	-	107	-	-
A5192 Eastern Ave (east) (ahead)	349	-	-	357	-	-	472	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Stafford Road (left + right)	237	0.51	1	241	0.52	1	241	0.52	1
Stafford Road (ahead)	370	-	-	377	-	-	380	-	-
A5192 Eastern Ave (west) (right)	112	0.18	0	114	0.19	0	114	0.19	0
A5192 Eastern Ave (west) (left)	115	-	-	117	-	-	117	-	-
A5192 Eastern Ave (east) (ahead)	501	-	-	510	-	-	513	-	-

7.2.71 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

Wood End Lane/A38(T) Rykneld Street slip road (south-bound) (Hilliards Cross junction)

7.2.72 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 137 below for the existing layout of the junction. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 137: Future baseline performance at Wood End Lane/A38(T) Rykneld Street slip road (Hilliards Cross junction existing layout)

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
A38(T) Rykneld Street slip road (south-bound) (left)	253	0.53	1	276	0.64	2	276	1.24	19
A38(T) Rykneld Street slip road (south-bound) (right)	38	0.28	0	41	0.48	1	62	1.16	6
Wood End Lane (west) (ahead + right)	584	1.11	45	641	1.25	84	693	1.33	115
Wood End Lane (west) (ahead)	5	-	-	1	-	-	0	-	-
Wood End Lane (east) (left)	24	-	-	26	-	-	46	-	-
Wood End Lane (east) (ahead)	639	-	-	696	-	-	750	-	-
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
A38(T) Rykneld Street slip road (south-bound) (left)	181	0.34	1	197	3.55	50	244	-n/a	179
A38(T) Rykneld Street slip road (south-bound) (right)	21	0.26	0	23	3.16	7	61	-n/a	45
Wood End Lane (west) (ahead + right)	771	1.34	139	838	1.49	216	952	1.73	351
Wood End Lane (west) (ahead)	0	-	-	0	-	-	0	-	-
Wood End Lane (east) (left)	21	-	-	23	-	-	61	-	-
Wood End Lane (east) (ahead)	465	-	-	505	-	-	592	-	-

7.2.73 The model shows that this junction operates over its capacity in the AM and PM peak periods in both 2016 and 2023 (both with and without the addition of HS2 Phase One construction traffic), with the Wood End Lane (west) arm showing a queue length of 84 PCUs (without HS2 Phase One) which increases to 115 PCUs (with HS2 Phase One) in the AM Peak. In the PM Peak, the model was unable to report RFC values in all scenarios, but queue lengths of 216 (without HS2 Phase One) and 351 PCUs (with HS2 Phase One) are shown on the Wood End Lane (west) arm in 2023.

7.2.74 The junction was also considered for a future year of 2021 in the HS2 Phase One transport assessment. A mitigation scheme to signalise this junction was proposed and identified in the Supplementary Environmental Statement 3 and Additional

Provision 4 Environmental Statement[1] and referred to as the BR2 layout and incorporates the following features:

- Wood End Lane east-bound movement to be flared to two lanes at the junction with junction with a dedicated right turning lane and a separate straight ahead lane;
- Wood End Lane westbound to be flared to two lanes at the junction with the kerbside lane reserved for left turn and straight ahead movements and the offside lane reserved for straight ahead movements only; and
- left turn only from the A38(T) Rykneld Street slip road (right turn movement allowed in the existing layout).

7.2.75 As the BR2 layout has already been assessed in the HS2 Phase One assessment, the results of the HS2 Phase One future year baseline performance in 2021 for the AM and PM peak hours for the BR2 layout are shown in Table 138 below. As the junction is not affected by the operation of the Proposed Scheme future baseline results are presented for 2021 only.

7.2.76 In comparison to the 2023 baseline flows reported in Table 137 for the existing layout, the HS2 Phase One 2021 baseline flows (without the Prologis development) are similar for the AM peak but the PM peak are 10% higher.

Table 138: Future baseline performance at Wood End Lane/A38(T) Rykneld Street slip road (Hilliards Cross junction) BR2 layout

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
	2021 AM			**2021 with Prologis and Phase One**		
slip road - left turn	290	39%	5	392	54%	7
Wood End Lane (east)	658	48%	5	890	64%	7
Wood End Lane (west) ahead, right turn	399	49%	7	489	63%	9
Wood End Lane (west) right turn	351	47%	6	443	61%	8
	2021 PM			**2021 with Prologis and Phase One**		
slip road - left turn	232	26%	3	256	27%	3
Wood End Lane (east)	600	51%	5	715	63%	7
Wood End Lane (west) ahead, right turn	501	51%	7	655	64%	10
Wood End Lane (west) right turn	449	50%	7	600	63%	9

7.2.77 The model shows that the proposed BR2 junction layout operates within capacity in the AM and PM peak hours with minimal queuing on all approaches with HS2 Phase One construction traffic and the additional Prologis development traffic. The results

[1] HS2 Ltd (2015), *High Speed Rail (London – West Midlands) Supplementary Environmental Statement 3 and Additional Provision 4 Environmental Statement: Volume 5: Appendix TR-001-000,* https://www.gov.uk/government/collections/supplementary-environmental-statement-3-and-additional-provision-4-supplementary-environmental-information

indicate that the proposed BR2 layout adequately mitigates both HS2 Phase One construction impacts and the Prologis development.

A5192 Eastern Avenue/A51 Stafford Road/A51 Western Bypass

7.2.78 The future year baseline performance and the results for the AM and PM peak hours are shown in Table 139 below. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only (with and without HS2 Phase One construction traffic).

Table 139: Future baseline performance at A5192 Eastern Avenue/A51 Stafford Road/A51 Western Bypass junction

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
	2016 AM			**2023 AM**			**2023 future baseline with Phase One - AM**		
Exit Road from Innkeeper's Lodge Lichfield hotel	4	2%	0	4	2%	0	4	2%	0
A51 Western Bypass (south) ahead, right turn	911	87%	12	987	94%	16	987	101%	27
A5192 Eastern Ave (east) right turn	272	80%	8	298	94%	12	355	97%	16
A5192 Eastern Ave (east) left turn	153	19%	2	168	22%	3	168	21%	3
A51 Stafford Road (north) ahead	830	94%	17	902	94%	17	902	98%	22
A51 Stafford Road (north) left turn	580	83%	9	634	91%	12	691	96%	17
	2016 PM			**2023 PM**			**2023 future baseline with Phase One - PM**		
Exit Road from Innkeeper's Lodge Lichfield hotel	7	4%	0	7	4%	0	7	4%	0
A51 Western Bypass (south) ahead, right turn	1054	83%	21	1129	89%	25	1129	89%	25
A5192 Eastern Ave (east) right turn	406	83%	12	436	89%	14	439	90%	14
A5192 Eastern Ave (east) left turn	240	26%	3	257	32%	4	257	33%	4
A51 Stafford Road (north) ahead	583	102%	15	630	72%	8	630	69%	8
A51 Stafford Road (north) left turn	302	40%	3	325	41%	3	328	40%	3

7.2.79 The model shows that this junction is approaching capacity in the AM peak and PM peak at 2023, with an DoS value of 94% in the AM Peak on the Western Bypass, A5192 Eastern Avenue and Stafford Road arms. The corresponding queue lengths are 16, 12 and 17 PCUs respectively.

7.2.80 With the addition of HS2 Phase One construction traffic, the DoS values increase to 101%, 97% and 98% respectively, with queue lengths of 27, 16 and 22 PCU.

Accidents and safety

7.2.81 No issues have been identified for the future baseline network operation as a result of changes to the highway network or travel demands, and the accident and safety records for the existing baseline are assumed to provide a relevant basis for assessment.

Parking and loading

7.2.82 Compared to the existing baseline, no changes are assumed.

Public transport

Rail

7.2.83 Compared to the existing baseline, no changes are assumed.

Local bus services

7.2.84 Since it is not possible to forecast how services may change in the future, it has been assumed that bus services for the future years of assessment will be the same as those currently operating.

Public transport interchanges

7.2.85 Compared to the existing baseline, no changes are assumed.

Pedestrians, cyclists and equestrians

7.2.86 Compared to the existing baseline, no changes are assumed.

Waterways and Canals

7.2.87 Compared to the existing baseline, no changes are assumed.

7.3 CA1 Proposed Scheme construction description

7.3.1 This section provides an overview of the construction traffic and transport impacts for the section of the Proposed Scheme that will pass through the Fradley to Colton area.

7.3.2 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 Proposed Scheme and it is considered to be reasonably representative.

7.3.3 It is expected that some HS2 Phase One construction activities (from HS2 Phase One Community Forum Area 22, Whittington to Handsacre) will overlap with the construction of the Proposed Scheme. HS2 Phase One is expected to use a number of roads that will also be used in the construction of the Proposed Scheme in the area. These include: the A38 Rykneld Street; the A5192 Cappers Lane, the A515 Lichfield Road and Wood End Lane.

Construction activities

7.3.4 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 the works. The peak month that is assessed also includes cumulative impacts arising from construction in the adjoining community areas as well as for through movements through the area. The assessment also considers any substantial road closures that are proposed.

Compounds and construction sites

7.3.5 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. For the construction programme refer to Volume 2: Community Area 1, Fradley to Colton, section 2.3.

7.3.6 The location of the construction compounds and the associated access routes are shown in the TR-08 Map Series (Volume 5: Traffic and Transport Map Book) as summarised in Table 141.

7.3.7 Table 140 summarises the anticipated average and peak workforce to be required at each construction compound. It also provides details of the number of workers and staff.

Table 140: Assumed workforce at construction sites

Compound type	Location	Total Number of Workers		Number of workers (peak)	Number of Staff
		Average	Peak		
Satellite	Pyford Brook Viaduct satellite compound	8	12	8	2
Satellite	Pyford North Embankment satellite compound	20	30	20	5
Satellite	Bourne Embankment satellite compound	32	48	32	8
Satellite	River Trent Viaduct satellite compound	44	66	44	11
Satellite	Pipe Ridware Embankment satellite compound	24	36	24	6
Satellite	Blithbury Central Cutting satellite compound	24	36	24	6
Satellite	Blithbury North Cutting satellite compound	56	84	56	14
Satellite	Stockwell Heath Cutting satellite compound	20	30	20	5
Satellite	Moreton Brook satellite compound	4	6	4	1

Typical vehicle trip generation for construction site compounds in this area are shown in Table 141. For each compound the peak month of activity is the month within which HGV traffic is at its highest for that compound. The busy period is that 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, with the average daily combined two-way vehicle trips shown for the peak month is the upper end of the range shown in table below.

Table 141: Typical vehicle trip generation for construction site compounds in Fradley to Colton area

Compound type	Location	Access to / from compound to main road network	Indicative start/set up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/ LGV	HGV
Satellite	Pyford Brook viaduct satellite compound	Common Lane (south) for initial site set up and servicing and followed by site haul route thereafter to A515 Lichfield Road	January 2021	3 years and 6 months	4	16-22	87-109
Satellite	Pyford North Embankment satellite compound (including Bourne Brook auto-transformer station compound)	Common Lane (south) for initial site set up and servicing and followed by site haul route thereafter to A515 Lichfield Road	January 2021	Civil Engineering -3 years and 9 months	3	40-55	99-111
			October 2024	Railway System Works - 1 year and 3 months	10	57-84	up to 10
Transfer node	Transfer node associated with Pyford North Embankment satellite compound	A515 Lichfield Road	January 2021	4 years and 3 months	4	N/A	1,135-1,367
Transfer node	Transfer node associated with Bourne Embankment satellite compound	A513 Rugeley Road and on to the A515 Lichfield Road	January 2021	4 years and 3 months	11	N/A	339-474
Satellite	Bourne Embankment satellite compound	A513 Rugeley Road and on to the A515 Lichfield Road	January 2021	4 years and 3 months	4	64-88	86-107
Satellite	River Trent viaduct satellite compound	A513 Rugeley Road and on to the A515 Lichfield Road	January 2021	4 years 3 months	16	88-121	73-106

Compound type	Location	Access to / from compound to main road network	Indicative start/set up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/ LGV	HGV
Satellite	Pipe Ridware Embankment satellite compound (including Pipe Ridware auto-transformer station compound)	Access via diverted Pipe Lane for initial site set up and servicing and followed by site haul route thereafter to B5014 Uttoxeter Road, A513 Rugeley Road and on to A515 Lichfield Road	January 2021	Civil Engineering -3 years and 9 months	3	48-66	96-122
			October 2024	Railway system - 1 year and 3 months	10	57-84	up to 10
Satellite	Blithbury Crossovers satellite compound	Pipe Lane and site haul road to B5014 Uttoxeter Road, A513 Rugeley Road and on to A515 Lichfield Road	April 2025	9 months	3	18-30	up to 10
Satellite	Blithbury Central Cutting satellite compound	Blithbury Road and site haul road to B5014 Uttoxeter Road, A513 Rugeley Road and on to A515 Lichfield Road	January 2021	3 years and 6 months	Six	48-66	85-109
Satellite	Blithbury North Cutting satellite compound	Newlands Lane and site haul road to B5014 Uttoxeter Road, A513 Rugeley Road and on to A515 Lichfield Road	January 2021	4 years	15	112-154	68-88
Satellite	Newlands Lane auto-transformer feeder station satellite compound	Newlands Lane to Hollow Lane, Blithbury Road, B5014 Uttoxeter Road, A513 Rugeley Road and on to A515 Lichfield Road	January 2024	2 years	18	85-158	up to 10
Satellite	Stockwell Heath Cutting satellite compound	B5013 Uttoxeter Road and on to the A51	January 2021	4 years and 3 months	4	40-55	66-87
Satellite	Moreton Brook satellite compound	B5013 Uttoxeter Road and then via the site haul route constructed to the north of the route	January 2021	4 years and 3 months	2	8-11	67-82

Construction HGV routes

7.3.8 Construction vehicle movements required to construct the Proposed 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.

7.3.9 HGVs have been routed, where reasonably practicable, along the strategic or primary road network, although some access locations will be via secondary roads. In CA1, primary construction traffic routes from the SRN are as follows: the A38(T) Rykneld Street, the A51 Stafford Road, the A515 Lichfield Road, the A513 Rugeley Road and the A5192 Eastern Avenue. Where reasonably practicable the use of the local road network has been limited to site set up, access for environmental surveys and on-going servicing (including refuse collection and general deliveries).

7.3.10 The location of the compounds and the associated access routes are shown on the TR-08 Map Series (Volume 5: Traffic and Transport Map Book) that reflect the transport activity at each site during the busy period as summarised in Table 141.

7.3.11 Table 142 summarises the peak daily construction traffic flow, both in HGVs and total vehicles, on each link within CA1 that is a construction route.

Table 142: CA1 peak daily construction traffic flow

Location	Direction	Daily peak HGV, vehicles	Daily peak all vehicles
A38 Rykneld Street (between Burton Road and Rykneld Street/north bound Slip)	SB	138	159
	NB	136	155
A51 Birmingham Road (between Friary Road and St John Street)	NB	0	40
	SB	0	40
A51 Brereton Hill (between Brereton Hill Lane and Lea Hall Way)	NB	689	690
	SB	689	690
A51 Friary Avenue (between Friary Island and Birmingham Road)	SB	0	76
	NB	0	76
A51 Lea Hall Way (between Armitage Road and Brereton Hill)	NB	703	703
	SB	703	703
A51 Lea Hall Way (between Armitage Road and Wheelhouse Road)	NB	703	703
	SB	703	703
A51 Lea Hall Way (between Wheelhouse Road and Power Station Road)	NB	703	703
	SB	703	703
A51 Rugeley Eastern Bypass (between Colton Road and Lichfield Road)	WB	699	707

Location	Direction	Daily peak HGV, vehicles	Daily peak all vehicles
	EB	699	707
A51 Stafford Road (between Constitution Island and Brereton Hill Lane)	NB	689	690
	SB	689	690
A51 Stafford Road (between Eastern Avenue and Featherbed Lane)	NB	301	430
	SB	301	430
A51 Upper St John Street (between Birmingham Road and Tamworth Road)	SB	0	40
	NB	0	40
A515 Lichfield Road (between Common Lane and Proposed Scheme)	NB	318	418
	SB	318	418
A515 Lichfield Road (between Crawley Lane and Manor Road)	NB	0	72
	SB	0	72
A515 Lichfield Road (between Wood End Lane and Common Lane)	NB	834	936
	SB	834	936
A515 Lichfield Road (between Crawley Lane and Rugeley Road)	NB	0	72
	SB	0	72
A515 Tewnalls Lane (between Stafford Road and Wood End Lane)	NB	839	959
	SB	839	959
A51 Western Bypass (between Friary Island and Eastern Avenue)	NB	301	356
	SB	301	356
A5127 Trent Valley Road (between Eastern Avenue and Rykneld Street)	EB	267	290
	WB	267	290
A513 Alrewas Bypass from Kings Bromley Road to A38 at Croxall Road	EB	0	76
	WB	0	76
A513 Alrewas Road (between Yoxall Road and Ogreave Hall Lane)	EB	0	76
	WB	0	76
A513 Kings Bromley Lane (between Proposed Scheme and Uttoxeter Road)	WB	268	548
	EB	268	548
A513 Lichfield Road (between Rugeley Road and Proposed Scheme)	NB	318	418
	SB	318	418
A513 Rugeley Road (between Shaw Lane and Proposed Scheme)	WB	399	653
	EB	399	653
A5192 Cappers Lane (between Austin Cote Lane and Rykneld Street)	EB	76	135
	WB	76	135

Location	Direction	Daily peak HGV, vehicles	Daily peak all vehicles
A5192 Cappers Lane (between Trent Valley Road and Austin Cote Lane)	NB	68	92
	SB	68	92
A5192 Eastern Avenue (between Grange Lane and Stafford Road)	NB	301	356
	SB	301	356
A5192 Eastern Avenue (between Netherstone Lane and Grange Lane)	WB	301	356
	EB	301	356
A5192 Eastern Avenue (between Trent Valley Road and Netherstowe Lane)	NB	549	604
	SB	549	604
A5206 London Road (between Tamworth Road and A38)	SB	20	74
	NB	20	74
B5013 Colton Road (between Blithbury Road and Bellamour Way)	NB	46	69
	SB	46	69
B5013 Colton Road (between Rugeley Eastern Bypass and Blithbury Road)	EB	46	164
	WB	46	164
B5013 Uttoxeter Road (between Bellamour Lane and Colton Road)	WB	46	216
	EB	46	216
B5013 Uttoxeter Road (between Proposed Scheme and Moor Lane)	NB	46	155
	SB	46	155
B5013 Uttoxeter Road (between Moor Lane and Bellamour Lane)	NB	46	155
	SB	46	155
B5013 Uttoxeter Road (between Sherracop Lane and Proposed Scheme)	NB	46	155
	SB	46	155
B5014 Rake End Lane (between School Lane and Stoneyford Lane)	NB	96	151
	SB	96	151
B5014 Uttoxeter Road (between Blithbury Road and Proposed Scheme)	NB	96	151
	SB	96	151
B5014 Uttoxeter Road (between Blithbury Road and Seedcfroft Lane)	NB	2	2
	SB	2	2
B5014 Uttoxeter Road (between Common Lane and School Lane)	WB	193	301
	EB	193	301
B5014 Uttoxeter Road (between Kings Bromley Lane and Common Lane)	NB	122	277
	SB	122	277
B5014 Uttoxeter Road (between Stoneyford Lane and Proposed Scheme)	NB	96	151

Location	Direction	Daily peak HGV, vehicles	Daily peak all vehicles
	SB	96	151
Bellamour Lane (between Uttoxeter Road and Main Road)	WB	0	369
	EB	0	369
Bellamour Way (between High Street and Uttoxeter Road)	WB	0	157
	EB	0	157
Hollow Lane (between High Street and Blithbury Road)	EB	44	398
	WB	44	398
Blithbury Road (between Hadley Gate and Proposed Scheme)	WB	123	440
	EB	123	440
Blithbury Road (between Hollow Lane and Colton Road)	WB	0	156
	EB	0	156
Blithbury Road (between Pipe Lane and Dawson Lane)	EB	0	95
	WB	0	95
Blithbury Road (between Stoneyford Lane and Blithbury Road)	WB	44	229
	EB	44	229
Blithbury Road (between Uttoxeter Road and Pipe Lane)	EB	0	131
	WB	0	131
Blithbury Road (between Uttoxeter Road and Proposed Scheme)	WB	123	440
	EB	123	440
Wood End Lane (between Lichfield Road and Netherstowe Lane)	SB	170	374
	NB	170	374
Wood End Lane (between Gorse Lane and Nanscawen Road)	EB	173	355
	WB	173	355
Wood End Lane (between Rykneld Street and Wood End Lane/west-bound)	EB	254	500
	WB	254	500
Wood End Lane (between Brookhay Lane and Wood End Lane/west-bound)	WB	254	500
	EB	254	500
Dawson Lane (between Blithbury Road and Proposed Scheme)	SB	51	162
	NB	51	162
Dawson Lane (between Pipe Lane and Proposed Scheme)	NB	51	162
	SB	51	162
Pipe Lane (between Blithbury Road and Pipe Lane/south-bound)	SB	0	172
	NB	0	172

Location	Direction	Daily peak HGV, vehicles	Daily peak all vehicles
Pipe Lane (between Proposed Scheme and Quintons Orchard)	SB	0	77
	NB	0	77
Pipe Lane (between Pipe Lane/south-bound and Proposed Scheme)	SB	0	77
	NB	0	77
Common Lane (between Crawley Lane and Proposed Scheme)	WB	10	10
	EB	10	10
Common Lane (between Lichfield Road and Proposed Scheme)	EB	10	10
	WB	10	10
Newlands Lane (between High Street and Proposed Scheme/east-bound)	EB	68	71
	WB	68	71
Pipe Lane (north of Common Lane)	WB	51	126
	EB	51	126
Wood End Lane (between Gorse Lane and Netherstowe Lane)	SB	280	569
	NB	280	569
Wood End Lane (between Nanscawen Road and Rykneld Street)	EB	173	355
	WB	173	355

Traffic management, road closures and diversions

7.3.12 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing highways as well as traffic management. The construction of the Proposed Scheme has been carefully planned to limit disruption to travellers through any traffic management, road closures and diversions. Where closures are necessary, the general approach is to undertake the closures for short discrete periods to ensure that the impact on users is reduced. Section 4 of the TA, mitigation, sets out the general approach to construction. This includes constructing new roads prior to the closure of any existing roads where reasonably practicable.

7.3.13 Where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing road network, traffic control measures will be implemented and could include the provision of temporary signals or Roundabouts, which would be removed on completion of the works. These traffic control measures are not expected to have a substantial impact on traffic flows and delays for vehicle occupants and non-motorised road users.

7.3.14 Utilities works have been assessed in detail where they are major and where the traffic and transport impacts from the works separately, or in combination with other works, will be greater than other construction activities arising within the area. Minor utilities works are expected to result in only localised traffic and pedestrian diversions, which will be of short-term duration. No additional substantial impacts from these works are expected. Similarly other minor works will involve a low level of use of local roads. Such use is not expected to give rise to substantial construction traffic impacts.

7.3.15 Permanent road closures are addressed in the operational scheme section of this report.

PRoW closures and diversions

7.3.16 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing footpaths and roadside footways as well as some bridleways. The impact on footpaths (including roadside footways), cycleways and bridleway links along the route of the Proposed Scheme has been reduced, as far as reasonably practicable, through the design process. Section 4 of the TA, mitigation, documents the general approach to construction. This includes constructing new PRoW prior to the closure of any existing PRoW, where reasonably practicable.

7.3.17 As with highways, where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing PRoW network, active control measures will be implemented to manage the safety of PRoW users and could include staffed crossings and the provision of temporary gates or signals, which would be removed on completion of the works. These control measures are not expected to have a substantial impact on delays for pedestrian, cyclist or equestrian users of the network.

7.4 CA1 Proposed Scheme assessment of construction impacts

Key construction transport issues

7.4.1 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.

7.4.2 The construction assessment has also considered any impacts in this area that arise from construction of the Proposed Scheme in the adjoining community areas. The cumulative assessment considers any impacts associated with HS2 Phase One.

7.4.3 There will be temporary alternative routes for nine roads and 19 PRoW, which includes a temporary closure for one year and six months of Shaw Lane to facilitate its realignment.

Highway network

Highway closures and diversions

7.4.4 Temporary road or lane closures and associated diversions will be required in a number of locations.

7.4.5 In order to facilitate the construction of the Kings Bromley Viaduct and the realignment of Shaw Lane, a temporary road closure for one year and six months will be implemented, with an alternative diversion route available via the existing A515 Lichfield Road and A513 Rugeley Road. The temporary diversion is broadly the same length as the existing route and is not likely to have a substantial impact on traffic flows and delays for vehicle occupants, but may impact on non-motorised users and the impact on these is considered in the relevant section.

7.4.6 Construction works associated with the River Trent viaduct will require a short section of A513 Rugeley Road to be temporarily diverted over a length of 250m for a period of up to six month before returning to its existing alignment. The temporary diversion will not have a substantial impact on traffic flows and delays for vehicle occupants.

7.4.7 Temporary road or lane closures and associated diversions will be required in a number of locations including:

- the A515 Lichfield Road;
- A513 Rugeley Road;
- A515 Lichfield Road / A513 Rugeley Road - temporary Roundabout, temporary traffic management with traffic lights to safely control turning traffic;
- Shaw Lane;
- Pipe Lane;
- B5014 Uttoxeter Road;
- Blithbury Road;
- Newlands Lane;
- B5013 Uttoxeter Road; and
- Jonghams Lane.

7.4.8 These may involve lane closures and partial lane closures under traffic control for the tie-in of the 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. Therefore, 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

7.4.9 Table 143 summarises the temporary PRoW diversions and realignments required to accommodate the construction of the Proposed Scheme. In most cases this will also include the construction of diverted routes and accommodation over and underbridges, which will carry the permanent diversions of these PRoWs. In some cases PRoW revert to their pre-existing alignment after construction is completed.

Table 143: CA1 temporary PRoW diversions

PRoW name	Description	Change in length
Kings Bromley 0.392(a)	Diversion to the east around edge of borrow pit and on to unnamed lane 350m north-east of the existing junction. (Not affected in operation).	Temporary diversion is 1.2km longer.
Kings Bromley 0.390	Diversion to the west around viaduct piers and construction of realigned highway. Will be diverted to meet realigned A515 Lichfield Road once completed.	Temporary diversion is 100m longer.

PRoW name	Description	Change in length
Kings Bromley Footpath 1	Diverted around Echills Farm to the north, allowing for the construction of embankment. Continues to join A513 Rugeley Road, some 700m north of its existing junction, close to junction for the permanent diversion route.	Temporary diversion is 750m longer.
Kings Bromley Footpath 12	Diversion to the east around viaduct piers and construction of realigned highway. Extended to realigned A515 Lichfield Road once completed.	Temporary diversion is 50m longer.
Mavesyn Ridware 7	Diversion to the west around construction of the realigned B5014 Uttoxeter Road and Stonyford Lane on to existing B5014 Uttoxeter Road west of construction site.	Temporary diversion is 150m longer for travel west on B5014 Uttoxeter Road.
Mavesyn Ridware Footpath 8	Diverted to the south initially on permanent diversion route, then along with FP38, south of FP38 overbridge construction works. East of the proposed route, it follows FP38 and Pipe Lane to the site of original junction of FP 8 with Pipe Lane.	Temporary diversion is 800m longer for travel to the north but 600m shorter for travel to the south.
Hamstall Ridware 3	Diverted to the south around edge of borrow pit from just east of its junction with Mavesyn Ridware FP 30. Not affected in operation.	Temporary diversion is 200m longer.
Mavesyn Ridware Footpath 30	Diversion 40m to south for 250m around viaduct pier construction.	Temporary diversion is 50m longer
Mavesyn Ridware Footpath 32	Diverted to the east on Pipe Lane around the embankment construction site boundary then north parallel to realigned Dawsons Lane, following the route of Pipe Lane diversion works.	Temporary diversion is 100m longer.
Mavesyn Ridware Footpath 33	Diverted to the east on Pipe Lane around the embankment construction site boundary then north parallel to realigned Dawsons Lane, following the route of Pipe Lane diversion works.	Temporary diversion is 450m longer.
Mavesyn Ridware Footpath 38	Diverted to the south to allow accommodation overbridge construction.	Temporary diversion is under 50m shorter.
Colton Footpath 19	Minor diversion to the south around construction of Newlands Lane diversion route at junction with Long Mets Lane. Not affected in operation.	Temporary diversion is under 50m shorter.
Colton Bridleway 31 / 33	Diversion to the west of Longley Lane around access road construction site, from Newlands Lane junction (BW31) to Blithbury Road (BW33).	Temporary diversion is under 50m shorter.
Colton Bridleway 32	Minor diversion to the north around satellite compound. Not affected in operation	Temporary diversion is under 50m longer
Colton Footpath 34	Diversion to the south via access road and realigned Newlands Lane and using FP35 to return back to Newlands Lane towards the east.	Temporary diversion is 200m longer.

PRoW name	Description	Change in length
Colton Footpath 36	Temporary diversion north via Newlands Lane underbridge and returning south around construction site boundary.	Temporary diversion is 400m longer.
Colton Footpath 52	Temporary diversion south around construction site boundary and Narrow Lane on to Newlands Lane, then via underbridge and returning north via diverted FP76 on to Moor Lane, 100m south of existing junction.	Temporary diversion is 300m longer.
Colton Footpath 73	Diversion to the south around construction of new FP73 overbridge.	Temporary diversion is less than 50m.
Colton Footpath 76	Diversion east along Newlands Lane then back north around edge of construction site.	Temporary diversion is less than 50m.

Strategic and local road network traffic flows

7.4.10 During the construction period there will be a number of highway links that will be affected by the construction of the Proposed Scheme. An assessment of the impact of construction related vehicle movements and temporary diversions has been undertaken and is detailed below. 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.

7.4.11 Table 144 and Table 145 set out the 2023 traffic flows on highway links affected by construction traffic associated with the Proposed Scheme for the AM and PM peak hour respectively. Traffic flows on all other links are either unaffected from the future baseline or result in very minor increases.

7.4.12 To show the impact of the construction of the Proposed Scheme in these locations, traffic flows on affected links are presented for the 2023 future baseline, 2023 plus HS2 Phase One and 2023 HS2 Phase One plus the Proposed Scheme. Percentage increases are presented for the Proposed Scheme, considered alone (i.e. against 2023 plus HS2 Phase One) and considered cumulatively (i.e. combined with HS2 Phase One against the 2023 future baseline).

Table 144: 2023 future baseline and with the Proposed Scheme construction traffic (vehicles) - AM peak hour (08:00 – 09:00)

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A38 Rykneld Street (between Burton Road and Rykneld Street/NB Slip)	SB	456	7	472	9	478	21	1.2%	140.7%	4.9%	187.4%
	NB	484	10	492	11	504	24	2.5%	122.2%	4.2%	137.4%
A51 Brereton Hill (between Brereton Hill Lane and Lea Hall Way)	NB	716	22	716	22	785	90	9.7%	319.2%	9.7%	319.2%
	SB	908	23	908	23	977	92	7.6%	295.1%	7.6%	295.1%
A51 Lea Hall Way (between Armitage Road and Brereton Hill)	NB	733	18	733	18	803	88	9.6%	389.8%	9.6%	389.8%
	SB	737	23	737	23	807	94	9.5%	301.5%	9.5%	301.5%
A51 Lea Hall Way (between Armitage Road and Wheelhouse Road)	NB	932	17	932	17	1003	88	7.5%	404.2%	7.5%	404.2%
	SB	854	26	854	26	925	97	8.2%	266.1%	8.2%	266.1%
A51 Lea Hall Way (between Wheelhouse Road and Power Station Road)	NB	832	16	832	16	903	86	8.5%	453.4%	8.5%	453.4%
	SB	928	22	928	22	999	92	7.6%	322.8%	7.6%	322.8%
A51 Rugeley Eastern Bypass (between Colton Road and Lichfield Road)	WB	573	18	573	18	643	87	12.2%	397.2%	12.2%	397.2%
	EB	719	20	719	20	789	90	9.7%	353.3%	9.7%	353.3%
A51 Stafford Road (between Constitution Island and Brereton Hill Lane)	NB	628	21	628	21	697	90	11.0%	331.9%	11.0%	331.9%
	SB	1070	29	1070	29	1139	98	6.5%	238.7%	6.5%	238.7%
A51 Stafford Road (between Eastern Avenue and Featherbed Lane)	NB	648	12	705	12	720	42	2.1%	258.4%	11.2%	258.4%
	SB	1096	27	1154	27	1169	57	1.3%	110.2%	6.6%	110.2%
A515 Lichfield Road (between Common Lane and Proposed Scheme)	NB	205	18	244	18	262	50	7.7%	173.9%	28.2%	173.9%
	SB	354	11	393	11	412	42	4.8%	300.9%	16.3%	300.9%

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A515 Lichfield Road (between Wood End Lane and Common Lane)	NB	229	12	268	12	334	96	24.8%	678.6%	46.0%	678.6%
	SB	353	9	391	9	458	92	17.0%	974.3%	29.9%	974.3%
A515 Tewnalls Lane (between Stafford Road and Wood End Lane)	NB	404	22	508	30	517	106	1.7%	253.9%	27.9%	380.7%
	SB	450	25	554	32	563	108	1.5%	234.3%	25.0%	341.8%
A51 Western Bypass (between Friary Island and Eastern Avenue)	NB	648	14	706	14	706	45	0.0%	207.6%	8.8%	207.6%
	SB	464	11	521	11	521	41	0.0%	271.1%	12.4%	271.1%
A5127 Trent Valley Road (between Eastern Avenue and Rykneld Street)	EB	522	7	538	8	557	34	3.5%	317.5%	6.8%	369.0%
	WB	676	13	693	14	712	40	2.7%	183.0%	5.3%	202.2%
A513 Kings Bromley Lane (between Proposed Scheme and Uttoxeter Road)	WB	302	11	340	11	408	38	20.0%	243.8%	35.0%	243.8%
	EB	418	12	456	12	524	39	14.9%	220.7%	25.3%	220.7%
A513 Lichfield Road (between Rugeley Road and Proposed Scheme)	NB	205	18	244	18	262	50	7.7%	173.9%	28.2%	173.9%
	SB	354	11	393	11	412	42	4.8%	300.9%	16.3%	300.9%
A513 Rugeley Road (between Shaw Lane and Proposed Scheme)	WB	296	11	333	11	417	51	25.2%	364.7%	41.2%	364.7%
	EB	403	8	440	8	525	48	19.1%	472.9%	30.3%	472.9%
A5192 Cappers Lane (between Trent Valley Road and Austin Cote Lane)	NB	747	15	786	16	787	22	0.1%	36.9%	5.3%	45.0%
	SB	786	17	825	17	826	23	0.1%	33.9%	5.0%	41.1%
A5192 Eastern Avenue (between Grange Lane and Stafford Road)	NB	648	14	706	14	706	45	0.0%	207.6%	8.8%	207.6%
	SB	464	11	521	11	521	41	0.0%	271.1%	12.4%	271.1%
A5192 Eastern Avenue (between Netherstone Lane and Grange Lane)	WB	463	9	521	9	521	39	0.0%	343.0%	12.4%	343.0%
	EB	799	15	856	15	856	45	0.0%	195.0%	7.2%	195.0%

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A5192 Eastern Avenue (between Trent Valley Road and Netherstowe Lane)	NB	562	11	619	11	642	66	3.7%	498.3%	14.2%	498.3%
	SB	768	21	826	21	849	76	2.8%	262.3%	10.4%	262.3%
A5206 London Road (between Tamworth Road and A38)	SB	703	22	710	22	710	24	1.0%	9.2%	0.0%	9.2%
	NB	785	24	792	24	792	26	0.9%	8.3%	0.0%	8.3%
B5013 Colton Road (between Blithbury Road and Bellamour Way)	NB	361	6	361	6	368	11	1.9%	72.3%	1.9%	72.3%
	SB	289	10	289	10	296	15	2.4%	46.6%	2.4%	46.6%
B5013 Colton Road (between Rugeley Eastern Bypass and Blithbury Road)	EB	433	12	433	12	477	17	10.1%	38.5%	10.1%	38.5%
	WB	446	6	446	6	490	11	9.8%	76.3%	9.8%	76.3%
B5013 Uttoxeter Road (between Bellamour Lane and Colton Road)	WB	280	21	318	21	340	26	6.9%	21.6%	21.3%	21.6%
	EB	256	20	294	20	316	24	7.4%	23.6%	23.2%	23.6%
B5013 Uttoxeter Road (between Proposed Scheme and Moor Lane)	NB	268	12	268	12	288	17	7.5%	37.4%	7.5%	37.4%
	SB	277	11	277	11	297	15	7.3%	43.4%	7.3%	43.4%
B5013 Uttoxeter Road (between Moor Lane and Bellamour Lane)	NB	267	15	267	15	287	20	7.5%	30.8%	7.5%	30.8%
	SB	285	9	285	9	305	14	7.0%	50.4%	7.0%	50.4%
B5013 Uttoxeter Road (between Sherracop Lane and Proposed Scheme)	NB	268	12	268	12	288	17	7.5%	37.4%	7.5%	37.4%
	SB	277	11	277	11	297	15	7.3%	43.4%	7.3%	43.4%
B5014 Rake End Lane (between School Lane and Stoneyford Lane)	NB	117	6	121	6	141	15	16.6%	171.3%	19.8%	171.3%
	SB	123	6	126	6	146	15	15.8%	170.7%	18.9%	170.7%
B5014 Uttoxeter Road (between Blithbury Road and Proposed Scheme)	NB	79	4	82	4	102	13	24.3%	268.1%	29.5%	268.1%
	SB	99	3	102	3	122	13	19.6%	291.4%	23.6%	291.4%

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
B5014 Uttoxeter Road (between Blithbury Road and Seedcfroft Lane)	NB	95	4	95	4	96	5	0.2%	5.1%	0.2%	5.1%
	SB	136	6	136	6	137	7	0.2%	3.5%	0.2%	3.5%
B5014 Uttoxeter Road (between Common Lane and School Lane)	WB	128	6	135	6	174	26	29.7%	301.2%	36.3%	301.2%
	EB	212	5	218	5	258	25	18.3%	362.3%	22.0%	362.3%
B5014 Uttoxeter Road (between Kings Bromley Lane and Common Lane)	NB	152	2	190	2	211	14	11.4%	583.7%	39.0%	583.7%
	SB	240	2	278	2	300	15	7.7%	528.2%	24.6%	528.2%
B5014 Uttoxeter Road (between Stoneyford Lane and Proposed Scheme)	NB	79	4	82	4	102	13	24.3%	268.1%	29.5%	268.1%
	SB	99	3	102	3	122	13	19.6%	291.4%	23.6%	291.4%
Bellamour Lane (between Uttoxeter Road and Main Road)	WB	78	1	120	1	161	1	34.5%	0.0%	107.9%	0.0%
	EB	71	2	113	2	155	2	36.5%	0.0%	118.0%	0.0%
Bellamour Way (between High Street and Uttoxeter Road)	WB	85	1	123	1	141	1	14.7%	0.0%	65.6%	0.0%
	EB	52	2	90	2	108	2	19.9%	0.0%	106.1%	0.0%
Hollow Lane (between High Street and Blithbury Road)	EB	23	1	99	1	144	5	45.7%	455.9%	513.7%	455.9%
	WB	17	1	92	1	137	5	49.2%	879.2%	726.2%	879.2%
Blithbury Road (between Hadley Gate and Proposed Scheme)	WB	45	2	83	2	141	14	71.3%	659.1%	215.3%	659.1%
	EB	75	2	112	2	171	14	52.4%	665.5%	129.5%	665.5%
Blithbury Road (between Hollow Lane and Colton Road)	WB	82	5	82	5	124	5	51.5%	0.0%	51.5%	0.0%
	EB	87	3	87	3	130	3	48.2%	0.0%	48.2%	0.0%
Blithbury Road (between Pipe Lane and Dawson Lane)	EB	13	1	13	1	31	1	138.4%	0.0%	138.4%	0.0%
	WB	20	0	20	0	38	0	91.2%	0.0%	91.2%	0.0%

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Blithbury Road (between Stoneyford Lane and Blithbury Road)	WB	88	3	125	3	147	7	17.2%	172.2%	67.7%	172.2%
	EB	111	2	148	2	170	7	14.5%	182.4%	53.5%	182.4%
Blithbury Road (between Uttoxeter Road and Pipe Lane)	EB	44	0	80	0	86	0	95.6%	0.0%	8.7%	0.0%
	WB	29	1	64	1	71	1	10.80%	0.00%	147.80%	0.00%
Blithbury Road (between Uttoxeter Road and Proposed Scheme)	WB	45	2	83	2	141	14	71.3%	659.1%	215.3%	659.1%
	EB	75	2	112	2	171	14	52.4%	665.5%	129.5%	665.5%
Wood End Lane (between Lichfield Road and Netherstowe Lane)	SB	405	5	449	22	461	22	2.6%	0.0%	13.8%	361.0%
	NB	169	7	213	24	225	24	5.4%	0.0%	32.9%	254.5%
Wood End Lane (between Gorse Lane and Nanscawen Road)	EB	419	15	438	32	454	32	3.7%	0.0%	8.4%	118.3%
	WB	222	16	241	33	257	33	6.7%	0.0%	15.8%	108.7%
Wood End Lane (between Rykneld Street and Wood End Lane/WB)	EB	559	74	583	99	607	99	4.0%	0.0%	8.7%	34.4%
	WB	175	23	200	48	223	48	11.8%	0.0%	27.7%	110.0%
Wood End Lane (between Brookhay Lane and Wood End Lane/WB)	WB	175	23	200	48	223	48	11.8%	0.0%	27.7%	110.0%
	EB	559	74	583	99	607	99	4.0%	0.0%	8.7%	34.4%
Dawson Lane (between Blithbury Road and Proposed Scheme)	SB	1	0	1	0	34	5	6568.2%	N/A	6568.2%	N/A
	NB	3	0	3	0	36	5	1231.5%	N/A	1231.5%	N/A
Dawson Lane (between Pipe Lane and Proposed Scheme)	NB	3	0	3	0	36	5	1231.5%	N/A	1231.5%	N/A
	SB	1	0	1	0	34	5	6568.2%	N/A	6568.2%	N/A
Pipe Lane (between Blithbury Road and Pipe Lane/south-bound)	SB	3	0	73	0	73	0	0.0%	0.0%	2730.9%	0.0%
	NB	2	0	73	0	73	0	0.0%	N/A	3012.6%	N/A

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Pipe Lane (between Proposed Scheme and Quintons Orchard)	SB	2	0	38	0	38	0	0.0%	0.0%	1427.0%	0.0%
	NB	2	0	38	0	38	0	0.0%	0.0%	1636.2%	0.0%
Pipe Lane (between Pipe Lane/south-bound and the Proposed Scheme)	SB	2	0	38	0	38	0	0.0%	0.0%	1427.0%	0.0%
	NB	2	0	38	0	38	0	0.0%	0.0%	1636.2%	0.0%
Common Lane (between Crawley Lane and the Proposed Scheme)	WB	5	0	5	0	6	1	21.6%	471.0%	21.6%	471.0%
	EB	4	1	4	1	5	2	24.8%	176.6%	24.8%	176.6%
Common Lane (between Lichfield Road and the Proposed Scheme)	EB	4	1	4	1	5	2	24.8%	176.6%	24.8%	176.6%
	WB	5	0	5	0	6	1	21.6%	471.0%	21.6%	471.0%
Sherracope Lane(between Uttoxeter Road and Park Lane)	SEB	0	0	0	0	0	0	0.0%	N/A	0.0%	N/A
	NWB	1	0	1	0	1	0	0.0%	0.0%	0.0%	0.0%
Newlands Lane (between Moor Lane and close to Narrow Lane)	SB	4	0	4	0	4	0	0.0%	0.0%	0.0%	0.0%
	NB	3	0	3	0	3	0	0.0%	0.0%	0.0%	0.0%
Newlands Lane (between High Street and Proposed Scheme)	SB	4	0	4	0	4	0	0.0%	0.0%	0.0%	0.0%
	NB	3	0	3	0	3	0	0.0%	0.0%	0.0%	0.0%
Newlands Lane (between High Street and the Proposed Scheme/east-bound)	EB	2	0	2	0	9	7	305.9%	9510.0%	305.9%	9510.0%
	WB	2	0	2	0	9	7	367.0%	N/A	367.0%	N/A
Pipe Lane (north of Common Lane)	WB	28	1	63	1	67	6	5.6%	423.0%	138.9%	423.0%
	EB	16	1	51	1	55	6	7.0%	393.6%	249.4%	393.6%
Wood End Lane (between Gorse Lane and Netherstowe Lane)	SB	400	6	427	34	452	34	5.8%	0.0%	12.9%	445.8%
	NB	212	9	239	37	264	37	10.3%	0.0%	24.4%	304.2%

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Wood End Lane (between Nanscawen Road and Rykneld Street)	EB	401	29	420	46	436	46	3.8%	0.0%	8.7%	59.8%
	WB	339	29	358	46	374	46	4.5%	0.0%	10.3%	60.0%

Table 145: 2023 future baseline and with the Proposed Scheme construction traffic (vehicles) - PM peak hour (17:00 – 18:00)

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A38 Rykneld Street (between Burton Road and Rykneld Street/north bound slip)	SB	559	7	563	9	577	21	2.5%	144.0%	3.2%	192.6%
	NB	553	6	554	7	569	20	2.7%	181.8%	3.1%	211.5%
A51 Brereton Hill (between Brereton Hill Lane and Lea Hall Way)	NB	1030	22	1030	22	1099	91	6.7%	312.8%	6.7%	312.8%
	SB	664	17	664	17	733	85	10.4%	417.0%	10.4%	417.0%
A51 Lea Hall Way (between Armitage Road and Brereton Hill)	NB	850	20	850	20	920	91	8.3%	345.6%	8.3%	345.6%
	SB	795	16	795	16	865	87	8.9%	429.1%	8.9%	429.1%
A51 Lea Hall Way (between Armitage Road and Wheelhouse Road)	NB	894	15	894	15	964	86	7.9%	462.7%	7.9%	462.7%
	SB	1106	31	1106	31	1176	101	6.4%	228.9%	6.4%	228.9%
A51 Lea Hall Way (between Wheelhouse Road and Power Station Road)	NB	1080	14	1080	14	1150	84	6.5%	499.5%	6.5%	499.5%
	SB	895	14	895	14	965	85	7.9%	491.8%	7.9%	491.8%
A51 Rugeley Eastern Bypass (between Colton Road and Lichfield Road)	WB	937	11	937	11	1011	81	7.9%	608.8%	7.9%	608.8%
	EB	584	15	584	15	658	85	12.7%	457.6%	12.7%	457.6%
A51 Stafford Road (between Constitution Island and Brereton Hill Lane)	NB	1026	21	1026	21	1095	90	6.7%	324.9%	6.7%	324.9%
	SB	671	13	671	13	740	82	10.3%	519.8%	10.3%	519.8%
A51 Stafford Road (between Eastern Avenue and Featherbed Lane)	NB	1032	14	1034	14	1087	44	5.2%	219.1%	5.3%	219.1%
	SB	723	14	724	14	778	44	7.4%	209.5%	7.6%	209.5%
A515 Lichfield Road (between Common Lane and the Proposed Scheme)	NB	273	6	278	6	343	37	23.6%	572.1%	25.6%	572.1%
	SB	189	7	194	7	259	39	33.9%	469.7%	36.9%	469.7%

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A515 Lichfield Road (between Wood End Lane and Common Lane)	NB	318	2	322	2	438	86	36.0%	3463.2%	37.8%	3463.2%
	SB	244	7	249	7	364	90	46.6%	1228.9%	49.2%	1228.9%
A515 Tewnalls Lane (between Stafford Road and Wood End Lane)	NB	490	17	524	25	608	101	16.0%	304.6%	24.2%	491.9%
	SB	310	11	345	19	429	95	24.3%	406.3%	38.2%	776.4%
A51 Western Bypass (between Friary Island and Eastern Avenue)	NB	480	13	481	13	514	43	6.7%	226.2%	7.0%	226.2%
	SB	680	10	682	10	714	40	4.7%	306.3%	5.0%	306.3%
A5127 Trent Valley Road (between Eastern Avenue and Rykneld Street)	EB	576	5	579	6	607	32	4.8%	423.6%	5.3%	513.6%
	WB	655	9	658	10	686	36	4.3%	253.8%	4.6%	287.9%
A513 Kings Bromley Lane (between Proposed Scheme and Uttoxeter Road)	WB	433	8	438	8	528	35	20.7%	339.0%	21.9%	339.0%
	EB	266	5	271	5	361	31	33.5%	582.7%	35.6%	582.7%
A513 Lichfield Road (between Rugeley Road and Proposed Scheme)	NB	273	6	278	6	343	37	23.6%	572.1%	25.6%	572.1%
	SB	189	7	194	7	259	39	33.9%	469.7%	36.9%	469.7%
A513 Rugeley Road (between Shaw Lane and Proposed Scheme)	WB	429	10	433	10	542	49	25.3%	417.3%	26.5%	417.3%
	EB	264	4	269	4	378	43	40.7%	1118.5%	43.0%	1118.5%
A5192 Cappers Lane (between Austin Cote Lane and Rykneld Street)	EB	484	7	493	14	496	15	0.6%	9.5%	2.4%	101.6%
	WB	447	9	456	15	459	16	0.6%	8.7%	2.6%	86.2%
A5192 Cappers Lane (between Trent Valley Road and Austin Cote Lane)	NB	803	13	807	14	813	20	0.8%	42.3%	1.3%	52.0%
	SB	700	15	704	16	711	22	0.9%	36.6%	1.5%	44.7%
A5192 Eastern Avenue (between Grange Lane and Stafford Road)	NB	480	13	481	13	514	43	6.7%	226.2%	7.0%	226.2%
	SB	680	10	682	10	714	40	4.7%	306.3%	5.0%	306.3%

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A5192 Eastern Avenue (between Netherstone Lane and Grange Lane)	WB	874	8	875	8	908	38	3.7%	371.4%	3.9%	371.4%
	EB	520	13	521	13	554	44	6.2%	223.4%	6.5%	223.4%
A5192 Eastern Avenue (between Trent Valley Road and Netherstowe Lane)	NB	822	10	823	10	880	65	6.9%	554.6%	7.1%	554.6%
	SB	716	14	717	14	774	69	8.0%	381.6%	8.2%	381.6%
A5206 London Road (between Tamworth Road and A38)	SB	709	5	719	5	734	7	2.1%	36.6%	3.4%	36.6%
	NB	842	6	851	6	866	8	1.8%	30.8%	2.9%	30.8%
B5013 Colton Road (between Blithbury Road and Bellamour Way)	NB	311	2	315	2	339	7	7.5%	220.8%	9.0%	220.8%
	SB	295	2	299	2	323	6	7.9%	299.7%	9.5%	299.7%
B5013 Colton Road (between Rugeley Eastern Bypass and Blithbury Road)	EB	371	4	371	4	410	9	10.4%	110.4%	10.4%	110.4%
	WB	482	2	482	2	520	7	8.0%	209.8%	8.0%	209.8%
B5013 Uttoxeter Road (between Bellamour Lane and Colton Road)	WB	307	4	311	4	358	8	14.9%	123.4%	16.5%	123.4%
	EB	256	3	261	3	307	8	17.8%	147.8%	19.8%	147.8%
B5013 Uttoxeter Road (between Proposed Scheme and Moor Lane)	NB	253	4	253	4	275	8	8.7%	128.6%	8.7%	128.6%
	SB	284	6	284	6	306	11	7.8%	73.9%	7.8%	73.9%
B5013 Uttoxeter Road (between Moor Lane and Bellamour Lane)	NB	256	2	256	2	278	6	8.6%	252.1%	8.6%	252.1%
	SB	290	6	290	6	312	11	7.6%	73.9%	7.6%	73.9%
B5013 Uttoxeter Road (between Sherracop Lane and Proposed Scheme)	NB	253	4	253	4	275	8	8.7%	128.6%	8.7%	128.6%
	SB	284	6	284	6	306	11	7.8%	73.9%	7.8%	73.9%
B5014 Rake End Lane (between School Lane and Stoneyford Lane)	NB	105	2	105	2	132	12	25.9%	418.7%	25.9%	418.7%
	SB	102	2	102	2	129	12	26.8%	454.2%	26.8%	454.2%

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
B5014 Uttoxeter Road (between Blithbury Road and Proposed Scheme)	NB	73	1	73	1	101	11	37.1%	800.0%	37.1%	800.0%
	SB	64	1	64	1	91	10	42.6%	1140.4%	42.6%	1140.4%
B5014 Uttoxeter Road (between Blithbury Road and Seedcfroft Lane)	NB	88	2	88	2	88	2	0.3%	11.2%	0.3%	11.2%
	SB	95	7	95	7	95	7	0.2%	3.3%	0.2%	3.3%
B5014 Uttoxeter Road (between Common Lane and School Lane)	WB	176	2	176	2	230	22	31.0%	831.0%	31.0%	831.0%
	EB	103	2	103	2	158	22	52.7%	812.1%	52.7%	812.1%
B5014 Uttoxeter Road (between Kings Bromley Lane and Common Lane)	NB	210	1	215	1	258	13	20.1%	1584.3%	22.6%	1584.3%
	SB	147	1	151	1	195	14	28.6%	924.2%	32.3%	924.2%
B5014 Uttoxeter Road (between Stoneyford Lane and the Proposed Scheme)	NB	73	1	73	1	101	11	37.1%	800.0%	37.1%	800.0%
	SB	64	1	64	1	91	10	42.6%	1140.4%	42.6%	1140.4%
Bellamour Lane (between Uttoxeter Road and Main Road)	WB	62	1	67	1	141	1	112.4%	0.0%	127.2%	0.0%
	EB	53	1	57	1	132	1	130.4%	0.0%	149.2%	0.0%
Bellamour Way (between High Street and Uttoxeter Road)	WB	49	1	49	1	79	1	61.1%	0.0%	61.1%	0.0%
	EB	81	1	81	1	111	1	37.1%	0.0%	37.1%	0.0%
Hollow Lane (between High Street and Blithbury Road)	EB	21	0	21	0	109	5	415.7%	1367.3%	415.7%	1367.3%
	WB	25	0	25	0	113	5	350.7%	2461.1%	350.7%	2461.1%
Blithbury Road (between Hadley Gate and the Proposed Scheme)	WB	52	1	56	1	146	13	159.5%	1671.3%	181.1%	1671.3%
	EB	43	1	47	1	137	13	190.1%	1557.4%	219.5%	1557.4%

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Blithbury Road (between Hollow Lane and Colton Road)	WB	84	3	88	3	132	3	50.7%	0.0%	58.5%	0.0%
	EB	69	1	73	1	118	1	61.0%	0.0%	71.2%	0.0%
Blithbury Road (between Pipe Lane and Dawson Lane)	EB	15	0	15	0	41	0	169.8%	0.0%	169.8%	0.0%
	WB	14	1	14	1	40	1	186.1%	0.0%	186.1%	0.0%
Blithbury Road (between Stoneyford Lane and Blithbury Road)	WB	82	1	86	1	132	5	53.9%	447.5%	62.1%	447.5%
	EB	88	1	92	1	138	5	50.4%	424.3%	57.8%	424.3%
Blithbury Road (between Uttoxeter Road and Pipe Lane)	EB	26	0	30	0	55	0	81.9%	0.0%	112.0%	0.0%
	WB	34	0	38	0	63	0	65.0%	N/A	85.9%	N/A
Blithbury Road (between Uttoxeter Road and the Proposed Scheme)	WB	52	1	56	1	146	13	159.5%	1671.3%	181.1%	1671.3%
	EB	43	1	47	1	137	13	190.1%	1557.4%	219.5%	1557.4%
Wood End Lane (between Lichfield Road and Netherstowe Lane)	SB	143	5	239	22	245	22	2.3%	0.0%	71.6%	331.1%
	NB	447	5	544	22	549	22	1.0%	0.0%	22.9%	370.6%
Wood End Lane (between Gorse Lane and Nanscawen Road)	EB	183	9	277	26	281	26	1.3%	0.0%	53.3%	200.2%
	WB	501	30	596	47	599	47	0.6%	0.0%	19.5%	57.6%
Wood End Lane (between Rykneld Street and Wood End Lane/west-bound)	EB	469	45	601	70	607	70	1.1%	0.0%	29.6%	56.6%
	WB	237	23	369	48	375	48	1.8%	0.0%	58.5%	112.0%
Wood End Lane (between Brookhay Lane and Wood End Lane/west-bound)	WB	237	23	369	48	375	48	1.8%	0.0%	58.5%	112.0%
	EB	469	45	601	70	607	70	1.1%	0.0%	29.6%	56.6%
Dawson Lane (between Blithbury Road and the Proposed Scheme)	SB	1	0	1	0	43	5	2844.4%	N/A	2844.4%	N/A
	NB	1	0	1	0	42	5	6339.0%	N/A	6339.0%	N/A

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Dawson Lane (between Pipe Lane and the Proposed Scheme)	NB	1	0	1	0	42	5	6339.0%	N/A	6339.0%	N/A
	SB	1	0	1	0	43	5	2844.4%	N/A	2844.4%	N/A
Pipe Lane (between Blithbury Road and Pipe Lane/south-bound)	SB	1	0	10	0	32	0	225.3%	N/A	2588.7%	N/A
	NB	2	0	10	0	33	0	214.4%	0.0%	1820.6%	0.0%
Pipe Lane (between Proposed Scheme and Quintons Orchard)	SB	3	0	8	0	15	0	93.8%	N/A	349.8%	N/A
	NB	1	0	5	0	13	0	130.1%	0.0%	992.9%	0.0%
Pipe Lane (between Pipe Lane/south-bound and the Proposed Scheme)	SB	3	0	8	0	15	0	93.8%	N/A	349.8%	N/A
	NB	1	0	5	0	13	0	130.1%	0.0%	992.9%	0.0%
Common Lane (between Crawley Lane and the Proposed Scheme)	WB	3	0	3	0	4	1	29.1%	472.0%	29.1%	472.0%
	EB	2	0	2	0	3	1	59.4%	708.0%	59.4%	708.0%
Common Lane (between Lichfield Road and the Proposed Scheme)	EB	2	0	2	0	3	1	59.4%	708.0%	59.4%	708.0%
	WB	3	0	3	0	4	1	29.1%	472.0%	29.1%	472.0%
Sherracope Lane (between Uttoxeter Road and Park Lane)	SEB	1	0	1	0	2	0	203.0%	0.0%	203.0%	0.0%
	NWB	4	0	4	0	5	0	29.0%	0.0%	29.0%	0.0%
Newlands Lane (between Moor Lane and close to Narrow Lane)	SB	10	0	10	0	11	0	12.3%	0.0%	12.3%	0.0%
	NB	3	0	3	0	4	0	41.6%	0.0%	41.6%	0.0%
Newlands Lane (between High Street and the Proposed Scheme)	SB	10	0	10	0	11	0	12.3%	0.0%	12.3%	0.0%
	NB	3	0	3	0	4	0	41.6%	0.0%	41.6%	0.0%
Newlands Lane (between High Street and the Proposed Scheme/east-bound)	EB	1	0	1	0	9	7	1063.5%	N/A	1063.5%	N/A
	WB	1	0	1	0	9	7	590.8%	9507.2%	590.8%	9507.2%

Location	Direction	2023 baseline		2023 with HS2 Phase One		2023 with HS2 Phase One plus 2a		Phase 2a % change		With HS2 Phase One & 2a % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Pipe Lane (north of Common Lane)	WB	20	0	24	0	40	5	65.6%	1888.8%	101.5%	1888.8%
	EB	24	1	29	1	45	6	56.1%	629.6%	84.0%	629.6%
Wood End Lane (between Gorse Lane and Netherstowe Lane)	SB	176	7	335	35	341	35	1.9%	0.0%	93.8%	425.0%
	NB	452	6	611	34	617	34	1.0%	0.0%	36.6%	446.9%
Wood End Lane (between Nanscawen Road and Rykneld Street)	EB	281	16	375	33	379	33	0.9%	0.0%	34.8%	110.4%
	WB	462	49	556	66	560	66	0.6%	0.0%	21.2%	35.5%

Summary of link flows

7.4.13 The results show that in the AM and PM peak hours strategic and primary routes such as the A38(T) Rykneld Street and A51 corridor are generally shown to see increases in total vehicle traffic of less than 12% as a result of the Proposed Scheme construction traffic. Increases in HGV traffic in both time periods are generally higher than this in percentage terms. However, this is a result of a relatively low number of HGVs forecast in the future baseline.

7.4.14 Other roads identified as construction routes show a similar pattern, with high percentage increases in HGVs, but with 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 Stafford Road between the A5192 Eastern Avenue and the boundary with the Colwich to Yarlet area (CA2);
- A515 Lichfield Road between the A51 Stafford Road and the Proposed Scheme;
- A513 Rugeley Road/King's Bromley Lane between Shaw Lane and B5014 Uttoxeter Road;
- B5014 Uttoxeter Road between Stonyford Lane and Common Lane;
- B5014 Uttoxeter Road between the A513 Rugeley Road and Common Lane;
- B5013 Uttoxeter Road between the Proposed Scheme and Bellamour Lane;
- Blithbury Road between the B5014 Uttoxeter Road and Hollow Lane;
- Newlands Lane between the B5014 Uttoxeter Road and the Proposed Scheme
- Dawson Lane between Pipe Lane and the Proposed Scheme;
- Pipe Lane between School Lane and Pipe Wood Lane;
- Common Lane between the A515 Lichfield Road and the Proposed Scheme; and
- Hollow Lane between Blithbury Road and Colton Bridleway 33.

7.4.15 Consideration of both the Proposed Scheme and construction traffic associated with HS2 Phase One cumulatively has also been assessed and identifies that there would be substantial increases in traffic for the Proposed Scheme and HS2 Phase One in combination at the following locations:

- A515 Lichfield Road between Wood End Lane and the Proposed Scheme;
- Blithbury Road between the B5014 Uttoxeter Road and Hollow Lane; and
- Pipe Lane between Blithbury Road and the Proposed Scheme.

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

Junction performance 2023

7.4.17 The following tables and commentary set out the performance at junctions where there is the potential for the Proposed Scheme in isolation with HS2 Phase One in the baseline or in combination with HS2 Phase One to have substantial impacts. The impact of the Proposed Scheme in isolation can be assessed by comparing the results with the Proposed Scheme and HS2 Phase One against those including HS2 Phase One only. The combined impact can be assessed by comparing the combined results against the future baseline without HS2 Phase One.

7.4.18 As for the future baseline, the results are presented in the order of Roundabout junctions, priority controlled (give-way) and signalised junctions. 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.

Lancaster Road/Wood End Lane/Wellington Crescent

7.4.19 Table 146 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 146: Lancaster Road/Wood End Lane/Wellington Crescent junction 2023 future baseline and with the Proposed Scheme junction capacity assessment results

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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Wood End Lane (west)	90	0.06	0	90	0.06	0	90	0.06	0
Lancaster Road	522	0.18	0	573	0.2	0	573	0.2	0
Wood End Lane (east)	29	0.02	0	29	0.02	0	29	0.02	0
Wellington Crescent	682	0.26	0	733	0.28	1	733	0.28	1
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Wood End Lane (west)	209	0.12	0	209	0.13	0	209	0.13	0
Lancaster Road	423	0.14	0	536	0.18	0	536	0.18	0
Wood End Lane (east)	195	0.12	0	195	0.13	0	195	0.13	0
Wellington Crescent	372	0.14	0	486	0.19	0	486	0.19	0

7.4.20 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any

substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

Common Lane/Wood End Lane

7.4.21 Table 147 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 147: Common Lane/Wood End Lane junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Wood End Lane (west)	563	0.31	1	614	0.34	1	614	0.34	1
Common Lane	472	0.14	0	472	0.14	0	472	0.14	0
Wood End Lane (east)	300	0.1	0	351	0.12	0	351	0.12	0
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Wood End Lane (west)	390	0.22	0	504	0.28	0	504	0.28	0
Common Lane	424	0.14	0	424	0.15	0	424	0.15	0
Wood End Lane (east)	463	0.16	0	577	0.19	0	577	0.19	0

7.4.22 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

Wood End Lane/Gorse Lane/Tesco access

7.4.23 Table 148 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 148: Wood End Lane/Gorse Lane/Tesco access junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Gorse Lane	102	0.08	0	102	0.08	0	102	0.08	0
Tesco Access	0	0	0	0	0	0	0	0	0
Wood End Lane (east)	255	0.17	0	331	0.22	0	331	0.22	0
Wood End Lane (west)	400	0.29	0	476	0.34	1	476	0.34	1
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Gorse Lane	77	0.05	0	77	0.06	0	77	0.06	0
Tesco Access	0	0	0	0	0	0	0	0	0
Wood End Lane (east)	541	0.36	1	731	0.49	1	731	0.49	1
Wood End Lane (west)	190	0.14	0	379	0.28	0	379	0.28	0

7.4.24 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

A515 Featherbed Lane/A51 Stafford Road

7.4.25 Table 149 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 149: A515 Featherbed Lane/A51 Stafford Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Stafford Road (north)	1370	0.69	2	1370	0.71	3	1511	0.77	4
A515 Featherbed Lane	445	0.41	1	555	0.51	1	641	0.59	2
A51 Stafford Road (south)	934	0.46	1	1044	0.52	1	990	0.51	1
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Stafford Road (north)	726	0.37	1	726	0.38	1	867	0.45	1
A515 Featherbed Lane	431	0.32	1	474	0.35	1	633	0.47	1
A51 Stafford Road (south)	1370	0.7	2	1414	0.72	3	1432	0.76	3

7.4.26 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic.

7.4.27 In comparison with the 2023 future baseline (including HS2 Phase One), the addition of the Proposed Scheme construction traffic results in the A51 Stafford Road (north) arm showing an increase in RFC from 0.71 to 0.77 with corresponding increase in queue length from three to four PCUs in the AM peak. The A51 Stafford Road (south) arm shows an increase in RFC from 0.72 to 0.76 with corresponding increase in queue length from two to three PCUs in the PM peak. The addition of the Proposed Scheme construction traffic therefore does not result in any substantial increases in queuing or RFC from the future baseline (including HS2 Phase One).

7.4.28 While the increase in RFC compared to the future baseline without HS2 Phase One is greater, the junction remains within capacity.

A51 Western Bypass/The Friary/Friary Avenue/Friary Road

7.4.29 Table 150 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 150: A515 Western Bypass/The Friary/Friary Avenue/Friary Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Western Bypass	1013	0.62	2	1013	0.62	2	1032	0.63	2
The Friary	526	0.21	0	526	0.21	0	526	0.22	0
Friary Avenue	39	0.04	0	39	0.04	0	39	0.04	0
A51 The Friary / Friary Road	908	0.43	1	908	0.43	1	927	0.44	1
Friary Road	852	0.47	1	852	0.47	1	852	0.48	1
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Western Bypass	1059	0.67	2	1059	0.67	2	1083	0.68	2
The Friary	802	0.36	1	802	0.36	1	802	0.36	1
Friary Avenue	80	0.12	0	80	0.12	0	80	0.13	0
A51 The Friary / Friary Road	825	0.65	2	825	0.65	2	850	0.67	2
Friary Road	655	0.4	1	655	0.4	1	655	0.41	1

7.4.30 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

A51 Lea Hall Way/A51 Brereton Hill/A460 Brereton Hill

7.4.31 Table 151 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 151: A51 Lea Hall Way/A51 Brereton Hill/A460 Brereton Hill junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Lea Hall Way	1048	0.68	2	1048	0.68	2	1189	0.77	4
A51 Brereton Hill (south)	1006	0.61	2	1006	0.61	2	1144	0.7	3
A460 Brereton Hill	746	0.45	1	746	0.45	1	748	0.48	1
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Lea Hall Way	825	0.55	1	825	0.55	1	965	0.64	2
A51 Brereton Hill (south)	1063	0.61	2	1063	0.61	2	1201	0.69	3
A460 Brereton Hill	1080	0.71	3	1080	0.71	3	1082	0.76	3

7.4.32 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic.

7.4.33 In comparison with the 2023 future baseline (including HS2 Phase One), the addition of the Proposed Scheme construction traffic results in the A51 Lea Hall Way arm showing an increase in RFC from 0.68 to 0.77 with corresponding increase in queue length from two to four PCUs in the AM peak. A460 Brereton Hill arm shows an increase in RFC from 0.71 to 0.76 with queue lengths maintained at three PCUs. The addition of the Proposed Scheme construction traffic therefore does not result in any substantial increases in queuing or RFC from the future baseline (including HS2 Phase One).

7.4.34 While the increase in RFC compared to the future baseline without HS2 Phase One is greater, the junction remains within capacity.

A51 Lea Hal Way/A513 Armitage Road

7.4.35 Table 152 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 152: A51 Lea Hall Way/A513 Armitage Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Lea Hall Way (north)	917	0.66	2	917	0.66	2	1057	0.76	4
A513 Armitage Road (east)	718	0.58	1	718	0.58	1	718	0.62	2
A51 Lea Hall Way (south)	751	0.5	1	751	0.49	1	891	0.59	2
A513 Armitage Road (west)	328	0.35	1	328	0.35	1	328	0.39	1
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Lea Hall Way (north)	1114	0.81	4	1114	0.81	4	1254	0.91	10
A513 Armitage Road (east)	797	0.66	2	797	0.66	2	797	0.72	3
A51 Lea Hall Way (south)	898	0.64	2	898	0.64	2	1039	0.74	3
A513 Armitage Road (west)	306	0.36	1	306	0.36	1	306	0.4	1

7.4.36 The results show that the junction operates close to capacity in 2023 with the addition of Proposed Scheme construction traffic.

7.4.37 In comparison with the 2023 future baseline (including HS2 Phase One), the addition of the Proposed Scheme construction traffic results in the A51 Lea Hall Way (north) arm showing an increase in RFC from 0.81 to 0.91 with corresponding increase in queue length from four to 10 PCUs in the PM peak. Although the junction moves closer to capacity, the addition of the Proposed Scheme construction traffic does not result in any substantial increases in queuing or RFC from the future baseline (including HS2 Phase One).

7.4.38 While the increase in RFC compared to the future baseline without HS2 Phase One is greater, the junction remains within capacity.

A51 Lea Hall Way/Wheelhouse Road

7.4.39 Table 153 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 153: A51 Lea Hall Way/Wheelhouse Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Lea Hall Way (south)	936	0.56	1	936	0.56	1	1077	0.64	2
Wheelhouse Road	113	0.11	0	113	0.11	0	113	0.12	0
A51 Lea Hall Way (north)	945	0.49	1	945	0.49	1	1085	0.57	2
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Lea Hall Way (south)	1012	0.56	1	1012	0.56	1	1152	0.64	2
Wheelhouse Road	351	0.39	1	351	0.39	1	351	0.43	1
A51 Lea Hall Way (north)	845	0.47	1	845	0.47	1	985	0.55	1

7.4.40 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

A51 Rugeley Bypass/A51 Lea Hall Way/Power Station Road

7.4.41 Table 154 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 154: A51 Rugeley Eastern Bypass/A51 Lea Hall Way/Power Station Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Rugeley Eastern Bypass	846	0.44	1	846	0.44	1	986	0.51	1
Power Station access	0	0	0	0	0	0	0	0	0
A51 Lea Hall Way	791	0.37	1	791	0.37	1	932	0.44	1
Power Station Road	210	0.12	0	210	0.12	0	210	0.12	0
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 Rugeley Eastern Bypass	566	0.3	0	566	0.3	0	706	0.38	1
Power Station access	13	0.01	0	13	0.01	0	13	0.01	0
A51 Lea Hall Way	1116	0.52	1	1116	0.52	1	1257	0.59	2
Power Station Road	293	0.18	0	293	0.18	0	293	0.19	0

7.4.42 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

A51 Rugeley Eastern Bypass/B5013 Station Road

7.4.43 Table 155 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 155: A51 Rugeley Eastern Bypass/B5013 Station Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 (north) Rugeley Eastern Bypass	846	0.5	1	846	0.5	1	986	0.6	2
B5013 Station Road (east)	446	0.34	1	446	0.34	1	466	0.38	1
A51 (south) Rugeley Eastern Bypass	579	0.33	1	579	0.33	1	717	0.42	1
B5013 Station Road (west)	445	0.36	1	444	0.35	1	463	0.4	1
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 (north) Rugeley Eastern Bypass	647	0.39	1	647	0.39	1	791	0.49	1
B5013 Station Road (east)	511	0.36	1	511	0.36	1	537	0.4	1
A51 (south) Rugeley Eastern Bypass	807	0.49	1	807	0.49	1	945	0.58	2
B5013 Station Road (west)	489	0.43	1	488	0.43	1	508	0.48	1

7.4.44 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

A5192 Cappers Lane/Austin Cote Lane/Europa Way

7.4.45 Table 156 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 156: A5192 Cappers Lane/Austin Cote Lane/Europa Way junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Europa Way	231	0.23	0	231	0.23	0	231	0.23	1
A5192 Cappers Road (east)	556	0.46	1	604	0.49	1	604	0.49	1
Austin Cote Lane	539	0.54	1	539	0.55	1	539	0.55	2
A5192 Cappers Road (west)	852	0.67	2	900	0.71	3	900	0.71	2
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Europa Way	421	0.43	1	421	0.44	1	421	0.44	1
A5192 Cappers Road (east)	528	0.49	1	547	0.51	1	546	0.51	1
Austin Cote Lane	399	0.39	1	399	0.39	1	399	0.39	1
A5192 Cappers Road (west)	790	0.56	1	810	0.57	1	809	0.57	1

7.4.46 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One. While the increase in RFC compared to the future baseline without HS2 Phase One is greater, the junction remains within capacity.

A5192 Eastern Avenue/A5127 Burton Road/A5192 Cappers Lane/A5127 Trent Valley Road

7.4.47 Table 157 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 157: A5192/A5127 Trent Valley Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A5192 Eastern Ave (north)	736	0.64	2	794	0.69	2	871	0.76	3
A5127 Burton Road (east)	654	0.68	2	674	0.72	3	717	0.78	4
A5192 Cappers Road (south)	723	0.72	3	763	0.77	3	796	0.82	5
A5127 Trent Valley Road (west)	576	0.79	4	576	0.83	5	576	0.89	7
Valley Lane	125	0.31	1	125	0.34	1	125	0.38	1
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A5192 Eastern Ave (north)	694	0.55	1	697	0.55	1	806	0.63	2
A5127 Burton Road (east)	860	0.8	4	864	0.81	4	916	0.88	7
A5192 Cappers Road (south)	769	0.85	5	776	0.86	6	830	0.95	13
A5127 Trent Valley Road (west)	578	0.92	8	578	0.92	9	578	1.01	18
Valley Lane	84	0.25	0	84	0.26	0	84	0.29	0

7.4.48 The results show that the junction operates close to capacity in the 2023 baseline and over capacity with the addition of the Proposed Scheme construction traffic.

7.4.49 In comparison with the 2023 future baseline (including HS2 Phase One), the addition of the Proposed Scheme construction traffic results in the A5127 Trent Valley Road (west) arm showing an increase in RFC from 0.92 to 1.01 with corresponding increase in queue length from eight to eighteen PCUs in the PM peak. Although the junction moves closer to capacity, the addition of the Proposed Scheme construction traffic does not result in any substantial increases in queuing or RFC from the future baseline (including HS2 Phase One), taking into account that the junction is already shown to operate close to capacity in the future baseline (including HS2 Phase One).

7.4.50 There are no substantial differences in the impact of the Proposed Scheme when considered cumulatively alongside the HS2 Phase One construction traffic to those described above.

Blithbury Lane/Hadley Gate

7.4.51 Table 158 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 158: Blithbury Lane/Hadley Gate junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and the Proposed Scheme**		
Hadley Gt (left + right)	0	0	0	0	0.00	0	0	0	0
Blithbury Road (east) (ahead)	42	-	-	79	-	-	104	-	-
Blithbury Road (east) (right)	0	0	0	0	0.00	0	0	0	0
Blithbury Road (west) (left)	0	-	-	0	-	-	0	-	-
Blithbury Road (west) (ahead)	85	-	-	123	-	-	149	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Hadley Gt (left + right)	0	0	0	0	0.00	0	0	0	0
Blithbury Road (east) (ahead)	48	-	-	57	-	-	104	-	-
Blithbury Road (east) (right)	1	0	0	1	0.00	0	1	0	0
Blithbury Road (west) (left)	1	-	-	1	-	-	1	-	-
Blithbury Road (west) (ahead)	43	-	-	51	-	-	98	-	-

7.4.52 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A515 Lichfield Road/Common Lane/Shaw Lane

7.4.53 Table 159 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 159: A515 Lichfield Road/Common Lane/Shaw Lane junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Common Lane (ahead + left + right)	0	0	0	0	0	0	0	0	0
A515 Lichfield Road (north) (ahead + left + right)	4	0.01	0	4	0.01	0	6	0.01	0
A515 Lichfield Road (north) (left)	2	-	-	2	-	-	2	-	-
A515 Lichfield Road (north) (ahead)	373	-	-	412	-	-	560	-	-
Shaw Lane (ahead + left + right)	8	0.02	0	8	0.02	0	8	0.02	0
A515 Lichfield Road (south) (ahead + left + right)	3	0.01	0	4	0.01	0	5	0.01	0
A515 Lichfield Road (south) (left)	2	-	-	2	-	-	2	-	-
A515 Lichfield (south) (ahead)	237	-	-	276	-	-	424	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Common Lane (ahead + left + right)	0	0	0	0	0	0	0	0	0
A515 Lichfield Road (north) (ahead + left + right)	0	0	0	0	0	0	0	0	0
A515 Lichfield Road (north) (left)	2	-	-	2	-	-	2	-	-
A515 Lichfield Road (north) (ahead)	213	-	-	222	-	-	417	-	-
Shaw Lane (ahead + left + right)	9	0.02	0	9	0.02	0	9	0.02	0
A515 Lichfield Road (south) (ahead + left + right)	0	0	0	0	0	0	0	0	0
A515 Lichfield Road (south) (left)	4	-	-	4	-	-	4	-	-
A515 Lichfield (south) (ahead)	275	-	-	284	-	-	478	-	-

7.4.54 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any

substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

A51 Birmingham Road/A5127 Birmingham Road/A461 Sainte Foy Avenue/A51 The Friary

7.4.55 Table 160 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 160: A51 Birmingham Road/A5127 Birmingham Road/A461 Sainte Foy Avenue/A51 The Friary junction 2023 future baseline and with the Proposed Scheme 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			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 The Friary Road	892	0.67	2	892	0.67	2	912	0.69	2
A51 Birmingham Road	661	0.55	1	661	0.55	1	661	0.56	1
A5127 Birmingham Road	751	0.66	2	751	0.66	2	771	0.68	2
A461 Sainte Foy Ave	667	0.63	2	667	0.63	2	667	0.64	2
	2023 future baseline			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A51 The Friary Road	820	0.55	1	820	0.55	1	845	0.57	1
A51 Birmingham Road	930	0.77	3	930	0.77	3	950	0.79	4
A5127 Birmingham Road	710	0.78	3	711	0.78	3	717	0.79	4
A461 Sainte Foy Ave	486	0.45	1	486	0.45	1	486	0.45	1

7.4.56 The results show that the junction operates within capacity in the 2023 baseline and with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

7.4.57 In comparison with the 2023 future baseline (including HS2 Phase One), the addition of the Proposed Scheme construction traffic results in the A5127 Birmingham Road arm showing an increase in RFC from 0.78 to 0.79 with corresponding increase in queue length from three to four PCUs in the PM peak.

7.4.58 There are no substantial differences in the impact of the Proposed Scheme when considered cumulatively alongside the HS2 Phase One construction traffic to those described above.

Lichfield Road/Wood End Lane

7.4.59 Table 161 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 161: A515 Lichfield Road/Wood End Lane junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Wood End Lane (left)	112	0.2	0	158	0.30	1	116	0.23	0
Wood End Lane (right)	51	0.19	0	73	0.32	1	55	0.28	1
A515 Lichfield Road (south) (ahead + right)	415	0.67	3	540	0.85	6	611	0.88	10
A515 Lichfield Road (south) (ahead)	75	-	-	58			78	-	-
A515 Lichfield Road (north) (left)	125	-	-	148			129	-	-
A515 Lichfield Road (north) (ahead)	265	-	-	329			459	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Wood End Lane (left)	379	0.65	2	405	0.82	4	400	0.8	4
Wood End Lane (right)	108	0.33	1	196	0.71	2	129	0.58	1
A515 Lichfield Road (south) (ahead + right)	157	0.24	0	196	0.31	1	254	0.36	1
A515 Lichfield Road (south) (ahead)	141	-	-	136			247	-	-
A515 Lichfield Road (north) (left)	44	-	-	124			65	-	-
A515 Lichfield Road (north) (ahead)	181	-	-	189			363	-	-

7.4.60 The results show that the junction operates within capacity in the 2023 baseline and with the addition of the Proposed Scheme construction traffic.

7.4.61 In comparison with the 2023 future baseline (including HS2 Phase One), the addition of the Proposed Scheme construction traffic results in the Wood End Lane arm showing broadly comparable RFC and queue lengths in the PM Peak. At the A515 Lichfield Road (south) the RFC value increases from 0.85 to 0.88 with a corresponding increase in queue from six to 10 PCU. Although the junction moves closer to capacity, the addition of the Proposed Scheme construction traffic does not result in any substantial increases in queuing or RFC from the future baseline (including HS2 Phase One).

7.4.62 When considered cumulatively alongside HS2 Phase One, the addition of the Proposed Scheme construction traffic results in the Wood End Lane arm showing an increase in RFC from 0.65 to 0.8 and an increase in queue length from three to five

PCU. At the A515 Lichfield Road (south) the RFC value increases from 0.67 to 0.88 with a corresponding increase in queue from three to 10 PCU Although the combined impact is substantially greater than for the Proposed Scheme in isolation, the addition of the Proposed Scheme and HS2 Phase One cumulatively does not result in any substantial increases in queuing or RFC from the future baseline.

A513 Rugeley Road/A515 Lichfield Road/A515 Tewnalls Lane

7.4.63 Table 162 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 162: A513 Rugeley Road/A515 Lichfield Road/A515 Tewnalls Lane junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A513 Rugeley Road (left + right)	457	0.73	3	492	0.84	5	499	0.88	7
A515 (north) Lichfield Road (ahead + right)	505	0.68	3	515	0.71	3	596	0.83	6
A515 (north) Lichfield Road (ahead)	124	-	-	117	-	-	79	-	-
A515 (south) Tewnalls Lane (left)	16	-	-	58	-	-	131	-	-
A515 (south) Tewnalls Lane (ahead)	230	-	-	230	-	-	230	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A513 Rugeley Road (left + right)	272	0.42	1	298	0.49	1	434	0.87	6
A515 (north) Lichfield Road (ahead + right)	612	0.92	10	612	0.92	10	616	0.94	12
A515 (north) Lichfield Road (ahead)	30	-	-	30	-	-	26	-	-
A515 (south) Tewnalls Lane (left)	50	-	-	50	-	-	92	-	-
A515 (south) Tewnalls Lane (ahead)	230	-	-	230	-	-	230	-	-

7.4.64 The results show that the junction operates close to capacity in the 2023 baseline and with the addition of the Proposed Scheme construction traffic.

7.4.65 In comparison with the 2023 future baseline (including HS2 Phase One), the addition of the Proposed Scheme construction traffic results in the A515 (north) arm showing an increase in RFC from 0.92 to 0.94 with corresponding increase in queue length from

10 to 12 PCUs in the PM peak. The A513 Rugeley Road arm shows an increase in RFC from 0.49 to 0.87 with an increase in queue from one to six PCUs. Although the junction moves closer to capacity, the addition of the Proposed Scheme construction traffic therefore does not result in any substantial increases in queuing or RFC from the future baseline (including HS2 Phase One).

7.4.66 There are no substantial differences in the impact of the Proposed Scheme when considered cumulatively alongside the HS2 Phase One construction traffic to those described above.

B5014 Lichfield Road/A515 Tewnalls Lane

7.4.67 Table 163 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 163: B5014 Lichfield Road/A515 Tewnalls Lane junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
B5014 Lichfield Road (left)	194	1.09	14	194	1.29	26	194	1.68	63
B5014 Lichfield Road (right)	359	1.08	23	365	1.26	48	527	1.69	170
A515 (north) Tewnalls Lane (ahead + right)	106	0.15	0	130	0.18	1	118	0.17	0
A515 (north) Tewnalls Lane (ahead)	324	-	-	405	-	-	342	-	-
A515 (south) Tewnalls Lane (left)	158	-	-	164	-	-	326	-	-
A515 (south) Tewnalls Lane (ahead)	344	-	-	449	-	-	374	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
B5014 Lichfield Road (left)	61	0.15	0	61	0.15	0	61	1.28	9
B5014 Lichfield Road (right)	162	0.54	1	168	0.59	2	330	1.24	42
A515 (north) Tewnalls Lane (ahead + right)	339	0.52	2	362	0.55	2	388	0.61	3
A515 (north) Tewnalls Lane (ahead)	177	-	-	187	-	-	172	-	-
A515 (south) Tewnalls Lane (left)	330	-	-	337	-	-	499	-	-
A515 (south) Tewnalls Lane (ahead)	276	-	-	310	-	-	320	-	-

7.4.68 The model shows that the B5014 Lichfield Road arm of the junction is operating over its capacity in the 2023 future baseline (with and without HS2 Phase One) during the AM peak and that the RFC and queuing levels increase with the addition of the Proposed Scheme construction traffic on this approach to the junction. For example, in the AM Peak the RFC values increase from 1.26 to 1.68 with a corresponding queue

length increase from 74 to 233 PCU (across both lanes), when considered against the 2023 future baseline plus HS2 Phase One construction traffic.

7.4.69 In comparison with the 2023 future baseline, the cumulative impact of HS2 Phase One plus the Proposed Scheme construction traffic results in the B5014 Lichfield Road arm showing an increase in RFC from 1.09 to 1.68 with corresponding increase in queue length from 37 to 233 PCU (across both lanes) in the AM peak.

7.4.70 Both HS2 Phase One and the Proposed Scheme construction traffic will increase queuing and delay through this junction, although the junction is operating close to capacity in the AM peak in the future baseline. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

B5014 Uttoxeter Road/A513 Kings Bromley Lane/A513 Uttoxeter Road

7.4.71 Table 164 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 164: B5014 Uttoxeter Road/A513 Kings Bromley Lane/A513 Uttoxeter Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Kings Bromley Lane (left)	261	0.42	1	261	0.44	1	261	0.58	1
Kings Bromley Lane (right)	53	0.17	0	90	0.30	0	189	0.63	2
A513 Uttoxeter Road (ahead + right)	439	0.76	3	441	0.77	4	445	0.81	5
A513 Uttoxeter Road (ahead)	35	-	-	34	-	-	30	-	-
B5014 Uttoxeter Road (left)	114	-	-	151	-	-	250	-	-
B5014 Uttoxeter Road (ahead)	179	-	-	179	-	-	179	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Kings Bromley Lane (left)	387	0.6	2	387	0.61	2	387	0.77	3
Kings Bromley Lane (right)	94	0.26	0	103	0.29	0	220	0.68	2
A513 Uttoxeter Road (ahead + right)	291	0.46	1	291	0.47	1	294	0.49	1
A513 Uttoxeter Road (ahead)	75	-	-	75	-	-	72	-	-
B5014 Uttoxeter Road (left)	35	-	-	44	-	-	161	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
B5014 Uttoxeter Road (ahead)	80	-	-	80	-	-	80	-	-

7.4.72 The results show that the junction operates within capacity in the 2023 baseline and with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

7.4.73 In comparison with the 2023 future baseline (including HS2 Phase One), the addition of the Proposed Scheme construction traffic results in the A513 arm showing an increase in RFC from 0.77 to 0.81 with corresponding increase in queue length from four to five PCUs in the AM peak.

7.4.74 There are no substantial differences in the impact of the Proposed Scheme when considered cumulatively alongside the HS2 Phase One construction traffic to those described above.

B5014 Uttoxeter Road/Blithbury Road

7.4.75 Table 165 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 165: B5014 Uttoxeter Lichfield Road/Blithbury Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Blithbury Road (east) (ahead + left + right)	38	0.07	7	104	0.18	0	104	0.18	0
B5014 Uttoxeter Road (north) (left)	4	-	-	4	-	-	4	-	-
B5014 Uttoxeter Road (north) (ahead)	84	-	-	84	-	-	84	-	-
B5014 Uttoxeter Road (north) (right)	20	-	-	26	-	-	26	-	-
B5014 Uttoxeter Road (north) (ahead + right)	44	0.07	6	127	0.21	0	127	0.21	0
B5014 (north) Uttoxeter Road (ahead)	87	-	-	75	-	-	75	-	-
Blithbury Road (west) (ahead + left + right)	84	0.14	7	197	0.35	1	197	0.35	1
B5014 Uttoxeter Road (south) (left)	2	-	-	44	-	-	44	-	-
B5014 Uttoxeter Road (south) (ahead)	66	-	-	66	-	-	66	-	-
B5014 Uttoxeter Road (south) (right)	17	-	-	17	-	-	17	-	-
B5014 Uttoxeter Road (south) (ahead + right)	75	0.12	6	153	0.25	0	153	0.25	0
B5014 Uttoxeter Road (south) (ahead)	85	-	-	78	-	-	78	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Blithbury Road (east) (ahead + left + right)	33	0.05	0	85	0.14	0	85	0.14	0
B5014 Uttoxeter Road (north) (left)	8	-	-	8	-	-	8	-	-
B5014 Uttoxeter Road (north) (ahead)	48	-	-	48	-	-	48	-	-
B5014 Uttoxeter Road (north) (right)	31	-	-	37	-	-	37	-	-
B5014 Uttoxeter Road (north) (ahead + right)	58	0.1	0	121	0.21	0	121	0.21	0
B5014 (north) Uttoxeter Road (ahead)	50	-	-	44	-	-	44	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
Blithbury Road (west) (ahead + left + right)	50	0.08	0	161	0.30	1	161	0.3	1
B5014 Uttoxeter Road (south) (left)	7	-	-	59	-	-	59	-	-
B5014 Uttoxeter Road (south) (ahead)	67	-	-	67	-	-	67	-	-
B5014 Uttoxeter Road (south) (right)	2	-	-	2	-	-	2	-	-
B5014 Uttoxeter Road (south) (ahead + right)	24	0.04	0	85	0.14	0	85	0.14	0
B5014 Uttoxeter Road (south) (ahead)	91	-	-	87	-	-	87	-	-

7.4.77 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

A51 From Bardy Lane To Stafford Road/Borough Lane

7.4.78 Table 166 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 166: A51 from Bardy Lane to Stafford Road /Borough Lane junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Borough Lane (left + right)	178	0.76	3	178	0.76	3	178	1.13	17
A51 From Bardy Lane To Stafford Road (north) (ahead)	1116	-	-	1117	-	-	1258	-	-
A51 From Bardy Lane To Stafford Road (north) (right)	53	0.11	0	53	0.11	0	53	0.12	0
A51 From Bardy Lane To Stafford Road (south) (left)	27	-	-	27	-	-	27	-	-
A51 Main Road (south) (ahead)	615	-	-	616	-	-	757	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Borough Lane (left + right)	68	0.36	1	68	0.36	1	68	0.66	2
A51 From Bardy Lane To Stafford Road (north) (ahead)	689	-	-	693	-	-	833	-	-
A51 From Bardy Lane To Stafford Road (north) (right)	63	0.17	0	63	0.17	0	63	0.19	0
A51 From Bardy Lane To Stafford Road (south) (left)	83	-	-	83	-	-	83	-	-
A51 From Bardy Lane To Stafford Road (south) (ahead)	1031	-	-	1025	-	-	1166	-	-

7.4.79 The model shows that the Borough Lane arm of the junction is operating over its capacity in 2023 with the addition of the Proposed Scheme construction traffic. In the AM Peak the RFC values increase from 0.76 to 1.13 with a corresponding queue length increase from three to 17 PCU, when considered against the 2023 future baseline plus HS2 Phase One construction traffic.

7.4.80 There are no substantial differences in the impact of the Proposed Scheme when considered cumulatively alongside the HS2 Phase One construction traffic to those described above.

7.4.81 The Proposed Scheme construction traffic will increase queuing and delay through this junction. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A51 Breretonhill /Breretonhill Lane

7.4.82 Table 167 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 167: A51 Breretonhill /Breretonhill Lane junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Breretonhill Lane (left + right)	125	0.69	2	125	0.69	2	125	1.05	10
A51 Breretonhill (west) (ahead)	1013	-	-	1013	-	-	1151	-	-
A51 Breretonhill (west) (right)	17	0.04	0	17	0.04	0	17	0.04	0
A51 Breretonhill (east) (left)	45	-	-	45	-	-	45	-	-
A51 Breretonhill (east) (ahead)	697	-	-	697	-	-	836	-	-
	2023 future baseline			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Breretonhill Lane (left + right)	47	0.35	1	47	0.35	1	47	0.75	2
A51 Breretonhill (west) (ahead)	708	-	-	708	-	-	846	-	-
A51 Breretonhill (west) (right)	28	0.09	0	28	0.09	0	28	0.1	0
A51 Breretonhill (east) (left)	124	-	-	124	-	-	124	-	-
A51 Breretonhill (east) (ahead)	1081	-	-	1081	-	-	1219	-	-

7.4.83 The model shows that the Breretonhill Lane arm of the junction is operating over its capacity in 2023 with the addition of the Proposed Scheme construction traffic. In the AM Peak the RFC values increase from 0.69 to 1.05 with a corresponding queue length increase from two to 10 PCUs, when considered against the 2023 future baseline plus HS2 Phase One construction traffic.

7.4.84 There are no substantial differences in the impact of the Proposed Scheme when considered cumulatively alongside the HS2 Phase One construction traffic to those described above.

7.4.85 The Proposed Scheme construction traffic will increase queuing and delay through this junction. This is expected to be in the peak of the peak hour and queues would be

likely to clear quickly. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

B5013 Colton Road/Blithbury Road

7.4.86 Table 168 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 168: B5013 Colton Road/Blithbury Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Blithbury Road (left + right)	99	0.17	0	142	0.24	0	142	0.24	0
B5013 Colton Road (south) (ahead + right)	195	0.29	1	264	0.40	1	264	0.4	1
B5013 Colton Road (south) (ahead)	207	-	-	183	-	-	183	-	-
B5013 Colton Road (north-west) (left)	11	-	-	11	-	-	11	-	-
B5013Colton Road (north-west) (ahead)	373	-	-	376	-	-	376	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Blithbury Road (left + right)	119	0.2	0	167	0.30	0	167	0.3	0
B5013 Colton Road (south) (ahead + right)	100	0.15	0	155	0.24	1	155	0.24	1
B5013 Colton Road (south) (ahead)	228	-	-	211	-	-	211	-	-
B5013 Colton Road (north-west) (left)	3	-	-	18	-	-	18	-	-
B5013Colton Road (north-west) (ahead)	382	-	-	387	-	-	387	-	-

7.4.87 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

B5013 Colton Road/Bellamour Way

7.4.88 Table 169 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 169: B5013 Colton Road/Bellamour Way junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Bellamour Way (left)	95	0.16	0	95	0.17	0	96	0.18	0
Bellamour Way (right)	43	0.11	0	80	0.20	0	102	0.26	0
B5013 Colton Road (south) (ahead + right)	99	0.16	0	99	0.16	0	100	0.17	0
B5013 Colton Road (south) (ahead)	179	-	-	179	-	-	181	-	-
B5013 Colton Road (north-west) (left)	31	-	-	68	-	-	90	-	-
B5013 Colton Road (north-west) (ahead)	293	-	-	293	-	-	296	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Bellamour Way (left)	43	0.07	0	43	0.07	0	47	0.08	0
Bellamour Way (right)	12	0.03	0	12	0.03	0	37	0.1	0
B5013 Colton Road (south) (ahead + right)	76	0.12	0	77	0.13	0	87	0.14	0
B5013 Colton Road (south) (ahead)	194	-	-	202	-	-	214	-	-
B5013 Colton Road (north-west) (left)	26	-	-	26	-	-	51	-	-
B5013 Colton Road (north-west) (ahead)	330	-	-	338	-	-	355	-	-

7.4.89 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

A5192 Cappers Lane/A38(T) Rykneld Street slip road (south-bound)

7.4.90 Table 170 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 170: A5192 Cappers Lane/A38 (T) Rykneld Street slip road (south-bound) junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A38 sliproad (south-bound) (left + right)	0	0	0	0	0	0	0	0	0
A5192 Cappers Lane (west) (ahead + right)	517	0.82	5	588	0.94	13	588	0.94	13
A5192 Cappers Lane (west) (ahead)	34	-	-	24	-	-	24	-	-
A5192 Cappers Lane (east) (left)	53	-	-	114	-	-	114	-	-
A5192 Cappers Lane (east) (ahead)	137	-	-	248	-	-	248	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A38 sliproad (north bound) (left + right)	0	0	0	0	0	0	0	0	0
A5192 Cappers Lane (west) (ahead + right)	568	0.86	6	776	1.08	47	776	1.08	47
A5192 Cappers Lane (west) (ahead)	39	-	-	9	-	-	9	-	-
A5192 Cappers Lane (east) (left)	26	-	-	26	-	-	26	-	-
A5192 Cappers Lane (east) (ahead)	132	-	-	198	-	-	198	-	-

7.4.91 In this location there is a substantial increase in construction traffic forecast as part of the HS2 Phase One scheme, with minor increases forecast for the Proposed Scheme. In order to present a robust assessment of the potential construction overlap, the reasonable worst case in terms of overall HS2 construction traffic (i.e. HS2 Phase One plus the Proposed Scheme) has been assessed in the scenarios above. Nonetheless, the Proposed Scheme has no material additional impact on the junction.

7.4.92 The model shows that the A5192 Cappers Lane (west) arm of the junction is operating over its capacity in 2023 with the addition of the Proposed Scheme and HS2 Phase One construction traffic. In the PM Peak the RFC values increase from 0.86 to 1.08 with a corresponding queue length increase from six to 47 PCU, when considered cumulatively against the 2023 future baseline. This is, however, the result of HS2 Phase One construction traffic rather than due to the Proposed Scheme.

A5192 Cappers Lane/A38 (T) Rykneld Street slip road (north bound)

7.4.93 Table 171 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 171: A5192 Cappers Lane/A38 (T) Rykneld Street slip road (north bound) junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A38 sliproad (north bound) (left)	433	0.65	2	500	0.76	3	500	0.76	3
A38 sliproad (north bound) (right)	33	0.07	0	33	0.07	0	33	0.07	0
A5192 Cappers Lane (west) (ahead)	517	-	-	517	-	-	517	-	-
A5192 Cappers Lane (west) (right)	0	0	0	0	0.00	0	0	0	0
A5192 Cappers Lane (east) (left)	0	-	-	0	-	-	0	-	-
A5192 Cappers Lane (east) (ahead)	135	-	-	167	-	-	167	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A38 sliproad (north bound) (left)	378	0.58	1	409	0.63	2	410	0.62	2
A38 sliproad (north bound) (right)	52	0.12	0	52	0.12	0	52	0.12	0
A5192 Cappers Lane (west) (ahead)	552	-	-	552	-	-	552	-	-
A5192 Cappers Lane (west) (right)	0	0	0	0	0.00	0	0	0	0
A5192 Cappers Lane (east) (left)	0	-	-	0	-	-	0	-	-
A5192 Cappers Lane (east) (ahead)	131	-	-	142	-	-	131	-	-

7.4.94 In this location there is an increase in construction traffic forecast as part of the HS2 Phase One scheme, with minor increases forecast for the Proposed Scheme. In order to present a robust assessment of the potential construction overlap, the reasonable worst case in terms of overall HS2 construction traffic (i.e. HS2 Phase One plus the Proposed Scheme) has been assessed in the scenarios above. Nonetheless, the Proposed Scheme has no material additional impact on the junction.

7.4.95 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any

substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

A5192 Eastern Avenue/Stafford Road

7.4.96 Table 172 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 172: A5192 Eastern Avenue/Stafford Road junction 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Stafford Road (left + right)	176	0.4	1	176	0.43	1	176	0.43	1
Stafford Road (ahead)	672	-	-	787	-	-	787	-	-
A5192 Eastern Ave (west) (right)	232	0.36	1	232	0.38	1	232	0.38	1
A5192 Eastern Ave (west) (left)	107	-	-	107	-	-	107	-	-
A5192 Eastern Ave (east) (ahead)	357	-	-	472	-	-	472	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Stafford Road (left + right)	241	0.52	1	241	0.52	1	241	0.53	1
Stafford Road (ahead)	377	-	-	380	-	-	441	-	-
A5192 Eastern Ave (west) (right)	114	0.19	0	114	0.19	0	114	0.19	0
A5192 Eastern Ave (west) (left)	117	-	-	117	-	-	117	-	-
A5192 Eastern Ave (east) (ahead)	510	-	-	513	-	-	514	-	-

7.4.97 The results show that the junction operates within capacity in 2023 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

Wood Lane/A38 (T) Rykneld Street slip road (south-bound) (Hilliards Cross junction) existing layout

7.4.98 Table 173 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 173: Wood Lane/A38 (T) Rykneld Street slip road south-bound (Hilliards Cross junction) existing layout 2023 future baseline and with the Proposed Scheme 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**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A38(T) Rykneld Street Slip road (left)	276	0.64	2	276	1.24	19	276	1.24	19
A38(T) Rykneld Street Slip road (right)	41	0.48	1	62	1.16	6	62	1.16	6
Wood End Lane (west) (ahead + right)	641	1.25	84	693	1.33	115	693	1.33	115
Wood End Lane (west) (ahead)	1	-	-	0	-	-	0	-	-
Wood End Lane (east) (left)	26	-	-	46	-	-	46	-	-
Wood End Lane (east) (ahead)	696	-	-	750	-	-	750	-	-
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
A38(T) Rykneld Street Slip road (south-bound) (left)	197	3.55	50	244	n/a	179	244	n/a	179
A38(T) Rykneld Street Slip road (south-bound) (right)	23	3.16	7	61	n/a	45	61	n/a	45
Wood End Lane (west) (ahead + right)	838	1.49	216	952	1.73	351	952	1.73	351
Wood End Lane (west) (ahead)	0	-	-	0	-	-	0	-	-
Wood End Lane (east) (left)	23	-	-	61	-	-	61	-	-
Wood End Lane (east) (ahead)	505	-	-	592	-	-	592	-	-

7.4.99 The results show that the junction exceeds its capacity in 2023 in the future baseline and with the addition of both the HS2 Phase One and the Proposed Scheme construction traffic. Substantial increases in queue lengths are shown on A38 (T) Rykneld Street slip road and Wood End Lane (west), although these results should be treated with caution due to the high RFC values recorded.

7.4.100 It should be noted that in this location, there is a substantial increase in construction traffic forecast as part of the HS2 Phase One scheme, with minor increases forecast for the Proposed Scheme. In order to present a robust assessment of the potential construction overlap, the worst case in terms of overall HS2 construction traffic (i.e. HS2 Phase One plus the Proposed Scheme) has been assessed in the scenarios above, although they are unlikely to overlap to this extent.

7.4.101 The model shows that both Wood End Lane and the A38 slip roads operate over capacity in the 2023 future baseline and with the addition of the Proposed Scheme and HS2 Phase One construction traffic. In the AM Peak queue lengths increase from 84 to 115 PCUs on Wood End Lane, with the PM Peak showing increases from 216 to 351 PCUs in the same location. This is, however, the result of HS2 Phase One construction traffic rather than due to the Proposed Scheme.

7.4.102 The HS2 Phase One scheme has proposed an improvement to this junction to mitigate the impact of the HS2 Phase One construction traffic. This junction proposal has been assumed within the future baseline and the assessment.

Wood Lane/A38 (T) Rykneld Street slip road (south-bound) (Hilliards Cross junction) BR2 layout

7.4.103 Table 174 summarises the results of the changes to the performance of the BR2 layout as a result of the Proposed Scheme.

Table 174: Wood Lane/A38 (T) Rykneld Street slip road south-bound (Hilliards Cross junction) BR2 layout 2021 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU	Flow, PCU/hr	DoS	Q, PCU
08:00 – 09:00	**2021 future baseline AM**			**2021 future baseline with Prologis and Phase One**			**2021 with Prologis, Phase One and Proposed Scheme**		
slip road - left turn	290	39%	5	392	54%	7	411	55%	7
Wood End Lane (east)	658	48%	5	890	64%	7	773	57%	6
Wood End Lane (west) - ahead, right turn	399	49%	7	489	63%	9	458	56%	7
Wood End Lane (west) - right turn	351	47%	6	443	61%	8	415	55%	7
17:00 – 18:00	**2021 future baseline AM**			**2021 future baseline with Prologis and Phase One**			**2021 with Prologis, Phase One and Proposed Scheme**		
slip road - left turn	232	26%	3	256	27%	3	341	37%	4
Wood End Lane (east)	600	51%	5	715	63%	7	736	63%	7
Wood End Lane (west) - ahead, right turn	501	51%	7	655	64%	10	650	64%	10
Wood End Lane (west) - right turn	449	50%	7	600	63%	9	595	64%	9

7.4.104 The results show that the BR2 layout operates within capacity in 2021 with the addition of both the HS2 Phase One and Proposed Scheme construction traffic,

without any substantial increases in queuing or RFC from the future baseline including HS2 Phase One or the future baseline excluding HS2 Phase One.

7.4.105 There is no HGV traffic added to the junction during the Proposed Scheme construction, but it is assumed it will be used by private car worker trips.

A5192 Eastern Avenue/A51 Stafford Road/A51 Western Bypass

7.4.106 Table 175 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 175: A5192 Eastern Avenue/A51 Stafford Road/A51 Western Bypass junction 2023 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
08:00 – 09:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Exit Road from Innkeeper's Lodge Lichfield hotel	4	2%	0	4	2%	0	4	2%	0
A51 Western Bypass (south) ahead + right turn	987	94%	16	987	101%	27	1004	101%	22
A5192 Eastern Ave (east) – right turn	298	94%	12	355	97%	16	383	98%	17
A5192 Eastern Ave (east) - left turn	168	22%	3	168	21%	3	168	21%	3
A51 Stafford Road (north) ahead	902	94%	17	902	98%	22	919	105%	39
A51 Stafford Road (north) left turn	634	91%	12	691	96%	17	719	100%	24
17:00 – 18:00	**2023 future baseline**			**2023 future baseline with Phase One**			**2023 future baseline with Phase One and Proposed Scheme**		
Exit Road from Innkeeper's Lodge Lichfield hotel	7	4%	0	7	4%	0	7	4%	0
A51 Western Bypass (south) ahead + right turn	1129	89%	25	1129	89%	25	1150	94%	31
A5192 Eastern Ave (east) – right turn	436	89%	14	439	90%	14	500	93%	17
A5192 Eastern Ave (east) - left turn	257	32%	4	257	33%	4	257	31%	4
A51 Stafford Road (north) ahead	630	72%	8	630	69%	8	651	78%	9
A51 Stafford Road (north) left turn	325	41%	3	328	40%	3	389	48%	4

7.4.107 The results show that the junction operates close to capacity in the 2023 baseline and over capacity with the addition of the Proposed Scheme and HS2 Phase One construction traffic.

7.4.108 In comparison with the 2023 future baseline (with HS2 Phase One), the addition of the Proposed Scheme construction traffic results in the following increases:

- Stafford Road south-bound arm (ahead) shows an increase in DoS from 98% to 105% with corresponding increase in MMQ from 22 to 39 PCUs in the AM peak; and
- The A5192 Eastern Ave arm shows an increase in DoS from 94% to 98% with corresponding increase in MMQ from 16 to 17 PCUs in the AM peak.

7.4.109 The addition of the Proposed Scheme construction traffic does not result in any substantial increases in queuing or DoS from the future baseline (including HS2 Phase One), compared to the future baseline with HS2 Phase One when the junction is already shown to operate at capacity.

7.4.110 In comparison with the 2023 future baseline, the addition of the Proposed Scheme combined with HS2 Phase One construction traffic results has a greater impact with some minor increases in queuing compared to the future baseline. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

Summary of highway impacts

7.4.111 The construction of the Proposed Scheme will result in substantial percentage increases in peak hour traffic flows (in relation to either total vehicles and/or HGVs) at the locations listed below.

7.4.112 This is often due to the future baseline traffic flows having a low baseline level of vehicles or HGVs, often resulting in large percentage increases in HGVs following only a minor increase in actual vehicle/HGV numbers.

7.4.113 The assessment shows substantial percentage increases in peak hour traffic flows (in relation to either total vehicles and/or HGVs) at the following locations:

- A51 Stafford Road between the A5192 Eastern Avenue and the boundary with the Colwich to Yarlet area (CA2);
- A515 Lichfield Road between the A51 Stafford Road and the Proposed Scheme;
- A513 Rugeley Road/King's Bromley Lane between Shaw Lane and B5014 Uttoxeter Road;
- B5014 Uttoxeter Road between Stonyford Lane and Common Lane;
- B5014 Uttoxeter Road between the A513 Rugeley Road and Common Lane;
- B5013 Uttoxeter Road between the Proposed Scheme and Bellamour Lane;
- Blithbury Road between the B5014 Uttoxeter Road and Hollow Lane;
- Newlands Lane between the B5014 Uttoxeter Road and the Proposed Scheme;

- Dawson Lane between Pipe Lane and the Proposed Scheme;
- Pipe Lane between School Lane and Pipe Wood Lane;
- Common Lane between the A515 Lichfield Road and the Proposed Scheme; and
- Hollow Lane between Blithbury Road and Colton Bridleway 33.

7.4.114 The increase in traffic described 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 –

- A5192 Eastern Avenue/A5127 Trent Valley Road Roundabout;
- B5014 Lichfield Road/A515 Tewnalls Lane;
- A515 Lichfield Road/Wood End Lane;
- A51 Stafford Road/A513 Rugeley Road/Armitage Road Roundabout;
- A51 Stafford Road/Borough Lane;
- A51 Stafford Road/Breretonhill Lane; and
- A5192 Eastern Avenue/A51 Stafford Road signals.

7.4.115 It should be noted that the assessment considers a peak level of construction traffic and these conditions would not be present across the whole construction period.

7.4.116 Consideration of both the Proposed Scheme and construction traffic associated with HS2 Phase One cumulatively has also been assessed and identifies cumulative impacts in terms of traffic flow increase at the following locations –

- A515 Lichfield Road between Wood End Lane and the Proposed Scheme;
- Blithbury Road between the B5014 Uttoxeter Road and Hollow Lane; and
- Pipe Lane between Blithbury Road and the Proposed Scheme.

7.4.117 These increases in traffic flow do not manifest themselves in any impacts upon junction capacity above those already identified.

Accidents and safety

7.4.118 The impacts on accident and safety risks will not be substantial as there are no locations where there are both accident clusters and substantial increases in traffic during construction that have been identified. Although there will be increases in construction traffic on other links and junctions none have been identified in the baseline assessment as the location of a known safety concern.

Parking and loading

7.4.119 The construction boundary encroaches on the car park at Bromley Hayes garden centre. At this location the A515 Lichfield Road will be diverted and some utilities will also have to be realigned. Realigning the utilities works is not expected to result in any

temporary loss of parking, associated with these highway works, at the Bromley Hayes garden centre car park.

7.4.120 There are no other impacts on parking during construction of the Proposed Scheme in the Fradley to Colton area.

Public transport

Rail

7.4.121 There is no HS2 Phase 2a construction activity in the Colton to Fradley area that requires interface with the existing rail network.

7.4.122 Rail possessions in adjacent areas do, however, have the potential to disrupt travellers in the area. Possessions in adjoining areas would be limited, where reasonably practicable, to weekend and overnight possessions to limit any impact on rail travellers. Rail replacement services would be provided as necessary when rail possessions were in place.

7.4.123 Rail users will consequently not experience any substantial disruption since the impact of the closures will be managed to ensure that any disruption is planned for weekend, off-peak and overnight possessions.

Local bus services

7.4.124 The only diversions required for construction which affect bus services in the Fradley to Colton area are on the A515 Lichfield Road, where there is construction of an off-line diversion, as well as a temporary Roundabout with the A513 Rugeley Road; and on Newlands Lane in Stockwell Heath.

7.4.125 The A515 Lichfield Road works affect only one service per day Mondays to Saturdays on the 810 route, in one direction only (from Elmhurst to Kings Bromley in the morning peak). The diversion will not affect buses in the construction phase, as they will be able to maintain their current route on the A515 Lichfield Road, where any lane or overnight closures required to tie-in to the new scheme will be timed such as to not substantially affect bus routes through this location.

7.4.126 On completion of temporary works, the A515 Lichfield Road diversion will operate as per the operational assessment below and the Roundabout with A513 Rugeley Road will be removed.

7.4.127 The works on Newlands Lane to construct a new underbridge will require the road to be closed and traffic diverted for a period of up to six months. This affects one bus per day on weekdays, in one direction only (number 823 from Stockwell Heath to Colton).

7.4.128 Depending on the arrangements used, this could require buses to travel up to an additional 500m, resulting in a minute of extra running time. However, as the Stockwell Heath bus stop is at the beginning of the route, there may be a shorter pedestrian route to reach the bus stop on the west side of the Newlands Lane works.

Public transport interchanges

7.4.129 There are no substantial public transport interchanges in the Fradley to Colton area and therefore no construction activity impacts on public transport interchange facilities in the Fradley to Colton area.

Pedestrian, cyclists and equestrians

7.4.130 Compared to the existing baseline, the works required to construct the Proposed Scheme will affect routes used by pedestrians, cyclists and equestrians, primarily where the scheme construction results in changes to the affected routes. Pedestrians and other non-motorised users may also be affected by changes in traffic levels due, particularly, to HS2 construction traffic. Roads with substantial changes in traffic levels are listed above.

7.4.131 Locations where routes used by pedestrians, cyclists and equestrians are temporarily diverted, realigned or closed are shown below.

7.4.132 Shaw Lane, a local road used by pedestrians, cyclists and equestrians, will be temporarily closed to the east and west sides of the Proposed Scheme construction boundary for a period of up to 18 months. The diversion route via the A513 Rugeley Road and A515 Lichfield Road will result in an additional end-to-end journey length of up to 600m.

7.4.133 Table 176 summarises the temporary diversions, Realignments and extensions to PRoW required to accommodate the construction of the Proposed Scheme.

Table 176: CA1 construction changes on public rights of way for non-motorised users

PRoW name	Change in distance	Duration
Kings Bromley Footpath 0.392(a)	Temporary diversion around borrow pit to an Unnamed Lane is 1.2km longer.	36 months
Kings Bromley Footpath 0.390	Temporary diversion around construction site is 100m longer.	36 months
Kings Bromley Footpath 1	Temporary diversion north to A513 Rugeley Road is 750m longer	36 months
Kings Bromley Footpath 12	Temporary diversion to the east is 50m longer	18 months
Mavesyn Ridware Footpath 7	Temporary diversion west is 150m longer for travel west on B5014.	18 months
Mavesyn Ridware Footpath 8	Temporary diversion 800m longer for travel to the north but 550m shorter for travel to the south.	18 months
Hamstall Ridware Footpath 3	Temporary diversion south is 180m longer	36 months
Mavesyn Ridware Footpath 30	Temporary diversion south is 40m	18 months
Mavesyn Ridware Footpath 32	Temporary diversion east is 110m longer.	24 months
Mavesyn Ridware Footpath 33	Temporary diversion east is 450m longer	36 months

PRoW name	Change in distance	Duration
Mavesyn Ridware Footpath 38	Temporary diversion south is 20m shorter	18 months
Colton Footpath 19	Temporary diversion south is 30m shorter	18 months
Colton Bridleway 31 / Bridleway 33	Temporary diversion west is 20m shorter	18 months
Colton Bridleway 32	Temporary diversion north is 20m longer	12 months
Colton Footpath 34	Temporary diversion south is 200m longer; temporary diversion north is 700m longer.	18 months
Colton Footpath 36	Temporary diversion north is 400m longer	18 months
Colton Footpath 52	Temporary diversion south is 270m longer	18 months
Colton Footpath 73	Temporary diversion south is 30m longer	18 months
Colton Footpath 76	Temporary diversion east is 30m longer	18 months

7.4.134 Within the 20 temporary diversions, eight of the PRoW routes affected experience very little change in length, or the PRoW routes become shorter (e.g. on Colton Bridleway 31/33 and Stonyford Lane). A further four changes result in diversions which increase PRoW route length up to 250m.

7.4.135 Other PRoW routes experience larger changes in length of diversion, including the longest diversion of up to 1.2km, which is around the borrow pit intersecting Kings Bromley Footpath 0.392. In some cases (Kings Bromley Footpath 1 and Mavesyn Ridware Footpath 8), despite a longer diversion for some users travelling in one direction, travel routes in the other direction will become shorter.

7.4.136 Other longer diversions include Mavesyn Ridware Footpath 33, Colton Footpaths 34, 36 and 52 and Moor Lane. These are effectively diverted to other nearby lanes, roads or PRoWs in order to share routes around key construction sites or to cross the Proposed Scheme, resulting in increases in route length of up to 800m. When surveyed in summer 2016, no affected Footpaths in the Fradley to Colton area had more than 12 daily users.

Waterways and Canals

7.4.137 No diversions or closures of navigable waterways or canals are required during construction and consequently there are no construction impacts on navigable waterways in the Fradley to Colton area.

7.5 CA1 Proposed Scheme operation description

7.5.1 This section provides an overview of the impacts resulting from the operation of the Proposed Scheme. The operation of the Proposed Scheme is programmed to begin in 2027. Operation of the Proposed Scheme will not have any cumulative impacts resulting from the operation of the Proposed Scheme with HS2 Phase One.

7.6 CA1 Proposed Scheme assessment of operation impacts

Key operation transport issues

7.6.1 The main potential operational impacts relate to the diversion, realignment of roads and implementation of new junctions in order to accommodate the Proposed Scheme, together with changes to PRoW.

7.6.2 Operations (Phase One and Phase 2a) will not have any substantial impacts within the Fradley to Colton area due to increased HS2 related traffic, as there are no HS2 stations or depots proposed. The maintenance of the Proposed Scheme will generate a limited number of vehicular trips associated with servicing and maintenance and there will be some minor local reassignment of traffic due to road diversions but these impacts will not be substantial.

7.6.3 Table 177 and Table 178 summarise the key infrastructure changes to the transport network. There are no key issues over and above these changes.

Highway network

Highway diversions, realignments and closures

7.6.4 Table 177 summarises the permanent road diversions, realignments and extensions required to accommodate the Proposed Scheme.

Table 177: CA1 permanent highway diversion/stopping-up

Highway name	Description	Change in length
Common Lane (south)	Closure of Common Lane as it is intersected by the Proposed Scheme. New diversion for accommodation farm access only.	Longest diversion is via A515 and Crawley Lane at 4.5km.
A515 Lichfield Road	Realignment approximately 200m west of existing A515 Lichfield Road, beneath Kings Bromley viaduct.	Realignment results in no change in travel distance.
Shaw Lane	Realigned to west under new Kings Bromley viaduct from just south of A513 junction to south of farm entrance.	Realignment results in minimal change in travel distance
Pipe Lane	Diversion from 240m east of Pipe Ridware, on a new alignment to remain north of the Proposed Scheme. Spur to Quintons Orchard and on to Blithbury retained via a new overbridge, as footpath and farm track only.	Highway diversion is 500m longer for trips between Pipe Ridware and Blithbury village.
B5014 Uttoxeter Road	Realignment approximately 200m to the west of the existing alignment, with a new overbridge provided.	Realignment results in minimal change in travel distance.

Highway name	Description	Change in length
Blithbury Road	Realignment approximately 250m south of the existing Blithbury Road, with a new overbridge provided.	Realignment results in minimal change in travel distance.
Stonyford Lane	At the southern end of Stonyford Lane, there is a small diversion to the new alignment of B5014 Uttoxeter Road. At the northern end, a small diversion to the new alignment of Blithbury Road makes the lane slightly shorter.	Diversion results in minimal change in travel distance.
Hadley Gate Lane	Diversion to new junction with Blithbury Road 350m east of the existing. Access to and from local properties is retained on a truncated length of former alignment of Hadley Gate Lane.	Diversion for travel to the east on Blithbury Road is 250m longer; diversion for travel to the west is 1km longer.
Newlands Lane	Realignment to north via new overbridge, from 650m west of Blithbury village to just north of junction with Long Mets Lane and Colton Footpath 19. Also online underbridge between Narrow Lane and Moor Lane in Stockwell Heath village.	Realignment via new overbridge and underbridge results in minimal change in travel distance.
Moor Lane	Route is closed after access to houses in the west of Stockwell Heath. Diverted to the south and via Newlands Lane on to new overbridge into village.	Diversion for travel to the north, via new overbridge, is 200m longer; diversion for travel to the south is 200m shorter.
B5013 Uttoxeter Road	Route is realigned marginally to the east, to a new underbridge, from just south of the junction with Moor Lane, to a point 600m south of Admaston village.	Realignment results in minimal change in travel distance
Jonghams Lane	Extended marginally to the east at its eastern end, to meet new alignment of the B5013 Uttoxeter Road.	Extension results in minimal change in travel distance.

PRoW diversions, realignments and closures

7.6.5 Table 178 summarises the permanent PRoW diversions and realignments required to accommodate the Proposed Scheme.

Table 178: CA1 permanent PRoW diversions and realignments

PRoW name	Description	Change in length
Kings Bromley Footpath 1	Diverted around embankment via unnamed lane to A513 Rugeley Road at Little Spinney. Longer route to original joining point along A513/Shaw Lane for Kings Bromley. Shorter route to the north east and the junction of the A513 with FP3 to Nethertown.	Diversion for travel to the north-east (towards A513/Nethertown) is 500m shorter; diversion for travel to the south east (Shaw Lane/A515) is 500m longer.
Kings Bromley Footpath 12	Extended south west to meet the realigned A515 Lichfield Road.	Extension to realigned A515 is 250m longer.
Mavesyn Ridware Footpath 7	Slight realignment and truncation at southern end due to realignment of B5014 Uttoxeter Road.	Truncation to the realigned B5014 is a minimal distance shorter.

PRoW name	Description	Change in length
Mavesyn Ridware Footpath 8	Diversion to south at Bentley Farm on access road and via new overbridge (shared with Footpath 38), then around Proposed Scheme to the east, rejoining the original alignment west of Pipe Lane.	Diversion is 600m longer.
Mavesyn Ridware Footpath 9	Extension to the north at northern end to meet the realigned B5014 Uttoxeter Road.	Extension to Realigned B5014 Uttoxeter Road is 150m longer.
Mavesyn Ridware Footpath 30	Proposed Scheme on River Trent viaduct passes over FP30. Small diversion around bridge support.	Diversion results in minimal change in travel distance.
Mavesyn Ridware Footpath 32	Proposed Scheme on River Trent viaduct passes over FP32. Small diversion around bridge support. Also now intersected by Pipe Lane diversion.	Diversion results in minimal change in travel distance.
Mavesyn Ridware Footpath 33	Diverted around rail embankment to meet FP32 and northward to Pipe Lane.	Diversion results in minimal change in travel distance.
Mavesyn Ridware Footpath 38	Diverted north-east on to access roads and via new overbridge (shared with Footpath 8). Route to Pipe Lane south towards FP37, shorter route to Pipe Lane north towards FP 8.	Diversion for travel to the south (via Pipe Lane/Footpath 37) is 250m longer; diversion for travel to the north (Pipe Lane to Footpath 8) is 50m shorter.
Colton BOAT 16	Closed and diverted on to new Blithbury Road to replace both BOAT 16 and Hadley Gate Lane	Truncated at new Blithbury Road. BOAT is 100m shorter.
Colton Footpath 17	Realigned on to Hadley Gate Lane to replace both Footpath 17 and Stonyford Lane. New route links Footpath 17 and former BOAT 16 alignments across Proposed Scheme on former Hadley Gate Lane.	Truncated footpath is 200m shorter. Diversion for travel to the west via Blithbury Road is 200m longer; diversion for travel to the east via Blithbury Road is 200m shorter.
Colton Bridleway 31	Not diverted as a result of scheme, but full length to be upgraded to access road from junction with Bridleway 32 and Bridleway 33, to Newlands Lane.	300m of Bridleway is upgraded to access road. No impact on overall route length.
Colton Bridleway 33	Not diverted as a result of scheme, but part length to be upgraded to access road, from Hollow Lane to the junction with Bridleway 32 and Bridleway 33.	450m of Bridleway is upgraded to access road. No impact on overall route length.
Colton Footpath 34	Major realignment from Newlands Lane via new access road to rejoin route to junction with Footpath 35 and Footpath 37.	Diversion for travel to the west via Newlands Lane is 350m longer; diversion for travel to the east via Newlands Lane is 120m shorter.
Colton Footpath 36	Major realignment to the north via Newlands Lane (north) underbridge.	Diversion via new underbridge is 500m longer.
Colton Footpath 52	Closure and diversion via Newlands Lane (north) underbridge to rejoin former route at the junction with Newlands Lane and Moor Lane.	Diversion results in minimal change in travel distance.
Colton Footpath 73	Minor realignment on to new Footpath 73 overbridge.	Diversion results in minimal change in travel distance.
Colton Footpath 76	Minor diversion at Newlands Lane south end due to route realignment. Will now meet Footpath 38 on far side of Newlands Lane.	Diversion results in minimal change in travel distance.

Strategic and local road network traffic flows 2027

7.6.6 Traffic flows on road links in CA1 are either unchanged from the future baseline or result in very minor increases due to maintenance traffic or reassignment as a result of the realignments and closures in 2027. Whilst no substantial changes in traffic flows are reported, the following junctions are assessed for capacity as a result of either being a new junction or altered due to closures, diversions or Realignments:

- A515 Lichfield Road/Common Lane/Shaw Lane – Common Lane will be closed and the A515 Lichfield Road (north) arm realigned;
- Pipe Wood Lane/Pipe Wood Lane diverted – a new junction of Pipe Wood Lane with its diverted section;
- Pipe Wood Lane/Dawson Lane – a new junction as a result of the Pipe Wood Lane diversion;
- Hollow Lane/Stonyford Lane – the existing Hollow Lane/Stonyford Lane junction is realigned as a result of the Stonyford Lane diversion;
- Blithbury Lane/Hadley Gate – the existing Blithbury Lane/Hadley Gate junction is relocated as a result of the Hadley Gate diversion; and
- Newlands Lane/Moor Lane - the existing Newlands Lane/Moor Lane junction is relocated as a result of the Newlands Lane diversion.

Junction performance 2027

A515 Lichfield Road/Common Lane/Shaw Lane

7.6.7 Common Lane is to be closed and the A515 Lichfield Road (north) is to be realigned as a result of the Proposed Scheme. Table 179 summarises the results of the changes to the junction as a result of the Proposed Scheme.

Table 179: A515 Lichfield Road/Common Lane/Shaw Lane junction 2027 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline (existing layout)**			**2027 with the Proposed Scheme (proposed layout)**		
Common Lane (ahead + left + right)	0	0.00	0	Common Lane Closed		
A515 Lichfield Road (north) (ahead + left + right)	4	0.01	0	4	0.01	0
A515 Lichfield Road (north) (left)	2	-	-	2	-	-
A515 Lichfield Road (north) (ahead)	388	-	-	388	-	-
Shawn Lane (ahead + left + right)	8	0.02	0	9	0.02	0
A515 Lichfield Road (south) (ahead + left + right)	4	0.01	0	3	0.01	0
A515 Lichfield Road (south) (left)	2	-	-	2	-	-
A515 Lichfield Road (south) (ahead)	246	-	-	246	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Common Lane (ahead + left + right)	0	0.00	0	Common Lane Closed		
A515 Lichfield Road (north) (ahead + left + right)	0	0.00	0	0	0.00	0
A515 Lichfield Road (north) (left)	2	-	-	2	-	-
A515 Lichfield Road (north) (ahead)	222	-	-	222	-	-
Shawn Lane (ahead + left + right)	9	0.02	0	9	0.02	0
A515 Lichfield Road (south) (ahead + left + right)	0	0.00	0	0	0.00	0
A515 Lichfield Road (south) (left)	5	-	-	5	-	-
A515 Lichfield Road (south) (ahead)	286	-	-	286	-	-

7.6.8 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches, consistent with the existing layout future baseline operation.

Pipe Lane/Pipe Lane (diverted)

7.6.9 As a result of the Pipe Lane diversion, a new junction will be formed approximately 70m north of the Proposed Scheme. The junction takes the form of a simple priority controlled (give way) T-junction with no controlled pedestrian crossing facilities. Table 180 summarises the results of the performance of the new junction in 2027 with the Proposed Scheme.

Table 180: Pipe Lane/Pipe Lane (diverted) junction 2027 with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Pipe Lane (diverted) (left + right)	-	-	-	5	0.01	0
Pipe Lane (east-bound) (ahead + right)	-	-	-	8	0.01	0
Pipe Lane (east-bound) (ahead)	-	-	-	16	-	-
Pipe Lane (west-bound) (left)	-	-	-	0	-	-
Pipe Lane (west-bound) (ahead)	-	-	-	21	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Pipe Lane (diverted) (left + right)	-	-	-	12	0.03	0
Pipe Lane (east-bound) (ahead + right)	-	-	-	5	0.01	0
Pipe Lane (east-bound) (ahead)	-	-	-	10	-	-
Pipe Lane (west-bound) (left)	-	-	-	0	-	-
Pipe Lane (west-bound) (ahead)	-	-	-	29	-	-

7.6.10 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

Pipe Lane/Dawson Lane

7.6.11 As a result of the Pipe Lane diversion, a new junction will be formed approximately 250m north-east of the Proposed Scheme. The junction takes the form of a simple priority controlled (give way) T-junction with no controlled pedestrian crossing facilities. Table 181 summarises the results of the performance of the new junction in 2027 with the Proposed Scheme.

Table 181: Pipe Lane/Dawson Lane junction 2027 with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Dawson Lane (left + right)	-	-	-	0	0.00	0
Pipe Lane (north) (ahead + right)	-	-	-	3	0.00	0
Pipe Lane (north) (ahead)	-	-	-	5	0.00	0
Pipe Lane (south) (left)	-	-	-	0	-	-
Pipe Lane (south) (ahead)	-	-	-	0	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Dawson Lane (left + right)	-	-	-	0	0.00	0
Pipe Lane (north) (ahead + right)	-	-	-	1	0.00	0
Pipe Lane (north) (ahead)	-	-	-	7	0.00	0
Pipe Lane (south) (left)	-	-	-	0		
Pipe Lane (south) (ahead)	-	-	-	12		

7.6.12 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

Blithbury Road/Stonyford Lane

7.6.13 Stonyford Lane is to be diverted as a result of the Proposed Scheme, resulting in a new location of the Blithbury Road/Stonyford Lane junction. The traffic levels at the junction will not change. Table 182 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme.

Table 182: Blithbury Road/Stonyford Lane junction 2027 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline (existing layout)**			**2027 with the Proposed Scheme (proposed layout)**		
Stonyford Lane (left + right)	54	0.10	0	54	0.09	0
Blithbury Road (west) (ahead)	87	-	-	87	-	-
Blithbury Road (west) (right)	34	0.06	0	34	0.06	0
Blithbury Road (east) (left)	0	-	-	0	-	-
Blithbury Road (east) (ahead)	46	-	-	46	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Stonyford Lane (left + right)	36	0.07	0	36	0.06	0
Blithbury Road (west) (ahead)	48	-	-	48	-	-
Blithbury Road (west) (right)	41	0.07	0	41	0.08	0
Blithbury Road (east) (left)	2	-	-	2	-	-
Blithbury Road (east) (ahead)	47	-	-	47	-	-

7.6.14 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches, consistent with the existing layout future baseline operation.

Blithbury Road/Hadley Gate

7.6.15 Hadley Gate is to be diverted as a result of the Proposed Scheme, resulting in a new location of the Blithbury Road/Hadley Gate junction. The traffic levels at the junction will not change. Table 183 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme.

Table 183: Blithbury Road/Hadley Gate junction 2027 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline (existing layout)**			**2027 with the Proposed Scheme (proposed layout)**		
Hadley Gt (left + right)	0	0.00	0	0	0.00	0
Blithbury Road (east) (ahead)	43	-	-	43	-	-
Blithbury Road (east) (right)	0	0.00	0	0	0.00	0
Blithbury Road (west) (left)	0	-	-	0	-	-
Blithbury Road (west) (ahead)	89	-	-	89	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Hadley Gt (left + right)	0	0.00	0	0	0.00	0
Blithbury Road (east) (ahead)	50	-	-	50	-	-
Blithbury Road (east) (right)	1	0.00	0	1	0.00	0
Blithbury Road (west) (left)	1	-	-	1	-	-
Blithbury Road (west) (ahead)	45	-	-	45	-	-

7.6.16 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches, consistent with the existing layout future baseline operation.

Newlands Lane/Moor Lane

7.6.17 Newlands Lane is to be diverted as a result of the Proposed Scheme, resulting in a new location of the Newlands Lane/Moor Lane junction. The traffic levels at the junction will not change. Table 184 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme.

Table 184: Newlands Lane/Moor Lane junction 2027 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline (existing layout)**			**2027 with the Proposed Scheme (proposed layout)**		
Moor Lane (left + right)	8	0.02	0	8	0.02	0
Newlands Lane (north) (ahead + right)	5	0.01	0	5	0.01	0
Newlands Lane (north) (ahead)	9	-	-	9	-	-
Newlands Lane (south) (left)	6	-	-	6	-	-
Newlands Lane (south) (ahead)	0	-	-	0	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Moor Lane (left + right)	8	0.02	0	8	0.02	0
Newlands Lane (north) (ahead + right)	4	0.01	0	4	0.01	0
Newlands Lane (north) (ahead)	6	-	-	6	-	-
Newlands Lane (south) (left)	0	-	-	0	-	-
Newlands Lane (south) (ahead)	0	-	-	0	-	-

7.6.18 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches, consistent with the existing layout future baseline operation.

Strategic and local road network traffic flows 2041

7.6.19 The HS2 operational impacts in 2041 do not differ from those reported at 2027. On this basis, traffic flows on all links in CA1 are either unchanged from the 2041 future baseline or result in very minor increases due to maintenance traffic or reassignment of traffic as a result of the permanent realignments and closures.

Junction performance 2041

7.6.20 The same junctions that have been assessed for the future baseline year 2027 have also been assessed for the future baseline year 2041. The operational impacts of Hs2 Phase 2a 2041 do not differ from those reported in 2027.The only difference between the two assessments, 2027 and 2041, is the level of background traffic growth.

A515 Lichfield Road/Common Lane/Shaw Lane

7.6.21 Table 185 summarises the results of the changes to the junction as a result of the Proposed Scheme in 2041.

Table 185: A515 Lichfield Road/Common Lane/Shaw Lane junction 2041 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline (existing layout)**			**2041 with the Proposed Scheme (proposed layout)**		
Common Lane (ahead + left + right)	5	0.02	0	5	0.02	0
A515 Lichfield Road (north) (ahead + left + right)	5	0.01	0	5	0.01	0
A515 Lichfield Road (north) (left)	3	-	-	3		
A515 Lichfield Road (north) (ahead)	432	-	-	432		
Shawn Lane (ahead + left + right)	9	0.02	0	9	0.03	0
A515 Lichfield Road (south) (ahead + left + right)	4	0.01	0	4	0.01	0
A515 Lichfield Road (south) (left)	3	-	-	3		
A515 Lichfield Road (south) (ahead)	274	-	-	274		
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Common Lane (ahead + left + right)	0	0.00	0	0	0.00	0
A515 Lichfield Road (north) (ahead + left + right)	0	0.00	0	0	0.00	0
A515 Lichfield Road (north) (left)	3	-	-	3		
A515 Lichfield Road (north) (ahead)	247			247		
Shawn Lane (ahead + left + right)	10	0.02	0	12	0.03	0
A515 Lichfield Road (south) (ahead + left + right)	0	0.00	0	0	0.00	0
A515 Lichfield Road (south) (left)	5			5		
A515 Lichfield Road (south) (ahead)	319			318		

7.6.22 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches, consistent with the existing layout future baseline operation.

Pipe Lane/Pipe Lane (diverted)

7.6.23 Table 186 summarises the results of the performance of the new junction in 2041 with the Proposed Scheme.

Table 186: Pipe Lane/Pipe Lane (diverted) junction 2041 with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Pipe Lane (diverted) (left + right)	-	-	-	6	0.01	0
Pipe Lane (east-bound) (ahead + right)	-	-	-	9	0.02	0
Pipe Lane (east-bound) (ahead)	-	-	-	18	-	-
Pipe Lane (west-bound) (left)	-	-	-	0	-	-
Pipe Lane (west-bound) (ahead)	-	-	-	24	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Pipe Lane (diverted) (left + right)	-	-	-	14	0.03	0
Pipe Lane (east-bound) (ahead + right)	-	-	-	6	0.01	0
Pipe Lane (east-bound) (ahead)	-	-	-	12	-	-
Pipe Lane (west-bound) (left)	-	-	-	0	-	-
Pipe Lane (west-bound) (ahead)	-	-	-	34	-	-

7.6.24 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

Pipe Lane/Dawson Lane

7.6.25 Table 187 summarises the results of the performance of the new junction in 2041 with the Proposed Scheme.

Table 187: Pipe Lane/Dawson Lane (to Blithbury Road) junction 2041 with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Dawson Lane (left + right)	-	-	-	0	0.00	0
Pipe Lane (north) (ahead + right)	-	-	-	3	0.00	0
Pipe Lane (north) (ahead)	-	-	-	5		
Pipe Lane (south) (left)	-	-	-	0		
Pipe Lane (south) (ahead)	-	-	-	5		
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Dawson Lane (left + right)	-	-	-	0	0.00	0
Pipe Lane (north) (ahead + right)	-	-	-	1	0.00	0
Pipe Lane (north) (ahead)	-	-	-	8		
Pipe Lane (south) (left)	-	-	-	0		
Pipe Lane (south) (ahead)	-	-	-	14		

7.6.26 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

Blithbury Road/Stonyford Lane

7.6.27 Table 188 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2041.

Table 188: Blithbury Road /Stonyford Lane junction 2041 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline (existing layout)**			**2041 with the Proposed Scheme (proposed layout)**		
Stonyford Lane (left + right)	61	0.11	0	61	0.10	0
Blithbury Road (west) (ahead)	98	-	-	98	-	-
Blithbury Road (west) (right)	38	0.06	0	38	0.07	0
Blithbury Road (east) (left)	0	-	-	0	-	-
Blithbury Road (east) (ahead)	51	-	-	51	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Stonyford Road (left + right)	42	0.08	0	42	0.07	0
Blithbury Road (west) (ahead)	56			56		
Blithbury Road (west) (right)	47	0.08	0	47	0.09	0
Blithbury Road (east) (left)	3			3		
Blithbury Road (east) (ahead)	54			54		

7.6.28 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches, consistent with the existing layout future baseline operation.

Blithbury Road/Hadley Gate

7.6.29 Table 189 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2041.

Table 189: Blithbury Road/Hadley Gate junction 2041 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline (existing layout)**			**2041 with the Proposed Scheme (proposed layout)**		
Hadley Gt (left + right)	0	0.00	0	0	0.00	0
Blithbury Road (east) (ahead)	49	-	-	49	-	-
Blithbury Road (east) (right)	0	0.00	0	0	0.00	0
Blithbury Road (west) (left)	0	-	-	0	-	-
Blithbury Road (west) (ahead)	100	-	-	100	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Hadley Gt (left + right)	0	0.00	0	0	0.00	0
Blithbury Road (east) (ahead)	58	-	-	58	-	-
Blithbury Road (east) (right)	1	0.00	0	1	0.00	0
Blithbury Road (west) (left)	1	-	-	1	-	-
Blithbury Road (west) (ahead)	52	-	-	52	-	-

7.6.30 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches, consistent with the existing layout future baseline operation.

Newlands Lane/Moor Lane

7.6.31 Table 190 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2041.

Table 190: Newlands Lane/Moor Lane junction 2041 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline (existing layout)**			**2041 with the Proposed Scheme (proposed layout)**		
Moor Lane (left + right)	9	0.02	0	9	0.02	0
Newlands Lane (north) (ahead + right)	5	0.01	0	5	0.01	0
Newlands Lane (north) (ahead)	10	-	-	10	-	-
Newlands Lane (south) (left)	7	-	-	7	-	-
Newlands Lane (south) (ahead)	0	-	-	0	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Moor Lane (left + right)	9	0.02	0	9	0.02	0
Newlands Lane (north) (ahead + right)	4	0.01	0	4	0.01	0
Newlands Lane (north) (ahead)	7	-	-	7	-	-
Newlands Lane (south) (left)	0	-	-	0	-	-
Newlands Lane (south) (ahead)	0	-	-	0	-	-

7.6.32 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches, consistent with the existing layout future baseline operation.

Accidents and safety

7.6.33 The baseline safety analysis identified no locations which had experienced an accident cluster over a three year period. In any case there are no locations in the Fradley to Colton area where there are substantial forecast increases in traffic flows due to the operation of the Proposed Scheme. New highway links and junctions will be constructed to current standards and/or in keeping with the existing infrastructure. The Proposed Scheme is unlikely to create any new safety concerns.

Parking and loading

7.6.34 There are no committed changes in the car parks or parking restrictions in the Fradley to Colton area. It is not expected that the Proposed Scheme will have any substantial impacts on car parking or parking restrictions in the Fradley to Colton area, in terms of either the 2027 or 2041 operation assessments.

Public transport

Rail network

7.6.35 There are no local changes to the rail network or operations in this CA as a result of the Proposed Scheme. The wider impacts of HS2 services in considered in section 12, Route-wide and Off-route assessment.

Local bus services

7.6.36 Local bus routes will be affected where the road corridors used cross the Proposed Scheme and where the Proposed Scheme results in the changes in the route taken.

7.6.37 Of the four corridors identified in the existing baseline (further details in Annex B Tables B1 to B4), only two corridors are bus services affected by the Proposed Scheme. The A515 Lichfield Road will be diverted west onto a new alignment, affecting one journey per day (in the AM peak in one direction only) on route 810. However, the diversion does not increase route distance and will have no impact on the bus service.

7.6.38 On Newlands Lane in Stockwell Heath village, a new underbridge will be constructed on the route of bus 823 (one journey per day in one direction only, interpeak). This does not increase route distance and will have no impact on the bus service.

Public transport interchanges

7.6.39 There are no substantial public transport interchange facilities in the Fradley to Colton area and no committed proposals for public transport interchange facilities in this area in terms of either the 2027 or 2041 operation assessments.

Pedestrian, cyclist and equestrian

7.6.40 Compared to the existing baseline, the operational scheme will affect PRoW used by pedestrians, cyclists and equestrians that cross the route of the Proposed Scheme and where the operation of the Proposed Scheme results in changes to PRoW.

7.6.41 Locations where roads used by pedestrians, cyclists and equestrians are permanently diverted, realigned or reinstated are shown in Table 191 and Table 192 below. The tables summarise the permanent diversions, realignments and extensions required to PRoW and roads to accommodate the Proposed Scheme.

Table 191: CA1 permanent changes to public rights of way for non-motorised users

PRoW name	Change in length	New over-or under bridge
Kings Bromley Footpath 1	Diversion for travel to the north-east (towards A513/Nethertown) is 500m shorter; diversion for travel to the south east (Shaw Lane/A515) is 500m longer	None
Kings Bromley Footpath 12	Extension to realigned A515 Lichfield Road makes footpath 250m longer	None
Mavesyn Ridware Footpath 7	Realignment and truncation to realigned B5014 Uttoxeter Road makes footpath a minimal distance shorter.	None
Mavesyn Ridware Footpath 8	Diversion is 600m longer	Mavesyn Ridware Footpath 38 accommodation overbridge
Mavesyn Ridware Footpath 9	Extension to realigned B5014 Uttoxeter Road is 150m longer	None
Mavesyn Ridware Footpath 30	Diversion results in minimal change in travel distance	None
Mavesyn Ridware Footpath 32	Diversion results in minimal change in travel distance	None
Mavesyn Ridware Footpath 33	Diversion results in >100m change in travel distance	None

PRoW name	Change in length	New over-or under bridge
Mavesyn Ridware Footpath 38	Diversion for travel to the south (via Pipe Lane/Footpath 37) is 250m longer; diversion for travel to the north (Pipe Lane to Footpath 8) is 50m shorter	Mavesyn Ridware Footpath 38 accommodation overbridge
Colton BOAT 16	Truncated at new Blithbury Road makes Byway 100m shorter	Blithbury Road accommodation overbridge
Colton Footpath 17	Truncated footpath is 200m shorter. Diversion for travel to the west via Blithbury Road is 200m longer; diversion for travel to the east via Blithbury Road is 200m shorter	None
Colton Bridleway 31	300m of Bridleway is upgraded to access road. No impact on overall route length	None
Colton Bridleway 33	450m of Bridleway is upgraded to access road. No impact on overall route length	None
Colton Footpath 34	Diversion for travel to the west via Newlands Lane is 400m longer; diversion for travel to the east via Newlands Lane is 100m shorter	Newlands Lane (south) accommodation overbridge
Colton Footpath 36	Diversion via new underbridge is 500m longer	Newlands Lane (north) accommodation underbridge
Colton Footpath 52	Diversion results in >100m change in travel distance	Newlands Lane (north) accommodation underbridge
Colton Footpath 73	Diversion results in minimal change in travel distance	Colton Footpath 73 accommodation overbridge
Colton Footpath 76	Diversion does not result in any change in travel distance	None

Table 192: CA1 permanent changes to roads for non-motorised users

Road name	Change in length	New over/under bridge
Common Lane (south)	Diversion via A515 Lichfield Road / Crawley Lane is 2.5km	None
A515 Lichfield Road	Realignment does not result in any change in travel distance.	None
Shaw Lane	Diversion results in a minimal change in travel distance	None
Pipe Lane	Diversion is 500m longer via Pipe Lane; pedestrian-only diversion via Quintons Orchard and Footpath 38 overbridge is 300m longer.	Mavesyn Ridware Footpath 38 accommodation overbridge
B5014 Uttoxeter Road	Realignment does not result in any change in travel distance.	B5014 Uttoxeter Road accommodation overbridge
Stonyford Lane	Diversion at Blithbury Road for travel to the south is 150m shorter. Diversion at B5014 Uttoxeter Road for travel to the east is 100m shorter; for travel to the west is a minimal distance longer	None
Blithbury Road	Realignment for travel to the south is 100m longer.	Blithbury Road accommodation overbridge
Hadley Gate Lane	Diversion for travel to the east on Blithbury Road is 150m longer; for travel to the west is 650m longer; and for travel to the south (to Stonyford Lane) is 700m longer	Blithbury Road accommodation overbridge (for travel to the west and south only)
Newlands Lane	Realignment via new overbridge does not result in any change in travel distance. Underbridge in Stockwell Heath does not results in any change in travel distance	Newlands Lane (south) accommodation overbridge and Newlands Lane (north) accommodation underbridge
Moor Lane	Diversion to village / for travelling north via new underbridge is 200m longer; diversion for travel to the south is 200m shorter.	Newlands Lane (north) accommodation underbridge
B5013 Uttoxeter Road	Realignment does not result in any change in travel distance	B5013 Uttoxeter Road accommodation underbridge
Jonghams Lane	Extension to realigned B5013 Uttoxeter Road results in an additional 50m length.	None

7.6.43 Within these diversions and reinstatements, around half of the routes affected experience either no change in length, or the routes become shorter (e.g. on Colton BOAT 16 and Stonyford Lane). A further five changes result in diversions which increase route length up to 250m on footpaths, as well as on Moor Lane.

7.6.44 Other routes experience larger changes in length of diversion, including between Hadley Gate Lane and Stonyford Lane, up to 700m. In some cases (Kings Bromley Footpath 1, Mavesyn Ridware Footpath 38, and Colton Footpaths 17 and 34) travel routes to other directions will also become shorter.

7.6.45 Other longer diversions include Mavesyn Ridware Footpath 8, Colton Footpaths 34 and 38 and Moor Lane. These are effectively diverted to other nearby lanes or PRoWs

in order to share crossing points of the Proposed Scheme, resulting in increases in route length of up to 500m. When surveyed in summer 2016, no affected footpaths in the Fradley to Colton area had more than 12 daily users.

7.6.46 Road diversions around the closures of Common Lane, Pipe Lane, Hadley Gate Lane and Moor Lane will also affect pedestrian, cyclist and equestrian users. Following the closure of Common Lane, there will be a diversion of up to 2.5km via A515 Lichfield Road and Crawley Lane for all non-motorised users.

7.6.47 In the case of Pipe Lane, local access for some users would be retained, avoiding lengthy highways diversion by using a the footpath route via Quintons Orchard and the Footpath 38 overbridge results in a reduced diversion route length of 300m on Pipe Lane. This compares to the longer diversion for Pipe Lane which cyclists and equestrians would have to follow, using the on-road route via Pipe Lane and Dawsons Lane, resulting in additional distance of around 500m to these less distance-sensitive users.

Waterways and canals

7.6.48 The Proposed Scheme makes no changes to waterways or canals in CA1 and consequently has no impact upon them.

8 CA2 Colwich to Yarlet – appraising the impact of the Proposed Scheme

8.1 Assessment methodology

8.1.1 The assessment methodology is as outlined in the overarching methodology section of the report, with specific details and exceptions outlined as relevant in the following sections.

8.2 CA2 Proposed Scheme future baseline

Key future baseline issues

8.2.1 The key changes in baseline in relation to the Colwich to Yarlet area are expected to relate to general background growth in traffic flows between 2016 and 2041 that will occur irrespective of the Proposed Scheme.

8.2.2 Committed changes to the transport networks include the M6 smart motorway improvement scheme and local highway improvements within Stafford which are described in this section.

Land use assumptions

8.2.3 The following sources have been analysed in order to determine the impact of future land uses upon future traffic and transport conditions:

- TEMPro growth rates;
- Stafford SATURN model;
- M6 SMP J13-15 SATURN model;
- Local Plan documents (Stafford Local Plan and Colwich Neighbourhood Plan); and
- local planning authority planning portals to obtain details of recently consented, committed development that is not included in the sources above. This allows the impact of these committed developments to be considered at a very local level i.e. at roads and junctions in close proximity to the committed sites.

8.2.4 The only committed development that needed to be included within these calculations is the Land off A34, North Redhill, Stafford, comprising B1, B2 and B8 uses. Traffic resulting from the committed development was assigned to links using assumptions obtained from supporting planning application documents, where available.

8.2.5 For appropriate links and junctions in the Stafford SATURN Model area, a comparison was undertaken between the growth predicted in the Stafford SATURN Model and the growth predicted by TEMPro. The higher of the equivalent growth rates was used to forecast the traffic growth on that link/junction to the future 2023 construction year and the 2027 and 2041 operation years.

8.2.6 For the M6 corridor only, the same methodology was applied, with the higher equivalent growth rate from the M6 model or TEMPro used to forecast traffic growth on M6 links and junctions in the 2023 construction year and the 2027 and 2041 operational year assessments.

8.2.7 For links and junctions not included in the Stafford or M6 Saturn Model area, TEMPro plus any committed development (in this case Land off A34, North Redhill, Stafford) have been used to generate future year traffic flows.

8.2.8 The use of TEMPro and local traffic models, with further adjustment for known developments, means that forecast traffic growth will not be uniform on all links and at junctions. Necessarily traffic growth will be aligned to specific vehicle trip generators and attractors and or transport scheme interventions. The result is that growth factors vary across the CA. Notwithstanding this, it is possible to produce an overall average growth factor for links in CA2, calculated using the total link flows for each future year. These overall growth factors are summarised in Table 193 below.

Table 193: CA2 traffic growth summary

Period	AM Peak	PM Peak
2016 - 2023	+9%	+9%
2016 - 2027	+13%	+13%
2016 - 2041	+24%	+25%

Transport supply assumptions

8.2.9 The only substantial committed change to the SRN in the Colwich to Yarlet area is the M6 smart motorway improvement scheme, to include hard-shoulder running and variable speed limits on the M6 between junction 13 and 15, the first section of which (junction 13 to junction 14) falls within this CA.

8.2.10 Committed highways schemes on the local highway network have been obtained from supporting documentation to the Stafford SATURN model. The following schemes directly impact the junctions within the study area:

- Beaconside Urban Boulevard and Redhill Roundabout (proposed signalisation);
- Stafford Eastern Distributor Road, new north / south road connecting Weston Road in the north with Tixall Road to the south and a new signalised junction will be provided at Tixall Road set to open in 2017; and
- Stafford Northern Perimeter Road.

8.2.11 These committed highway improvements are taken into account in the future baseline networks and traffic flows.

Highway network

8.2.12 As appropriate and except where otherwise stated, this assessment includes in the future baseline changes in traffic flows or networks arising from HS2 Phase One scheme. However, in CA2 there are no such impacts on the future baseline.

Strategic road network and primary 'A' road traffic flows

8.2.13 The M6 motorway is the only section of the SRN within the study area, alongside primary 'A' roads, the A34 Stone Road, A51 Lichfield Road and A518 Weston Road.

8.2.14 Table 194 summarises the 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows, in comparison to the 2016 baseline flows.

Local road network traffic flows

8.2.15 Table 195 summarises the 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows for roads where it is expected that there is the potential for a substantial impact either during construction or through the operation of the scheme.

Table 194: Strategic and primary road network AM peak hour (8.00 – 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
M6 (between M6 Junction 14 and junction 13)	SB	3721	698	4136	776	4271	801	4746	890	4286	674	4767	750	4920	774	5486	863
	NB	4316	669	4751	736	4909	761	5460	846	4148	517	4631	577	4717	588	5357	668
A34 from M6 Roundabout at Creswell	SB	776	80	843	87	872	90	950	98	806	39	875	42	904	44	998	48
	NB	979	92	1063	99	1100	103	1198	112	754	51	819	56	846	57	934	63
A34 Stone Road (between Redhill Roundabout and Whitgreave Lane)	NB	684	53	742	58	768	60	837	65	1022	24	1110	26	1147	27	1266	30
	SB	1181	61	1282	66	1326	68	1445	75	736	26	799	28	826	29	912	32
A34 Stone Road (between Whitgreave Lane and Yarlet Lane)	NB	684	53	742	58	768	60	837	65	1022	24	1110	26	1147	27	1266	30
	SB	1181	61	1282	66	1326	68	1445	75	736	26	799	28	826	29	912	32
A34 Stone Road (between Yarlet Lane and Stone Road/north bound)	NB	802	53	871	58	901	60	981	65	1081	25	1174	27	1213	28	1338	31
	SB	1258	65	1365	71	1412	73	1538	80	807	25	876	27	906	28	1000	31
A51 Lichfield Road (between Lichfield Road and Rugeley Eastern Bypass)	WB	958	33	1033	35	1066	36	1155	39	943	19	1015	20	1047	21	1136	23
	EB	967	42	1042	45	1076	46	1165	50	1065	28	1147	30	1182	31	1283	34
A51 Lichfield Road (between Hoo Mill Lane and the Proposed Scheme)	NB	697	34	751	36	775	37	839	41	594	16	640	17	660	17	716	19
	SB	670	43	722	46	745	47	807	51	834	26	898	28	926	29	1005	32
A51 Lichfield Road (between Little Tixall Lane and Tolldish Lane)	NB	686	31	739	33	763	34	827	37	565	21	608	22	627	23	681	25
	SB	631	40	680	44	701	45	760	49	749	23	807	24	832	25	903	27
A51 Lichfield Road (between Main Road and Little Tixall Lane)	NB	704	38	759	41	783	43	849	46	573	20	617	22	636	23	690	24
	SB	633	42	683	45	704	46	763	50	773	25	832	27	858	28	932	31
A51 Lichfield Road (between Tolldish Lane and the Proposed Scheme)	NB	697	34	751	36	775	37	839	41	594	16	640	17	660	17	716	19
	SB	670	43	722	46	745	47	807	51	834	26	898	28	926	29	1005	32
A51 London Road (between Hoo Mill Lane and New Road)	NB	551	38	594	41	613	42	664	46	488	22	525	24	542	24	588	26
	SB	532	44	573	48	592	49	641	53	605	37	651	40	672	41	729	45

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 London Road (between New Road and Stafford Road)	NB	749	54	807	58	833	60	902	65	710	28	765	30	788	31	856	33
	SB	632	46	681	49	703	51	762	55	696	27	749	29	772	30	838	33
A51 London Road (between Stafford Road and Uttoxeter Road)	NB	866	63	934	68	964	70	1044	76	727	28	783	31	808	32	877	34
	SB	732	53	789	57	815	59	882	64	890	35	958	37	988	39	1073	42
A51 London Road (between Uttoxeter Road and Church Lane)	WB	628	45	677	48	698	50	756	54	656	22	706	24	728	25	790	27
	EB	661	48	712	52	735	53	796	58	603	17	649	18	670	19	727	20
A51 Main Road (between Bellamour Lane and Main Road)	WB	648	15	698	16	721	17	781	18	699	12	753	13	776	13	842	14
	EB	653	17	704	18	726	19	787	20	737	13	794	14	819	14	889	16
A51 Main Road (between Bishton Lane and Lichfield Road)	NB	637	37	687	40	709	41	768	45	806	22	868	24	895	25	971	27
	SB	806	47	869	51	896	52	971	57	776	22	836	23	862	24	936	26
A518 Stafford Road / Weston Bank between A51 London Road and Willowmore Banks)	SB	778	31	836	33	862	34	933	37	454	13	487	14	502	14	529	15
	NB	404	38	434	41	448	42	484	46	722	14	775	15	798	15	841	16
A518 Weston Bank (between Within Lane and Willowmore Banks)	SB	778	31	836	33	862	34	933	37	454	13	487	14	502	14	529	15
	NB	404	38	434	41	448	42	484	46	722	14	775	15	798	15	841	16
A518 Weston Road (between Blackheath Lane and Hydrant Way)	WB	1097	28	1179	30	1216	31	1315	34	752	13	807	14	831	14	876	15
	EB	707	17	760	18	783	19	848	20	1032	15	1107	16	1140	17	1203	18
A518 Weston Road (between Proposed Scheme and Blackheath Lane)	SB	642	25	865	46	891	47	964	51	446	22	735	49	756	50	814	54
	NB	365	21	514	47	530	48	573	52	713	15	727	36	749	37	806	40
A518 Weston Road (between Within Lane and the Proposed Scheme)	SB	810	32	871	34	898	35	971	38	461	13	495	14	509	15	537	16
	NB	356	35	382	38	394	39	426	42	665	12	714	13	735	13	776	14

Table 195: Local 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
A5013 Eccleshall Road (between Whitgreave Lane and M6 junction 14)	NB	448	19	481	20	496	21	536	22	564	13	605	14	624	14	667	15
	SB	512	18	550	19	567	20	613	22	459	5	493	6	508	6	542	6
A513 Beaconside (between Dyson Way and B5066 Sandon Road)	NB	505	22	913	72	944	75	1029	81	815	19	812	31	839	32	911	35
	SB	878	31	739	44	765	46	833	50	588	23	657	29	679	30	738	33
A513 Beaconside (between Marston Lane and Redhill Roundabout)	WB	726	49	788	53	815	55	888	60	917	28	996	30	1029	31	1136	35
	EB	993	50	1078	55	1115	56	1215	62	662	32	719	35	743	36	820	40
A513 Beaconside (between B5066 Sandon Road and Marston Lane)	WB	594	39	1011	69	1042	71	1128	77	703	18	812	26	836	27	901	29
	EB	772	42	869	40	896	41	970	44	582	27	880	38	906	40	976	43
A513 Beaconside (between B5066 Sandon Road and B5066 Sandon Road/south-bound)	NB	999	48	1085	53	1122	54	1223	59	710	36	771	39	797	40	879	44
	SB	666	32	724	35	748	36	815	39	1041	53	1130	57	1168	59	1289	65
A513 Beaconside (between A518 Weston Road and Dyson Way)	NB	826	18	1247	72	1286	74	1391	80	755	10	759	60	782	62	842	67
	SB	689	15	677	63	698	65	755	70	863	17	806	34	830	35	894	38
A513 Lichfield Road (between Tixall Road and Lichfield Road/eastern Roundabout)	WB	367	2	395	2	407	2	440	3	453	2	486	2	500	2	527	2
	EB	485	5	521	5	537	6	581	6	395	3	424	3	437	4	461	4
B5066 Sandon Bank (between A51 Lichfield Road and Salt Lane)	NB	187	16	202	17	208	17	226	19	419	7	451	7	465	8	505	8
	SB	522	17	562	18	580	19	628	21	198	10	214	11	220	11	239	12
B5066 Sandon Road (between A513 Beaconside and Hopton Lane)	NB	219	13	235	14	242	14	262	15	419	5	449	5	463	5	488	5
	SB	494	13	531	14	548	15	593	16	179	4	192	4	198	4	209	4

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
B5066 Sandon Road (between Hopton Lane and the Proposed Scheme)	NB	205	12	220	13	227	13	245	14	404	4	434	5	447	5	471	5
	SB	475	12	510	13	526	14	569	15	174	4	187	4	192	4	203	4
B5066 Sandon Road (between the Proposed Scheme and Within Lane)	NB	205	12	220	13	227	13	245	14	404	4	434	5	447	5	471	5
	SB	475	12	510	13	526	14	569	15	174	4	187	4	192	4	203	4
B5066 Sandon Road (between Salt Bank and Within Lane)	NB	187	16	202	17	208	17	226	19	419	7	451	7	465	8	505	8
	SB	522	17	562	18	580	19	628	21	198	10	214	11	220	11	239	12
Great Haywood Road (between Ingestre Park Road and Holdiford Road)	WB	242	3	260	3	269	3	291	3	121	1	130	1	134	1	142	1
	EB	100	3	108	3	111	3	120	4	196	1	210	1	216	1	228	1
Mill Lane (between Hoo Mill Lane (private access road) and Mill Lane/west-bound of Main Road)	NB	255	2	274	2	282	2	305	2	118	1	127	1	131	1	138	1
	SB	115	3	124	3	128	3	138	4	198	1	212	1	219	1	231	1
Mill Lane (between Mill Lane/WB of Main Road and Main Road)	WB	235	0	253	0	261	0	283	0	170	1	183	1	188	1	204	1
	EB	145	0	156	0	161	0	174	0	240	1	259	1	267	1	289	1
Tixall Road (between Holdiford Road and Hanyards Lane)	EB	177	3	163	30	168	31	182	33	461	2	461	25	475	26	512	28
	WB	476	4	588	29	606	30	656	32	217	1	318	16	327	16	352	17
Whitgreave Lane (between A34 Stone Road and Green Lane)	NB	25	1	28	1	28	1	31	1	41	0	44	0	46	0	50	0
	SB	57	2	62	2	64	2	70	2	26	0	28	0	29	0	32	0
Wood End Lane (between A515 Lichfield Road and Netherstowe Lane)	SB	33	0	35	0	36	0	39	0	60	0	65	0	67	0	72	0
	NB	66	1	71	1	73	1	80	1	35	0	38	0	39	0	42	0
Blackheath Lane (north of Tixall Road)	SB	345	6	371	7	383	7	414	7	775	4	832	4	857	4	904	4
	NB	726	5	780	5	804	5	870	5	361	2	387	2	399	2	421	2

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
Blackheath Lane (south of A518 Weston Road)	SB	333	5	358	6	369	6	399	6	758	4	814	4	838	4	884	5
	NB	732	3	786	3	811	3	877	4	470	4	504	4	520	4	548	5
Main Road (between A51 Lichfield Road and Mill Lane)	SB	186	3	200	3	207	3	224	3	266	1	286	1	295	1	320	1
	NB	205	6	221	6	228	6	247	7	170	4	183	5	188	5	204	5
Main Road (between Lichfield Road and Meadow Lane)	NB	118	1	127	1	131	1	142	1	120	0	129	0	133	0	144	0
	SB	104	1	112	1	116	1	125	1	137	0	148	0	152	0	165	0
Main Road (between Main Road and Mill Lane)	NB	118	1	127	1	131	1	142	1	120	0	129	0	133	0	144	0
	SB	104	1	112	1	116	1	125	1	137	0	148	0	152	0	165	0
Yarlet Lane (close to A34 Stone Road)	SEB	22	1	24	1	25	1	27	1	6	0	6	0	7	0	7	0
	NWB	6	0	7	0	7	0	8	0	6	0	6	0	6	0	7	0
Yarlet Lane (close to Marston Lane)	SEB	18	1	20	1	21	2	22	2	2	0	2	0	3	0	3	0
	NWB	2	0	3	0	3	0	3	0	5	0	6	0	6	0	7	0
Salt Road (between B5066 Sandon Road and A518 Weston Bank)	EB	29	0	31	0	32	0	35	0	44	0	47	0	49	0	53	0
	WB	35	1	38	1	39	1	42	1	37	0	40	0	41	0	45	0
Hopton Lane (east of B5066 Sandon Road)	WB	19	0	20	0	21	0	23	0	13	0	14	0	14	0	15	0
	EB	9	0	9	0	10	0	10	0	13	0	14	0	15	0	15	0
Hopton Lane (east of B5066 Sandon Road)	WB	25	1	27	1	28	1	30	1	8	0	9	0	9	0	9	0
	EB	15	1	16	1	17	1	18	1	19	0	20	0	21	0	22	0
Hanyards Lane (east of Tixall Road)	NB	4	0	4	0	4	0	4	0	3	0	3	0	3	0	3	0
	SB	4	1	4	1	5	1	5	1	1	0	2	0	2	0	2	0

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
Ingestre Park Road (between Hoo Mill Lane (private access road) and Trent Walk)	NB	37	1	40	1	41	2	45	2	32	0	34	0	35	0	37	0
	SB	41	2	44	2	46	2	49	2	27	0	28	0	29	0	31	0
Marston Lane (between Yarlet Lane and A513 Beaconside)	SB	31	2	34	2	35	2	38	2	6	0	7	0	7	0	8	0
	NB	6	0	7	0	7	1	8	1	14	0	15	0	16	0	17	0
Marston Lane (east of Yarlet Lane)	EB	5	1	5	1	6	1	6	1	7	0	7	0	8	0	8	0
	WB	13	1	14	1	15	1	16	1	4	0	5	0	5	0	5	0
Within Lane (between B5066 Sandon Road and Wilmore Hill Lane)	EB	162	5	174	5	180	5	195	6	127	5	137	6	141	6	153	7
	WB	118	7	127	8	131	8	142	9	86	2	93	2	96	2	104	2
Tolldish Lane (east of A51 Lichfield Road)	EB	7	0	7	0	7	0	8	0	5	0	6	0	6	0	6	0
	WB	6	0	7	0	7	0	7	0	5	0	5	0	5	0	6	0
Hoo Mill Lane (private access road) (between Ingestre Park Road and Hoo Mill Lane/east-bound)	EB	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	WB	1	1	1	1	1	1	2	1	1	0	1	0	1	0	1	0
Hoo Mill Lane (private road) (between Lichfield Road and Hoo Mill Lane/east-bound)	EB	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	WB	1	1	1	1	1	1	2	1	1	0	1	0	1	0	1	0

Junction operation – future baseline

8.2.16 The performance of the key junctions on the access routes from the SRN through the study area to the construction sites, or those which are affected by the operation of the scheme, have been assessed using the future baseline traffic flows and the results are summarised in the following tables.

8.2.17 Where a junction will be affected by the construction of the Proposed Scheme, future baseline, results are included for 2023. Where a junction is affected by the operation of the Proposed Scheme, which is primarily due to changes in traffic as a result of infrastructure changes in the Proposed Scheme, results are included for 2027 and 2041. Junctions affected by both construction and operation will include results for all three assessment years.

8.2.18 As for the existing baseline, the results for CA2 are presented in the order of Roundabout junctions, priority controlled (give-way), signalised junctions and M6 junction 14. The results for the AM and PM peak hours are presented and the 2016 baseline results are included for reference. The models developed to assess the existing baseline have been used, except where otherwise stated.

A51 Lichfield Road/A51 Rugeley Eastern Bypass/A460 Wolseley Bridge Road

8.2.19 The future baseline performance of this junction is shown in Table 196. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 196: Future year baseline performance at A51 Lichfield Road/A51 Rugeley Eastern Bypass/A460 Wolseley Bridge Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A51 Lichfield Road (west)	1012	0.52	1	1107	0.57	1
A51 Rugeley Eastern Bypass (east)	549	0.35	1	601	0.39	1
A460 Wolseley Bridge Road	682	0.44	1	746	0.49	1
	2016 PM			**2023 PM**		
A51 Lichfield Road (west)	1101	0.55	1	1204	0.6	2
A51 Rugeley Eastern Bypass (east)	867	0.6	2	948	0.67	2
A460 Wolseley Bridge Road	464	0.32	1	508	0.36	1

8.2.20 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 Lichfield Road/A513 Lichfield Road

8.2.21 The future baseline performance of this junction is shown in Table 197. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 197: Future year baseline performance at A51 Lichfield Road/A513 Lichfield Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A51 Lichfield Road (north)	748	0.06	0	825	0.06	0
A51 Lichfield Road (east)	1020	0.44	1	1124	0.49	1
A513 Lichfield Road	376	0.35	1	415	0.4	1
	2016 PM			**2023 PM**		
A51 Lichfield Road (north)	808	0.05	0	890	0.05	0
A51 Lichfield Road (east)	1046	0.45	1	1152	0.5	1
A513 Lichfield Road	397	0.39	1	437	0.45	1

8.2.22 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A518 Weston Road/Beacon Way/Blackheath Lane

8.2.23 The future baseline performance of this junction is shown in Table 198. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 198: Future year baseline performance at A518 Weston Road/Beacon Way/Blackheath Lane junction

Approach	Flow, PCU /hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A518 Weston Road (north)	665	0.62	2	1033	0.9	9
Blackheath Lane	763	0.15	0	492	0.29	1
A518 Weston Road (south)	462	0.27	0	558	0.38	1
Beacon Way	53	0.04	0	233	0.2	0
	2016 PM			**2023 PM**		
A518 Weston Road (north)	538	0.57	1	938	0.88	7
Blackheath Lane	419	0.13	0	321	0.2	0
A518 Weston Road (south)	1224	0.7	2	711	0.45	1
Beacon Way	122	0.18	0	344	0.33	1

8.2.24 The model shows that this junction operates close to its capacity in the AM and PM peak hours, with the A518 Weston Road (north) showing an RFC value of 0.9 and 0.88 in the AM and PM Peak periods, a corresponding queue length of nine and seven PCUs respectively.

A518 Weston Road/A513 Beaconside/Hydrant Way

8.2.25 The future baseline performance of this junction is shown Table 199. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 199: Future year baseline performance at A518 Weston Road/A513 Beaconside/Hydrant Way junction

Approach	Flow, PCU /hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A513 Beaconside	698	0.48	1	962	0.77	4
A518 Weston Bank (east)	1127	0.68	2	688	0.52	1
Hydrant Way	23	0.03	0	1393	1.42	263
A518 Weston Road (west)	665	0.47	1	960	0.84	6
	2016 PM			**2023 PM**		
A513 Beaconside	987	0.71	2	1185	1.08	61
A518 Weston Bank (east)	800	0.49	1	563	0.53	1
Hydrant Way	13	0.01	0	853	0.72	3
A518 Weston Road (west)	732	0.49	1	1135	0.88	8

8.2.26 The inclusion of the eastern distributor road (referred to in the transport supply assumptions) and additional nearby housing development is predicted to result in a substantial increase in traffic flows at this junction in the 2023 future baseline, particularly from the Hydrant Way approach. This results in substantial queuing on some of the approach roads. The model shows that this junction operates over its capacity in the AM and PM peak hours. Hydrant Way has an RFC value of 1.42 in the AM peak with queue length of 263 PCUs. The A513 Beaconside has an RFC value of 1.08 and A518 Weston Road (west) an RFC value of 0.88 in the PM peak, with queue lengths of 61 and eight PCUs respectively.

A34 from M6 Roundabout at Creswell/Mustang Drive

8.2.27 The future baseline performance of this junction is shown in Table 200. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 200: Future year baseline performance at A34 from M6 Roundabout at Creswell/Mustang Drive junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A34 from M6 Roundabout at Creswell (west)	1212	0.58	2	1512	0.73	3
Mustang Drive	107	0.08	0	124	0.11	0
A34 from M6 Roundabout at Creswell (east)	1104	0.52	1	1300	0.62	2
	2016 PM			**2023 PM**		
A34 from M6 Roundabout at Creswell (west)	1084	0.51	1	1263	0.59	2
Mustang Drive	263	0.19	0	302	0.26	0
A34 from M6 Roundabout at Creswell (east)	1067	0.52	1	1263	0.62	2

8.2.28 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 London Road/Church Lane/A51 Lichfield Road/

8.2.29 The future baseline performance of this junction is shown in Table 201. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 201: Future year baseline performance at A51 London Road/Church Lane/A51 Lichfield Road junction

Approach	Flow, PCU /hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Church Lane (left + right)	188	0.41	1	202	0.45	1
A51 Lichfield Road (south east) (ahead)	470	-	-	504	-	-
A51 Lichfield Road (south east) (right)	157	0.3	0	168	0.33	1
A51 London Road (north-west) (left)	41	-	-	44	-	-
A51 London Road (north-west) (ahead)	471	-	-	504	-	-
	2016 PM			**2023 PM**		
Church Lane (left + right)	266	0.64	2	286	0.72	2
A51 Lichfield Road (south east) (ahead)	461	-	-	494	-	-
A51 Lichfield Road (south east) (right)	143	0.29	0	153	0.32	1
A51 London Road (north-west) (left)	8	-	-	9	-	-
A51 London Road (north-west) (ahead)	613	-	-	658	-	-

8.2.30 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 London Road/Pasturefields Lane

8.2.31 The future baseline performance of this junction is shown in Table 202. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 202: Future year baseline performance at A51 London Road/Pasturefields Lane junction

Approach	Flow, PCU /hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU
	2016 AM			2023 AM		
Pasturefields Lane (left + right)	11	0.03	0	12	0.03	0
A51 London Road (south east) (ahead + right)	14	0.02	0	16	0.02	0
A51 London Road (south east) (ahead)	476	-	-	509	-	-
A51 London Road (north-west) (left)	3	-	-	3	-	-
A51 London Road (north-west) (ahead)	511	-	-	547	-	-
	2016 PM			2023 PM		
Pasturefields Lane (left + right)	0	0.00	0	0	0	0
A51 London Road (south east) (ahead + right)	2	0.00	0	3	0	0
A51 London Road (south east) (ahead)	503	-	-	539	-	-
A51 London Road (north-west) (left)	0	-	-	0	-	-
A51 London Road (north-west) (ahead)	623	-	-	668	-	-

8.2.32 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A513 Beaconside/B5066 Sandon Road (east)

8.2.33 The future baseline performance of this junction is shown in Table 203. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 203: Future year baseline performance at A513 Sandon Road/B5066 Sandon Road (east) junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
B5066 Sandon Road (left)	358	1.04	18	345	2.7	156
B5066 Sandon Road (right)	212	1.02	12	330	2.7	149
A513 Beaconside (south) (ahead)	558	-	-	762	-	-
A513 Beaconside (south) (right)	149	0.31	1	292	0.68	2
A513 Beaconside (north) (left)	115	-	-	268	-	-
A513 Beaconside (north) (ahead)	656	-	-	734	-	-
	2016 PM			**2023 PM**		
B5066 Sandon Road (left)	137	0.29	0	152	21.96	85
B5066 Sandon Road (right)	106	0.6	2	167	21.3	96
A513 Beaconside (south) (ahead)	646	-	-	850	-	-
A513 Beaconside (south) (right)	291	0.61	2	440	1.11	33
A513 Beaconside (north) (left)	201	-	-	406	-	-
A513 Beaconside (north) (ahead)	574	-	-	710	-	-

8.2.34 The model shows that this junction operates over capacity in both the AM and PM peak periods in 2023. The results for the arm B5066 Sandon Road show an RFC values of 2.7 and 21.96 and corresponding queue lengths of 305 and 181 PCUs in the AM and PM respectively, the results for the arm A513 Beaconside (south) show an RFC value of 1.11 and corresponding queue lengths of 33 PCUs in the PM peak.

8.2.35 It is understood that a highway improvement scheme at this junction, associated with substantial housing growth, is currently being considered by SCC in order to mitigate the impact of other proposed development in Stafford. This is being pursued independently of the Proposed Scheme.

Tixall Road/Hanyards Lane

8.2.36 The future baseline performance of this junction is shown in Table 204. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 204: Future year baseline performance at Tixall Road/Hanyards Lane junction

Approach	Flow, PCU /hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Hanyards Lane (left + right)	8	0.02	0	9	0.02	0
Tixall Road (west) (ahead + right)	9	0.01	0	11	0.01	0
Tixall Road (west) (ahead)	526	-	-	590	-	-
Tixall Road (east) (left)	3	-	-	3	-	-
Tixall Road (east) (ahead)	196	-	-	220	-	-
	2016 PM			**2023 PM**		
Hanyards Lane (left + right)	0	0	0	0	0	0
Tixall Road (west) (ahead + right)	0	0	0	0	0	0
Tixall Road (west) (ahead)	245	-	-	293	-	-
Tixall Road (east) (left)	0	-	-	0	-	-
Tixall Road (east) (ahead)	418	-	-	501	-	-

8.2.37 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A513 Beaconside/Marston Lane

8.2.38 The future baseline performance of this junction is shown in Table 205. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 205: Future year baseline performance at A513 Beaconside/Marston Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Marston Lane (left + right)	43	0.27	0	46	0.42	1
A513 Beaconside (west) (left)	9	-	-	10	-	-
A513 Beaconside (west) (ahead)	871	-	-	944	-	-
A513 Beaconside (west) (ahead)	260	-	-	281	-	-
A513 Beaconside (west) + Marston Lane (ahead)	880	-	-	954	-	-
A513 Beaconside (west) + Marston Lane (right)	275	0.56	1	297	0.63	2
Common Road (left)	189	0.38	1	204	0.43	1
Common Road (right)	14	0.14	0	15	0.23	0
A513 Beaconside (east) (left)	71	-	-	77	-	-
A513 Beaconside (east) (ahead)	651	-	-	703	-	-
A513 Beaconside (east) (ahead)	7	-	-	8	-	-
Common Road + A513 Beaconside (east) (ahead)	836	-	-	902	-	-
Common Road + A513 Beaconside (east) (right)	11	0.03	0	12	0.03	0
	2016 PM			**2023 PM**		
Marston Lane (left + right)	15	0.06	0	18	0.12	0
A513 Beaconside (west) (left)	11	-	-	13	-	-
A513 Beaconside (west) (ahead)	628	-	-	746	-	-
A513 Beaconside (west) (ahead)	95	-	-	113	-	-
A513 Beaconside (west) + Marston Lane (ahead)	631	-	-	750	-	-
A513 Beaconside (west) + Marston Lane (right)	100	0.23	0	119	0.31	1
Common Road (left)	244	0.57	1	290	0.83	4
Common Road (right)	31	0.22	0	37	0.6	1
A513 Beaconside (east) (left)	40	-	-	48	-	-
A513 Beaconside (east) (ahead)	871	-	-	1035	-	-
A513 Beaconside (east) (ahead)	6	-	-	7	-	-
Common Road + A513 Beaconside (east) (ahead)	1105	-	-	1312	-	-
Common Road + A513 Beaconside (east) (right)	16	0.03	0	19	0.04	0

8.2.39 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

B5066 Sandon Road/Hopton Lane

8.2.40 The future baseline performance of this junction is shown in Table 206. As the junction is only affected by the operation of the Proposed Scheme and not the construction, future baseline results are presented for 2027 and 2041 only.

Table 206: Future year baseline performance at B5066 Sandon Road/Hopton Lane junction

Approach	Flow, PCU /hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU	Flow, PCU /hr	RFC	Q, PCU
	2016 AM			**2027 AM**			**2041 AM**		
Hopton Lane (left + right)	21	0.05	0	24	0.05	0	26	0.06	0
B5066 Sandon Road (south) (ahead + right)	20	0.03	0	25	0.04	0	28	0.05	0
B5066 Sandon Road (south) (ahead)	233	-	-	262	-	-	282	-	-
B5066 Sandon Road (north) (left)	6	-	-	7	-	-	7	-	-
B5066 Sandon Road (north) (ahead)	515	-	-	584	-	-	632	-	-
	2016 PM			**2027 PM**			**2041 AM**		
Hopton Lane (left + right)	9	0.02	0	10	0.02	0	11	0.02	0
B5066 Sandon Road (south) (ahead + right)	34	0.04	0	42	0.05	0	46	0.06	0
B5066 Sandon Road (south) (ahead)	445	-	-	500	-	-	525	-	-
B5066 Sandon Road (north) (left)	4	-	-	5	-	-	5	-	-
B5066 Sandon Road (north) (ahead)	213	-	-	241	-	-	254	-	-

8.2.41 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 Lichfield Road/Tolldish Lane

8.2.42 The future baseline performance of this junction is shown in Table 207. As the junction is only affected by the operation of the Proposed Scheme and not the construction, future baseline results are presented for 2027 and 2041 only.

Table 207: Future year baseline performance at A51 Lichfield Road/Tolldish Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2027 AM**			**2041 AM**		
Tolldish Lane (east) (ahead + left + right)	8	0.04	0	9	0.06	0	10	0.09	0
A51 Lichfield Road (north) (left)	1	-	-	1	-	-	1	-	-
A51 Lichfield Road (north) (ahead)	609	-	-	677	-	-	733	-	-
A51 Lichfield Road (north) (right)	149	0.33	1	166	0.39	1	180	0.44	1
Little Tixall Lane (west) (ahead + left)	150	0.36	1	167	0.50	1	181	0.96	7
Little Tixall Lane (west) (ahead + right)	77	0.39	1	85	0.58	1	92	0.91	5
A51 Lichfield Road (south) (left)	72	-	-	80	-	-	87	-	-
A51 Lichfield Road (south) (ahead)	675	-	-	750	-	-	812	-	-
A51 Lichfield Road (south) (right)	5	0.01	0	5	0.01	0	5	0.01	0
	2016 PM			**2027 PM**			**2041 PM**		
Tolldish Lane (east) (ahead + left + right)	8	0.04	0	9	0.05	0	10	0.07	0
A51 Lichfield Road (north) (left)	4	-	-	5	-	-	5	-	-
A51 Lichfield Road (north) (ahead)	746	-	-	828	-	-	899	-	-
A51 Lichfield Road (north) (right)	185	0.38	1	206	0.44	1	223	0.50	1
Little Tixall Lane (west) (ahead + left)	106	0.21	0	117	0.25	0	127	0.32	1
Little Tixall Lane (west) (ahead + right)	43	0.22	0	48	0.31	0	52	0.44	1
A51 Lichfield Road (south) (left)	76	-	-	84	-	-	91	-	-
A51 Lichfield Road (south) (ahead)	554	-	-	615	-	-	668	-	-
A51 Lichfield Road (south) (right)	2	0.01	0	2	0.01	0	2	0.01	0

8.2.43 The results show that the junction approaches capacity in 2041 on the Little Tixall Lane arm in the AM peak with an RFC value of 0.96 and a queue length of seven PCUs.

A51 London Road/A518 Stafford Road

8.2.44 The future baseline performance of this junction is shown in Table 208. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 208: Future year baseline performance at A51 London Road/A518 Stafford Lane junction

Approach	Flow, PCU /hr	DoS	Q, PCU	Flow, PCU /hr	DoS	Q, PCU
	2016 AM			**2023 AM**		
A518 Stafford Road	442	74%	7	489	79%	8
A51 London Road (south) (left turn)	305	74%	8	335	81%	10
A51 London Road (south) (ahead)	510	58%	6	566	65%	7
A51 London Road (north) (ahead)	462	35%	5	507	39%	6
A51 London Road (north) (right turn)	516	72%	12	565	81%	15
	2016 PM			**2023 PM**		
A518 Stafford Road	687	69%	7	746	75%	8
A51 London Road (south) (left turn)	202	54%	5	221	63%	6
A51 London Road (south) (ahead)	519	66%	7	564	76%	8
A51 London Road (north) (ahead)	446	44%	7	485	48%	8
A51 London Road (north) (right turn)	318	70%	8	349	73%	9

8.2.45 The results show that the junction operates within capacity in 2023. The A51 London Road approaches, both northbound and southbound, show DoS values of 81% and queue lengths of 10 and 15 PCUs respectively in the AM peak.

A513 Beaconside/B5066 Sandon Road (west)

8.2.46 The future baseline performance of this junction is shown in Table 209. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 209: Future year baseline performance at A513 Beaconside/B5066 Sandon Road (west) junction

Approach	Flow, PCU/hr	DOS	MMQ, PCU	Flow, PCU/hr	DOS	MMQ, PCU
	2016 AM			**2023 AM**		
A513 Beaconside Road (north)	992	74%	14	1076	76%	15
B5066 Sandon Road (west)	494	61%	6	547	74%	8
A513 Beaconside (south) (left turn)	198	22%	3	217	21%	3
A513 Beaconside (south) (ahead)	430	92%	15	478	73%	12
	2016 PM			**2023 PM**		
A513 Beaconside Road (north)	700	96%	14	805	84%	9
B5066 Sandon Road (west)	431	102%	18	491	88%	9
A513 Beaconside (south) (left turn)	345	28%	3	392	33%	4
A513 Beaconside (south) (ahead)	717	67%	14	810	89%	22

8.2.47 The results show that the junction operates within capacity in 2023. The B5066 Sandon Road (west) and A513 Beaconside (south) approaches, show DoS values of 88% and 89% alongside queue lengths of nine and 22 PCUs respectively in the PM peak.

Tixall Road/Blackheath Lane/Baswich Lane

8.2.48 The future baseline performance of this junction is shown in Table 210. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 210: Future year baseline performance at Tixall Road/Blackheath Lane/Baswich Lane

Approach	Flow, PCU/hr	DOS	MMQ, PCU	Flow, PCU/hr	DOS	MMQ, PCU
	2016 AM			**2023 AM**		
Blackheath Lane (north)	374	92%	14	487	97%	20
Tixall Road (east)	534	74%	13	808	104%	44
Baswich Lane (south)	586	95%	21	447	98%	20
Tixall Road (west)	198	78%	6	324	112%	30
	2016 PM			**2023 PM**		
Blackheath Lane (north)	750	83%	19	764	103%	41
Tixall Road (east)	249	83%	8	397	59%	9
Baswich Lane (south)	336	82%	10	362	106%	26
Tixall Road (west)	370	101%	20	516	107%	35

8.2.49 The results show that the junction operates over its capacity in 2023. Each approach operates with a DoS of over 100% in either the AM or the PM peak periods with a highest MMQ of 44 pcu.

A513 Beaconside/A34 Stone Road/A34 from M6 Roundabout at Creswell

8.2.50 The future baseline performance of this junction is shown in Table 211. No results are presented for 2016 as the model is based upon a committed improvement scheme (by SCC). This converts the existing Roundabout junction into a signalised Roundabout. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 211: Future year baseline performance at A513 Beaconside/A34 Stone Road/A34 from M6 Roundabout at Creswell junction

Approach	Flow, PCU/hr	DOS	MMQ, PCU	Flow, PCU/hr	DOS	MMQ, PCU
	2016 AM			**2023 AM**		
A513 Beaconside (east) (near-side)	-	-	-	570	71%	12
A513 Beaconside (east) (mid)	-	-	-	267	33%	4
A513 Beaconside (east) (far-side)	-	-	-	734	92%	21
A34 Stone Road (south) (near-side)	-	-	-	368	89%	12
A34 Stone Road (south) (mid)	-	-	-	206	50%	5
A34 Stone Road (south) (far-side)	-	-	-	246	60%	6
A34 from M6 Roundabout at Creswell (west) (near-side)	-	-	-	413	67%	9
A34 from M6 Roundabout at Creswell (west) (mid)	-	-	-	515	83%	13
A34 from M6 Roundabout at Creswell (west) (far-side)	-	-	-	316	51%	6
A34 Stone Road (north) (near-side)	-	-	-	615	81%	15
A34 Stone Road (north) (mid near-side)	-	-	-	594	79%	14
A34 Stone Road (north) (mid far-side)	-	-	-	179	24%	3
A34 Stone Road (north) (far-side)	-	-	-	673	89%	18
	2016 PM			**2023 PM**		
A513 Beaconside (east) (near-side)	-	-	-	341	50%	7
A513 Beaconside (east) (mid)	-	-	-	392	57%	8
A513 Beaconside (east) (far-side)	-	-	-	559	81%	14
A34 Stone Road (south) (near-side)	-	-	-	293	67%	7
A34 Stone Road (south) (mid)	-	-	-	331	76%	9
A34 Stone Road (south) (far-side)	-	-	-	284	65%	7
A34 from M6 Roundabout at Creswell (west) (near-side)	-	-	-	392	57%	8

Approach	Flow, PCU/hr	DOS	MMQ, PCU	Flow, PCU/hr	DOS	MMQ, PCU
A34 from M6 Roundabout at Creswell (west) (mid)	-	-	-	204	30%	4
A34 from M6 Roundabout at Creswell (west) (Far Side)	-	-	-	585	85%	15
A34 Stone Road (north) (near-side)	-	-	-	458	51%	8
A34 Stone Road (north) (mid near-side)	-	-	-	657	74%	14
A34 Stone Road (north) (mid far-side)	-	-	-	252	28%	4
A34 Stone Road (north) (far-side)	-	-	-	691	77%	15

8.2.51 The results show that the junction operates within capacity in 2023. A small number of approaches are approaching capacity, with the highest DoS and queue length at the A513 Beaconside WB in the AM peak with a DoS of 92% and corresponding queue length of 21 PCUs.

M6 junction 14

8.2.52 In agreement with Highways England, the M6 SATURN model for 2020 has been used as a proxy for 2023, to assess the impact of construction traffic on junctions 14, 15 and 16 of the M6. Table 212 shows the baseline results for junction 14 of the M6. The queues shown are average SATURN model queues.

8.2.53 As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 212: Future year baseline performance at M6 junction 14

Approach	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
	2012 AM			**2023 AM**		
South-bound off slip	609	49%	4	652	52%	4
South-bound on slip	975	46%	0	1170	49%	0
North bound off slip	1002	50%	3	1152	58%	4
North bound on slip	494	24%	0	655	31%	0
A34 east-bound	1150	34%	0	1270	38%	0
A34 west-bound	962	43%	0	1119	51%	0
A5013 Eccleshall Road east-bound	724	40%	0	757	42%	0
A5013 Eccleshall Road west-bound	537	30%	0	604	34%	0
A5013 Creswell Grove east-bound	748	79%	1	861	98%	6
A5013 Creswell Grove west-bound	515	37%	0	535	39%	0
17:00 – 18:00	**2012 PM**			**2023 PM**		
South-bound off slip	369	45%	3	446	54%	4
South-bound on slip	878	43%	0	1100	48%	0
North bound off slip	827	42%	3	986	50%	3
North bound on slip	626	31%	0	736	36%	0
A34 east-bound	849	25%	0	946	28%	0
A34 west-bound	1021	40%	0	1195	50%	0
A5013 Eccleshall Road east-bound	435	24%	0	464	26%	0
A5013 Eccleshall Road west-bound	771	43%	0	877	52%	1
A5013 Creswell Grove east-bound	573	62%	1	693	79%	1
A5013 Creswell Grove west-bound	774	56%	0	951	69%	0

8.2.54 The junction operates within capacity in 2023, except for the A5013 Creswell Grove east-bound arm, which approaches capacity reaching 98% and 79% during the AM and PM respectively with corresponding queue lengths of six and one PCUs respectively.

Accidents and safety

8.2.55 No issues have been identified for the future baseline network operation as a result of changes to the highway network or travel demands, and the accident and safety

records for the baseline assessment are assumed to provide a relevant basis for assessment.

Parking and loading

8.2.56 Compared to the existing baseline, no changes are assumed.

Public transport

Rail network

8.2.57 HS2 Phase One includes the Handsacre link which will enable HS2 Phase One services to run from Stafford to London at a frequency of one per hour with a journey time of 53 minutes, a saving of 22 minutes compared to the current journey time. Other than improvements associated with Hs2 Phase One, no other changes to rail services are assumed in the Colwich to Yarlet area.

8.2.58 Potential impacts of the Proposed Scheme on Stafford station due to changed rail services are considered in the off-route assessment.

Local bus services

8.2.59 Since it is not possible to forecast how services may change in the future, it has been assumed that bus services for the future years of assessment will be the same as those currently operating.

Public transport interchanges

8.2.60 Compared to the existing baseline, no changes are assumed.

Pedestrians, cyclists and equestrians

8.2.61 Compared to the existing baseline, no changes are assumed.

Waterways and Canals

8.2.62 Compared to the existing baseline, no changes are assumed.

8.3 CA2 Proposed Scheme construction description

8.3.1 This section provides an overview of the construction traffic and transport impacts for the section of the Proposed Scheme that will pass through the Colwich to Yarlet area.

8.3.2 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 Proposed Scheme and it is considered to be reasonably representative.

Construction activities

8.3.3 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 the works. The peak month that is assessed also includes cumulative impacts arising from

construction in the adjoining community areas as well as for through movements through the area. The assessment also considers any substantial road closures that are proposed.

Compounds and construction sites

8.3.4 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. For the construction programme refer to Volume 2: Community Area 2, Colwich to Yarlet, section 2.3.

8.3.5 The location of the construction compounds and the associated access routes are shown in the TR-08 Map Series (Volume 5: Traffic and Transport Map Book).

8.3.6 Table 213 summarises the anticipated average and peak workforce to be required at each construction compound. It also provides details of the number of workers and staff.

Table 213: Assumed workforce at construction sites

Compound type	Location	Total Number of Workers		Number of workers (Peak)	Number of Staff
		Average	Peak		
Main	Trent South Embankment Main Compound	200	300	200	50
Satellite	Trent North Embankment satellite compound	20	30	20	5
Satellite	Brancote South Cutting satellite compound	20	30	20	5
Satellite	Hopton South Cutting satellite compound	28	42	28	7
Satellite	Hopton North Cutting satellite compound	24	36	24	6
Satellite	Marston South Embankment satellite compound	16	24	16	4
Satellite	Marston North Embankment satellite compound	8	12	8	2
Satellite	Yarlet South Cutting satellite compound	16	24	16	4

8.3.7 Typical vehicle trip generation for construction site compounds in this area are shown in Table 214. For each compound the peak month of activity is the month within which HGV traffic is at its highest for that compound. The busy period is that 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, with the average daily combined two-way vehicle trips shown for the peak month is the upper end of the range shown.

Table 214: Typical vehicle trip generation for construction site compounds in Colwich to Yarlet area

Compound type	Location	Access to/from compound to main road network	Indicative start/set up date	Estimated duration of use (years and months)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Moreton auto-transformer station satellite compound	Bishton Lane and on to the A51 Wolseley Bridge	October 2024	One year and three months	10	57-84	up to 10
Main	Trent South embankment main compound	A51 Lichfield Road, approximately 400m from where the A51 Lichfield Road crosses the Proposed Scheme	January 2021	Six years	6	400-550	204-279
Transfer node	Transfer node associated with Trent South embankment main compound	A51 Lichfield Road	January 2021	Four years and three months	7	N/A	573-805
Satellite compound	Trent North embankment satellite compound	Great Haywood Road to Tixall Road, Blackheath Lane and on to the A518 Weston Road	January 2021	3 years and 9 months	2	40-55	98-122
			October 2024	Auto transformer station (ATS) - One year and three months	10	57-84	up to 10
Satellite	Brancote South cutting satellite compound	Hanyards Lane for site set-up and servicing and followed by haul route thereafter to the A518 Weston Road	January 2021	Four years and three months	3	40-55	80-90
Satellite	Hopton South cutting satellite compound	A518 Weston Road	January 2021	Three years and nine months	1	56-77	269-269
Transfer node	Transfer node associated with Hopton South cutting satellite compound	A518 Weston Road	January 2021	Three years and nine months	4	N/A	617-921

Compound type	Location	Access to/from compound to main road network	Indicative start/set up date	Estimated duration of use (years and months)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
Satellite	Hopton North cutting satellite compound	B5066 Sandon Road and on to A513 Beaconside	January 2021	Three years and nine months	3	48-66	99-117
Satellite	Sandon Road auto-transformer station	Off Mount Edge Diversion to B5066 Sandon Road and on to A513 Beaconside	October 2024	One year and three months	10	57-84	up to 10
Satellite	Marston South embankment satellite compound	Marston Lane for initial site set up and servicing and followed by site haul route thereafter to the A34 Stone Road	January 2021	Three years and nine months	2	32-44	86-111
Satellite	Marston North embankment satellite compound	A34 Stone Road	January 2021	Three years and six months	3	16-22	108-144
Satellite	Yarlet South cutting satellite compound	A34 Stone Road	January 2021	Three years and nine months	1	32-44	120-120
Transfer node	Transfer node associated with Yarlet South cutting satellite compound	A34 Stone Road	January 2021	Three years and nine months	6	N/A	745-949
Satellite	Yarlet express feeder auto-transformer station	A34 Stone Road	October 2024	One year and three months	10	57-84	up to 10

Construction HGV routes

8.3.8 Construction vehicle movements required to construct the Proposed 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.

8.3.9 HGVs have been routed where reasonably practicable along the strategic or primary road network, although some access locations will be via secondary roads. In CA2, primary construction traffic routes from the SRN are as follows: the M6, the A51 Lichfield Road, the A34 Stone Road and the A518 Weston Road. Where reasonably practicable the use of the local road network has been limited to site set up, access for environmental surveys and on-going servicing (including refuse collection and general deliveries).

8.3.10 The location of the compound, and the associated access routes are shown on the TR-08 Map Series (Volume 5: Traffic and Transport Map Book) that reflect the transport activity at each site during the busy period as summarised in Table 214.

8.3.11 Table 215 summarises the peak daily construction traffic flow, both in HGVs and total vehicles on each link within CA2 that is on a construction route.

Table 215: CA2 peak daily construction traffic flow

Location	Direction	Peak HGV	Peak all vehicles
M6 (between M6 Junction 14 and Junction 13)	NB	1094	2344
	SB	1094	2344
A34 From M6 Roundabout at Creswell	SB	289	589
	NB	289	589
A34 Stone Road (between Redhill Roundabout and Whitgreave Lane)	NB	509	683
	SB	509	683
A34 Stone Road (between Whitgreave Lane and Yarlet Lane)	NB	509	683
	SB	509	683
A34 Stone Road (between Yarlet Lane and Stone Road/north bound)	NB	98	376
	SB	98	376
A51 Lichfield Road (between Lichfield Road and Rugeley Eastern Bypass)	WB	699	803
	EB	699	803
A51 Lichfield Road (between Hoo Mill Lane and the Proposed Scheme)	NB	631	1093
	SB	631	1093
A51 Lichfield Road (between Little Tixall Lane and Tolldish Lane)	NB	678	856
	SB	678	856
A51 Lichfield Road (between Main Road and Little Tixall Lane)	NB	678	856
	SB	678	856

Location	Direction	Peak HGV	Peak all vehicles
A51 Lichfield Road (between Tolldish Lane and the Proposed Scheme)	NB	631	1093
	SB	631	1093
A51 London Road (between Hoo Mill Lane and New Road)	NB	630	856
	SB	630	856
A51 London Road (between New Road and Stafford Road)	NB	630	856
	SB	630	856
A51 London Road (between Stafford Road and Uttoxeter Road)	NB	276	629
	SB	276	629
A51 London Road (between Uttoxeter Road and Church Lane)	WB	0	253
	EB	0	253
A51 Main Road (between Bellamour Lane and Main Road)	WB	678	874
	EB	678	874
A51 Main Road (between Bishton Lane and Lichfield Road)	NB	678	918
	SB	678	918
A518 Stafford Bank (between London Road and Willowmore Banks)	SB	625	693
	NB	625	693
A518 Weston Bank (between Within Lane and Willowmore Banks)	SB	625	693
	NB	625	693
A518 Weston Road (between Blackheath Lane and Hydrant Way)	WB	1307	1558
	EB	1307	1558
A518 Weston Road (between the Proposed Scheme and Blackheath Lane)	SB	1211	1366
	NB	1211	1366
A518 Weston Road (between Within Lane and the Proposed Scheme)	SB	608	669
	NB	608	669
A50 (between A521 Uttoxeter Road and A50 Uttoxeter Road north of Mollison Road)	NB	0	80
	SB	0	80
A5013 Eccleshall Road (between Whitgreave Lane and M6 Junction 14)	NB	0	170
	SB	0	170
A513 Beaconside (between Dyson Way and Sandon Road)	NB	655	769
	SB	655	769
A513 Beaconside (between Marston Lane and Redhill Roundabout)	WB	678	883
	EB	678	883
A513 Beaconside (between Sandon Road and Marston Lane)	WB	1307	1562

Location	Direction	Peak HGV	Peak all vehicles
	EB	1307	1562
A513 Beaconside (between Sandon Road and Sandon Road/south-bound)	NB	614	727
	SB	614	727
A513 Beaconside (between Weston Road and Dyson Way)	NB	614	727
	SB	614	727
A513 Lichfield Road (between Tixall Road and Lichfield Road/eastern Roundabout)	WB	0	0
	EB	0	0
A518 Stafford Bank (between London Road and Willowmore Banks)	SB	625	693
	NB	625	693
A518 Weston Bank (between Within Lane and Willowmore Banks)	SB	625	693
	NB	625	693
A518 Weston Road (between Blackheath Lane and Hydrant Way)	WB	1307	1558
	EB	1307	1558
A518 Weston Road (between the Proposed Scheme and Blackheath Lane)	SB	1211	1366
	NB	1211	1366
A518 Weston Road (between Within Lane and the Proposed Scheme)	SB	608	669
	NB	608	669
B5066 Sandon Bank (between Lichfield Road and Salt Bank)	NB	0	11
	SB	0	11
B5066 Sandon Road (between Beaconside and Hopton Lane)	NB	56	202
	SB	56	202
B5066 Sandon Road (between Hopton Lane and the Proposed Scheme)	NB	0	84
	SB	0	84
B5066 Sandon Road (between the Proposed Scheme and Within Lane)	NB	0	84
	SB	0	84
B5066 Sandon Road (between Salt Bank and Within Lane)	NB	0	11
	SB	0	11
Great Haywood Road (between Ingestre Park Road and Holdiford Road)	WB	41	261
	EB	41	261
Mill Lane (between Hoo Mill Lane and Mill Lane/west-bound of Main Road)	NB	0	269
	SB	0	269
Mill Lane (between Mill Lane/west-bound of Main Road and Main Road)	WB	0	539
	EB	0	539

Location	Direction	Peak HGV	Peak all vehicles
Tixall Road (between Holdiford Road and Hanyards Lane)	EB	81	521
	WB	81	521
Whitgreave Lane (between Stone Road and Green Lane)	NB	0	17
	SB	0	17
Blackhealth Lane (north of Tixall Road)	SB	52	273
	NB	52	273
Blackheath Lane (south of Weston Road)	SB	52	273
	NB	52	273
Main Road (between Lichfield Road and Mill Lane)	SB	0	250
	NB	0	250
Main Road (between Lichfield Road and Meadow Lane)	NB	0	50
	SB	0	50
Main Road (between Meadow Lane and Trent Lane)	NB	0	50
	SB	0	50
Hopton Lane (between Sandon Road and the Proposed Scheme)	WB	0	74
	EB	0	74
Hanyards Lane (between Tixall Road and the Proposed Scheme)	NB	43	91
	SB	43	91
Ingestre Park Road (between Hoo Mill Lane and Trent Drive)	NB	41	200
	SB	41	200
Marston Lane (between Yarlet Lane and Beaconside)	SB	40	104
	NB	40	104
Marston Lane (between Yarlet Lane and the Proposed Scheme)	EB	40	104
	WB	40	104
Within Lane (between Weston Road and Wilmore Hill Lane)	WB	0	74
	EB	0	74

Traffic management, road closures and diversions

8.3.12 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing highways as well as traffic management. The construction of the Proposed Scheme has been carefully planned to limit disruption to travellers through any traffic management, road closures and diversions. Where closures are necessary, the general approach is the undertake closures for short discreet periods to ensure that the impact on users is reduced. Section 4 of the TA, mitigation, sets out the general approach to construction. This includes constructing new roads prior to the closure of any existing roads where reasonably practicable.

8.3.13 Where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing road network, traffic control measures will be implemented and could include the provision of temporary signals or Roundabouts, which would be removed on completion of the works. These traffic control measures are not expected to have a substantial impact on traffic flows and delays for vehicle occupants and non-motorised users.

8.3.14 Utilities works have been assessed in detail where they are major and where the traffic and transport impacts from the works separately, or in combination with other works, will be greater than other construction activities arising within the area. Minor utilities works are expected to result in only localised traffic and pedestrian diversions, which will be of short-term duration. No additional substantial impacts from these works are expected. Similarly other minor works will involve a low level of use of local roads. Such use is not expected to give rise to substantial construction traffic impacts.

8.3.15 Permanent road closures are addressed in the operational scheme section of this report.

PRoW closures and diversions

8.3.16 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing footpaths and roadside footways as well as some bridleways. The impact on footpaths (including roadside footways), cycleways and bridleway links along the route of the Proposed Scheme has been reduced, as far as reasonably practicable, through the design process. Section 4 of the TA, mitigation, documents the general approach to construction. This includes constructing new PRoW prior to the closure of any existing PRoW where reasonably practicable.

8.3.17 As with highways, where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing PRoW network, active control measures will be implemented to manage the safety of PRoW users and could include staffed crossings and the provision of temporary gates or signals, which would be removed on completion of the works. These control measures are not expected to have a substantial impact on delays for pedestrian, cyclist or equestrian users of the network.

8.4 CA2 Proposed Scheme assessment of construction impacts

Key construction transport issues

8.4.1 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.

8.4.2 The construction assessment has also considered any impacts in the Colwich to Yarlet area that arise from construction of the Proposed Scheme in the adjoining community areas.

8.4.3 There will be temporary alternative routes for six roads and 20 PRoW, which includes the A34 Stone Road that will be diverted temporarily diverted.

Highway network

Highway closures and diversions

8.4.4 Temporary road or lane closures and associated diversions will be required in a number of locations.

8.4.5 In order to facilitate the realignment of existing major utilities and for construction of the A34 Stone Road overbridge, the A34 Stone Road will be diverted temporarily off-line and a speed restriction of 40mph applied through this section with access to existing properties maintained. This temporary diversion is expected to be required for 12 months and will maintain dual-carriageway capacity on the A34 Stone Road. On completion, the A34 Stone Road will be reinstated on its existing alignment over the A34 Stone Road overbridge. The temporary diversion will not have a substantial impact on traffic flows and delays for vehicle occupants.

8.4.6 In order to undertake the Trent South embankment works, Tolldish Lane will be temporarily diverted to the north of the transfer node associated with the Trent South Embankment main compound for a period of approximately two years and nine months. Tolldish Lane will then be diverted to its new permanent alignment on the Tolldish Lane diversion that runs parallel to the Trent South embankment before forming a junction with the A51 Lichfield Road. The temporary diversion will not have a substantial impact on traffic flows and delays for vehicle occupants.

8.4.7 Temporary road or lane closures and associated diversions will be required in a number of locations including:

- A34 Stone Road;
- A51 Lichfield Road, Mill Lane;
- Ingestre Park Road and Great Haywood Road;
- A518 Weston Road;
- Hopton Lane; and
- B5066 Sandon Road.

8.4.8 These may involve lane closures and partial lane closures under traffic control for the tie in of the 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. Therefore 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

8.4.9 Table 216 summarises the temporary PRoW diversions and realignments required to accommodate the construction of the Proposed Scheme. In most cases this will also include the construction of diverted routes and accommodation over and underbridges which will carry the permanent diversions of these PRoWs. In some cases PRoW will revert to their pre-existing alignment after construction is completed.

Table 216: CA2 temporary PRoW diversions

PRoW name	Description	Change in length
Colwich Footpath 6	Junction with Bishton Lane will be affected by temporary widening to allow construction traffic. Footpath access will be maintained throughout but onward route will experience additional traffic impacts from construction vehicles. (Not affected in operation)	No change to overall length of route
Colwich Bridleway 23	Temporary diversion 40m off existing route for construction of accommodation overbridge and access road. Works include temporary route to maintain Moreton Grange Farm access. Permanent diversion on to new overbridge once completed.	No change to overall length of route
Colwich Footpath 26	Temporary diversion to south on to route of BW35 (same as permanent), then temporary diversion 40m off existing route around BW35 accommodation overbridge and access road construction, then a further diversion to north to rejoin existing route.	Additional temporary route is 800m longer
Colwich Bridleway 35	Temporary diversion 40m off existing route for construction of accommodation overbridge and access road. BW crosses construction haul route, and is subject to traffic management measures. Diversion on to new overbridge once completed.	No change to overall length of route
Colwich Footpath 36	Temporary diversion south to permanent (operational) line of route, towards new Footpath 23 accommodation overbridge. During construction, maintain onward route with BW 23 to the edge of construction site and across haul routes, then divert on to new overbridge.	Temporary diversion is same as part of new permanent route via BW23.
Colwich Footpath 54	Temporary diversion 25m off existing route for construction of accommodation overbridge via BW58 route. Diversion on to permanent diversion on new overbridge once completed.	Temporary diversion south is under 100m longer.
Colwich Footpath 55	Retain existing route during construction, then closure and part upgrade to bridleway (as per permanent change) once the new BW58 accommodation underbridge is in place.	No temporary diversion
Colwich Bridleway 58	Temporary diversion along with Footpath 54, moved 25m to east off the existing route for construction of overbridge and Bridleway. Diversion on to new overbridge once completed.	No change to overall length of route; sections diverted are all on Footpath 54
Colwich Bridleway 63	Small temporary diversions in two locations around sites for installation of viaduct support piers. Haul route crosses this footpath on a bridge, hence no severance impacts are created.	Temporary diversions south are under 100m longer.
Tixall Bridleway 0.1628	Temporary diversion 100m off existing route for construction of accommodation overbridge for BW 0.1628, meeting BW 0.1630 500m east of existing. Diversion on to new overbridge once completed.	Temporary diversion route is broadly the same length as permanent change.
Tixall Bridleway 0.1629	Temporary diversion around a site compound west of the Proposed Scheme, joins BW 0.1628 at point where above temporary diversion starts.	Temporary diversion is under 100m longer.
Tixall Footpath 0.1630 (b)	Temporary diversion 1: to 20m south of the current alignment around demolition earthworks and overbridge construction. Temporary diversion 2: to 150m north of the current alignment, along with BW 0.1628 alignment and shared route to east of access roads. Permanent diversion on to new overbridge once completed.	Temporary diversions for travel to the north (via BW 0.1628) are under 50m shorter; for travel to the south east, the temporary diversions are 400m longer.

PRoW name	Description	Change in length
Hopton and Coton Footpath 6	Major temporary diversion to south on to route of Footpath 24 over Proposed Scheme alignment (which is same as permanent diversion); then around eastern edge of site compound, to rejoin original route west of King's Drive. Crossing of construction haul route is shared with Footpath 24.	Additional temporary route is under 100m longer.
Hopton and Coton Bridleway 11	Temporary diversion 60m east of original route during construction of accommodation overbridge for BW11. Diversion on to new overbridge once completed.	Temporary diversion is same length as existing.
Hopton and Coton Bridleway 12	Temporary diversion at crossing of B5066, 25m to north east around site of works to create the junction with the diverted B5066 route. Temporary diversion at junction with Bridleway 11 and 16 is same as permanent change.	Temporary diversion is under 100m longer.
Hopton and Coton Bridleway 16	Temporary diversion south along extent of the construction site boundary to BW11, and then on to BW11 route over Proposed Scheme.	Temporary diversion is under 50 shorter.
Hopton and Coton Footpath 24	Temporary diversion of 20m to access roads north of existing route to allow construction of accommodation overbridge. Diversion on to new overbridge once completed.	Temporary diversion is under 50m longer.
Marston Footpath 2	Temporary diversion on west of Proposed Scheme around earthworks and planting area; crossing via realigned Marston Lane as per permanent route. Further diversion to the east of Proposed Scheme follows route at edge of construction site boundary.	Additional temporary route is under 100m longer.
Marston Bridleway 8	Temporary diversion 60m south east of original route for construction of Bridleway 8 accommodation overbridge. Permanent diversion to new overbridge once completed.	Temporary diversion is 150m longer
Marston Footpath 10	Temporary diversion whereby route extended to retain connection to diverted Marston Lane route, avoiding site works compound for Marston Lane realignment.	Temporary diversion extends route by 150m on to Marston Lane.

Strategic and local road network traffic flows

8.4.10 During the construction period there will be a number of highway links that will be affected by the construction of the Proposed Scheme. An assessment of the impact of construction related vehicle movements and temporary diversions has been undertaken and is detailed below. 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.

8.4.11 Table 217 and Table 218 sets out the 2023 traffic flows on highway links affected by construction traffic associated with the Proposed Scheme for the AM and PM peak hour respectively. Traffic flows on all other links are either unaffected from the future baseline or result in very minor increases.

8.4.12 To show the impact of the construction of the Proposed Scheme in these locations, traffic flows on affected links are presented for the 2023 future baseline and the 2023 future baseline with the Proposed Scheme, alongside the percentage increase from the future baseline.

Table 217: 2023 future baseline and with the Proposed 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 14 and junction 13)	NB	4751	736	5117	846	7.7%	14.9%
	SB	4136	776	4501	885	8.8%	14.1%
A34 From M6 Roundabout at Creswell	SB	843	87	950	116	12.7%	33.3%
	NB	1063	99	1170	128	10.1%	29.1%
A34 Stone Road (between Redhill Roundabout and Whitgreave Lane)	NB	742	58	824	109	11.0%	88.1%
	SB	1282	66	1364	117	6.4%	77.0%
A34 Stone Road (between Whitgreave Lane and Yarlet Lane)	NB	742	58	824	109	11.0%	88.1%
	SB	1282	66	1364	117	6.4%	77.0%
A34 Stone Road (between Yarlet Lane and Stone Road/north bound)	NB	871	58	956	68	9.7%	17.0%
	SB	1365	71	1450	81	6.2%	13.9%
A51 Lichfield Road (between Lichfield Road and Rugeley Eastern Bypass)	WB	1033	35	1128	105	9.2%	198.7%
	EB	1042	45	1138	115	9.1%	155.3%
A51 Lichfield Road (between Hoo Mill Lane and the Proposed Scheme)	NB	751	36	914	99	21.8%	173.8%
	SB	722	46	886	109	22.7%	137.3%
A51 Lichfield Road (between Little Tixall Lane and Tolldish Lane)	NB	739	33	843	101	14.1%	203.0%
	SB	680	44	784	111	15.3%	155.5%
A51 Lichfield Road (between Main Road and Little Tixall Lane)	NB	759	41	863	109	13.7%	164.6%
	SB	683	45	787	113	15.2%	151.5%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A51 Lichfield Road (between Tolldish Lane and the Proposed Scheme)	NB	751	36	914	99	21.8%	173.8%
	SB	722	46	886	109	22.7%	137.3%
A51 London Road (between Hoo Mill Lane and New Road)	NB	594	41	693	104	16.6%	154.1%
	SB	573	48	672	111	17.2%	132.6%
A51 London Road (between New Road and Stafford Road)	NB	807	58	905	122	12.2%	107.7%
	SB	681	49	780	112	14.5%	127.6%
A51 London Road (between Stafford Road and Uttoxeter Road)	NB	934	68	1011	95	8.3%	40.8%
	SB	789	57	866	85	9.8%	48.3%
A51 Main Road (between Bellamour Lane and Main Road)	WB	698	16	809	84	15.9%	419.7%
	EB	704	18	815	86	15.8%	371.1%
A51 Main Road (between Bishton Lane and Lichfield Road)	NB	687	40	812	108	18.2%	169.1%
	SB	869	51	994	119	14.4%	133.7%
A518 Stafford Bank (between London Road and Willowmore Banks)	SB	836	33	920	96	10.0%	187.0%
	NB	434	41	518	103	19.2%	152.7%
A518 Weston Bank (between Within Lane and Willowmore Banks)	SB	836	33	920	96	10.0%	187.0%
	NB	434	41	518	103	19.2%	152.7%
A518 Weston Road (between Blackheath Lane and Hydrant Way)	WB	1179	30	1411	161	19.6%	433.1%
	EB	760	18	992	149	30.5%	723.5%
A518 Weston Road (between the Proposed Scheme and Blackheath Lane)	SB	865	46	1022	167	18.2%	265.8%
	NB	514	47	671	168	30.7%	260.3%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A518 Weston Road (between Within Lane and the Proposed Scheme)	SB	871	34	946	95	8.6%	176.7%
	NB	382	38	457	99	19.6%	159.8%
A513 Beaconside (between Dyson Way and Sandon Road)	NB	913	72	1014	138	11.1%	90.8%
	SB	739	44	840	110	13.7%	149.0%
A513 Beaconside (between Marston Lane and Redhill Roundabout)	WB	788	53	911	121	15.5%	127.4%
	EB	1078	55	1201	122	11.3%	124.2%
A513 Beaconside (between Sandon Road and Marston Lane)	WB	1011	69	1223	200	20.9%	188.5%
	EB	869	40	1081	170	24.4%	330.5%
A513 Beaconside (between Sandon Road and Sandon Road/south-bound)	NB	1085	53	1182	114	8.9%	116.8%
	SB	724	35	820	96	13.4%	175.1%
A513 Beaconside (between Weston Road and Dyson Way)	NB	1247	72	1344	133	7.8%	85.1%
	SB	677	63	774	124	14.3%	97.4%
A518 Stafford Bank (between London Road and Willowmore Banks)	SB	836	33	920	96	10.0%	187.0%
	NB	434	41	518	103	19.2%	152.7%
A518 Weston Bank (between Within Lane and Willowmore Banks)	SB	836	33	920	96	10.0%	187.0%
	NB	434	41	518	103	19.2%	152.7%
A518 Weston Road (between Blackheath Lane and Hydrant Way)	WB	1179	30	1411	161	19.6%	433.1%
	EB	760	18	992	149	30.5%	723.5%
A518 Weston Road (between the Proposed Scheme and Blackheath Lane)	SB	865	46	1022	167	18.2%	265.8%
	NB	514	47	671	168	30.7%	260.3%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A518 Weston Road (between Within Lane and the Proposed Scheme)	SB	871	34	946	95	8.6%	176.7%
	NB	382	38	457	99	19.6%	159.8%
B5066 Sandon Road (between Beaconside and Hopton Lane)	NB	235	14	279	19	18.5%	41.7%
	SB	531	14	575	20	8.2%	39.9%
Great Haywood Road (between Ingestre Park Road and Holdiford Road)	WB	260	3	347	7	33.4%	139.6%
	EB	108	3	195	7	80.8%	122.2%
Mill Lane (between Hoo Mill Lane and Mill Lane/west-bound of Main Road)	NB	274	2	361	2	32.1%	0.0%
	SB	124	3	212	3	71.0%	0.0%
Mill Lane (between Mill Lane/west-bound of Main Road and Main Road)	WB	253	0	429	0	69.4%	0.0%
	EB	156	0	332	0	112.7%	0.0%
Tixall Road (between Holdiford Road and Hanyards Lane)	EB	163	30	337	38	106.7%	27.4%
	WB	588	29	762	37	29.5%	28.2%
Whitgreave Lane (between A34 Stone Road and Green Lane)	NB	28	1	30	1	9.2%	0.0%
	SB	62	2	64	2	4.1%	0.0%
Blackhealth Lane (north of Tixall Road)	SB	371	7	465	12	25.2%	77.7%
	NB	780	5	873	10	12.0%	106.4%
Blackheath Lane (south of Weston Road)	SB	358	6	451	11	26.1%	92.3%
	NB	786	3	880	8	11.9%	157.8%
Main Road (between Lichfield Road and Mill Lane)	SB	200	3	279	3	39.2%	0.0%
	NB	221	6	299	6	35.5%	0.0%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Main Road (between Lichfield Road and Meadow Lane)	NB	127	1	149	1	17.2%	0.0%
	SB	112	1	134	1	19.5%	0.0%
Main Road (between Meadow Lane and Trent Lane)	NB	127	1	149	1	17.2%	0.0%
	SB	112	1	134	1	19.5%	0.0%
Hopton Lane (between Sandon Road and the Proposed Scheme)	WB	27	1	39	1	47.2%	0.0%
	EB	16	1	29	1	78.1%	0.0%
Hanyards Lane (between Tixall Road and the Proposed Scheme)	NB	4	0	17	5	324.5%	1558.7%
	SB	4	1	18	5	294.3%	479.6%
Ingestre Park Road (between Hoo Mill Lane and Trent Drive)	NB	40	1	77	6	92.8%	279.2%
	SB	44	2	81	6	84.2%	244.3%
Marston Lane (between Yarlet Lane and Beaconside)	SB	34	2	46	6	37.1%	210.9%
	NB	7	0	20	4	178.0%	813.5%
Marston Lane (between Yarlet Lane and the Proposed Scheme)	EB	5	1	18	5	229.2%	432.6%
	WB	14	1	27	5	87.7%	401.7%
Within Lane (between Weston Road and Wilmore Hill Lane)	WB	123	3	136	3	10.3%	0.0%
	EB	217	5	229	5	5.8%	0.0%

Table 218: 2023 future baseline and with the Proposed Scheme construction traffic (vehicles) - PM peak hour (17:00 – 18:00)

Location	Direction	2023 baseline		2023 with HS2 Phase 2a		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
M6 (between M6 Junction 14 and Junction 13)	NB	4631	577	5180	687	11.9%	18.9%
	SB	4767	750	5317	859	11.5%	14.6%
A34 From M6 Roundabout at Creswell	SB	875	42	1033	71	18.0%	68.2%
	NB	819	56	977	84	19.3%	52.1%
A34 Stone Road (between Redhill Roundabout and Whitgreave Lane)	NB	1110	26	1217	77	9.6%	196.7%
	SB	799	28	906	79	13.4%	181.4%
A34 Stone Road (between Whitgreave Lane and Yarlet Lane)	NB	1110	26	1217	77	9.6%	196.7%
	SB	799	28	906	79	13.4%	181.4%
A34 Stone Road (between Yarlet Lane and Stone Road/north bound)	NB	1174	27	1278	37	8.9%	36.2%
	SB	876	27	981	37	11.9%	36.2%
A51 Lichfield Road (between Lichfield Road and Rugeley Eastern Bypass)	WB	1015	20	1118	90	10.1%	342.1%
	EB	1147	30	1249	100	8.9%	232.1%
A51 Lichfield Road (between Hoo Mill Lane and the Proposed Scheme)	NB	640	17	822	80	28.6%	373.3%
	SB	898	28	1081	91	20.3%	223.4%
A51 Lichfield Road (between Little Tixall Lane and Tolldish Lane)	NB	608	22	724	90	19.0%	305.0%
	SB	807	24	922	92	14.3%	277.5%
A51 Lichfield Road (between Main Road and Little Tixall Lane)	NB	617	22	733	90	18.7%	310.9%
	SB	832	27	948	95	13.9%	248.7%

Location	Direction	2023 baseline		2023 with HS2 Phase 2a		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A51 Lichfield Road (between Tolldish Lane and the Proposed Scheme)	NB	640	17	822	80	28.6%	373.3%
	SB	898	28	1081	91	20.3%	223.4%
A51 London Road (between Hoo Mill Lane and New Road)	NB	525	24	685	87	30.4%	267.4%
	SB	651	40	811	103	24.5%	157.8%
A51 London Road (between New Road and Stafford Road)	NB	765	30	924	93	20.9%	210.7%
	SB	749	29	909	92	21.3%	215.0%
A51 London Road (between Stafford Road and Uttoxeter Road)	NB	783	31	972	58	24.1%	90.2%
	SB	958	37	1147	65	19.7%	73.7%
A51 London Road (between Uttoxeter Road and Church Lane)	WB	706	24	813	24	15.1%	0.0%
	EB	649	18	756	18	16.4%	0.0%
A51 Main Road (between Bellamour Lane and Main Road)	WB	753	13	870	81	15.6%	528.0%
	EB	794	14	912	82	14.8%	486.2%
A51 Main Road (between Bishton Lane and Lichfield Road)	NB	868	24	1006	92	15.9%	280.5%
	SB	836	23	975	91	16.5%	291.3%
A518 Stafford Bank (between London Road and Willowmore Banks)	SB	487	14	564	76	15.7%	448.1%
	NB	775	15	851	78	9.9%	417.0%
A518 Weston Bank (between Within Lane and Willowmore Banks)	SB	487	14	564	76	15.7%	448.1%
	NB	775	15	851	78	9.9%	417.0%
A518 Weston Road (between Blackheath Lane and Hydrant Way)	WB	807	14	969	145	20.2%	940.4%

Location	Direction	2023 baseline		2023 with HS2 Phase 2a		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
	EB	1107	16	1270	147	14.7%	805.2%
A518 Weston Road (between the Proposed Scheme and Blackheath Lane)	SB	735	49	892	170	21.4%	247.9%
	NB	727	36	884	157	21.6%	339.3%
A518 Weston Road (between Within Lane and the Proposed Scheme)	SB	495	14	572	75	15.6%	419.8%
	NB	714	13	791	73	10.8%	478.3%
A5013 Eccleshall Road (between Whitgreave Lane and M6 Junction 14)	NB	605	14	691	14	14.2%	0.0%
	SB	493	6	579	6	17.5%	0.0%
A513 Beaconside (between Dyson Way and Sandon Road)	NB	812	31	904	97	11.3%	211.1%
	SB	657	29	749	95	14.0%	223.0%
A513 Beaconside (between Marston Lane and Redhill Roundabout)	WB	996	30	1141	98	14.5%	224.0%
	EB	719	35	864	103	20.1%	194.1%
A513 Beaconside (between Sandon Road and Marston Lane)	WB	812	26	1004	157	23.7%	504.2%
	EB	880	38	1072	169	21.8%	339.9%
A513 Beaconside (between Sandon Road and Sandon Road/south-bound)	NB	771	39	858	100	11.4%	157.4%
	SB	1130	57	1218	119	7.8%	107.3%
A513 Beaconside (between Weston Road and Dyson Way)	NB	759	60	847	122	11.5%	102.0%
	SB	806	34	894	96	10.9%	178.4%
A518 Stafford Bank (between London Road and Willowmore Banks)	SB	487	14	564	76	15.7%	448.1%
	NB	775	15	851	78	9.9%	417.0%

Location	Direction	2023 baseline		2023 with HS2 Phase 2a		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A518 Weston Bank (between Within Lane and Willowmore Banks)	SB	487	14	564	76	15.7%	448.1%
	NB	775	15	851	78	9.9%	417.0%
A518 Weston Road (between Blackheath Lane and Hydrant Way)	WB	807	14	969	145	20.2%	940.4%
	EB	1107	16	1270	147	14.7%	805.2%
A518 Weston Road (between the Proposed Scheme and Blackheath Lane)	SB	735	49	892	170	21.4%	247.9%
	NB	727	36	884	157	21.6%	339.3%
A518 Weston Road (between Within Lane and the Proposed Scheme)	SB	495	14	572	75	15.6%	419.8%
	NB	714	13	791	73	10.8%	478.3%
B5066 Sandon Road (between Beaconside and Hopton Lane)	NB	449	5	503	11	11.9%	115.4%
	SB	192	4	246	10	27.7%	142.8%
B5066 Sandon Road (between Hopton Lane and the Proposed Scheme)	NB	434	5	455	5	5.0%	0.0%
	SB	187	4	208	4	11.60%	0.00%
B5066 Sandon Road (between the Proposed Scheme and within Lane)	NB	434	5	455	5	5.0%	0.0%
	SB	187	4	208	4	11.60%	0.00%
Great Haywood Road (between Ingestre Park Road and Holdiford Road)	WB	130	1	171	5	31.6%	558.8%
	EB	210	1	251	5	19.6%	558.8%
Mill Lane (between Hoo Mill Lane and Mill Lane/west-bound of Main Road)	NB	127	1	166	1	30.9%	0.0%
	SB	212	1	251	1	18.4%	0.0%
Mill Lane (between Mill Lane/west-bound of Main Road and Main	WB	183	1	261	1	42.9%	0.0%

Location	Direction	2023 baseline		2023 with HS2 Phase 2a		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Road)	EB	259	1	337	1	30.3%	0.0%
Tixall Road (between Holdiford Road and Hanyards Lane)	EB	461	25	544	33	17.8%	32.2%
	WB	318	16	400	24	25.9%	52.2%
Whitgreave Lane (between Stone Road and Green Lane)	NB	44	0	46	0	3.3%	N/A
	SB	28	0	30	0	5.2%	0.0%
Blackhealth Lane (north of Tixall Road)	SB	832	4	875	9	5.2%	132.4%
	NB	387	2	431	7	11.2%	306.3%
Blackheath Lane (south of Weston Road)	SB	814	4	857	9	5.3%	122.5%
	NB	504	4	548	10	8.6%	119.5%
Main Road (between Lichfield Road and Mill Lane)	SB	286	1	322	1	12.6%	0.0%
	NB	183	5	219	5	19.7%	0.0%
Main Road (between Lichfield Road and Meadow Lane)	NB	129	0	132	0	2.4%	0.0%
	SB	148	0	151	0	2.1%	0.0%
Main Road (between Meadow Lane and Trent Lane)	NB	129	0	132	0	2.4%	0.0%
	SB	148	0	151	0	2.1%	0.0%
Hopton Lane (between Sandon Road and the Proposed Scheme)	WB	9	0	33	0	275.3%	N/A
	EB	20	0	44	0	120.5%	N/A
Hanyards Lane (between Tixall Road and the Proposed Scheme)	NB	3	0	18	4	536.7%	6238.5%
	SB	2	0	16	4	984.0%	6238.5%

Location	Direction	2023 baseline		2023 with HS2 Phase 2a		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Ingestre Park Road (between Hoo Mill Lane and Trent Drive)	NB	34	0	73	4	115.1%	1303.8%
	SB	28	0	68	4	137.3%	1303.8%
Marston Lane (between Yarlet Lane and Beaconside)	SB	7	0	49	4	622.7%	5682.8%
	NB	15	0	58	4	278.4%	1420.7%
Marston Lane (between Yarlet Lane and the Proposed Scheme)	EB	7	0	50	4	577.7%	N/A
	WB	5	0	47	4	884.0%	2806.0%
Within Lane (between Weston Road and Wilmore Hill Lane)	WB	102	1	126	1	23.5%	0.0%
	EB	136	2	160	2	17.7%	0.0%

Summary of link flows

8.4.13 The results show that in the AM and PM peak periods the strategic and primary roads such as the A34 Stone Road, the A51 Lichfield Road, the A518 Weston Road and the A513 Beaconside generally have a percentage increase of less than 30% in total vehicles (often lower on the A34). Percentage increases in HGV traffic in both time periods are generally higher than this. However, this can be a result of there being a relatively low number of HGVs forecast in the future baseline.

8.4.14 Other roads identified as construction routes show a similar pattern, with high percentage increases in HGVs but with 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 Lichfield Road between the A518 Weston Road and the A460 Wolseley Road;
- A518 Weston Road between the Proposed Scheme and the A51 London Road;
- A518 Weston Road between the Proposed Scheme and the A513 Beaconside;
- A513 Beaconside between the A518 Weston Road and the A34 Stone Road;
- A34 Stone Road between the A513 Beaconside and the Whitgreave Lane;
- A34 between M6 junction 14 and the A513 Beaconside;
- B5066 Sandon Road between the Proposed Scheme and the B513 Beaconside;
- Great Haywood Road/Tixall Road between Blackheath Lane and the Proposed Scheme;
- Hopton Lane between the Proposed Scheme and the B5066 Sandon Road;
- Marston Lane between the Proposed Scheme and the B513 Beaconside;
- Hanyards Lane between the Proposed Scheme and Tixall Road; and
- Bellamour Lane between B5013 Uttoxeter Road and A51 Main Road.

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

Junction performance 2023

8.4.16 The following tables and commentary set out the performance at junctions where there is the potential for the Proposed Scheme to have substantial impacts.

8.4.17 As for the future baseline, the results are presented in the order of Roundabout junctions, priority controlled (give-way), signalised junctions and M6 junction 14. 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 Lichfield Road/ A51 Rugeley Eastern Bypass / A460 Wolseley Bridge Road

8.4.18 Table 219 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 219: A51 Lichfield Road/A51 Rugeley Eastern Bypass/A460 Wolseley Bridge Road junction2023 future baseline and with the Proposed 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 future baseline with Proposed Scheme**		
A51 Lichfield Road (west)	1107	0.57	1	1267	0.65	2
A51 Rugeley Eastern Bypass (east)	601	0.39	1	740	0.48	1
A460 Wolseley Bridge Road	746	0.49	1	766	0.53	1
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
A51 Lichfield Road (west)	1204	0.6	2	1364	0.68	2
A51 Rugeley Eastern Bypass (east)	948	0.67	2	1092	0.78	4
A460 Wolseley Bridge Road	508	0.36	1	524	0.4	1

8.4.19 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline. The A51 Rugeley Eastern Bypass (east) arm shows an increase in RFC from 0.67 to 0.78 with corresponding increase in queue length from two to four PCUs in the PM peak.

A51 Lichfield Road/A513 Lichfield Road

8.4.20 Table 220 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 220: A51 Lichfield Road/A513 Lichfield Road junction 2023 future baseline and with the Proposed 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 future baseline with Proposed Scheme**		
A51 Lichfield Road (north)	825	0.06	0	1023	0.07	0
A51 Lichfield Road (east)	1124	0.49	1	1319	0.58	2
A513 Lichfield Road	415	0.4	1	418	0.46	1
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
A51 Lichfield Road (north)	890	0.05	0	1102	0.07	0
A51 Lichfield Road (east)	1152	0.5	1	1346	0.59	2
A513 Lichfield Road	437	0.45	1	455	0.54	1

8.4.21 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A518 Weston Road/ Beacon Way/Blackheath Lane

8.4.22 Table 221 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 221: A518 Weston Road/Beacon Way/Blackheath Lane junction 2023 future baseline and with the Proposed 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 future baseline with Proposed Scheme**		
A518 Weston Road (north)	1033	0.9	9	1332	1.21	143
Blackheath Lane	492	0.29	1	565	0.32	1
A518 Weston Road (south)	558	0.38	1	927	0.61	2
Beacon Way	233	0.2	0	233	0.26	0
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
A518 Weston Road (north)	938	0.88	7	1239	1.19	120
Blackheath Lane	321	0.2	0	358	0.23	0
A518 Weston Road (south)	711	0.45	1	1045	0.65	2
Beacon Way	344	0.33	1	344	0.43	1

8.4.23 The results show that the junction operates over capacity in 2023 on the A518 Weston Road (north) with the addition of the Proposed Scheme construction traffic. The A518 Weston Road (north) arm shows an increase in RFC from 0.9 to 1.21 with corresponding increase in queue length from nine to 143 PCUs in the AM peak and an increase RFC from 0.88 to 1.19 with corresponding increase in queue length from seven to 120 PCUs in the PM peak.

8.4.24 The Proposed Scheme construction traffic will increase queuing and delay through this junction, although the junction already operates close to capacity in the AM and PM peak in the future baseline. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A518 Weston Road/A513 Beaconside/Hydrant Way

8.4.25 Table 222 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 222: Future year baseline performance at A518 Weston Road/A513 Beaconside/Hydrant Way junction 2023 future baseline and with the Proposed 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 future baseline with Proposed Scheme**		
A513 Beaconside	962	0.77	4	1261	1.02	36
A518 Weston Road (east)	688	0.52	1	1052	0.79	4
Hydrant Way	1393	1.42	263	1393	1.83	490
A518 Weston Road (west)	960	0.84	6	1068	1.01	27
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
A513 Beaconside	1185	1.08	61	1483	1.34	249
A518 Weston Road (east)	563	0.53	1	857	0.74	4
Hydrant Way	853	0.72	3	853	0.82	5
A518 Weston Road (west)	1135	0.88	8	1170	1.06	48

8.4.26 The results show that the junction exceeds its capacity in 2023 baseline traffic. With the Proposed Scheme the Hydrant Way arm shows an increase in RFC from 1.42 to 1.83 with a corresponding increase in queue length from 263 to 490 PCUs in the AM peak. The A513 Beaconside arm shows an increase in RFC from 1.08 to 1.34 with a corresponding increase in queue length from 61 to 249 PCUs in the PM peak.

8.4.27 The Proposed Scheme construction traffic will increase queuing and delay through this junction, although the junction already operates substantially over its capacity in the AM and PM peak in the future baseline. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A34 from M6 Roundabout at Creswell/Mustang Drive

8.4.28 Table 223 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 223: A34 from M6 Roundabout at Creswell/Mustang Drive junction 2023 future baseline and with the Proposed 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 future baseline with Proposed Scheme**		
A34 from M6 Roundabout at Creswell (west)	1512	0.73	3	1716	0.82	5
Mustang Drive	124	0.11	0	124	0.13	0
A34 from M6 Roundabout at Creswell (east)	1300	0.62	2	1504	0.71	3
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
A34 from M6 Roundabout at Creswell (west)	1263	0.59	2	1513	0.71	3
Mustang Drive	302	0.26	0	302	0.31	1
A34 from M6 Roundabout at Creswell (east)	1263	0.62	2	1513	0.74	3

8.4.29 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline. The A34 from the M6 Roundabout at Creswell (west) arm shows an increase in RFC from 0.73 to 0.82 in the AM peak with a corresponding queue length increase from three to five PCUs.

A51 London Road/Church Lane/A51 Lichfield Road

8.4.30 Table 224 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 224: A51 London Road/Church Lane/A51 Lichfield Road/Hoo Mill Lane junction 2023 future baseline and with the Proposed 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 future baseline with Proposed Scheme**		
Church Lane (left + right)	202	0.45	1	202	0.58	1
A51 Lichfield Road (south east) (ahead)	504	-	-	741	-	-
A51 Lichfield Road (south east) (right)	168	0.33	1	168	0.38	1
A51 London Road (north-west) (left)	44	-	-	44	-	-
A51 London Road (north-west) (ahead)	504	-	-	742	-	-
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
Church Lane (left + right)	286	0.72	2	286	1.03	15
A51 Lichfield Road (south east) (ahead)	494	-	-	751	-	-
A51 Lichfield Road (south east) (right)	153	0.32	1	153	0.38	1
A51 London Road (north-west) (left)	9	-	-	9	-	-
A51 London Road (north-west) (ahead)	658	-	-	914	-	-

8.4.31 The results show that the junction exceeds its capacity in 2023 with the addition of the Proposed Scheme construction traffic. The Church Lane arm shows an increase in RFC from 0.72 to 1.03 with corresponding increase in queue length from two to 15 PCUs in the PM peak.

8.4.32 The Proposed Scheme construction traffic will increase queuing and delay through this junction, specifically on the Church Lane arm. This is expected to be in the peak of the peak and queues would clear quickly. However, HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A513 Beaconside/Dyson Way

8.4.33 It has been agreed with SCC that it is not appropriate to model this junction but that it is more appropriate to present the changes in traffic flow. Table 225 summarises the results of increases in traffic flows at this junction as a result of the Proposed Scheme in 2023.

Table 225: A513 Beaconside/Dyson Way junction 2023 future baseline and with the Proposed Scheme junction flow increase results

Approach	**Flow, PCU /hr**	**Flow, PCU /hr**
08:00 - 09:00	**2023 future baseline**	**2023 future baseline with Proposed Scheme**
A513 Beaconside Road (north)	1121	1280
Dyson Way	95	95
A513 Beaconside Road (south)	1533	1692
17:00 - 18:00	**2023 future baseline**	**2023 future baseline with Proposed Scheme**
A513 Beaconside Road (north)	854	1004
Dyson Way	479	479
A513 Beaconside Road (south)	1080	1230

8.4.34 The Proposed Scheme will increase two way traffic flows on the A513 Beaconside by 318 PCUs or 12% in the AM peak and by 300 PCUs or 15.5% in the PM peak. The higher percentage increase in the PM peak reflects the lower future baseline traffic flows in the PM peak.

A513 Beaconside/B5066 Sandon Road (east)

8.4.35 Table 226 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 226: A513 Beaconside/B5066 Sandon Road (east) junction 2023 future baseline and with the Proposed 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 future baseline with Proposed Scheme**		
B5066 Sandon Road (left)	345	2.7	156	347	N/A[2]	319
B5066 Sandon Road (right)	330	2.7	149	352	N/A[2]	324
A513 Beaconside (south) (ahead)	762	-	-	1083	-	-
A513 Beaconside (south) (right)	292	0.68	2	293	0.88	6
A513 Beaconside (north) (left)	268	-	-	291	-	-
A513 Beaconside (north) (ahead)	734	-	-	1055	-	-
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
B5066 Sandon Road (left)	152	21.96	85	155	N/A[2]	154
B5066 Sandon Road (right)	167	21.3	96	191	N/A[2]	191
A513 Beaconside (south) (ahead)	850	-	-	1149	-	-
A513 Beaconside (south) (right)	440	1.11	33	442	1.43	82
A513 Beaconside (north) (left)	406	-	-	430	-	-
A513 Beaconside (north) (ahead)	710	-	-	1010	-	-

8.4.36 The results show that the junction exceeds its capacity in 2023 both in the future baseline and with the addition of the Proposed Scheme construction traffic.

8.4.37 The Proposed Scheme construction traffic will increase queuing and delay through this junction, specifically on the B5066 Sandon Road arm.

8.4.38 The results show that in the future baseline without the Proposed Scheme that the capacity is exceeded. It is understood that a highway improvement scheme at this junction, associated with substantial housing growth, is currently being considered by SCC in order to mitigate the impact of other proposed development in Stafford. This is being pursued independently of the Proposed Scheme.

8.4.39 However, HS2 Ltd will work with the relevant highway authority to seek to reduce the impact of construction traffic resulting from the Proposed Scheme at this location.

[2] In this instance the model RFC value is excessive and unrealistic and therefore not reported. The predicted queuing is a more accurate reflection of the predicted traffic impacts at this junction

Tixall Road/Hanyards Lane

8.4.40 Table 227 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 227: Future year baseline performance at Tixall Road/Hanyards Lane junction 2023 future baseline and with the Proposed 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 future baseline with Proposed Scheme**		
Hanyards Lane (left + right)	9	0.02	0	18	0.05	0
Tixall Road (west) (ahead + right)	11	0.01	0	54	0.06	0
Tixall Road (west) (ahead)	590	-	-	726	-	-
Tixall Road (east) (left)	3	-	-	5	-	-
Tixall Road (east) (ahead)	220	-	-	387	-	-
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
Hanyards Lane (left + right)	0	0	0	22	0.06	0
Tixall Road (west) (ahead + right)	0	0	0	18	0.03	0
Tixall Road (west) (ahead)	293	-	-	359	-	-
Tixall Road (east) (left)	0	-	-	0	-	-
Tixall Road (east) (ahead)	501	-	-	574	-	-

8.4.41 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A513 Beaconside/Marston Lane

8.4.42 Table 228 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 228: A513 Beaconside/Marston Lane junction 2023 future baseline and with the Proposed 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 future baseline with Proposed Scheme**		
Marston Lane (left + right)	46	0.42	1	68	n/a	44
A513 Beaconside (west) (left)	10	-	-	29	-	-
A513 Beaconside (west) (ahead)	944	-	-	1115	-	-
A513 Beaconside (west) (ahead)	281	-	-	281	-	-
A513 Beaconside (west)+Marston Lane (ahead)	954	-	-	1120	-	-
A513 Beaconside (west)+Marston Lane (right)	297	0.63	2	287	0.66	2
Common Road (left)	204	0.43	1	204	n/a	109
Common Road (right)	15	0.23	0	15	n/a	8
A513 Beaconside (east) (left)	77	-	-	77	-	-
A513 Beaconside (east) (ahead)	703	-	-	875	-	-
A513 Beaconside (east) (ahead)	8	-	-	12	-	-
Common Road+A513 Beaconside (east) (ahead)	902	-	-	1034	-	-
Common Road+A513 Beaconside (east) (right)	12	0.03	0	16	0.05	0
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
Marston Lane (left + right)	18	0.12	0	68	n/a	34
A513 Beaconside (west) (left)	13	-	-	61	-	-
A513 Beaconside (west) (ahead)	746	-	-	911	-	-
A513 Beaconside (west) (ahead)	113	-	-	113	-	-
A513 Beaconside (west)+Marston Lane (ahead)	750	-	-	914	-	-
A513 Beaconside (west)+Marston Lane (right)	119	0.31	1	116	0.34	1
Common Road (left)	290	0.83	4	290	2.26	86
Common Road (right)	37	0.6	1	37	2.17	12
A513 Beaconside (east) (left)	48	-	-	48	-	-
A513 Beaconside (east) (ahead)	1035	-	-	1200	-	-
A513 Beaconside (east) (ahead)	7	-	-	9	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
Common Road+A513 Beaconside (east) (ahead)	1312	-	-	1422	-	-
Common Road+A513 Beaconside (east) (right)	19	0.04	0	19	0.05	0

8.4.43 The results show that with the addition of the construction traffic the junction exceeds its capacity in 2023. Substantial increases in queue lengths are shown on Common Road and Marston Lane, although these results should be treated with caution due to the high RFC values recorded.

8.4.44 The Proposed Scheme construction traffic will increase queuing and delay through this junction, specifically on the Common Road and Marston Lane arms. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A51 London Road/A518 Stafford Road

8.4.45 Table 229 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 229: A51 London Road/A518 Stafford Lane junction 2023 future baseline and with the Proposed 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 future baseline with Proposed Scheme**		
A518 Stafford Road	489	79%	8	635	102%	27
A51 London Road (south) (left turn)	335	81%	10	477	105%	30
A51 London Road (south) (ahead)	566	65%	7	601	63%	8
A51 London Road (north) (ahead)	507	39%	6	542	46%	8
A51 London Road (north) (right turn)	565	81%	15	569	105%	35
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
A518 Stafford Road	746	75%	8	885	94%	20
A51 London Road (south) (left turn)	221	63%	6	360	92%	13
A51 London Road (south) (ahead)	564	76%	8	707	85%	11
A51 London Road (north) (ahead)	485	48%	8	628	66%	13
A51 London Road (north) (right turn)	349	73%	9	349	95%	14

8.4.46 The results show that the junction exceeds its capacity in 2023 with the addition of the Proposed Scheme construction traffic. The A518 Stafford Road arm shows an increase in DoS from 79% to 102% with a corresponding increase in queue length from eight to 27 PCUs in the AM peak. The A51 London Road (south) arm shows an increase in DoS

from 81% to 105% with a corresponding increase in queue length from ten to 30 PCUs in the AM peak.

8.4.47 The Proposed Scheme construction traffic will increase queuing and delay through this junction. However, HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A513 Beaconside/B5066 Sandon Road (west)

8.4.48 Table 230 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 230: A513 Beaconside/B5066 Sandon Road (west) junction 2023 future baseline and with the Proposed Scheme junction capacity assessment results

Approach	Flow, PCU/hr	DOS	MMQ, PCU	Flow, PCU/hr	DOS	MMQ, PCU
08:00 - 09:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
A513 Beaconside Road (north)	1076	76%	15	1243	86%	23
B5066 Sandon Road (west)	547	74%	8	547	84%	9
A513 Beaconside (south) (left turn)	217	21%	3	217	19%	2
A513 Beaconside (south) Ahead	478	73%	12	645	74%	15
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
A513 Beaconside Road (north)	805	84%	9	963	95%	15
B5066 Sandon Road (west)	491	88%	9	491	96%	13
A513 Beaconside (south) (left turn)	392	33%	4	392	32%	4
A513 Beaconside (south) (ahead)	810	89%	22	968	99%	37

8.4.49 The results show that the junction approaches its capacity in 2023 both in the future baseline and with the addition of the Proposed Scheme construction traffic. The maximum increase is shown at the A513 Beaconside Road (north) in the PM peak where the DoS value increases from 84% to 95% and the queue length from nine to 15 PCUs.

8.4.50 The addition of the Proposed Scheme construction traffic does not result in any substantial increases in queuing or RFC from the future baseline, where the junction already operates close to its capacity in the 2023 baseline.

Tixall Road/Blackheath Lane/Baswich Lane

8.4.51 Table 231 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 231: Tixall Road/Blackheath Lane/Baswich Lane junction 2023 future baseline and with the Proposed Scheme junction capacity assessment results

Approach	Flow, PCU/hr	DOS	MMQ, PCU	Flow, PCU/hr	DOS	MMQ, PCU
08:00 - 09:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
Blackheath Lane (north)	487	97%	20	574	109%	45
Tixall Road (east)	808	104%	44	817	108%	58
Baswich Lane (south)	447	98%	20	525	115%	54
Tixall Road (west)	324	112%	30	324	109%	25
17:00 - 18:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
Blackheath Lane (north)	764	103%	41	870	114%	81
Tixall Road (east)	397	59%	9	406	64%	10
Baswich Lane (south)	362	106%	26	459	126%	65
Tixall Road (west)	516	107%	35	516	118%	58

8.4.52 The results show that the junction exceeds its capacity in 2023 both in the future baseline and with the addition of the Proposed Scheme construction traffic. The maximum increase in DoS and MMQ is shown at the Baswich Lane (south) where the DoS value increases from 106% to 126% and the queue length from 26 to 65 PCUs in the PM peak.

8.4.53 The Proposed Scheme construction traffic will increase queuing and delay through this junction. However, it should also be noted that the junction operates over its capacity in the 2023 future baseline. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A513 Beaconside/A34 Stone Road/A34 from M6 Roundabout at Creswell

8.4.54 Table 232 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 232: A513 Beaconside/A34 Stone Road/A34 from M6 Roundabout at Creswell junction 2023 future baseline and with the Proposed Scheme junction capacity assessment results

Approach	Flow, PCU/hr	DOS	MMQ, PCU	Flow, PCU/hr	DOS	MMQ, PCU
08:00 - 09:00	**2023 future baseline**			**2023 future baseline with Proposed Scheme**		
A513 Beaconside (east) (near-side)	570	71%	12	434	47%	7
A513 Beaconside (east) (mid)	267	33%	4	493	54%	9
A513 Beaconside (east) (far-side)	734	92%	21	874	96%	27
A34 Stone Road (south) (near-side)	368	89%	12	287	84%	9
A34 Stone Road (south) (mid)	206	50%	5	287	84%	9
A34 Stone Road (south) (far-side)	246	60%	6	246	72%	7
A34 from M6 Roundabout at Creswell (west) (near-side)	413	67%	9	444	88%	13

Approach	Flow, PCU/hr	DOS	MMQ, PCU	Flow, PCU/hr	DOS	MMQ, PCU
A34 from M6 Roundabout at Creswell (west) (mid)	515	83%	13	444	88%	13
A34 from M6 Roundabout at Creswell (west) (far-side)	316	51%	6	446	89%	13
A34 Stone Road (north) (near-side)	615	81%	15	709	82%	16
A34 Stone Road (north) (mid near-side)	594	79%	14	689	79%	15
A34 Stone Road (north) (mid far-side)	179	24%	3	130	15%	2
A34 Stone ROAD (north) (far-side)	673	89%	18	673	77%	15
17:00 - 18:00	**2023 future baseline**			**2023 future baseline Proposed Scheme**		
A513 Beaconside (east) (near-side)	341	50%	7	565	65%	11
A513 Beaconside (east) (mid)	392	57%	8	366	42%	6
A513 Beaconside (east) (far-side)	559	81%	14	775	89%	20
A34 Stone Road (south) (near-side)	293	67%	7	412	90%	13
A34 Stone Road (south) (mid)	331	76%	9	212	46%	5
A34 Stone Road (south) (far-side)	284	65%	7	284	62%	7
A34 from M6 Roundabout at Creswell (west) (near-side)	392	57%	8	492	90%	15
A34 from M6 Roundabout at Creswell (west) (mid)	204	30%	4	476	87%	13
A34 from M6 Roundabout at Creswell (west) (far-side)	585	85%	15	458	83%	12
A34 Stone Road (north) (near-side)	458	51%	8	758	77%	16
A34 Stone Road (north) (mid near-side)	657	74%	14	689	70%	13
A34 Stone Road (north) (mid far-side)	252	28%	4	137	14%	2
A34 Stone ROAD (north) (far-side)	691	77%	15	738	75%	15

8.4.55 The results show that the junction approaches its capacity in 2023 both in the future baseline and with the addition of the Proposed Scheme construction traffic, although without any substantial increases in queuing or RFC due to the Proposed Scheme. The maximum increase in DoS and MMQ is shown at the A34 from M6 Roundabout at Creswell (west) Nearside Lane where the DoS value increases from 57% to 90% and the queue length from eight to 15 PCUs in the PM peak.

M6 junction 14

8.4.56 Table 233 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 233: M6 junction 14 2023 future baseline and with the Proposed 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 Proposed Scheme**		
M6 south-bound off slip	652	52%	4	703	56%	5
M6 south-bound on slip	1170	49%	0	1216	50%	0
M6 north bound off slip	1152	58%	4	1238	62%	4
M6 north bound on slip	655	31%	0	665	31%	0
A34 east-bound	1270	38%	0	1375	41%	0
A34 west-bound	1119	51%	0	1189	55%	0
A5013 Eccleshall Road east-bound	757	42%	0	770	43%	0
A5013 Eccleshall Road west-bound	604	34%	0	602	35%	0
A5013 Creswell Grove east-bound	861	98%	6	848	103%	19
A5013 Creswell Grove west-bound	535	39%	0	533	38%	0
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
M6 south-bound off slip	446	54%	4	495	60%	4
M6 south-bound on slip	1100	48%	0	1104	48%	0
M6 north bound off slip	986	50%	3	991	50%	3
M6 north bound on slip	736	36%	0	748	36%	0
A34 east-bound	946	28%	0	1020	30%	0
A34 west-bound	1195	50%	0	1229	52%	0
A5013Eccleshall Road east-bound	464	26%	0	476	27%	0
A5013 Eccleshall Road west-bound	877	52%	1	826	51%	1
A5013 Creswell Grove east-bound	693	79%	1	729	85%	2
A5013 Creswell Grove west-bound	951	69%	0	923	67%	0

8.4.57 The results show that the junction approaches its capacity in 2023 both in the future baseline and with the addition of the Proposed Scheme construction traffic, although without any substantial increases in queuing or RFC due to the Proposed Scheme. The maximum increase in V/C and queue is shown at the A5013 (east-bound) where the DoS value increases from 98% to 103% and the queue length from six to 19 PCUs in the AM peak.

Summary of highway impacts

8.4.58 The construction of the Proposed Scheme will result in substantial percentage increases in peak hour traffic flows (in relation to either total vehicles and/or HGVs) at the locations listed below.

8.4.59 This is often due to the future baseline traffic flows having a low baseline level of vehicles or HGVs, often resulting in large percentage increases following only a minor increase in actual vehicle/HGV numbers.

8.4.60 The assessment shows substantial percentage increases in peak hour traffic flows (in relation to either total vehicles and/or HGVs) at the following locations:

- A51 Lichfield Road between the A518 Weston Road and the A460 Wolseley Road;
- A518 Weston Road between the Proposed Scheme and the A51 London Road;
- A518 Weston Road between the Proposed Scheme and the A513 Beaconside;
- A513 Beaconside between the A518 Weston Road and the A34 Stone Road;
- A34 Stone Road between the A513 Beaconside and the Whitgreave Lane;
- A34 between M6 Junction 14 and the A513 Beaconside;
- B5066 Sandon Road between the Proposed Scheme and the B513 Beaconside;
- Great Haywood Road/Tixall Road between Blackheath Lane and the Proposed Scheme;
- Hopton Lane between the Proposed Scheme and the B5066 Sandon Road;
- Marston Lane between the Proposed Scheme and the B513 Beaconside;
- Hanyards Lane between the Proposed Scheme and Tixall Road; and
- Bellamour Lane between B5013 Uttoxeter Road and A51 Main Road.

8.4.61 The increase in traffic described 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 –

- M6 junction 14;
- A513 Beaconside/A34 Stone Road signals;
- A513 Beaconside/B5066 Sandon Road;
- A513 Beaconside/B5066 Sandon Road signals;
- A513 Beaconside/Marston Lane;
- A518 Weston Road/Blackheath Lane Roundabout;
- A518 Weston Road/A513 Beaconside Roundabout;
- A518 Stafford Road/A51 London Road signals;

- Blackheath Lane/Baswich Lane/Tixall Road signals; and
- A51 Lichfield/Hoo Mill Lane/Church Lane.

8.4.62 It should be noted that many of these junctions are shown to operate either close to, or at capacity in the future baseline regardless of the Proposed Scheme and 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

8.4.63 The impacts on accident and safety risks will not be substantial. At one junction, the A513 Beaconside/A34 Stone Road Roundabout, where there are existing highway safety issues, there will be an increase in congestion. However the overall change in traffic flow will not be sufficient to raise additional safety concerns. It is also noted that the junction has a committed transport improvement scheme which will signalise the Roundabout (Redhill Roundabout proposed signalisation). Although there will be increases in construction traffic on other links and junctions none have been identified in the baseline assessment as the location of a known safety concern.

Parking and loading

8.4.64 The Proposed Scheme will impact on the parking provision at the Staffordshire County Showground during construction. As the loss of spaces is permanent, this is reported in the assessment of operational impacts.

8.4.65 Construction of the Proposed Scheme will impact on parking provision at the Great Haywood Marina. The construction works associated with the Great Haywood viaduct will require the temporary loss of up to approximately 20 informal parking spaces around the marina for a period of up to three years and three months.

8.4.66 HS2 Ltd is working with the business affected to seek to limit the loss of car parking and to identify opportunities, where reasonably practicable, to mitigate the temporary adverse impacts on parking.

Public transport

Rail network

8.4.67 Construction of the Great Haywood Viaduct will require interface with Network Rail in relation to safe operation of the existing railway. Works will typically be carried out in non-disruptive possessions[3] and where this is not possible, possessions and blockades will be agreed through close working with Network Rail to ensure that disruption is reduced.

8.4.68 Rail possessions in the Colwich to Yarlet area will be required over a four year period between 2021 and 2025. While the majority of possessions will be non-disruptive, there will be the need in this area for one longer, 54-hour weekend possession. The

[3] A non-disruptive possession is any possession of the operational railway which has no impact on the users of the railway. These possessions generally occur overnight, in existing maintenance or 'engineering access' periods which exist for the purposes of inspection, maintenance or renewal activities. i.e. a non-disruptive possession will allow passenger train services to operate as per their normal schedule.

number of weekend possessions required in the Colwich to Yarlet area are summarised in Table 234.

Table 234: Summary of likely possessions requirements in the Colwich to Yarlet area

	54-hour possessions
Possessions Summary	1

8.4.69 This rail possession is not expected to substantially disrupt the travelling public.

8.4.70 Rail possessions in adjacent areas could have the potential to disrupt travellers in the area. However, possessions in adjoining areas would be limited, where reasonably practicable, to non-disruptive possessions to reduce any impact on rail travellers. Rail replacement services would be provided as necessary when rail possessions were in place.

8.4.71 The impact on rail users in the Colwich to Yarlet area will not be substantial.

Local bus services

8.4.72 Services that run along the four identified corridors that cross the route of the Proposed Scheme may be affected by temporary construction diversions. These include the following:

- A34 Stone Road between Stafford and Yarlet;
- A51 Lichfield Road between Colwich and Great Haywood;
- A518 Weston Road between Stafford University and Weston; and
- B5066 Sandon Road between RAF Stafford and Hopton.

8.4.73 The bus services potentially affected are shown in Table 235 below.

Table 235: Local bus services temporary journey changes summary

Bus service	Service frequency					Changes in bus journeys	
	AM Peak 08:00 - 09:00	PM Peak 17:00 - 18:00	Daily	Saturday	Sunday	Routes affected	Disruption duration
15	0	0	2	2	0	B5066 Sandon Road	3 months
101	2	3	82	74	20	A34 Stone Road	15 months
827	1	1	2	0	0	A51 Lichfield Road and A518 Weston Road	15 months
842	0	0	8	4	0	A51 Lichfield Road, A518 Weston Road and B5066 Sandon Road	15 months
842A	0	1	2	0	0	B5066 Sandon Road	3 months

8.4.74 The A34 Stone Road works will require the diversion of the bus service to an off-line temporary diversion route, which is approximately the same length as the existing route. The diversion may also require temporary relocation of bus stops in this area, although the stops are expected to be relocated in close proximity to the existing stops.

8.4.75 None of the other corridors will be subject to any full-time temporary diversions, with works managed by short-term lane closures and partial lane closures under traffic control for tie-ins, intermittent lane restrictions and temporary road closures. These will be restricted to short-term overnight and/or weekend closures, where reasonably practicable, and as such will impact primarily at times when bus services do not run.

Public transport interchanges

8.4.76 There are no substantial public transport interchanges in the Colwich to Yarlet area and therefore no construction activity impacts on public transport interchange facilities in the Colwich to Yarlet area.

Pedestrian, cyclists and equestrians

8.4.77 Compared to the existing baseline, the works required to construct the Proposed Scheme will affect routes used by pedestrians, cyclists and equestrians, primarily where the scheme construction results in changes to the affected routes.

8.4.78 Pedestrians and other non-motorised users may also be affected by changes in traffic levels due, particularly, to HS2 construction traffic. Roads with substantial changes in traffic levels are listed above.

8.4.79 Locations where routes used by pedestrians, cyclists and equestrians are temporarily diverted, realigned or closed are shown in Table 236, which summarises the temporary diversions, realignments and extensions to PRoW required to accommodate the construction of the Proposed Scheme.

8.4.80 In addition, the A34 Stone Road will be diverted temporarily off-line during construction, some 100m to the west over a distance of around 700m and for a period of one year. However, the overall increase in distance travelled will be less than 100m, and hence this diversion is not expected to have a substantial impact on pedestrians, cyclists and equestrians.

Table 236: CA2 construction changes on public rights of way for non-motorised users

PRoW name	Change in distance	Duration
Colwich Footpath 6	None	24 months
Colwich Bridleway 23	No change to overall length of route	36 months
Colwich Footpath 26	Additional temporary route is 800m longer	36 months
Colwich Bridleway 35	Temporary diversion to the south is same as existing length	18 months
Colwich Footpath 36	Temporary diversion is same as part of new permanent route via BW23.	36 months
Colwich Footpath 54	Temporary diversion south is 60m longer.	36 months
Colwich Footpath 55	No temporary diversion	36 months
Colwich Bridleway 58	Temporary diversion south is 60m longer	36 months
Colwich Bridleway 63	Temporary diversions south are 60m longer.	36 months
Tixall Bridleway 0.1628	Temporary diversion route is broadly the same length as permanent change.	36 months

PRoW name	Change in distance	Duration
Tixall Bridleway 0.1629	Temporary diversion is 60m longer.	36 months
Tixall Footpath 0.1630 (b)	Temporary diversions for travel to the north (via BW 0.1628) are 15m shorter; for travel to the south east, the temporary diversions are 400m longer.	18 months for each phased diversion – 36 months in total
Hopton and Coton Footpath 6	Additional temporary route is 60m longer.	18 months
Hopton and Coton Bridleway 11	Temporary diversion is same length as existing.	Not stated / permanent
Hopton and Coton Bridleway 12	Temporary diversion is 90m longer.	36 months
Hopton and Coton Bridleway 16	Temporary diversion is 20m shorter.	18 months
Hopton and Coton Footpath 24	Temporary diversion is 30m longer.	36 months
Marston Footpath 2	Additional temporary route is 90m longer.	36 months
Marston Bridleway 8	Temporary diversion is 150m longer	18 months
Marston Footpath 10	Temporary diversion extends route by 150m on to Marston Lane.	18 months

8.4.81 Within these 20 temporary diversions of PROW and roads, the majority of routes affected experience either no change in length (in the case of the A34 Stone Road, Colwich Bridleways 23 and 35, and Hopton and Coton Bridleway 11), or changes of no more than 150m.

8.4.82 Two routes do experience larger changes in length of diversion, of up to 800m on Colwich Footpath 26, and 400m on Tixall Footpath 0.1630. These are effectively diverted on to other nearby PRoW routes in order to share temporary crossing points of the construction works sites.

8.4.83 When surveyed in 2016, only one PRoW was found to have more than 12 users either on a typical weekday or at a weekend, and that was Colwich Bridleway 63, which follows the towpath of the Trent and Mersey Canal and is subject to a minor temporary diversion.

8.4.84 Where footpath routes meet and combine with bridleways to cross a new shared over- or underbridge (as with Colwich Footpath 54 and Tixall Footpath 0.1630b), the relevant footpath section will be upgraded to bridleway, thus enhancing connectivity for equestrians and cyclists.

Waterways and Canals

8.4.85 The route of the Proposed Scheme will cross over the Trent and Mersey Canal at the Great Haywood viaduct. The construction of the Proposed Scheme will require short closures (approximately 24hrs) of the Trent and Mersey Canal. HS2 Ltd will work with the Canal & River Trust to ensure that any need for closures can be limited. As the closures will be short term in nature, the impact on users of the waterway and the associated canal towpath will not be substantial.

8.5 CA2 Proposed Scheme operation description

8.5.1 This section provides an overview of the impacts resulting from the operation of the Proposed Scheme. The operation of the Proposed Scheme is programmed to begin in 2027.

8.6 CA2 Proposed Scheme assessment of operation impacts

Key operation transport issues

8.6.1 The main potential operational impacts relate to the diversion, realignment of roads and implementation of new junctions in order to accommodate the Proposed Scheme, together with changes to PRoW.

8.6.2 Operations will not have any substantial impacts within the Fradley to Colton area due to increased HS2 related traffic, as there are no HS2 stations or depots proposed. The maintenance of the Proposed Scheme will generate a limited number of vehicular trips associated with servicing and maintenance and there will be some minor local reassignment of traffic due to road diversions but these impacts will not be substantial.

8.6.3 Table 237 and Table 238 summarise the key infrastructure changes to the transport network. There are no key issues over and above these changes.

Highway network

Highway diversions, realignments and closures

8.6.4 Table 237 summarises the permanent road diversions, realignments and extensions required to accommodate the Proposed Scheme.

Table 237: CA2 permanent highway diversion/realignment/stopping-up

Road name	Description	Change in length
Tolldish Lane	Diversion north of existing to re-join A51 Lichfield Road, north of HS2 alignment. Southern section of existing to be stopped up	Diversion to A51 Lichfield Road for travel to the north is 250m shorter; to A51 Lichfield Road for travel to the south via new underbridge is 250m longer
A51 Lichfield Road	Reinstatement on to new underbridge on existing alignment.	Reinstatement results in no change in travel distance.
Hoo Mill Lane (private access road)	Diversion north of existing to join Ingestre Park Road	Diversion results in a minimal change in travel distance
A518 Weston Road	Realignment of existing to west and new overbridge	Realignment results in a minimal change in travel distance
Hopton Lane	Diversion north of existing to join realigned B5066 Sandon Road. Southern section to be stopped up – provides access to balancing pond	Diversion to B5066 Sandon Road for travel to the north is 200m shorter and to B5066 Sandon Road for travel to the south is 300m longer
B5066 Sandon Road	Realignment of existing to west. 1km of route is Realigned	Realignment results in a minimal change in travel distance
Mount Edge	Extension of existing to west to join realignment B5066 Sandon Road. 250m of new route created	Lane is extended by 250m. Route to realigned B5066 Sandon Road is a minimal distance shorter

Road name	Description	Change in length
Marston Lane	Realignment of existing to north, 800m of diverted lane provided	Realignment results in a minimal change in travel distance
A34 Stone Road	Reinstatement on to a new overbridge on existing alignment	Reinstatement results in no change in travel distance.

PRoW diversions, realignments and closures

8.6.5 Table 238 summarises the permanent PRoW diversions and realignments required to accommodate the Proposed Scheme.

Table 238: CA2 permanent PRoW diversions and realignments

PRoW name	Description	Change in length
Colwich Bridleway 23	Realignment west from Moreton Grange via Colwich Bridleway 23 accommodation overbridge towards Moreton House	Realigned route is 250m shorter
Colwich Footpath 36	Diversions to south east via Colwich Bridleway 23 accommodation overbridge and to north-west via Colwich Bridleway 35 accommodation overbridge	Diversion for travel to the south is 150m longer; diversion for travel to the north is 350m longer
Colwich Bridleway 35	Realignment of existing to north east via Colwich Bridleway 35 accommodation overbridge	Realignment results in a minimal change in travel distance
Colwich Footpath 26	Diversion of existing on both sides of alignment towards Colwich Bridleway 35 accommodation overbridge	Diversion route is 950m longer
Colwich Footpath 54	Diversion of existing route to west via Colwich Bridleway 58 diversion and accommodation underbridge	Realignment results in a minimal change in travel distance
Colwich Bridleway 58[1]	Diversion north of existing via accommodation underbridge, to include former Colwich Footpath 55	Diversion results in a minimal change in travel distance
Colwich Footpath 55 (to become Colwich Bridleway 58)	Partial closure from Tolldish Lane and part upgrade to Bridleway, hence re-classified as Colwich Bridleway 58. 400 m of new Bridleway is created	Diversion to Tolldish Lane for travel to the north is 120m shorter; diversion to Tolldish Lane for travel to the south is 950m longer
Tixall Footpath 0.1630 (b)	Partial upgrade to join Tixall Bridleway 0.1628, and Realignment of footpath via Tixall Bridleway 0.1628 accommodation overbridge. Up to 100m of new Bridleway is created	Realignment results in a minimal change in travel distance
Tixall Bridleway 0.1628	Realignment east via Bridleway 0.1628 accommodation overbridge, to include upgraded section of former Tixall Footpath 0.1630(b)	Realigned route via accommodation overbridge is 350m longer
Hopton and Coton Footpath 24	Realignment to the south of existing on to Hopton and Coton Footpath 24 accommodation overbridge	Realignment results in a minimal change in travel distance
Hopton and Coton Footpath 6	Diversion of existing route to south to join Hopton and Coton Footpath 7 via Hopton and Coton Footpath 24 accommodation overbridge	Diversion is 650m longer

PRoW name	Description	Change in length
Hopton and Coton Bridleway 11	Realignment of existing to south via Hopton and Coton Bridleway 11 accommodation overbridge	Realignment results in a minimal change in travel distance
Hopton and Coton Bridleway 12	Diversion of existing to north to rejoin Hopton and Coton Bridleway 11	Diversion for travel to the north is 150m shorter; diversion for travel to the south (Hopton and Coton Bridleway 11) via new overbridge is 200m longer
Hopton and Coton Bridleway 16	Diversion of existing to south to rejoin Hopton and Coton Bridleway 11	Diversion for travel to the south is minimal change in distance; diversion for travel to the north is 200m longer; diversion for travel east to west (to Hopton and Coton Bridleway 12) is 300m longer
Marston Bridleway 8	Realignment of route to west via new Marston Bridleway 8 accommodation underbridge	Realignment results in a minimal change in travel distance.
Marston Footpath 2	Diversion of existing route to east via Marston Bridleway 8 accommodation underbridge, to join realigned Marston Lane	Diversion route is 450m longer

Strategic and local road network traffic flows 2027

8.6.6 Traffic flows on road links in CA2 are primarily unchanged from the future baseline or result in very minor increases due to maintenance traffic or reassignment as a result of the realignments and closures in 2027. The main operational impacts relate to the diversion of roads and relocation of junctions in order to accommodate the Proposed Scheme. Table 239 and Table 240 set out the 2027 traffic flows on highway links affected by the realignments and closures proposed.

8.6.7 To assess the impact of the Proposed Scheme in these locations, traffic flows on affected links are presented with 2027 future baseline and 2027 future baseline with the Proposed Scheme, alongside the percentage increase from the future baseline.

Table 239: 2027 future baseline and with the Proposed Scheme traffic (vehicles) - AM peak hour (08:00 – 09:00)

Location	Direction	2027 baseline		2027 with Proposed Scheme		With HS2 % change from 2027 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
B5066 Sandon Road (between A513 Beaconside and Hopton Lane)	NB	242	14	242	13	0%	-5%
	SB	548	15	543	14	-1%	-7%
B5066 Sandon Road (between Hopton Lane and the Proposed Scheme)	NB	227	13	237	14	5%	8%
	SB	526	14	537	13	2%	-4%

Table 240: 2027 future baseline and with the Proposed Scheme traffic (vehicles) - PM peak hour (17:00 – 18:00)

Location	Direction	2027 baseline		2027 with Proposed Scheme		With HS2 % change from 2027 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
B5066 Sandon Road (between Beaconside and Hopton Lane)	NB	463	5	462	5	0%	0%
	SB	198	4	196	4	-1%	0%
B5066 Sandon Road (between Hopton Lane and the Proposed Scheme)	NB	447	5	460	6	3%	20%
	SB	192	4	193	4	0%	10%

8.6.8 There are very minor increases in traffic flow on the B5066 Sandon Road as a result of the Hopton Lane diversion.

8.6.9 Whilst the changes in traffic flows are not substantial, the relocation of junctions and changes to their form/geometry warrants that the junctions at B5066 Sandon Road/Hopton Lane and A51 Lichfield Road/Tolldish Lane are considered further in terms of capacity assessments.

Junction performance 2027

B5066 Sandon Road/Hopton Lane

8.6.10 Hopton Lane will be diverted to the north of its existing alignment to form a new junction onto the B5066 Sandon Road. Table 241 summarises the results of the changes to the junction as a result of the Proposed Scheme.

8.6.11 The 2027 future baseline results include the junction in its existing location and the 2027 with the Proposed Scheme results include the junction in its new location.

Table 241: B5066 Sandon Road/Hopton Lane junction 2027 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline (existing location)**			**2027 with the Proposed Scheme (proposed location)**		
Hopton Lane (left + right)	24	0.05	0	17	0.04	0
B5066 Sandon Road (south) (ahead + right)	25	0.04	0	24	0.04	0
B5066 Sandon Road (south) (ahead)	262	-	-	262	-	-
B5066 Sandon Road (north) (left)	7	-	-	5	-	-
B5066 Sandon Road (north) (ahead)	584	-	-	586	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Hopton Lane (left + right)	10	0.02	0	7	0.01	0
B5066 Sandon Road (south) (ahead + right)	42	0.05	0	41	0.05	0

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
B5066 Sandon Road (south) (ahead)	500	-	-	500	-	-
B5066 Sandon Road (north) (left)	5	-	-	4	-	-
B5066 Sandon Road (north) (ahead)	241	-	-	241	-	-

8.6.12 The junction performance with the Proposed Scheme is comparable to that for the existing junction in the future baseline, with the junction shown to operate within capacity.

B5066 Sandon Road/Mount Edge (new junction)

8.6.13 As a result of the Hopton Lane diversion, a new junction will be formed between Mount Edge and the B5066 Sandon Road. The junction will take the form of a priority controlled T-junction with no pedestrian crossing facilities. Table 242 summarises the results of the junction capacity assessments with the Proposed Scheme.

Table 242: B5066 Sandon Road/Mount Edge new junction 2027 with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Mt Edge (left + right)	-	-	-	9	0.02	0
B5066 Sandon Road (south) (ahead + right)	-	-	-	4	0.01	0
B5066 Sandon Road (south) (ahead)	-	-	-	281	-	-
B5066 Sandon Road (north) (left)	-	-	-	3	-	-
B5066 Sandon Road (north) (ahead)	-	-	-	597	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Mt Edge (left + right)	-	-	-	0	0.00	0
B5066 Sandon Road (south) (ahead + right)	-	-	-	4	0.00	0
B5066 Sandon Road (south) (ahead)	-	-	-	537	-	-
B5066 Sandon Road (north) (left)	-	-	-	0	-	-
B5066 Sandon Road (north) (ahead)	-	-	-	246	-	-

8.6.14 The proposed junction layout operates within capacity in 2027 with the Proposed Scheme.

A51 Lichfield Road/Tolldish Lane (existing junction)

8.6.15 Tolldish Lane will be diverted to the north of its existing alignment to form a new junction onto the A51. The existing A51 Lichfield Road/Tolldish Lane junction will be converted to a priority controlled T-junction with right turn 'ghost island' from its existing arrangement as a priority controlled crossroads. Table 243 summarises the results of the changes to the existing junction as a result of the Proposed Scheme.

Table 243: A51 Lichfield/Tolldish Lane existing junction 2027 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Tolldish Lane (east) (ahead + left + right)	9	0.06	0	0	-	-
A51 Lichfield Road (north) (left)	1	-	-	0	-	-
A51 Lichfield Road (north) (ahead)	677	-	-	677	-	-
A51 Lichfield Road (north) (right)	166	0.39	1	172	0.40	1
Little Tixall Lane (west) (ahead + left)	167	0.50	1	168	0.43	1
Little Tixall Lane (west) (ahead + right)	85	0.58	1	84	0.53	1
A51 Lichfield Road (south) (left)	80	-	-	80	-	-
A51 Lichfield Road (south) (ahead)	750	-	-	755	-	-
A51 Lichfield Road (south) (right)	5	0.01	0	0	0.00	0
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Tolldish Lane (east) (ahead + left + right)	9	0.05	0	0	0.00	0
A51 Lichfield Road (north) (left)	5	-	-	0	-	-
A51 Lichfield Road (north) (ahead)	828	-	-	827	-	-
A51 Lichfield Road (north) (right)	206	0.44	1	209	0.45	1
Little Tixall Lane (west) (ahead + left)	117	0.25	0	118	0.24	0
Little Tixall Lane (west) (ahead + right)	48	0.31	0	47	0.30	0
A51 Lichfield Road (south) (left)	84	-	-	84	-	-
A51 Lichfield Road (south) (ahead)	615	-	-	618	-	-
A51 Lichfield Road (south) (right)	2	0.01	0	0	0.00	0

8.6.16 The junction performance with the Proposed Scheme offers an improvement to the future baseline, as a result of Tolldish Lane (west) no longer giving way to Tolldish Lane (east) at the crossroads junction. The junction operates within capacity in 2027.

A51 Lichfield Road/Tolldish Lane (new junction)

8.6.17 The new A51 Lichfield Road/Tolldish Lane junction, to the north of the existing junction, will take the form of a priority controlled (give way) cross-roads junction with 'ghost island' right turn facilities, with no controlled pedestrian crossing facilities. Table 244 summarises the results the junction capacity assessments with the Proposed Scheme.

Table 244: A51 Lichfield Road/Tolldish Lane new junction 2027 with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Tolldish Lane diverted (east) (left + right)	-	-	-	9	0.04	0
A51 Lichfield Road (south) (ahead)	-	-	-	913	-	-
A51 Lichfield Road (south) (right)	-	-	-	10	0.02	0
A51 Lichfield Road (north) (left)	-	-	-	1	-	-
A51 Lichfield Road (north) (ahead)	-	-	-	842	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Tolldish Lane diverted (east) (left + right)	-	-	-	9	0.04	0
A51 Lichfield Road (south) (ahead)	-	-	-	732	-	-
A51 Lichfield Road (south) (right)	-	-	-	5	0.01	0
A51 Lichfield Road (north) (left)	-	-	-	5	-	-
A51 Lichfield Road (north) (ahead)	-	-	-	1034	-	-

8.6.18 The proposed junction layout operates within capacity in 2027 with the Proposed Scheme.

Strategic and local road network traffic flows 2041

8.6.19 As for 2027, only traffic flows that are affected by either the realignment or closure are shown in Table 245 and Table 246 for 2041. Traffic flows on all other links are either unaffected from the future baseline or result in very minor increases due to maintenance traffic or re-assignment as a result of the Realignments/closures.

8.6.20 Traffic flows on affected links are presented with 2027 future baseline and 2027 future baseline with the Proposed Scheme, alongside the percentage increase from the future baseline.

Table 245: 2041 future baseline and with the Proposed Scheme traffic (vehicles) - AM peak hour (08:00 – 09:00)

Location	Direction	2041 baseline		2041 with HS2		With HS2 % change from 2041 baseline	
		Veh	HGV	Veh	HGV	Veh	HGV
B5066 Sandon Road (between Beaconside and Hopton Lane)	NB	262	15	261	14	0%	-5%
	SB	593	16	587	15	-1%	-7%
B5066 Sandon Road (between Hopton Lane and the Proposed Scheme)	NB	245	14	257	15	5%	8%
	SB	569	15	581	14	2%	-4%

Table 246: 2041 future baseline and with the Proposed Scheme traffic (vehicles) - PM peak hour (17:00 – 18:00)

Location	Direction	2041 baseline		2041 with HS2		With HS2 % change from 2041 baseline	
		Veh	HGV	Veh	HGV	Veh	HGV
B5066 Sandon Road (between Beaconside and Hopton Lane)	NB	488	5	488	5	0%	0%
	SB	209	4	206	4	-1%	0%
B5066 Sandon Road (between Hopton Lane and the Proposed Scheme)	NB	471	5	485	6	3%	20%
	SB	203	4	204	5	0%	10%

8.6.21 There are very minor increases in traffic flow on the B5066 Sandon Road as a result of the Hopton Lane diversion, alongside some minor reductions in flow on other links at the junction as a result of the relocation of the B5066 Sandon Road/Hopton Lane diversion.

8.6.22 As for 2027, the junctions at B5066 Sandon Road/Hopton Lane and A51 Lichfield Road/Tolldish Lane are considered further in terms of capacity assessments.

Junction performance 2041

B5066 Sandon Road/Hopton Lane

8.6.23 Table 247 summarises the results of the changes to the junction as a result of the Proposed Scheme in 2041.

Table 247: B5066 Sandon Road/Hopton Lane junction 2041 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Hopton Lane (left + right)	26	0.06	0	18	0.04	0
B5066 Sandon Road (south) (ahead + right)	28	0.05	0	28	0.05	0
B5066 Sandon Road (south) (ahead)	282	-	-	282	-	-
B5066 Sandon Road (north) (left)	7	-	-	5	-	-
B5066 Sandon Road (north) (ahead)	632	-	-	634	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Hopton Lane (left + right)	11	0.02	0	6	0.01	0
B5066 Sandon Road (south) (ahead + right)	46	0.06	0	39	0.06	0
B5066 Sandon Road (south) (ahead)	525	-	-	485	-	-
B5066 Sandon Road (north) (left)	5	-	-	4	-	-
B5066 Sandon Road (north) (ahead)	254	-	-	233	-	-

8.6.24 The junction performance with the Proposed Scheme is comparable with the future baseline, with the junction shown to operate within capacity.

B5066 Sandon Road/Mount Edge (new junction)

8.6.25 Table 248 summarises the results the junction capacity assessments with the Proposed Scheme in 2041.

Table 248: B5066 Sandon Road/Mount Edge new junction 2041 with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Mt Edge (left + right)	-	-	-	10	0.02	0
B5066 Sandon Road (south) (ahead + right)	-	-	-	4	0.01	0
B5066 Sandon Road (south) (ahead)	-	-	-	304	-	-
B5066 Sandon Road (north) (left)	-	-	-	3	-	-
B5066 Sandon Road (north) (ahead)	-	-	-	645	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Mt Edge (left + right)	-	-	-	0	0.00	0
B5066 Sandon Road (south) (ahead + right)	-	-	-	4	0.00	0
B5066 Sandon Road (south) (ahead)	-	-	-	566	-	-
B5066 Sandon Road (north) (left)	-	-	-	0	-	-
B5066 Sandon Road (north) (ahead)	-	-	-	260	-	-

8.6.26 The proposed junction layout operates within capacity in 2041 with the Proposed Scheme.

A51 Lichfield Road/Tolldish Lane (existing junction)

8.6.27 Table 249 summarises the results of the changes to the existing junction as a result of the Proposed Scheme in 2041.

Table 249: A51 Lichfield Road/Tolldish Lane existing junction 2041 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Tolldish Lane (east) (ahead + left + right)	10	0.09	0	0	0.00	0
A51 Lichfield Road (north) (left)	1	-	-	0	-	-
A51 Lichfield Road (north) (ahead)	733	-	-	733	-	-
A51 Lichfield Road (north) (right)	180	0.44	1	186	0.45	1
Little Tixall Lane (west) (ahead + left)	181	0.96	7	182	0.65	2
Little Tixall Lane (west) (ahead + right)	92	0.91	5	91	0.76	3

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 Lichfield Road (south) (left)	87	-	-	87	-	-
A51 Lichfield Road (south) (ahead)	812	-	-	818	-	-
A51 Lichfield Road (south) (right)	5	0.01	0	0	0.00	0
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Tolldish Lane (east) (ahead + left + right)	10	0.07	0	0	0.00	0
A51 Lichfield Road (north) (left)	5	-	-	0	-	-
A51 Lichfield Road (north) (ahead)	899	-	-	898	-	-
A51 Lichfield Road (north) (right)	223	0.50	1	227	0.50	1
Little Tixall Lane (west) (ahead + left)	127	0.32	1	128	0.29	0
Little Tixall Lane (west) (ahead + right)	52	0.44	1	51	0.42	1
A51 Lichfield Road (south) (left)	91	-	-	91	-	-
A51 Lichfield Road (south) (ahead)	668	-	-	671	-	-
A51 Lichfield Road (south) (right)	2	0.01	0	0	0.00	0

8.6.28 The junction performance with the Proposed Scheme offers improvement to the future baseline, as a result of Tolldish Lane (west) not giving way to Tolldish Lane (east) at the crossroads junction. The junction operates within capacity in 2041 with the Proposed Scheme, with RFC values reducing from 0.96 in the future baseline AM peak to 0.76 with the Proposed Scheme.

A51 Lichfield Road/Tolldish Lane (new junction)

8.6.29 Table 250 summarises the results of the junction capacity assessments with the Proposed Scheme.

Table 250: A51 Lichfield Road/Tolldish Lane new junction with the Proposed Scheme junction capacity assessment results

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Tolldish Lane diverted (east) (left + right)	-	-	-	10	0.05	0
A51 Lichfield Road (south) (ahead)	-	-	-	990	-	-
A51 Lichfield Road (south) (right)	-	-	-	10	0.02	0
A51 Lichfield Road (north) (left)	-	-	-	1	-	-
A51 Lichfield Road (north) (ahead)	-	-	-	913	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Tolldish Lane diverted (east) (left + right)	-	-	-	10	0.05	0
A51 Lichfield Road (south) (ahead)	-	-	-	794	-	-
A51 Lichfield Road (south) (right)	-	-	-	5	0.01	0
A51 Lichfield Road (north) (left)	-	-	-	5	-	-
A51 Lichfield Road (north) (ahead)	-	-	-	1122	-	-

8.6.30 The proposed junction layout operates within capacity in 2041 with the Proposed Scheme.

Accidents and safety

8.6.31 The baseline safety analysis identified two accident clusters over a three year period, located at the A513 Beaconside junction with A34 Stone Road in Stafford (9 accidents over the last three years) and at the A34 Lichfield Road junction with Riverway (12 accidents over the last three years). However there are no locations in the Colwich to Yarlet area where there are substantial forecast increases in traffic flows due to the operation of the Proposed Scheme. New highway links and junctions will be constructed to current standards and/or in keeping with the existing infrastructure. The Proposed Scheme is unlikely to create any new safety concerns.

Parking and loading

8.6.32 The route of the Proposed Scheme will pass along the southern edge of the Staffordshire County Showground. The Proposed Scheme will not impact the 160 marked parking spaces adjacent to the Member's Pavilion nor the six disabled parking spaces. However, there will be an impact on the car parking located to the west of the A518 Weston Road where there is parking in unmarked spaces within a field. It is estimated that the Proposed Scheme will remove approximately 800 spaces during construction and these spaces will be lost permanently.

8.6.33 Because parking spaces are not designated at the Staffordshire County Showground the loss of parking spaces has had to be estimated. Estimating the potential loss of parking spaces in a field can be never be precise because parking bays are not marked out. However an estimate has been made based on the following set of assumptions:

- The length of the field is 290 metres and the maximum width is 95 metres meaning the size of the field is 27,550 sqm;
- 57% of the field will be lost to HS2, which equates to 15,703 sqm; and
- assume the average footprint occupied by a parked vehicle is 20sqm; this includes an allowance for vehicles to circulate as well as parking.

8.6.34 Therefore, the total estimated loss equates to 15,703 sqm divided by 20 which equals 785 parking bays. This number has then been rounded up to 800 parking bays.

8.6.35 HS2 Ltd will work with the business affected to identify opportunities where reasonably practicable to mitigate impacts on parking.

Public transport

Rail network

8.6.36 As part of Hs2 Phase One there will be a new service running from Stafford to London that will use the existing WCML and connect to the HS2 Phase One scheme at Handsacre. The journey time from Stafford to London Euston will be 55 minutes compared to the existing 77 minutes and it is expected that there will be one service every hour. However, since it is not on the route of the Proposed Scheme, any impacts on Stafford station as a result of changes in passenger numbers is considered in the off-route assessment in section 12 of this report. No other changes are assumed elsewhere on the existing rail network.

There are no local changes to the rail network or operations in this CA as a result of the Proposed Scheme. The wider impacts of HS2 services in considered in section 12 of this report.

Local bus services

8.6.37 Local bus routes will be affected where the road corridors used cross the Proposed Scheme and where the Proposed Scheme results in the changes in the route taken.

8.6.38 Of the four corridors identified in the existing baseline (further details in Annex B Tables B5 to B9), only buses on the B5066 Sandon Road corridor are affected by the Proposed Scheme. Sandon Road will be diverted west onto a new alignment, with Hopton Lane diverted north from its existing location to join Sandon Road north of the route of the Proposed Scheme.

8.6.39 Table 251 below sets out the routes affected, their frequency and impact in relation to travel distance and journey time. However, the impacts are very small, at less than one minute of extra travel time on the three routes affected, which operate at low frequency.

Table 251: CA2 public transport journey change assessment summary

Bus service	Service frequency (both directions)					Travel distance/time change for bus journeys	
	AM Peak 08:00 - 09:00	PM Peak 17:00 - 18:00	Daily	Saturday	Sunday	Journey length (m)	Journey time (sec)
15	0	0	1	0	0	364	36
842	0	0	7	8	0	364	36
842A	0	1	3	0	0	364	36

Public transport interchanges

8.6.40 There are no substantial public transport interchange facilities in the Colwich to Yarlet area and no committed proposals for public transport interchange facilities in this area in terms of either the 2027 or 2041 operation assessments.

Pedestrian, cyclist and equestrian

8.6.41 Compared to the existing baseline, the operational scheme will affect PRoW used by pedestrians, cyclists and equestrians that cross the route of the Proposed Scheme and the operation of the Proposed Scheme results in changes to PRoW.

8.6.42 Locations where routes used by pedestrians, cyclists and equestrians are permanently diverted, realigned or reinstated are shown in Table 252. The tables summarise the permanent diversions, realignments and extensions required to PRoW and roads to accommodate the Proposed Scheme.

Table 252: CA2 permanent changes to public rights of way (including roads) for non-motorised users

PRoW/Road name	Change in length	New over-or under bridge
Colwich Bridleway 23	Realigned route is 250m shorter.	Colwich Bridleway 23 accommodation overbridge
Colwich Footpath 36	Diversion travelling south is 150m longer. Diversion travelling north is 350m longer.	Colwich Bridleway 23 accommodation overbridge (to south) or Colwich Bridleway 35 overbridge to north
Colwich Bridleway 35	Realignment results in a minimal change in travel distance	Colwich Bridleway 35 accommodation overbridge
Colwich Footpath 26	Diversion route is 950m longer.	Colwich Bridleway 35 accommodation overbridge
Colwich Footpath 54	Realignment results in a minimal change in travel distance	Colwich Bridleway 58 accommodation underbridge.
Colwich Bridleway 58	Diversion results in a minimal change in travel distance.	Colwich Bridleway 58 accommodation underbridge.
Colwich Footpath 55	Diversion to Tolldish Lane is 120m shorter. 400m new section of Bridleway 58 is created	Colwich Bridleway 58 accommodation underbridge.
Tixall Footpath 0.1630 (b)	Realignment results in a minimal change in travel distance.	Tixall Bridleway 0.1628 accommodation overbridge.
Tixall Bridleway 0.1628	Realigned route is 350m longer.	Tixall Bridleway 0.1628 accommodation overbridge.
Hopton and Coton Footpath 24	Realignment results in a minimal change in travel distance.	Hopton and Coton Footpath 24 accommodation overbridge
Hopton and Coton Footpath 6	Diversion route is 650m longer.	Hopton and Coton Footpath 24 accommodation overbridge
Hopton and Coton Bridleway 11	Realignment results in a minimal change in travel distance	Hopton and Coton Bridleway 11 accommodation overbridge.
Hopton and Coton Bridleway 12	Diversion travelling north is 150m shorter. Diversion to Hopton and Coton Bridleway 11 accommodation overbridge travelling south is 200m longer.	Hopton and Coton Bridleway 11 accommodation overbridge (travelling south).

PRoW/Road name	Change in length	New over-or under bridge
Hopton and Coton Bridleway 16	Diversion travelling south results in a minimal change in travel distance. Diversion is 200m longer for travelling north. Travelling east-west to Hopton and Coton Bridleway 12 is 300m longer.	Hopton and Coton Bridleway 11 accommodation overbridge (travelling north and east-west only).
Marston Bridleway 8	Realignment results in a minimal change in travel distance.	Marston Bridleway 8 accommodation underbridge.
Marston Footpath 2	Diversion route is 450m longer.	Marston Bridleway 8 accommodation underbridge.
Tolldish Lane	Diversion to A51 Lichfield Road traveling north is 300m shorter; diversion to A51 Lichfield Road travelling south is 200m longer.	None
A51 Lichfield Road	Online Reinstatement on to overbridge, results in a minimal change in travel distance.	A51 Lichfield Road overbridge
Hoo Mill Lane (private road)	Diversion north of existing to join Ingestre Park Road involves minimal change in travel distance.	None
A518 Weston Road	Realignment of existing to west on to a new overbridge results in minimal change in travel distance.	A518 Weston Road overbridge
Hopton Lane	Diversion north of existing to join realigned B5066 Sandon Road, travelling north is 200m shorter and travelling south is 300m longer.	New pedestrian bridge to Mount Edge provided.
B5066 Sandon Road	Realignment of existing to west on to a new overbridge, results in a minimal change in travel distance.	B5066 Sandon Road overbridge
Mount Edge	Extension of existing road to west to join Realigned B5066 Sandon Road is 200m shorter. 250m of new route created.	None
Marston Lane	Realignment of existing to north, via new underbridge, results in a minimal change in travel distance.	Marston Lane underbridge
A34 Stone Road	Online Reinstatement on to overbridge, results in a minimal change in travel distance.	A34 Stone Road overbridge

8.6.43 Within these diversions and reinstatements, the majority of routes affected experience either no change in length (in the case of the A51 Lichfield Road, A518 Weston Road, B5066 Sandon Road and Marston Lane highway diversions, which are no longer than the previous routes), or changes of no more than 250m on footpaths and bridleways.

8.6.44 Other routes experience larger changes in length of diversion, of up to 1km such as Colwich Footpaths 26 and 36 and Hopton and Coton Footpath 6. These are effectively diverted on to other nearby PRoW routes in order to share crossing points of the Proposed Scheme. When surveyed in summer 2016, none were found to have more than 10 daily users either on a typical weekday or at a weekend.

8.6.45 Where footpath routes meet and combine with bridleways to cross a new shared over or underbridge (as with Colwich Footpath 55 and Tixall Footpath 0.1630b), the relevant footpath section will be upgraded to bridleway, thus enhancing connectivity for equestrians and cyclists.

8.6.46 At Hopton Lane, where Hopton and Coton Footpath 9 ends, a new pedestrian route is established along a section of Hopton Lane and onto a new pedestrian overbridge crossing the alignment. This has the benefit of ensuring that pedestrians do not have to follow a longer route with limited on-road facilities via the diverted Hopton Lane and B5066 Sandon Road.

8.6.47 For cyclists and equestrians, the on-road route of this diversion would be followed, resulting in additional distance of around 600m for these users.

8.6.48 Where the Proposed Scheme crosses the A51, users of Colwich Footpath 56, which currently links to Tolldish Lane, will be required to take a diversion of some 650m via the new A51 Lichfield Road overbridge and realigned Tolldish Lane to reach the route of the former alignment. When surveyed in summer 2016, Colwich Footpath 56 showed fewer than 5 daily users.

8.6.49 Marston Footpath 9 feeds into Marston Lane at its southern end. The diversion of Marston Lane through a new underbridge to cross the Proposed Scheme would affect users of the footpath taking this onward route. However, the diverted lane is no longer than the existing route and the additional severance experienced would be only the underbridge itself.

Waterways and canals

8.6.50 The Proposed Scheme makes no changes to waterways or canals in CA2 and consequently has no impact upon them.

9 CA3 Stone and Swynnerton – appraising the impact of the Proposed Scheme

9.1 Assessment Methodology

9.1.1 The assessment methodology is as outlined in the overarching methodology section of the report, with specific details and exceptions outlined as relevant in the following sections.

9.2 CA3 Proposed Scheme future baseline

Key future baseline issues

9.2.1 The key changes in baseline in relation to the Stone to Swynnerton area are expected to relate to general background growth in traffic flows between 2016 and 2041 that will occur irrespective of the Proposed Scheme.

9.2.2 Committed changes to the transport networks include the M6 smart motorway improvement scheme.

Land use assumptions

9.2.3 The following sources have been analysed in order to determine the impact of future land uses upon future traffic and transport conditions:

- TEMPro Growth Rates;
- M6 J13-15 SATURN Model;
- Local Plan Documents (Stafford Local Plan, Newcastle-under-Lyme and Stoke-on-Trent Core Spatial Strategy); and
- Local Planning Authority Planning Portals to obtain details of recently consented, committed development that is not included in the sources above. This allows the impact of these committed developments to be considered at a very local level i.e. at roads and junctions in close proximity to the committed sites.

9.2.4 The only committed developments that needed to be included are: the Land at East End of Gateway Avenue, Baldwins Gate, Newcastle Under Lyme, comprising development of up to 113 residential dwellings; and Land Between Common Lane and Eccleshall Road, Stone, Staffordshire, comprising development of up to 92 residential dwellings. Traffic resulting from these committed developments was assigned to links using assumptions obtained from supporting planning application documents where available.

9.2.5 For the M6 corridor only, the higher equivalent of the growth rates from the M6 model or TEMPro used to forecast traffic growth on M6 links and junctions in the 2023 construction year and the 2027 and 2041 operational year assessments.

9.2.6 The use of TEMPro and local traffic models, with further adjustment for known developments, means that forecast traffic growth will not be uniform on all links and

at junctions. Necessarily traffic growth will be aligned to specific vehicle trip generators and attractors and/or transport scheme interventions. The result is that growth factors vary across the CA. Notwithstanding this, it is possible to produce an overall average growth factor for links within CA3, calculated using the total link flows for each future year. These overall growth factors are summarised in Table 253 below.

Table 253: CA3 traffic growth summary

Period	AM Peak	PM Peak
2016 - 2023	+10%	+10%
2016 - 2027	+13%	+13%
2016 - 2041	+24%	+25%

Transport supply assumptions

9.2.7 The only substantial committed change to the SRN in the Stone and Swynnerton area is the M6 smart motorway improvement scheme, to include hard-shoulder running and variable speed limits on the M6 between junction 13 and 15, the second section of which (junction 14 to junction 15) falls within this CA.

9.2.8 These committed highway improvements are taken into account in the future baseline networks and traffic flows.

Highway network

9.2.9 As appropriate and except where otherwise stated, this assessment includes in the future baseline changes in traffic flows or networks arising from HS2 Phase One scheme. However, in CA3 there are no such impacts on the future baseline.

Strategic road network and primary road traffic flows

9.2.10 Table 254 summarises the 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows, in comparison to the 2016 baseline flows, for the strategic and primary 'A' roads where it is expected that there is the potential for a substantial impact either during construction or through the operation of the scheme.

Local road network traffic flows

9.2.11 Table 255 summarises the 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows, in comparison to the 2016 baseline flows, for local roads where it is expected that there is the potential for a substantial impact either during construction or through the operation of the scheme.

Table 254: 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	
		Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV
M6 (between Yarnfield Lane and M6 Junction 15 slip road)	NB	4069	763	4525	848	4660	873	5135	962	3938	559	4389	623	4510	640	5009	711
	SB	3695	655	4079	723	4211	746	4673	828	3859	648	4281	718	4398	738	4905	823
M6 (between M6 junction 15 slip road and M6 junction 16 slip road)	NB	3244	692	3613	770	3717	793	4082	870	3343	534	3745	598	3832	611	4260	680
	SB	3509	654	3815	711	3937	734	4360	813	3645	645	4047	716	4090	724	4669	826
M6 (mainline flow on M6 within junction 15)	NB	2214	541	2536	619	2610	638	2872	701	2644	381	2936	423	2977	429	3119	449
	SB	2202	417	2421	459	2500	474	2779	526	2722	390	3050	438	3136	450	3437	493
A34 Stafford Road (between Stone by Pass and Eccleshall Road)	NB	1066	89	1148	95	1182	98	1273	106	1390	37	1500	40	1544	41	1610	43
	SB	1659	93	1786	100	1838	103	1980	111	1076	33	1161	35	1195	36	1246	38
A34 Stone Road (between Queensway and Longton Road)	SB	1015	82	1112	90	1155	93	1278	103	1777	50	1945	55	2019	57	2329	65
	NB	1149	81	1259	89	1307	92	1446	102	1055	45	1155	49	1199	51	1383	59
A34 Stone Road (between Winghouse Lane and Longton Road)	SB	992	59	1083	65	1121	67	1225	73	1206	29	1319	32	1365	33	1511	37
	NB	1041	62	1136	67	1177	70	1285	76	1039	28	1136	31	1175	32	1301	36
A34 Stone Road (between Winghouse Lane and Longton Road)	SB	944	61	1030	67	1067	69	1166	75	1063	21	1162	23	1203	24	1332	26
	NB	937	59	1023	65	1060	67	1158	73	1030	30	1127	33	1166	34	1291	37
A34 The Fillybrooks (between Eccleshall Road and Yarnfield Lane)	WB	915	67	999	73	1035	75	1135	83	811	24	888	26	920	27	1062	31
	EB	884	64	965	70	1000	73	1097	80	1225	36	1340	39	1389	40	1604	47
A34 The Fillybrooks (between Newcastle Road and Meaford Road)	NB	1219	109	1331	119	1379	124	1512	135	1263	45	1382	49	1433	51	1654	59
	SB	1428	95	1560	103	1617	107	1772	117	1539	34	1684	38	1746	39	2015	45

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
A34 The Fillybrooks (between Trent Road and Newcastle Road)	NB	877	69	958	76	992	78	1084	86	903	31	987	34	1022	35	1131	39
	SB	1348	78	1472	85	1524	89	1665	97	1205	23	1318	25	1364	26	1510	29
A500 Queensway (between Newcastle Road and Stone Road)	EB	2230	237	2435	259	2521	268	2755	293	1581	144	1728	158	1789	163	1980	181
	WB	1396	198	1524	216	1579	224	1725	245	1528	116	1671	127	1729	132	1914	146
A500 Queensway (between Newcastle Road and M6)	WB	2132	257	2308	278	2377	286	2582	311	2021	199	2198	216	2264	223	2491	245
	EB	811	98	878	106	904	109	982	118	793	78	863	85	889	87	978	96
A51 Bury Bank (between Stone Road and east of Winghouse Lane)	WB	168	18	184	20	190	21	208	23	188	4	205	5	212	5	235	5
	EB	291	11	318	12	329	13	359	14	170	6	186	7	193	7	214	8
A51 Bury Bank (between Winghouse Lane and east of Winghouse Lane)	WB	181	9	198	10	205	10	224	11	209	5	228	5	236	6	262	6
	EB	235	6	257	7	266	7	291	8	179	4	195	4	202	5	224	5
A51 Lichfield Road (between Uttoxeter Road and Church Lane)	SB	944	61	1030	67	1067	69	1166	75	1063	21	1162	23	1203	24	1332	26
	NB	937	59	1023	65	1060	67	1158	73	1030	30	1127	33	1166	34	1291	37
A51 Stone Road (between Coombsdale and Road from A51 Stone Road to Clayalders Bank)	WB	160	7	170	7	174	8	188	8	207	4	220	4	226	4	237	5
	EB	194	5	206	5	212	5	228	6	161	3	171	3	176	3	185	3
A51 Stone Road (between the Proposed Scheme and Newcastle Road)	WB	197	11	215	12	223	13	244	14	218	4	238	4	247	5	273	5
	EB	276	11	302	12	312	13	341	14	201	9	220	10	228	10	252	11
A51 Stone Road (between the Proposed Scheme and Tittensor Road)	WB	216	11	236	12	245	13	267	14	231	4	253	4	262	4	290	5
	EB	274	13	299	14	310	14	338	15	207	9	226	10	234	11	259	12

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 Road (between Newcastle Road and Common Lane)	WB	184	6	201	7	208	7	228	8	215	4	235	4	243	4	269	5
	EB	195	5	213	6	221	6	241	6	140	3	153	3	158	3	175	4
A51 Stone Road (between Road from A51 Stone Road to Clayalders Bank and Nantwich Road)	WB	169	8	180	9	185	9	199	10	323	5	343	6	351	6	369	6
	EB	161	5	172	5	176	5	189	5	151	3	160	3	164	3	172	4
A51 Stone Road (between Tittensor Road and the Proposed Scheme)	WB	216	11	236	12	245	13	267	14	231	4	253	4	262	4	290	5
	EB	274	13	299	14	310	14	338	15	207	9	226	10	234	11	259	12
A51 Stone Road (between Winghouse Lane and Tittensor Road)	WB	374	9	408	10	423	10	462	11	350	5	383	5	396	5	438	6
	EB	358	7	391	8	405	8	443	9	380	5	416	5	430	6	476	6
A51 The Rowe (between Bent Lane and Stableford Bank)	WB	156	7	166	7	170	8	183	8	224	3	238	3	244	3	256	4
	EB	179	3	190	4	195	4	210	4	147	5	156	6	159	6	168	6
A51 The Rowe (between Common Lane and Dog Lane)	NB	233	15	254	17	263	17	287	19	226	6	247	6	255	7	283	7
	SB	236	10	258	11	267	12	292	13	181	6	198	6	205	6	227	7
A51 Through Stableford (between Stableford Bank and Coombsdale)	WB	163	5	173	6	178	6	191	6	211	4	224	4	229	4	241	4
	EB	197	5	209	5	215	5	231	6	163	3	173	3	177	3	186	4
A519 Newcastle Road (between Drayton Road and Hanchurch Lane)	NB	250	6	273	7	283	7	309	8	286	7	312	7	323	8	358	8
	SB	255	12	278	13	288	14	315	15	319	7	348	8	361	8	399	9
A519 Newcastle Road (between Hanchurch Lane and Whitmore Road)	NB	309	6	337	6	349	7	381	7	354	9	387	9	401	10	443	11
	SB	308	4	337	5	349	5	381	5	346	6	378	6	391	6	433	7

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
A519 Newcastle Road (between Long Lane and Drayton Road)	NB	259	22	283	24	293	25	320	27	279	8	305	9	316	9	350	10
	SB	255	25	278	27	288	28	315	30	268	9	293	10	303	10	336	11
A519 Newcastle Road (between Long Lane and the Proposed Scheme)	NB	212	18	231	20	239	21	261	23	192	7	210	8	217	8	241	9
	SB	179	22	195	25	202	25	221	28	219	9	240	9	248	10	274	11
A519 Newcastle Road (between Station Road and Stone Road)	SB	216	23	231	25	239	26	259	28	255	8	273	8	281	9	295	9
	NB	244	20	262	21	270	22	293	24	214	8	229	8	236	9	248	9
A519 Newcastle Road (between Stone Road and the Proposed Scheme)	NB	212	18	231	20	239	21	261	23	192	7	210	8	217	8	241	9
	SB	179	22	195	25	202	25	221	28	219	9	240	9	248	10	274	11
A519 Newcastle Road (between Whitmore Road and Queensway)	NB	485	15	530	16	548	17	599	18	458	18	501	19	519	20	574	22
	SB	455	14	496	15	514	15	562	17	605	12	661	13	684	13	757	15

Table 255: Local 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
A5020 Stafford Road (between The Fillybrooks and Radford Street)	NB	691	47	755	51	782	53	857	58	627	17	687	18	712	19	821	22
	SB	729	45	796	49	825	51	905	55	736	21	806	23	835	24	964	27
A5182 Trentham Road (between Whitmore Road and Newcastle Road)	WB	300	36	319	38	328	39	353	42	307	11	326	12	334	12	351	12
	EB	259	24	276	26	283	27	305	29	237	12	251	13	257	13	270	14

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
B5026 Eccleshall Road (between Meece Road and the Proposed Scheme)	NB	198	6	212	7	219	7	237	8	230	2	246	2	254	2	266	2
	SB	198	5	212	5	219	6	237	6	242	2	259	2	267	2	280	2
B5026 Eccleshall Road (between Pirehill Lane and the Proposed Scheme)	SWB	192	21	207	22	213	23	229	25	197	6	213	7	219	7	229	7
	NEB	237	12	256	13	263	13	283	14	240	7	260	8	267	8	279	8
B5026 Eccleshall Road (between The Fillybrooks and Pirehill Lane)	SWB	401	14	438	15	454	16	498	17	458	7	501	7	519	8	599	9
	NEB	662	14	723	15	749	16	821	18	518	10	567	11	588	12	678	13
B5027 Newcastle Road (between Trent Road and The Fillybrooks)	NB	230	13	252	14	261	15	286	16	260	8	285	8	295	9	341	10
	SB	46	1	51	1	52	2	58	2	60	1	66	1	68	1	79	1
Winghouse Lane (between Chase Lane and Bury Bank)	NB	144	2	157	2	162	3	177	3	152	6	166	6	172	7	190	7
	SB	155	11	170	11	176	12	192	13	128	1	140	1	145	1	161	1
Winghouse Lane (between Chase Lane and Stone Road)	NB	144	2	157	2	162	3	177	3	152	6	166	6	172	7	190	7
	SB	155	11	170	11	176	12	192	13	128	1	140	1	145	1	161	1
Long Lane (between Stone Road and Newcastle Road)	NB	47	3	52	4	54	4	59	4	88	1	96	1	99	1	110	1
	SB	77	2	84	2	86	2	94	3	49	0	54	0	56	0	62	0
Stab Lane (between Tittensor Road and the Proposed Scheme)	SB	61	4	67	4	69	5	76	5	97	3	106	4	110	4	122	4
	NB	72	3	78	4	81	4	89	4	45	1	50	1	51	1	57	1
Tittensor Road (between Stab Lane and the Proposed Scheme)	SB	127	2	139	3	143	3	157	3	187	6	204	6	212	7	234	7
	NB	189	7	207	8	214	8	234	9	117	1	127	1	132	1	146	1

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
Chase Lane (between Winghouse Lane and Stone Road)	EB	59	2	64	2	67	2	73	2	84	1	92	1	95	1	105	1
	WB	97	3	106	3	109	3	119	3	54	0	59	0	61	0	68	0
Trent Road (between The Fillybrooks and Newcastle Road)	EB	398	8	435	9	451	10	494	10	364	5	398	6	413	6	477	7
	WB	148	2	162	2	167	2	184	2	109	1	119	1	123	1	143	2
Yarnfield Lane (between The Fillybrooks and the Proposed Scheme)	WB	200	7	218	8	226	8	247	9	205	3	224	3	232	3	257	3
	EB	232	4	254	5	263	5	287	5	155	3	170	3	176	3	194	3
Yarnfield Lane (between the Proposed Scheme and Yarnfield Lane/NB)	WB	210	7	230	8	238	8	260	9	214	3	234	3	243	3	269	4
	EB	228	6	249	7	258	7	282	8	153	3	167	3	173	3	191	4
Unnamed Road from A51 Stone Road to Clayalders Bank (between Stone Road and Haddon Lane)	SB	19	1	20	1	21	1	22	1	26	0	27	0	28	0	29	0
	NB	37	0	40	0	41	0	44	0	20	1	22	1	22	1	23	1
Bent Lane (between The Rowe and the Proposed Scheme)	NB	99	1	108	2	112	2	122	2	25	1	27	1	28	1	31	1
	SB	32	1	35	1	36	1	40	1	53	0	58	0	60	0	66	0
Bent Lane (South of the Proposed Scheme)	NB	99	1	108	2	112	2	122	2	25	1	27	1	28	1	31	1
	SB	32	1	35	1	36	1	40	1	53	0	58	0	60	0	66	0
Dog Lane (between The Rowe and the Proposed Scheme)	EB	17	1	18	1	19	1	21	1	11	0	12	0	13	0	14	0
	WB	6	0	6	0	7	0	7	0	11	0	12	0	13	0	14	0
Common Lane (between Biddles Lane and the Proposed Scheme)	NB	3	0	4	0	4	0	4	0	3	1	4	1	4	1	4	1
	SB	3	0	3	0	4	0	4	0	3	0	4	0	4	0	4	0

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
Hanchurch Lane (between Newcastle Road and Peacock Lane)	SB	25	1	27	1	28	1	31	1	21	0	23	0	23	0	26	0
	NB	21	0	23	0	24	0	26	0	23	0	25	0	26	0	28	0
Pirehill Lane (between Coombe Park Road and HS2 Railway)	SB	3	0	3	0	3	0	4	0	5	0	5	0	5	0	5	0
	NB	7	0	8	0	8	0	9	0	3	0	4	0	4	0	4	0
Pirehill Lane (between Eccleshall Road and Coombe Park Road)	SB	144	1	158	2	164	2	179	2	183	2	201	2	208	3	240	3
	NB	270	12	295	13	306	13	335	15	175	4	191	5	198	5	229	6
Pirehill Lane (between the Proposed Scheme and Green Lane)	SB	3	0	3	0	3	0	4	0	5	0	5	0	5	0	5	0
	NB	7	0	8	0	8	0	9	0	3	0	4	0	4	0	4	0

Junction operation – future baseline

9.2.12 The performance of the key junctions on the access routes from the SRN through the study area to the construction sites, or those which are affected by the operation of the scheme, have been assessed using the future baseline traffic flows and the results are summarised in the following tables.

9.2.13 Where a junction will be affected by the construction of the Proposed Scheme, future baseline, results are included for 2023. Where a junction is affected by the operation of the Proposed Scheme, due to changes in traffic as a result of infrastructure changes in the Proposed Scheme and operation of the IMB-R, results are included for 2027 and 2041. Junctions affected by both construction and operation will include results for all three assessment years.

9.2.14 As for the existing baseline, the results for CA3 are presented in the order of Roundabout junctions, priority controlled (give-way), signalised junctions and M6 junction 15. The results for the AM and PM peak hours are presented and the 2016 baseline results are included for reference. The models developed to assess the existing baseline have been used, except where otherwise stated.

A51 Stone Bypass/A34 Stafford Road/Brooms Road

9.2.15 The future baseline performance of this junction is shown in Table 256. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 256: Future year baseline performance at A51 Stone Bypass/A34 Stafford Road/Brooms Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A34 Stafford Road (north)	1780	0.61	2	1964	0.68	2
A51 Stone Bypass	949	0.89	8	1045	1.08	53
A34 Stafford Road (south)	805	0.42	1	900	0.48	1
Brooms Road	167	0.11	0	184	0.13	0
	2016 PM			**2023 PM**		
A34 Stafford Road (north)	1289	0.49	1	1427	0.55	1
A51 Stone Bypass	526	0.37	1	581	0.43	1
A34 Stafford Road (south)	1264	0.54	1	1406	0.61	2
Brooms Road	566	0.5	1	625	0.62	2

9.2.16 The model shows that the junction is approaching or over capacity in the AM peak period on the A51 Stone Bypass approach to the junction, with an RFC value of 0.89 and 1.08 and a queue length of 8 and 53 PCUs, in 2016 and 2023 respectively. All other arms operate within capacity.

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

9.2.17 The future baseline performance of this junction is shown in Table 257. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 257: Future year baseline performance at A34 The Fillybrooks/A520 Stafford Road/A34 Stafford Road/B5026 Eccleshall Road

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A34 The Fillybrooks (north)	1234	0.99	24	1381	1.21	139
A520 Stafford Road	826	0.87	6	935	0.97	16
A34 Stafford Road (south)	1163	0.5	1	1314	0.57	1
B5026 Eccleshall Road	762	0.61	2	883	0.78	4
	2016 PM			**2023 PM**		
A34 The Fillybrooks (north)	1043	0.91	9	1171	1.06	50
A520 Stafford Road	714	0.62	2	810	0.72	3
A34 Stafford Road (south)	1871	0.82	5	2103	0.95	15
B5026 Eccleshall Road	639	0.82	4	746	1.19	67

9.2.18 The model shows that in 2023 the junction operates over capacity in the AM and PM peak periods. There are RFC values of over one on the A34,The Fillybrooks (north) in the AM and PM peaks and on the B5026 Eccleshall Road in the PM peak. The A520 Stafford Road arm in the AM peak and the A34 Stafford Road (south) arm in the PM peak is shown to operate close to capacity with a value of 0.97 and 0.95. respectively

A34 The Fillybrooks/B5027 Newcastle Road

9.2.19 The future baseline performance of this junction is shown in Table 258. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 258: Future year baseline performance at A34The Fillybrooks/B5027 Newcastle Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A34 The Fillybrooks (north)	1344	0.43	1	1469	0.47	1
Newcastle Road	309	0.27	0	336	0.31	1
A34 The Fillybrooks (south)	966	0.42	1	1049	0.46	1
	2016 PM			**2023 PM**		
A34 The Fillybrooks (north)	1458	0.47	1	1595	0.51	1
Newcastle Road	338	0.3	0	368	0.34	1
A34 The Fillybrooks (south)	1024	0.45	1	1115	0.5	1

9.2.20 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

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

9.2.21 The future baseline performance of this junction is shown in Table 259. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 259: Future year baseline performance at A51 Bury Bank/A34 Stone Road/A34The Fillybrooks/Jervis Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM		
A34 Stone Road (north)	1124	0.46	1	1258	0.52	1
A34 The Fillybrooks (south)	1207	0.38	1	1359	0.43	1
Jervis Lane	-	-	-	-	-	-
A51 Bury Bank	259	0.2	0	292	0.26	0
	2016 PM			2023 PM		
A34 Stone Road (north)	1148	0.45	1	1287	0.51	1
A34 The Fillybrooks (south)	1415	0.44	1	1591	0.5	1
Jervis Lane	-	-	-			
A51 Bury Bank	184	0.17	0	209	0.24	0

9.2.22 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A34 Stone Road/A5035 Longton Road

9.2.23 The future baseline performance of this junction is shown in Table 260. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 260: Future year baseline performance at A34 Stone Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM		
A34 Stone Road (north)	1253	0.46	1	1361	0.5	1
A5035 Longton Road	673	0.39	1	731	0.44	1
A34 Stone Road (south)	1116	0.61	2	1212	0.67	2
Threntham Centre access	58	0.05	0	63	0.05	0
	2016 PM			2023 PM		
A34 Stone Road (north)	1668	0.67	2	1815	0.73	3
A5035 Longton Road	813	0.56	1	884	0.65	2
A34 Stone Road (south)	1112	0.66	2	1210	0.74	3
Threntham Centre access	193	0.17	0	210	0.2	0

9.2.24 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 Stone Road/A519 Newcastle Road

9.2.25 The future baseline performance of this junction is shown in Table 261. As the junction is located both on a construction route and will be affected by operation of the Proposed Scheme, future baseline results are presented for 2023, 2027 and 2041.

Table 261: Future year baseline performance at A51 Stone Road/A519 Newcastle Road 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
	2016 AM			**2023 AM**			**2027 AM**			**2041 AM**		
A519 Newcastle Road (north)	208	0.18	0	243	0.21	0	252	0.22	0	275	0.24	0
A51 Stone Road (east)	267	0.2	0	298	0.23	0	309	0.24	0	337	0.26	0
A 519 Newcastle Road (south)	272	0.17	0	308	0.19	0	319	0.20	0	348	0.22	0
A51 Stone Road (west)	245	0.19	0	273	0.22	0	283	0.22	0	309	0.25	0
	2016 PM			**2023 PM**			**2027 PM**			**2041 PM**		
A519 Newcastle Road (north)	234	0.19	0	262	0.22	0	271	0.22	0	296	0.25	0
A51 Stone Road (east)	290	0.22	0	324	0.25	0	336	0.26	0	366	0.29	0
A 519 Newcastle Road (south)	232	0.15	0	259	0.17	0	269	0.17	0	293	0.19	0
A51 Stone Road (west)	195	0.15	0	218	0.17	0	226	0.17	0	246	0.19	0

9.2.26 The model shows that this junction operates within capacity in the AM and PM peak hours, in all years, with minimal queuing on all approaches.

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

9.2.27 The future baseline performance of this junction is shown in Table 262. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 262: Future year baseline performance at A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange) junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Clayton Road	530	1.23	54	576	1.38	84
A500 Queensway (east)	1777	0.92	12	1930	0.97	22
A519 Newcastle Road	537	0.77	3	583	0.89	7
M6 junction 16 to A500 Handchurch Roundabout (west)	2586	0.97	22	2810	1.01	49
	2016 PM			**2023 PM**		
Clayton Road	623	0.92	9	678	1.01	21
A500 Queensway (east)	1802	1	33	1962	1.07	85
A519 Newcastle Road	566	0.81	4	615	0.9	8
M6 junction 16 to A500 Handchurch Roundabout (west)	2411	0.78	4	2623	0.85	6

9.2.28 The model shows that in 2023 the junction continues to operate over capacity in the AM and PM peak periods. RFC values of over one are shown on Clayton Road and the M6 junction 16 to A500 Handchurch Roundabout (west) arm in the AM peak and Clayton Road and the A500 Queensway (east) in the PM peak. The model also shows that all other arms are approaching capacity at the junction in both periods with RFC values of over 0.85.

A34 The Fillybrooks/Millennium Way

9.2.29 The future baseline performance of this junction is shown in Table 263. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 263: Future year baseline performance at A34The Fillybrooks/Millennium Way junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A34 The Fillybrooks (north)	1309	0.46	1	1431	0.5	1
Millennium Way	191	0.33	1	209	0.4	1
A34 The Fillybrooks (south)	1217	0.39	1	1321	0.42	1
	2016 PM			**2023 PM**		
A34 The Fillybrooks (north)	1372	0.48	1	1502	0.53	1
Millennium Way	288	0.54	1	315	0.67	2
A34 The Fillybrooks (south)	1316	0.43	1	1433	0.47	1

9.2.30 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

B5016 Eccleshall Road/Pirehill Lane/Lamb Lane

9.2.31 The future baseline performance of this junction is shown in Table 264. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 264: Future year baseline performance at B5016 Eccleshall Road/Pirehill Lane/Lamb Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM		
Pirehill Lane (ahead + left + right)	276	0.75	3	311	0.9	7
B5026 Eccleshall Road (north-east) (ahead + left + right)	5	0.01	0	6	0.01	0
B5026 Eccleshall Road (north-east) (left)	130	-	-	146	-	-
B5026 Eccleshall Road (north-east) (ahead)	289	-	-	323	-	-
Lamb Lane (ahead + left + right)	7	0.02	0	8	0.02	0
B5026 Eccleshall Road (south-west) (ahead + left + right)	88	0.11	0	108	0.13	0
B5026 Eccleshall Road (south-west) (left)	0	-	-	0	-	-
B5026 Eccleshall Road (south-west) (ahead)	448	-	-	499	-	-
	2016 PM			2023 PM		
Pirehill Lane (ahead + left + right)	151	0.42	1	173	0.51	1
B5026 Eccleshall Road (north-east) (ahead + left + right)	5	0.01	0	6	0.01	0
B5026 Eccleshall Road (north-east) (left)	160	-	-	178	-	-
B5026 Eccleshall Road (north-east) (ahead)	416	-	-	463	-	-
Lamb Lane (ahead + left + right)	0	0	0	0	0	0
B5026 Eccleshall Road (south-west) (ahead + left + right)	47	0.07	0	57	0.08	0
B5026 Eccleshall Road (south-west) (left)	0	-	-	0	-	-
B5026 Eccleshall Road (south-west) (ahead)	366	-	-	418	-	-

9.2.32 The model shows that in 2023 the junction operates close to capacity in the AM peak, with an RFC of 0.9 and corresponding queue length of seven PCUs on Pirehill Lane.

A34 The Fillybrooks/Yarnfield Lane

9.2.33 The future baseline performance of this junction is shown in Table 265. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

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
	2016 AM			**2023 AM**		
Yarnfield Lane (left)	133	0.25	0	145	0.29	0
Yarnfield Lane (right)	74	0.24	0	80	0.29	0
A34 The Fillybrooks (north) (ahead)	1282	-	-	1397	-	-
A34 The Fillybrooks (north) (right)	208	0.33	1	232	0.37	1
A34 The Fillybrooks (south) (left)	98	-	-	107	-	-
A34 The Fillybrooks (south) (ahead)	900	-	-	981	-	-
	2016 PM			**2023 PM**		
Yarnfield Lane (left)	92	0.17	0	100	0.19	0
Yarnfield Lane (right)	52	0.16	0	57	0.19	0
A34 The Fillybrooks (north) (ahead)	1072	-	-	1171	-	-
A34 The Fillybrooks (north) (right)	182	0.29	0	199	0.32	1
A34 The Fillybrooks (south) (left)	123	-	-	134	-	-
A34 The Fillybrooks (south) (ahead)	892	-	-	983	-	-

9.2.34 The results show that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A34 The Fillybrooks/Meaford Road

9.2.35 The future baseline performance of this junction is shown in Table 266. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 266: Future year baseline performance at A34The Fillybrooks/Meaford Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Meaford Road (left + right)	7	0.01	0	8	0.02	0
A34 The Fillybrooks (south) (ahead + right)	0	0	0	0	0	0
A34 The Fillybrooks (south) (ahead)	1177	-	-	1325	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A34 The Fillybrooks (north) (left)	8	-	-	9	-	-
A34 The Fillybrooks (north) (ahead)	1405	-	-	1575	-	-
	2016 PM			**2023 PM**		
Meaford Road (left + right)	11	0.02	0	12	0.03	0
A34 The Fillybrooks (south) (ahead + right)	0	0	0	0	0	0
A34 The Fillybrooks (south) (ahead)	1360	-	-	1529	-	-
A34 The Fillybrooks (north) (left)	0	-	-	0	-	-
A34 The Fillybrooks (north) (ahead)	1358	-	-	1525	-	-

9.2.36 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A34 Stone Road/Tittensor Road

9.2.37 The future baseline performance of this junction is shown in Table 267. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 267: Future year baseline performance at A34 Stone Road/Tittensor Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Tittensor Road (left)	112	0.23	0	122	0.26	0
Tittensor Road (right)	64	0.19	0	70	0.23	0
A34 Stone Road (south) (ahead)	785	-	-	859	-	-
A34 Stone Road (south) (right)	79	0.14	0	86	0.16	0
A34 Stone Road (north) (left)	115	-	-	125	-	-
A34 Stone Road (north) (ahead)	878	-	-	956	-	-
	2016 PM			**2023 PM**		
Tittensor Road (left)	74	0.16	0	81	0.19	0
Tittensor Road (right)	31	0.12	0	34	0.15	0
A34 Stone Road (south) (ahead)	942	-	-	1030	-	-
A34 Stone Road (south) (right)	122	0.25	0	133	0.29	0
A34 Stone Road (north) (left)	197	-	-	215	-	-
A34 Stone Road (north) (ahead)	1156	-	-	1262	-	-

9.2.38 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 The Rowe/Dog Lane/Bent Lane

9.2.39 The future baseline performance of this junction is shown in Table 268. As the junction is located both on a construction route and will be affected by the operation of the Proposed Scheme, future baseline results are presented for 2023, 2027 and 2041.

9.2.40 In order to replicate existing conditions, it is necessary to model the junction as a linked priority junction in the Junctions 9 model. The junction has been modelled using the lane simulation mode and on this basis only queue length results are available.

Table 268: Future year baseline performance at A51The Rowe/Dog Lane/Bent 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
	2016 AM			**2023 AM**			**2027 AM**			**2041 AM**		
Dog Lane	9	-	0	10	-	0	11	-	0	12	-	0
A51 The Rowe (west)	254	-	0	279	-	0	286	-	0	315	-	0
A51 The Rowe (south)	213	-	0	237	-	0	248	-	0	272	-	0
Bent Lane	27	-	0	33	-	0	32	-	0	36	-	0
	2016 PM			**2023 PM**			**2027 PM**			**2041 PM**		
Dog Lane	10	-	0	10	-	0	9	-	0	11	-	0
A51 The Rowe (west)	258	-	0	284	-	0	301	-	0	332	-	0
A51 The Rowe (south)	163	-	0	178	-	0	195	-	0	210	-	0
Bent Lane	61	-	0	66	-	0	74	-	0	81	-	0

9.2.41 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 Stone Road/Tittensor Road

9.2.42 The future baseline performance of this junction is shown in Table 269. As the junction is located both on a construction route and will be affected by the operation of the Proposed Scheme, future baseline results are presented for 2023, 2027 and 2041.

Table 269: Future year baseline performance at A51 Stone Road/Tittensor Road 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
	2016 AM			**2023 AM**			**2027 AM**			**2041 AM**		
Tittensor Road (left + right)	120	0.31	0	134	0.36	1	139	0.37	1	152	0.42	1
A51 Stone Road (west) (ahead + right)	3	0	0	4	0.01	0	4	0.01	0	5	0.01	0
A51 Stone Road (west) (ahead)	267	-	-	300	-	-	311	-	-	339	-	-
A51 Stone Road (east) (left)	154	-	-	172	-	-	178	-	-	194	-	-
A51 Stone Road (east) (ahead)	259	-	-	296	-	-	307	-	-	335	-	-
	2016 PM			**2023 PM**			**2027 PM**			**2041 PM**		
Tittensor Road (left + right)	190	0.47	1	212	0.54	1	220	0.57	1	240	0.64	2
A51 Stone Road (west) (ahead + right)	1	0	0	2	0	0	2	0.00	0	2	0.00	0
A51 Stone Road (west) (ahead)	210	-	-	238	-	-	247	-	-	269	-	-
A51 Stone Road (east) (left)	128	-	-	143	-	-	148	-	-	162	-	-
A51 Stone Road (east) (ahead)	265	-	-	300	-	-	311	-	-	339	-	-

9.2.43 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A34 Stone Road/Winghouse Lane

9.2.44 The future baseline performance of this junction is shown in Table 270. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 270: Future year baseline performance at A34 Stone Road/Winghouse Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Winghouse Lane (left + right)	209	0.43	1	227	0.49	1
A34 Stone Road (south) (ahead)	731	-	-	796	-	-
A34 Stone Road (south) (right)	157	0.28	0	171	0.31	1
A34 Stone Road (north) (left)	45	-	-	49	-	-
A34 Stone Road (north) (ahead)	802	-	-	877	-	-
	2016 PM			**2023 PM**		
Winghouse Lane (left + right)	172	0.36	1	187	0.41	1
A34 Stone Road (south) (ahead)	962	-	-	1050	-	-
A34 Stone Road (south) (right)	155	0.29	0	169	0.32	1
A34 Stone Road (north) (left)	51	-	-	56	-	-
A34 Stone Road (north) (ahead)	915	-	-	1000	-	-

9.2.45 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A5182 Whitmore Road/A519 Newcastle Road

9.2.46 The future baseline performance of this junction is shown in Table 271. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 271: Future year baseline performance at A5182 Whitmore Road/A519 Newcastle Road junction

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
	2016 AM			**2023 AM**		
A519 Newcastle Road (north)	554	101%	22	625	101%	25
B5038 Whitmore Road (east)	225	86%	8	246	137%	43
A519 Newcastle Road (south)	337	124%	44	378	102%	20
A5182 Whitmore Road (west)	281	58%	7	315	85%	10
HGV Depot Access	0	0%	0	0	0%	0
	2016 PM			**2023 PM**		
A519 Newcastle Road (north)	732	110%	50	811	102%	31
B5038 Whitmore Road (east)	165	90%	7	180	111%	17
A519 Newcastle Road (south)	372	112%	32	413	108%	29
A5182 Whitmore Road (west)	310	84%	10	347	119%	41
HGV Depot Access	0	0%	0	0	0%	0

9.2.47 The model shows that all arms, except the HGV depot, are approaching or exceed capacity in the AM and PM peaks, with queues of up to 43 PCUs.

A34 Stone Road/B5038 Whitmore Road

9.2.48 The future baseline performance of this junction is shown in Table 272. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 272: Future year baseline performance at A34 Stone Road/B5038 Whitmore Road junction

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
	2016 AM			**2023 AM**		
A34 Stone Road (north) (left turn ahead) (at Allerton Road Junction)	301	34%	5	488	47%	8
A34 Stone Road (north) (ahead) (at Allerton Road Junction)	656	63%	13	569	48%	9
A34 Stone Road (north) (ahead) (at Whitmore Road Junction)	249	26%	2	452	41%	5
A34 Stone Road (north) (right turn ahead) (at Whitmore Road Junction)	747	70%	4	647	52%	2
B5038 Whitmore Road	453	59%	9	486	79%	12
A34 Stone Road (south) (left turn ahead)	691	76%	13	938	81%	15
A34 Stone Road (south) (ahead)	550	80%	13	408	53%	7
Allerton Road	191	29%	4	212	40%	5
	2016 PM			**2023 PM**		
A34 Stone Road (north) (left turn ahead) (at Allerton Road Junction)	671	85%	18	722	81%	17
A34 Stone Road (north) (ahead) (at Allerton Road Junction)	780	87%	21	834	82%	20
A34 Stone Road (north) (ahead) (at Whitmore Road Junction)	548	55%	2	587	62%	3
A34 Stone Road (north) (right turn ahead) (at Whitmore Road Junction)	794	72%	2	851	81%	3
B5038 Whitmore Road	614	86%	16	652	86%	17
A34 Stone Road (south) (left turn ahead)	857	79%	10	792	73%	10
A34 Stone Road (south) (ahead)	433	54%	9	589	88%	17
Allerton Road	90	14%	2	100	15%	2

9.2.49 The model show that A34 Stone Road (south) is approaching capacity in the AM peak in 2016 and 2023, while the A34Stone Road (north) exceeds 80% RFC in the PM peak.

The B5038 Whitmore Road is shown to approach capacity in 2016 AM and 2023 AM and PM.

A34 Stone Road/A500 Queensway

9.2.50 The future baseline performance of this junction is shown in Table 273. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 273: Future year baseline performance at A34 Stone Road/A500 Queensway junction

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
	2016 AM			**2023 AM**		
A500 Queensway (west) (off slip left turn ahead)	717	94%	18	757	57%	6
A500 Queensway (west) (off slip ahead)	352	56%	8	438	40%	7
A34 Stone Road (north) (left turn ahead)	758	95%	18	735	97%	19
A34 Stone Road (north) (ahead)	348	62%	5	501	95%	19
A500 Queensway (east) (off slip left turn)	261	58%	6	285	111%	26
A500 Queensway (east) (off slip ahead)	68	14%	1	79	29%	2
A34 Stone Road (south) (left turn ahead)	624	51%	9	759	62%	12
A34 Stone Road (south) (ahead)	1195	96%	37	1255	101%	53
	2016 PM			**2023 PM**		
A500 Queensway (west) (off slip left turn ahead)	873	97%	21	924	85%	13
A500 Queensway (west) (off slip ahead)	243	44%	5	302	33%	5
A34 Stone Road (north) (left turn ahead)	947	78%	11	686	60%	7
A34 Stone Road (north) (ahead)	208	22%	2	577	70%	9
A500 Queensway (east) (off slip left turn)	173	68%	5	191	47%	5
A500 Queensway (east) (off slip ahead)	134	49%	4	149	34%	3
A34 Stone Road (south) (left turn ahead)	290	33%	5	422	40%	6
A34 Stone Road (south) (ahead)	938	93%	25	931	86%	22

9.2.51 The results show that the A34 Stone Road (north) approaches capacity during the AM in 2016 and 2023 and the A34 Stone Road (south) approaches capacity in 2023 in the

AM peak. When the combined operation of both lanes of the A34 Stone Road are considered the PM operates within capacity. Similarly when the combined operation of both ahead lanes of the A34 Stone Road (south) are considered the AM operates within capacity.

M6 junction 15

9.2.52 Table 274 shows the results of the baseline SATURN mpdels for M6 junction 15. The queues are average SATURN link queues. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

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**		
South-bound off slip	822	66%	4	867	70%	5
South-bound on slip	1224	50%	0	1478	62%	0
North-bound off slip	1496	66%	0	1599	70%	0
North-bound on slip	860	41%	0	853	41%	0
	2012 PM			**2023 PM**		
South-bound off slip	703	66%	4	801	75%	5
South-bound on slip	1179	48%	0	1340	65%	0
North-bound off slip	1193	52%	0	1432	63%	0
North-bound on slip	618	29%	0	831	40%	0

9.2.53 The model results show that the junction operates within capacity during the 2016 and 2023 baseline.

Accidents and safety

9.2.54 No issues have been identified for the future baseline network operation as a result of changes to the highway network or travel demands, and the accident and safety records for the baseline assessment are assumed to provide a relevant basis for assessment.

Parking and loading

9.2.55 Compared to the existing baseline, no changes are assumed.

Public transport

Rail network

9.2.56 Compared to the existing baseline, no changes are assumed.

Local bus and coach services

9.2.57 Since it is not possible to forecast how services may change in the future, it has been assumed that bus services for the future years of assessment will be the same as those currently operating.

Public transport interchanges

9.2.58 Compared to the existing baseline, no changes are assumed.

Pedestrians, cyclists and equestrians

9.2.59 Compared to the existing baseline, no changes are assumed.

Waterways and Canals

9.2.60 Compared to the existing baseline, no changes are assumed.

9.3 CA3 Proposed Scheme construction description

9.3.1 This section provides an overview of the construction traffic and transport impacts for the section of the Proposed Scheme that will pass through the Stone and Swynnerton area.

9.3.2 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 Proposed Scheme and it is considered to be reasonably representative.

Construction activities

9.3.3 The construction assessment considers the traffic and transport impacts in the peak month of construction activity, based on the proposed phasing of the works. The peak month that is assessed also includes cumulative impacts arising from construction in the adjoining community areas as well as for through movements through the area. The peak month also considers any substantial closures that are proposed.

Compounds and construction sites

9.3.4 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. For the construction programme refer to Volume 2: Community Area 3 Stone and Swynnerton, section 2.3.

9.3.5 The location of the construction compounds and the associated access routes are shown in the TR-08 Map Series (Volume 5: Traffic and Transport Map Book).

9.3.6 Table 275 summarises the anticipated average and peak workforce to be required at each construction compound. Table 275 also provides details of the number of workers and staff.

Table 275: Assumed workforce at construction sites

Compound type	Location	Total Number of Workers		Number of workers (Peak)	Number of Staff
		Average	Peak		
Satellite	Yarlet Embankment satellite compound	28	42	2814	7
Satellite	Yarlet North Cutting satellite compound	76	114	76	19
Satellite	Yarnfield North Embankment satellite compound	132	198	132	33
Satellite	M6 Meaford Viaduct satellite compound	12	18	12	3
Satellite	Meaford North Embankment satellite compound	36	54	36	9
Satellite	Swynnerton Embankment satellite compound	12	18	12	3
Main	Swynnerton North Cutting Main Compound	200	300	200	50
Satellite	Hatton South Cutting satellite compound	24	36	24	6
Satellite	Hatton North Cutting satellite compound	12	18	12	3

9.3.7 Typical vehicle trip generation for construction site compounds in this area are shown in Table 276. For each compound 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, with the average daily combined two-way vehicle trips shown for the peak month is the upper end of the range shown.

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/set up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (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	Stone Rural Bridleway 0.1135 for site setup followed by haul road thereafter to the A34 Stone Road	January 2021	Civil engineering - 4 years	3	56-77	82-98
			January 2025	Rail systems - 1 year and 6 months	3	18-30	up to 10
Satellite	Yarlet North Cutting satellite compound	B5026 Eccleshall Road for site set-up and servicing and followed by haul road to Stone railhead thereafter to the M6	January 2021	4 years 3 months	1	152-209	171-171
Satellite	Stone Connection satellite compound	via Stone railhead main compound	October 2021	6 months	3	94-222	up to 10
Main	Stone railhead main compound	M6 and Yarnfield Lane and on to the A34 The Fillybrooks	July 2024	3 years and 3 months	5	258-840	39-135
Transfer node	Transfer node associated with Yarnfield North Embankment satellite compound	Yarnfield Lane for site setup and servicing and followed by haul road to Stone railhead thereafter to the M6	January 2021	4 years 3 months	12	N/A	935-1185
Satellite	Yarnfield North Embankment satellite compound	Yarnfield Lane for site setup and servicing and followed by haul road to Stone railhead thereafter to the M6	January 2021	4 years 3 months for civils but compound remains further 1 year and 9 months due to worker accommodation	19	264-363	129-189
Satellite	M6 Meaford Viaduct satellite compound	Yarnfield Lane for site setup and servicing and followed by haul road to Stone railhead thereafter to the M6	January 2021	4 years 3 months	4	24-33	74-95

Compound type	Location	Access to / from compound to main road network	Indicative start/set up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Meaford North Embankment satellite compound	Tittensor Road for site setup, main access via haul road	January 2021	4 years	2	72-99	101-106
Satellite	Swynnerton Embankment satellite compound (including Swynnerton auto-transformer station compound)	Tittensor Road for site setup, main access via haul road	Civil engineering - January 2021	4 years	3	24-33	71-84
			Railway systems - July 2024	1 year and 3 months (6 month overlap with civils)	10	57-84	up to 10
Main	Swynnerton North Cutting main compound	A519 Newcastle Road and A51 Stone Road for site setup and have a limited continued access, main access via haul road	January 2021	4 years 3 months	4	400-550	92-103
Transfer node	Transfer node associated with Swynnerton North Cutting main compound	A519 Newcastle Road	January 2021	4 years 3 months	5	N/A	245-299
Satellite	Hatton South Cutting satellite compound	Dog Lane and Bent Lane (south) for site setup, main access via haul road	January 2021	4 years	3	48-66	87-110
Satellite	Hatton North Cutting satellite compound	Bent Lane (north), Dog Lane to the A51	January 2021	4 years	2	24-33	82-95
Satellite	Stableford auto-transformer station satellite compound	Bent Lane (north)	July 2024	1 year 3 months	10	57-84	up to 10

Construction HGV routes

9.3.8 Construction vehicle movements required to construct the Proposed 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.

9.3.9 HGVs have been routed where reasonably practicable along the strategic or primary road network, although some access locations will be off secondary roads. In CA3 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 set up, access for environmental surveys and on-going servicing (including refuse collection and general deliveries).

9.3.10 The location of the compound, and the associated access routes are shown on the TR-08 Map Series (Volume 5, Traffic and Transport Map Book) that reflect the transport activity at each site during the busy period as summarised in Table 276.

9.3.11 Table 277 summarises the peak daily construction traffic flow, both in HGVs and total vehicles on each link within CA3 that is on a construction route.

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	1250	2212
	SB	1250	2212
M6 (between M6 junction 15 slip road and M6 junction 16 slip road)	NB	666	1429
	SB	666	1429
M6 (mainline flow on M6 within junction 15)	NB	666	1429
	SB	666	1429
A34 Stafford Road (between Stone by Pass and Eccleshall Road)	NB	18	248
	SB	18	248
A34 Stone Road (between Queensway and Longton Road)	SB	15	273
	NB	15	273
A34 Stone Road (between Winghouse Lane and Longton Road)	SB	15	273
	NB	15	273
A34 Stone Road (between Winghouse Lane and Longton Road)	SB	15	273
	NB	15	273
A34 The Fillybrooks (between Eccleshall Road and Yarnfield Lane)	WB	88	411
	EB	88	411
A34 The Fillybrooks (between Newcastle Road and Meaford Road)	NB	9	298
	SB	9	298

Location	Direction	Peak HGV	Peak all vehicles
A34 The Fillybrooks (between Trent Road and Newcastle Road)	NB	9	297
	SB	9	297
A500 Queensway (between Newcastle Road and Stone Road)	EB	1254	1775
	WB	1254	1775
A500 Queensway (between Newcastle Road and M6)	WB	569	1368
	EB	569	1368
A51 Bury Bank (between Stone Road and east of Winghouse Lane)	WB	24	43
	EB	24	43
A51 Bury Bank (between Winghouse Lane and east of Winghouse Lane)	WB	24	43
	EB	24	43
A51 Lichfield Road (between Uttoxeter Road and Church Lane)	SB	15	273
	NB	15	273
A51 Stone Road (between Coombsdale and Road from A51 Stone Road to Clayalders Bank)	WB	16	50
	EB	16	50
A51 Stone Road (between the Proposed Scheme and Newcastle Road)	WB	48	53
	EB	48	53
A51 Stone Road (between the Proposed Scheme and Tittensor Road)	WB	23	157
	EB	23	157
A51 Stone Road (between Newcastle Road and Common Lane)	WB	101	262
	EB	101	262
A51 Stone Road (between Road from A51 Stone Road to Clayalders Bank and Nantwich Road)	WB	16	50
	EB	16	50
A51 Stone Road (between Tittensor Road and the Proposed Scheme)	WB	23	157
	EB	23	157
A51 Stone Road (between Winghouse Lane and Tittensor Road)	WB	24	43
	EB	24	43
A51 The Rowe (between Bent Lane and Stableford Bank)	WB	16	50
	EB	16	50
A51 The Rowe (between Common Lane and Dog Lane)	NB	101	262
	SB	101	262
A51 Through Stableford (between Stableford Bank and Coombsdale)	WB	16	50
	EB	16	50
A519 Newcastle Road (between Drayton Road and Hanchurch Lane)	NB	206	430

Location	Direction	Peak HGV	Peak all vehicles
	SB	206	430
A519 Newcastle Road (between Hanchurch Lane and Whitmore Road)	NB	206	430
	SB	206	430
A519 Newcastle Road (between Long Lane and Drayton Road)	NB	206	441
	SB	206	441
A519 Newcastle Road (between Long Lane and the Proposed Scheme)	NB	174	332
	SB	174	332
A519 Newcastle Road (between Station Road and Stone Road)	SB	0	149
	NB	0	149
A519 Newcastle Road (between Stone Road and the Proposed Scheme)	NB	174	332
	SB	174	332
A519 Newcastle Road (between Whitmore Road and Queensway)	NB	421	1048
	SB	421	1048
A5020 Stafford Road (between The Fillybrooks and Radford Street)	NB	0	53
	SB	0	53
A5182 Trentham Road (between Whitmore Road and Newcastle Road)	WB	706	1757
	EB	706	1757
B5026 Eccleshall Road (between Meece Road and the Proposed Scheme)	NB	48	348
	SB	48	348
B5026 Eccleshall Road (between Pirehill Lane and the Proposed Scheme)	SWB	48	208
	NEB	48	208
B5026 Eccleshall Road (between The Fillybrooks and Pirehill Lane)	SWB	79	267
	NEB	79	267
Long Lane (between Stone Road and Newcastle Road)	NB	45	159
	SB	45	159
Yarnfield Lane (between The Fillybrooks and the Proposed Scheme)	WB	218	566
	EB	218	566
Yarnfield Lane (between the Proposed Scheme and Yarnfield Lane/north-bound)	WB	218	566
	EB	218	566
Bent Lane (between The Rowe and the Proposed Scheme)	NB	65	565
	SB	65	565
Bent Lane (South of the Proposed Scheme)	NB	65	565
	SB	65	565

Location	Direction	Peak HGV	Peak all vehicles
Dog Lane (between The Rowe and the Proposed Scheme)	EB	39	104
	WB	39	104
Pirehill Lane (between Coombe Park Road and HS2 Railway)	SB	30	205
	NB	30	205
Pirehill Lane (between Eccleshall Road and Coombe Park Road)	SB	30	141
	NB	30	141
Pirehill Lane (between the Proposed Scheme and Green Lane)	SB	30	205
	NB	30	205

Traffic management, road closures and diversions

9.3.12 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing highways as well as traffic management. The construction of the Proposed Scheme has been carefully planned to limit disruption to travellers through any traffic management, road closures and diversions. Where closures are necessary, the general approach is the undertake closures for short discreet periods to ensure that the impact on users is reduced. Section 4 of the TA, mitigation, sets out the general approach to construction. This includes constructing new roads prior to the closure of any existing roads, where reasonably practicable.

9.3.13 Where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing road network, traffic control measures will be implemented and could include the provision of temporary signals and Roundabouts, which would be removed on completion of the works. These traffic control measures are not expected to have a substantial impact on traffic flows and delays for vehicle occupants and non-motorised users.

9.3.14 Utilities works have been assessed in detail where they are major and where the traffic and transport impacts from the works separately, or in combination with other works, will be greater than other construction activities arising within the area. Minor utilities works are expected to result in only localised traffic and pedestrian diversions, which will be of short-term duration. No additional substantial impact from these works are expected. Similarly other minor works will involve a low level of use of local roads. Such use is not expected to give rise to substantial construction traffic impacts.

9.3.15 Permanent road closures are addressed in the operational scheme section of this report.

PRoW closures and diversions

9.3.16 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing footpaths and roadside footways as well as some bridleways. The impact on footpaths (including roadside footways), cycleways and bridleway links along the route of the Proposed Scheme has been reduced, as far as reasonably practicable, through the design process. Section 4 of the TA, mitigation, documents the general approach to construction. This includes constructing new PRoW prior to the closure of any existing PRoW where reasonably practicable.

9.3.17 As with highways, where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing PRoW network, active control measures will be implemented to manage the safety of PRoW users and could include staffed crossings and the provision of temporary gates or signals, which would be removed on completion of the works. These control measures are not expected to have a substantial impact on delays for pedestrian, cyclist or equestrian users of the network.

9.4 CA3 Proposed Scheme assessment of construction impacts

Key construction transport issues

9.4.1 The temporary traffic and transport impacts within 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.

9.4.2 The construction assessment has also considered any impacts in the Stone and Swynnerton areas that arise from construction of the Proposed Scheme in the adjoining community areas.

9.4.3 There will be temporary alternative routes provided for seven roads and nine PRoW.

Highway network

Highway closures, diversions and traffic management

9.4.4 Temporary road or lane closures and associated diversions will be required in a number of locations.

9.4.5 In order to facilitate access to the Stone railhead, slip roads are proposed from the M6 northbound and southbound. The provision of the northbound slip road is temporary. However, the southbound slip road will be retained to form the permanent access to the Stone Infrastructure Maintenance Base-Rail (IMB-R). Whilst the northbound slips will no longer be used by the Stone IMB-R, modified northbound slips will be retained for emergency access. These slip roads mitigate the need for construction traffic to u-turn at the adjacent motorway junctions. The slip roads will not have a substantial impact on traffic and vehicle occupants during construction. The permanent effects of the southbound slip roads are considered under the operation of the Proposed Scheme.

9.4.6 Permanent localised realignment of the southbound lanes of the M6 will be required. To maintain safe operation of the motorway it will be necessary to undertake the works under traffic management. The traffic management will operate for a period of one year and six months over this length of the M6, and will be likely to include temporary speed restrictions for safety, temporary use of the hard shoulder, and reduced lane widths. HS2 Ltd will work with Highways England and 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.

9.4.7 The works will also require temporary closures including 10 overnight/weekend lane closures and four weekend carriageway closures over a two and a half year period. As a result of the short term nature of these measures, they will not have a substantial impact on traffic flows and delays for vehicle occupants.

9.4.8 In order to facilitate the realignment of existing major utilities and for construction of the A519 Newcastle Road overbridge, the A519 Newcastle Road will be diverted temporarily off-line adjacent to the existing alignment. Short-term lane restrictions will be required to facilitate the implementation of a temporary Roundabout to provide access for construction vehicles. This diversion will maintain highway capacity on the A519 Newcastle Road and is expected to be required for a period of one year. On completion, the A519 Newcastle Road will be reinstated on its existing alignment, forming the A519 Newcastle Road overbridge over the Proposed Scheme. The impact of the temporary diversion is not likely to have a substantial impact on road users in terms of traffic flows and delays for vehicle occupants.

9.4.9 The new alignment of Dog Lane has a new embankment running along the same road for almost 200m and therefore requires a temporary road diversion during construction for a period of three months. The temporary diversion will not have a substantial impact on traffic flows and delays for vehicle occupants.

9.4.10 Temporary road or lane closures and associated diversions will be required in a number of locations including the following:

- A519 Newcastle Road;
- B5026 Eccleshall Road;
- Yarnfield Lane;
- the M6;
- Tittensor Road;
- Dog Lane; and
- Bent Lane.

9.4.11 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

9.4.12 Table 278 summarises the temporary PRoW diversions and realignments required to accommodate the construction of the Proposed Scheme. In most cases this will also include the construction of diverted routes and accommodation over and underbridges which will carry the permanent diversions of these PRoWs. In some cases PRoW will revert to their pre-existing alignment after construction is completed.

Table 278: CA3 temporary PRoW diversions

PRoW name	Description	Change in length
Stone Rural Bridleway 0.1135	Minor diversion north east of new permanent alignment to avoid haul route, on to new permanent Bridleway 0.1135 accommodation overbridge.	Temporary diversion is same length as permanent
Stone Rural Footpath 28	Diverted 50m south west of line of permanent realignment, around edge of a construction site and avoiding haul route, on to new permanent Footpath 28 accommodation overbridge.	Temporary diversion is 250m longer.
Stone Rural Footpath 33	Diverted north from WCML overbridge as permanent realignment, then south (to west of viaduct launching compound), to rejoin existing route, then further diversion north east, around ATS and worker accommodation, to meet Yarnfield Lane 150m east of existing junction.	Temporary diversion to south and to east is 900m longer.
Swynnerton Footpath 10	Minor diversion to the south and east around construction of FP10 accommodation underbridge.	Temporary diversion is under 50m longer.
Swynnerton Footpath 15	Diverted south-east around edge of construction site on to temporary diversion route for FP52 while FP15 overbridge is constructed.	Temporary diversion is 1.2km longer
Swynnerton Footpath 17	Diverted south on to existing alignment of FP27, then to the permanent diversion on FP27 accommodation underbridge.	Temporary diversion is 200m longer
Swynnerton Footpath 27	Current alignment retained until diverted straight to new permanent underbridge alignment (shared with Footpath 17).	Temporary diversion is under 100m longer.
Swynnerton Footpath 52	Minor diversion to the south around construction of Footpath 52 underbridge.	Temporary diversion is under 50m longer.
Swynnerton Bridleway 54	Diverted around eastern edge of A51 Stone Road diversion construction site, towards new Tittensor Road alignment. Will follow permanent diversion along this route once available.	Temporary diversion is 200m longer

Strategic and local road network traffic flows

9.4.13 During the construction period there will be a number of highway links that will be affected by the construction of the Proposed Scheme. An assessment of the impact of construction related vehicle movements and temporary diversions has been undertaken and is detailed below. 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.

9.4.14 Table 279 and Table 280 set out the 2023 traffic flows on highway links affected by construction traffic associated with the Proposed Scheme for the AM and PM peak hour respectively. Traffic flows on all other links are either unaffected from the future baseline or result in very minor increases.

9.4.15 To show the impact of the construction of the Proposed Scheme in these locations, traffic flows on affected links are presented for the 2023 future baseline and for the 2023 future baseline with the Proposed Scheme, alongside the percentage increase from the future baseline.

Table 279: 2023 future baseline and with the Proposed 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	4835	973	6.9%	14.7%
	SB	4079	723	4389	848	7.6%	17.3%
M6 (between M6 junction 15 slip road and M6 junction 16 slip road)	NB	3613	770	3839	837	6.2%	8.6%
	SB	3815	711	4041	778	5.9%	9.4%
A34 The Fillybrooks (between Eccleshall Road and Yarnfield Lane)	WB	999	73	1087	82	8.8%	12.0%
	EB	965	70	1053	79	9.1%	12.4%
A500 Queensway (between Newcastle Road and Stone Road)	EB	2435	259	2700	385	10.9%	48.4%
	WB	1524	216	1789	342	17.4%	58.0%
A500 Queensway (between Newcastle Road and M6)	WB	2308	278	2592	335	12.3%	20.5%
	EB	878	106	1162	163	32.3%	53.8%
A51 Bury Bank (between Stone Road and east of Winghouse Lane)	WB	184	20	186	22	1.5%	11.9%
	EB	318	12	320	14	0.9%	19.8%
A51 Bury Bank (between Winghouse Lane and east of Winghouse Lane)	WB	198	10	201	12	1.4%	24.6%
	EB	257	7	260	9	1.1%	35.8%
A51 Stone Road (between Coombsdale and Road from A51 Stone Road to Clayalders Bank)	WB	170	7	184	9	8.1%	21.1%
	EB	206	5	220	7	6.7%	29.1%
A51 Stone Road (between the Proposed Scheme and Newcastle Road)	WB	215	12	220	17	2.4%	39.2%
	EB	302	12	307	17	1.7%	38.8%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A51 Stone Road (between the Proposed Scheme and Tittensor Road)	WB	236	12	256	15	8.2%	19.2%
	EB	299	14	318	16	6.5%	17.2%
A51 Stone Road (between Newcastle Road and Common Lane)	WB	201	7	226	17	12.5%	145.5%
	EB	213	6	238	16	11.7%	182.6%
A51 Stone Road (between Tittensor Road and the Proposed Scheme)	WB	236	12	256	15	8.2%	19.2%
	EB	299	14	318	16	6.5%	17.2%
A51 Stone Road (between Winghouse Lane and Tittensor Road)	WB	408	10	411	12	0.7%	24.0%
	EB	391	8	394	10	0.7%	29.5%
A51 The Rowe (between Bent Lane and Stableford Bank)	WB	166	7	180	9	8.3%	20.8%
	EB	190	4	204	5	7.3%	43.4%
A51 The Rowe (between Common Lane and Dog Lane)	NB	254	17	279	27	9.9%	60.8%
	SB	258	11	283	21	9.7%	88.0%
A51 Through Stableford (between Stableford Bank and Coombsdale)	WB	173	6	187	7	8.0%	26.9%
	EB	209	5	223	7	6.6%	29.1%
A519 Newcastle Road (between Drayton Road and Hanchurch Lane)	NB	273	7	391	27	43.1%	302.5%
	SB	278	13	396	34	42.2%	156.2%
A519 Newcastle Road (between Hanchurch Lane and Whitmore Road)	NB	337	6	454	27	34.9%	317.7%
	SB	337	5	454	25	34.9%	443.3%
A519 Newcastle Road (between Long Lane and Drayton Road)	NB	283	24	387	44	36.8%	86.5%
	SB	278	27	382	47	37.4%	76.8%

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 the Proposed Scheme)	NB	231	20	281	37	21.6%	86.8%
	SB	195	25	245	42	25.6%	70.9%
A519 Newcastle Road (between Station Road and Stone Road)	SB	231	25	257	25	11.3%	0.0%
	NB	262	21	288	21	10.0%	0.0%
A519 Newcastle Road (between Stone Road and the Proposed Scheme)	NB	231	20	281	37	21.6%	86.8%
	SB	195	25	245	42	25.6%	70.9%
A519 Newcastle Road (between Whitmore Road and Queensway)	NB	530	16	716	58	35.2%	263.7%
	SB	496	15	683	57	37.6%	282.8%
A5182 Trentham Road (between Whitmore Road and Newcastle Road)	WB	319	38	500	108	56.5%	186.0%
	EB	276	26	457	97	65.3%	271.1%
B5026 Eccleshall Road (between Meece Road and the Proposed Scheme)	NB	212	7	260	12	22.9%	70.6%
	SB	212	5	261	10	22.9%	90.2%
B5026 Eccleshall Road (between Pirehill Lane and the Proposed Scheme)	SWB	207	22	245	27	18.6%	21.6%
	NEB	256	13	294	17	15.0%	38.3%
B5026 Eccleshall Road (between The Fillybrooks and Pirehill Lane)	SWB	438	15	486	23	10.9%	52.4%
	NEB	723	15	770	23	6.6%	51.0%
Long Lane (between Stone Road and Newcastle Road)	NB	52	4	72	8	39.2%	121.0%
	SB	84	2	104	7	24.3%	201.7%
Yarnfield Lane (between The Fillybrooks and the Proposed Scheme)	WB	218	8	305	30	39.8%	273.0%
	EB	254	5	340	26	34.3%	462.5%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
Yarnfield Lane (between the Proposed Scheme and Yarnfield Lane/NB)	WB	230	8	317	29	37.8%	287.3%
	EB	249	7	336	29	34.9%	322.1%
Bent Lane (between The Rowe and the Proposed Scheme)	NB	108	2	149	8	38.0%	405.8%
	SB	35	1	76	7	117.0%	676.4%
Bent Lane (South of the Proposed Scheme)	NB	108	2	149	8	38.0%	405.8%
	SB	35	1	76	7	117.0%	676.4%
Dog Lane (between The Rowe and the Proposed Scheme)	EB	18	1	34	5	87.6%	519.9%
	WB	6	0	22	4	249.1%	1819.7%
Pirehill Lane (between Coombe Park Road and the Proposed Scheme)	SB	3	0	31	3	881.3%	1456.1%
	NB	8	0	36	3	352.5%	2184.1%
Pirehill Lane (between Eccleshall Road and Coombe Park Road)	SB	158	2	178	5	13.0%	188.0%
	NB	295	13	316	16	7.0%	23.7%
Pirehill Lane (between the Proposed Scheme and Green Lane)	SB	3	0	31	3	881.3%	1456.1%
	NB	8	0	36	3	352.5%	2184.1%

Table 280: 2023 future baseline and with the Proposed 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	4877	748	11.1%	20.1%
	SB	4281	718	4769	843	11.4%	17.4%
M6 (between M6 Junction 15 slip road and M6 Junction 16 slip road)	NB	3745	598	4092	664	9.2%	11.1%
	SB	4047	716	4394	783	8.6%	9.3%
A34 The Fillybrooks (between Eccleshall Road and Yarnfield Lane)	WB	888	26	984	35	10.8%	33.9%
	EB	1340	39	1436	48	7.2%	22.5%
A500 Queensway (between Newcastle Road and Stone Road)	EB	1728	158	1993	283	15.3%	79.5%
	WB	1671	127	1935	252	15.8%	98.7%
A500 Queensway (between Newcastle Road and M6)	WB	2198	216	2487	273	13.2%	26.3%
	EB	863	85	1152	142	33.5%	67.0%
A51 Bury Bank (between Stone Road and east of Winghouse Lane)	WB	205	5	226	7	10.1%	52.8%
	EB	186	7	207	9	11.1%	34.0%
A51 Bury Bank (between Winghouse Lane and east of Winghouse Lane)	WB	228	5	249	8	9.1%	43.7%
	EB	195	4	216	7	10.6%	54.6%
A51 Stone Road (between Coombsdale and Road from A51 Stone Road to Clayalders Bank)	WB	220	4	231	6	4.8%	35.6%
	EB	171	3	182	5	6.1%	50.3%
A51 Stone Road (between the Proposed Scheme and Newcastle Road)	WB	238	4	250	9	5.0%	107.7%
	EB	220	10	232	15	5.4%	47.9%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A51 Stone Road (between the Proposed Scheme and Tittensor Road)	WB	253	4	293	6	15.9%	58.2%
	EB	226	10	266	13	17.8%	23.0%
A51 Stone Road (between Newcastle Road and Common Lane)	WB	235	4	305	14	29.6%	232.5%
	EB	153	3	222	13	45.6%	300.0%
A51 Stone Road (between Tittensor Road and the Proposed Scheme)	WB	253	4	293	6	15.9%	58.2%
	EB	226	10	266	13	17.8%	23.0%
A51 Stone Road (between Winghouse Lane and Tittensor Road)	WB	383	5	403	7	5.4%	47.5%
	EB	416	5	437	8	5.0%	44.5%
A51 The Rowe (between Bent Lane and Stableford Bank)	WB	238	3	248	5	4.4%	46.1%
	EB	156	6	166	7	6.7%	26.6%
A51 The Rowe (between Common Lane and Dog Lane)	NB	247	6	316	17	28.2%	155.7%
	SB	198	6	268	16	35.2%	162.0%
A51 Through Stableford (between Stableford Bank and Coombsdale)	WB	224	4	234	5	4.7%	40.5%
	EB	173	3	183	5	6.1%	45.6%
A519 Newcastle Road (between Drayton Road and Hanchurch Lane)	NB	312	7	394	28	26.3%	279.9%
	SB	348	8	431	28	23.6%	264.4%
A519 Newcastle Road (between Hanchurch Lane and Whitmore Road)	NB	387	9	469	30	21.2%	221.3%
	SB	378	6	460	27	21.7%	339.9%
A519 Newcastle Road (between Long Lane and Drayton Road)	NB	305	9	386	30	26.3%	226.2%
	SB	293	10	373	30	27.4%	211.3%

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 the Proposed Scheme)	NB	210	8	262	25	24.8%	219.9%
	SB	240	9	292	27	21.7%	187.0%
A519 Newcastle Road (between Station Road and Stone Road)	SB	273	8	332	8	21.6%	0.0%
	NB	229	8	288	8	25.7%	0.0%
A519 Newcastle Road (between Stone Road and the Proposed Scheme)	NB	210	8	262	25	24.8%	219.9%
	SB	240	9	292	27	21.7%	187.0%
A519 Newcastle Road (between Whitmore Road and Queensway)	NB	501	19	743	61	48.4%	220.2%
	SB	661	13	904	55	36.6%	324.8%
A5182 Trentham Road (between Whitmore Road and Newcastle Road)	WB	326	12	928	82	184.6%	608.7%
	EB	251	13	853	83	239.6%	554.3%
B5026 Eccleshall Road (between Meece Road and the Proposed Scheme)	NB	246	2	348	7	41.3%	271.1%
	SB	259	2	361	7	39.2%	287.1%
B5026 Eccleshall Road (between Pirehill Lane and the Proposed Scheme)	SWB	213	7	239	12	12.2%	71.9%
	NEB	260	8	286	13	10.1%	62.2%
B5026 Eccleshall Road (between The Fillybrooks and Pirehill Lane)	SWB	501	7	550	15	9.8%	107.9%
	NEB	567	11	616	19	8.7%	71.0%
Long Lane (between Stone Road and Newcastle Road)	NB	96	1	133	6	38.6%	384.0%
	SB	54	0	91	5	68.7%	1056.1%
Yarnfield Lane (between The Fillybrooks and the Proposed Scheme)	WB	224	3	340	25	51.6%	753.7%
	EB	170	3	286	25	68.2%	772.6%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
Yarnfield Lane (between the Proposed Scheme and Yarnfield Lane/NB)	WB	234	3	350	25	49.4%	663.4%
	EB	167	3	283	25	69.4%	649.3%
Bent Lane (between The Rowe and the Proposed Scheme)	NB	27	1	253	7	829.8%	958.5%
	SB	58	0	284	7	390.0%	1821.2%
Bent Lane (South of the Proposed Scheme)	NB	27	1	253	7	829.8%	958.5%
	SB	58	0	284	7	390.0%	1821.2%
Dog Lane (between The Rowe and the Proposed Scheme)	EB	12	0	35	4	185.3%	1814.6%
	WB	12	0	35	4	188.1%	N/A
Pirehill Lane (between Coombe Park Road and the Proposed Scheme)	SB	5	0	66	3	1243.4%	4346.8%
	NB	4	0	65	3	1691.0%	N/A
Pirehill Lane (between Eccleshall Road and Coombe Park Road)	SB	201	2	236	6	17.8%	122.4%
	NB	191	5	227	8	18.7%	64.0%
Pirehill Lane (between the Proposed Scheme and Green Lane)	SB	5	0	66	3	1243.4%	4346.8%
	NB	4	0	65	3	1691.0%	N/A

Summary of link flows

9.4.16 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 a percentage increase in total vehicular traffic of less than 30%. Percentage increases in HGV traffic in both time periods are generally higher than this. However, this can be a result of there being a relatively low number of HGVs forecast in the future baseline. Notwithstanding the percentage increases, the total numbers of HGVs on all links (with the exception of the M6, A500 Queensway and A34 The Fillybrooks/ Stafford Road) are less than 50 per hour in 2023 with the addition of the Proposed Scheme, with a small number of exceptions (the A519 Newcastle Road (between Whitmore Road and Queensway) and the A5182 Trentham Road (between Whitmore Road and Newcastle Road), where these flows are less than 110.

9.4.17 Other roads identified as construction routes show a similar pattern, with high percentage increases in HGVs but with 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 The Rowe between Common Lane and Dog Lane;
- A51 The Rowe between the A519 Newcastle Road and Common Lane;
- A51 Stone Road/Bury Bank between the A519 Newcastle Road and the A34 Stafford Road/The Fillybrooks;
- A519 Newcastle Road between the A51 Stone Road and the A500 Queensway;
- A5182 Trentham Road (between the A519 Newcastle Road and the A53 Whitmore Road);
- B5026 Eccleshall Road between the A34 Stafford Road/The Fillybrooks and Pirehill Lane;
- Dog Lane between the A51 The Rowe and the Proposed Scheme;
- Bent Lane between the A51 The Rowe and the Proposed Scheme;
- Tittensor Road between Stab Lane and the A51 Stone Road;
- Yarnfield Lane between the Proposed Scheme and the A34 The Fillybrooks;
- Pirehill Lane between the Proposed Scheme and the B5026 Eccleshall Road; and
- Bottom Lane between the A51 Stone Road and the A519 Newcastle Road.

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

Junction performance 2023

9.4.19 The following tables and commentary set out the performance at junctions where there is the potential for the Proposed Scheme to have substantial impacts.

9.4.20 As for the future baseline, the results are presented in the order of Roundabout junctions, priority controlled (give-way), signalised junctions and M6 junction 15. 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

9.4.21 Table 281 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 281: A51 Stone Bypass/A34 Stafford Road/Brooms Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A34 Stafford Road (north)	1964	0.68	2	2118	0.74	3
A51 Stone Bypass	1045	1.08	53	1069	1.23	116
A34 Stafford Road (south)	900	0.48	1	1078	0.55	1
Brooms Road	184	0.13	0	184	0.14	0
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A34 Stafford Road (north)	1427	0.55	1	1656	0.65	2
A51 Stone Bypass	581	0.43	1	643	0.53	1
A34 Stafford Road (south)	1406	0.61	2	1697	0.74	3
Brooms Road	625	0.62	2	625	0.78	3

9.4.22 The model shows that the A51 Stone Bypass arm operates above capacity in the 2023 future baseline AM peak, regardless of the Proposed Scheme. With the addition of the Proposed Scheme construction traffic, the RFC value on the A51 Stone Bypass arm increases from 1.08 to 1.23 in the AM peak, with the queue increasing from 53 to 116 PCUs.

9.4.23 The increase in traffic flow at the junction is not substantial in comparison to the future baseline (with the increase in flow as a result of the Proposed Scheme across all arms less than 10%).

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

9.4.24 Table 282 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 282: A34 The Fillybrooks/A520 Stafford Road/A34 Stafford Road/B5026 Eccleshall Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A34 The Fillybrooks (north)	1381	1.21	139	1478	1.31	204
A520 Stafford Road	935	0.97	16	959	0.99	20
A34 Stafford Road (south)	1314	0.57	1	1378	0.61	2
B5026 Eccleshall Road	883	0.78	4	932	0.85	6
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A34 The Fillybrooks (north)	1171	1.06	50	1273	1.12	85
A520 Stafford Road	810	0.72	3	819	0.73	3
A34 Stafford Road (south)	2103	0.95	15	2163	0.99	28
B5026 Eccleshall Road	746	1.19	67	797	1.34	109

9.4.25 The model shows that the A34The Fillybrooks (north) arm operates above capacity in the 2023 future baseline AM and PM peaks, regardless of the Proposed Scheme. With the addition of the Proposed Scheme construction traffic, the RFC value on the A53 arm increases from 1.21 to 1.31 in the AM peak, with the queue increasing from 139 to 204 PCUs. The B5026 Eccleshall Road arm operates over capacity in both the future baseline and with Proposed Scheme PM Peak scenarios, with the RFC value increasing from 1.19 to 1.34 and the queue length increasing from 67 to 109 PCUs.

9.4.26 The increase in traffic flow at the junction is not substantial in comparison to the future baseline (with the increase in flow as a result of the Proposed Scheme across all arms is less than 6% in the AM or PM peak).

A34 The Fillybrooks/B5027 Newcastle Road

9.4.27 Table 283 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 283: A34 The Fillybrooks/B5027 Newcastle Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A34 The Fillybrooks (north)	1469	0.47	1	1555	0.5	1
Newcastle Road	336	0.31	1	336	0.32	1
A34 The Fillybrooks (south)	1049	0.46	1	1135	0.5	1
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A34 The Fillybrooks (north)	1595	0.51	1	1670	0.54	1
Newcastle Road	368	0.34	1	368	0.36	1
A34 The Fillybrooks (south)	1115	0.5	1	1182	0.53	1

9.4.28 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

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

9.4.29 Table 284 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 284: A51 Bury Bank/A51 Stone Road/A34The Fillybrooks/A51/Jervis Lane junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A34 Stone Road (north)	1258	0.52	1	1344	0.56	1
A34 The Fillybrooks (south)	1359	0.43	1	1445	0.46	1
Jervis Lane	-	-	-	-	-	-
A51 Bury Bank	292	0.26	0	294	0.3	0
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A34 Stone Road (north)	1287	0.51	1	1345	0.54	1
A34 The Fillybrooks (south)	1591	0.5	1	1655	0.52	1
Jervis Lane	-	-	-	-	-	-
A51 Bury Bank	209	0.24	0	223	0.28	0

9.4.30 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A34 Stone Road/A5035 Longton Road

9.4.31 Table 285 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 285: A34 Stone Road/A5035 Longton Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A34 Stone Road (north)	1361	0.5	1	1446	0.53	1
A5035 Longton Road	731	0.44	1	731	0.46	1
A34 Stone Road (south)	1212	0.67	2	1297	0.72	3
Trentham Centre access	63	0.05	0	63	0.06	0
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A34 Stone Road (north)	1815	0.73	3	1872	0.75	3
A5035 Longton Road	884	0.65	2	884	0.67	2
A34 Stone Road (south)	1210	0.74	3	1266	0.77	3
Trentham Centre access	210	0.2	0	210	0.21	0

9.4.32 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline. Only the A34 Stone Road (south) arm begins to approach capacity in the PM peak.

A51 Stone Road/A519 Newcastle Road

9.4.33 Table 286 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 286: A51 Stone Road/A519 Newcastle Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A519 Newcastle Road (north)	243	0.21	0	317	0.27	0
A51 Stone Road (east)	298	0.23	0	324	0.25	0
A519 Newcastle Road (south)	308	0.19	0	328	0.21	0
A51 Stone Road (west)	273	0.22	0	314	0.25	0
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A519 Newcastle Road (north)	262	0.22	0	311	0.26	0
A51 Stone Road (east)	324	0.25	0	367	0.29	0
A519 Newcastle Road (south)	259	0.17	0	301	0.2	0
A51 Stone Road (west)	218	0.17	0	291	0.23	0

9.4.34 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

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

9.4.35 Table 287 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 287: A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange) junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
Clayton Road	576	1.38	84	576	1.59	153
A500 Queensway (east)	1930	0.97	22	2234	1.15	176
A519 Newcastle Road	583	0.89	7	841	1.22	94
M6 junction 16 to A500 Hanchurch Roundabout (west)	2810	1.01	49	3120	1.13	209
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Clayton Road	678	1.01	21	678	1.62	141
A500 Queensway (east)	1962	1.07	85	2323	1.27	337
A519 Newcastle Road	615	0.9	8	934	1.22	114
M6 junction 16 to A500 Hanchurch Roundabout (west)	2623	0.85	6	2937	0.96	21

9.4.36 The model shows that all arms of this junction are approaching or exceed capacity in the 2023 future baseline during the AM and PM peaks and that RFC and queueing levels increase with the addition of the Proposed Scheme construction traffic on all approaches to the junction.

9.4.37 The Proposed Scheme construction traffic will increase queuing and delay through this junction, although the junction is shown to already operate over capacity in the AM and PM peak in the future baseline. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A34The Fillybrooks/Millennium Way

9.4.38 Table 288 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 288: A34 The Fillybrooks/Millennium Way junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A34 The Fillybrooks (north)	1431	0.5	1	1518	0.53	1
Millennium Way	209	0.4	1	209	0.44	1
A34 The Fillybrooks (south)	1321	0.42	1	1408	0.45	1
17:00 – 18:00	**2023 future baseline**			**2023 With the Proposed Scheme**		
A34 The Fillybrooks (north)	1502	0.53	1	1576	0.56	1
Millennium Way	315	0.67	2	315	0.73	3
A34 The Fillybrooks (south)	1433	0.47	1	1499	0.49	1

9.4.39 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline

B5016 Eccleshall Road/Pirehill Lane/Lamb Lane

9.4.40 Table 289 summarises the results the junction capacity assessments with the Proposed Scheme in 2023.

Table 289: B5016 Eccleshall Road/Pirehill Lane/Lamb Lane junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
Pirehill Lane (ahead + left + right)	311	0.9	7	339	1.05	20
B5026 Eccleshall Road (north-east) (ahead + left + right)	6	0.01	0	7	0.01	0
B5026 Eccleshall Road (north-east) (left)	146	-	-	171	-	-
B5026 Eccleshall Road (north-east) (ahead)	323	-	-	372	-	-
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	127	0.15	1
B5026 Eccleshall Road (south-west) (left)	0	-	-	0	-	-
B5026 Eccleshall Road (south-west) (ahead)	499	-	-	533	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Pirehill Lane (ahead + left + right)	173	0.51	1	217	0.69	2

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
B5026 Eccleshall Road (north-east) (ahead + left + right)	6	0.01	0	7	0.01	0
B5026 Eccleshall Road (north-east) (left)	178	-	-	221	-	-
B5026 Eccleshall Road (north-east) (ahead)	463	-	-	496	-	-
Lamb Lane (ahead + left + right)	0	0	0	0	0	0
B5026 Eccleshall Road (south-west) (ahead + left + right)	57	0.08	0	62	0.09	0
B5026 Eccleshall Road (south-west) (left)	0	-	-	0	-	-
B5026 Eccleshall Road (south-west) (ahead)	418	-	-	447	-	-

9.4.41 The Pirehill Lane arm approaches capacity during the AM peak and the RFC increases from 0.9 to 1.05 with the addition of the Proposed Scheme construction traffic, with the queue on the Pirehill Lane increasing from seven to 20 PCUs. Although the junction moves closer to capacity this is not considered a substantial increase taking into account that the Pirehill Lane is already approaching capacity in the 2023 future baseline.

A34 The Fillybrooks/Yarnfield Lane

9.4.42 Table 290 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 290: A34 The Fillybrooks/Yarnfield Lane junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
Yarnfield Lane (left)	145	0.29	0	185	0.41	1
Yarnfield Lane (right)	80	0.29	0	127	0.5	1
A34 The Fillybrooks (north) (ahead)	1397	-	-	1456		
A34 The Fillybrooks (north) (right)	232	0.37	1	272	0.45	1
A34 The Fillybrooks (south) (left)	107	-	-	154	-	-
A34 The Fillybrooks (south) (ahead)	981	-	-	1033	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Yarnfield Lane (left)	100	0.19	0	150	0.34	1
Yarnfield Lane (right)	57	0.19	0	144	0.48	1

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A34 The Fillybrooks (north) (ahead)	1171	-	-	1193	-	-
A34 The Fillybrooks (north) (right)	199	0.32	1	248	0.42	1
A34 The Fillybrooks (south) (left)	134	-	-	219	-	-
A34 The Fillybrooks (south) (ahead)	983	-	-	1010	-	-

9.4.43 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A34 The Fillybrooks/Meaford Road

9.4.44 Table 291 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 291: A34 The Fillybrooks/Meaford Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
Meaford Road (left + right)	8	0.02	0	8	0.02	0
A34 The Fillybrooks (south) (ahead + right)	0	0	0	0	0	0
A34 The Fillybrooks (south) (ahead)	1325	-	-	1411	-	-
A34 The Fillybrooks (north) (left)	9	-	-	9	-	-
A34 The Fillybrooks (north) (ahead)	1575	-	-	1659	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Meaford Road (left + right)	12	0.03	0	12	0.03	0
A34 The Fillybrooks (south) (ahead + right)	0	0	0	0	0	0
A34 The Fillybrooks (south) (ahead)	1529	-	-	1595	-	-
A34 The Fillybrooks (north) (left)	0	-	-	0	-	-
A34 The Fillybrooks (north) (ahead)	1525	-	-	1590	-	-

9.4.45 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A34 Stone Road/Tittensor Road

9.4.46 Table 292 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 292: A34 Stone Road/Tittensor Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
Tittensor Road (left)	122	0.26	0	122	0.27	0
Tittensor Road (right)	70	0.23	0	70	0.25	0
A34 Stone Road (south) (ahead)	859	-	-	944	-	-
A34 Stone Road (south) (right)	86	0.16	0	86	0.16	0
A34 Stone Road (north) (left)	125	-	-	125	-	-
A34 Stone Road (north) (ahead)	956	-	-	1041	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed 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	-	-	1086	-	-
A34 Stone Road (south) (right)	133	0.29	0	133	0.3	0
A34 Stone Road (north) (left)	215	-	-	215	-	-
A34 Stone Road (north) (ahead)	1262	-	-	1318	-	-

9.4.47 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A51 The Rowe/Dog Lane/Bent Lane

9.4.48 Table 293 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

9.4.49 In order to replicate existing conditions, it is necessary to model the junction as a linked priority junction in the Junctions 9 model. The junction has been modelled using the lane simulation mode and on this basis only the resulting queue length values are available.

Table 293: A51 The Rowe/Dog Lane/Bent Lane junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
Dog Lane	10	-	0	61	-	0
A51 The Rowe (west)	279	-	0	302	-	0
A51 The Rowe (south)	237	-	0	254	-	0
Bent Lane	33	-	0	51	-	0
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Dog Lane	10	-	0	245	-	3
A51 The Rowe (west)	284	-	0	344	-	0
A51 The Rowe (south)	178	-	0	354	-	0
Bent Lane	66	-	0	85	-	0

9.4.50 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A51 Stone Road/Tittensor Road

9.4.51 Table 294 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 294: A51 Stone Road/Tittensor Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
Tittensor Road (left + right)	134	0.36	1	172	0.44	1
A51 Stone Road (west) (ahead + right)	4	0.01	0	66	0.1	0
A51 Stone Road (west) (ahead)	300	-	-	276	-	-
A51 Stone Road (east) (left)	172	-	-	174	-	-
A51 Stone Road (east) (ahead)	296	-	-	297	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Tittensor Road (left + right)	212	0.54	1	258	0.66	2
A51 Stone Road (west) (ahead + right)	2	0	0	58	0.09	0
A51 Stone Road (west) (ahead)	238	-	-	231	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 Stone Road (east) (left)	143	-	-	152	-	-
A51 Stone Road (east) (ahead)	300	-	-	313	-	-

9.4.52 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A34 Stone Road/Winghouse Lane

9.4.53 Table 295 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 295: A34 Stone Road/Winghouse Lane junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
Winghouse Lane (left + right)	227	0.49	1	227	0.51	1
A34 Stone Road (south) (ahead)	796	-	-	881	-	-
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	-	-	962	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Winghouse Lane (left + right)	187	0.41	1	187	0.42	1
A34 Stone Road (south) (ahead)	1050	-	-	1107	-	-
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	-	-	1057	-	-

9.4.54 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A5182 Whitmore Road/A519 Newcastle Road

9.4.55 Table 296 summarises the results of the junction capacity assessments with the Proposed Scheme in 2023.

Table 296: A5182 Whitmore Road/A519 Newcastle Road junction 2023 future baseline and with the Proposed Scheme junction capacity assessment results

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
08:00 – 09:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A519 Newcastle Road (north)	625	101%	25	831	121%	93
B5038 Whitmore Road (east)	246	137%	43	246	144%	47
A519 Newcastle Road (south)	378	102%	20	509	135%	83
A5182 Whitmore Road (west)	315	85%	10	500	143%	93
HGV Depot Access	0	0%	0	0	0%	0
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A519 Newcastle Road (north)	811	102%	31	1073	163%	242
B5038 Whitmore Road (east)	180	111%	17	180	111%	17
A519 Newcastle Road (south)	413	108%	29	486	163%	112
A5182 Whitmore Road (west)	347	119%	41	678	159%	150
HGV Depot Access	0	0%	0	0	0%	0

9.4.56 The model shows that all arms (excluding the HGV depot access) are shown to operate above capacity in the future baseline AM and PM peaks, regardless of the Proposed Scheme. With the addition of the Proposed Scheme construction traffic, DoS and MMQ values increase across all arms.

9.4.57 It is acknowledged that the Proposed Scheme construction traffic will increase queuing and delay through this junction, although the junction is shown to already operate over capacity in the AM and PM peak in the future baseline.HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A34 Stone Road/B5038 Whitmore Road

9.4.58 Table 297 summarises the results the junction capacity assessments with the Proposed Scheme in 2023.

Table 297: A34 Stone Road/B5038 Whitmore Road junction 2023 future baseline and with the Proposed Scheme junction capacity assessment results

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
08:00 – 09:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A34 Stone Road (north) (left turn ahead) (at Allerton Road Junction)	488	47%	8	530	50%	8
A34 Stone Road (north) (ahead) (at Allerton Road Junction)	569	48%	9	612	51%	10
A34 Stone Road (north) (ahead) (at	452	41%	5	496	44%	5

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
Whitmore Road Junction)						
A34 Stone Road (north) (right turn ahead) (at Whitmore Road Junction)	647	52%	2	688	54%	2
B5038 Whitmore Road	486	79%	12	486	81%	13
A34 Stone Road (south) (left turn ahead)	938	81%	15	989	82%	15
A34 Stone Road (south) (ahead)	408	53%	7	442	56%	8
Allerton Road	212	40%	5	212	41%	5
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A34 Stone Road (north) (left turn ahead) (at Allerton Road Junction)	722	81%	17	766	86%	20
A34 Stone Road (north) (ahead) (at Allerton Road Junction)	834	82%	20	847	83%	21
A34 Stone Road (north) (ahead) (at Whitmore Road Junction)	587	62%	3	641	68%	4
A34 Stone Road (north) (right turn ahead) (at Whitmore Road Junction)	851	81%	3	854	81%	3
B5038 Whitmore Road	652	86%	17	652	86%	17
A34 Stone Road (south) (left turn ahead)	792	73%	10	1001	85%	14
A34 Stone Road (south) (ahead)	589	88%	17	447	65%	9
Allerton Road	100	15%	2	100	15%	2

9.4.59 The model shows that the junction is approaching capacity during the AM and PM 2023 baseline and with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A34 Stone Road/A500 Queensway

9.4.60 Table 298 summarises the results the junction capacity assessments with the Proposed Scheme in 2023.

Table 298: A34 Stone Road/A500 Queensway 2023 future baseline and with the Proposed Scheme junction capacity assessment results

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
08:00 – 09:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A500 Queensway (west) (off slip left turn ahead)	757	57%	6	770	72%	10
A500 Queensway (west) (off slip ahead)	438	40%	7	431	46%	8

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
A34 Stone Road (north) (left turn ahead)	735	97%	19	830	87%	20
A34 Stone Road (north) (ahead)	501	95%	19	466	71%	9
A500 Queensway (east) (off slip left turn)	285	111%	26	365	90%	13
A500 Queensway (east) (off slip ahead)	79	29%	2	165	38%	4
A34 Stone Road (south) (left turn ahead)	759	62%	12	465	48%	8
A34 Stone Road (south) (ahead)	1255	101%	53	1655	167%	391
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A500 Queensway (west) (off slip left turn ahead)	924	85%	13	702	67%	10
A500 Queensway (west) (off slip ahead)	302	33%	5	527	50%	9
A34 Stone Road (north) (left turn ahead)	686	60%	7	811	65%	5
A34 Stone Road (north) (ahead)	577	70%	9	479	57%	6
A500 Queensway (east) (off slip left turn)	191	47%	5	217	60%	6
A500 Queensway (east) (off slip ahead)	149	34%	3	157	40%	4
A34 Stone Road (south) (left turn ahead)	422	40%	6	463	41%	7
A34 Stone Road (south) (ahead)	931	86%	22	995	84%	21

9.4.61 The model results show that the A34 Stone Road (north), A500 Queensway (east) and A34 Stone Road (south) arms approach or exceeds capacity in the AM 2023 future baseline and with the addition of the Proposed Scheme construction traffic.

9.4.62 The A34 Stone Road (south) arm shows an increase in queue length of 53 to 391 PCUs with the addition of the Proposed Scheme construction traffic in the AM Peak, while other arms A500 Queensway (east) show a decrease in queue length. It is considered that there would be an opportunity to refine the signal timings further at this location in order to balance queues on each approach in conjunction with the highway authority.

9.4.63 The Proposed Scheme construction traffic will increase queuing and delay through this junction, although the junction is shown to already operate close to capacity in

the AM and PM peak in the future baseline. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

Yarnfield junction – temporary M6 access

9.4.64 Part of the enabling works for the provision of the railhead include a proposal to develop new slip roads, in both directions, to provide direct access from the Stone railhead construction compounds to the M6. Once the railhead is converted to the permanent IMB-R the northbound slip roads will be removed, with an emergency access point retained.

9.4.65 Table 299 summarises the results the junction capacity assessments for the temporary junction arrangement with the Proposed Scheme in 2023.

Table 299: Proposed temporary Yarnfield junction between M6 junction 14 and 15 2023 future baseline and with the Proposed 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 Proposed Scheme**		
South-bound off slip	-	-	-	134	70%	0
South-bound on slip	-	-	-	27	14%	0
NB off slip	-	-	-	25	20%	0
NB on slip	-	-	-	77	32%	0
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
South-bound off slip	-	-	-	104	60%	0
South-bound on slip	-	-	-	34	16%	0
NB off slip	-	-	-	25	20%	0
NB on slip	-	-	-	117	79%	2

9.4.66 The model results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

M6 junction 15

9.4.67 Table 300 summarises the results the junction capacity assessments with the Proposed Scheme in 2023.

Table 300: M6 junction 15 2023 future baseline and with the Proposed 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 Proposed Scheme**		
South-bound off slip	867	70%	5	932	71%	5
South-bound on slip	1478	62%	0	1555	66%	0
North-bound off slip	1599	70%	0	1645	72%	0
North-bound on slip	853	41%	0	927	44%	0
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
South-bound off slip	801	75%	5	871	77%	5

Approach	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
South-bound on slip	1340	65%	0	1417	67%	0
North-bound off slip	1432	63%	0	1376	61%	0
North-bound on slip	831	40%	0	809	39%	0

9.4.68 The model results show that the junction operates within capacity during the 2023 baseline AM and PM peaks, without any substantial increases in queuing or volume over capacity ratio in the future baseline. With the addition of the Proposed Scheme construction traffic the southbound off slip starts to approach capacity during the PM peak period, with a V/C increase from 75% to 77%.

Summary of highway impacts

9.4.69 The construction of the Proposed Scheme will result in substantial percentage increases in peak hour traffic flows (in relation to either total vehicles and/or HGVs) at the locations listed below. It should be noted that these are not the only locations where traffic is shown to increase. However these routes have been identified as having large percentage increases from the future baseline as a result of the Proposed Scheme.

9.4.70 The assessment shows substantial percentage increases in traffic at the following locations:

- A51 The Rowe between Common Lane and Dog Lane;
- A51 The Rowe between the A519 Newcastle Road and Common Lane;
- A51 Stone Road/Bury Bank between the A519 Newcastle Road and the A34 Stafford Road/The Fillybrooks;
- A519 Newcastle Road between the A51 Stone Road and the A500 Queensway;
- A5182 Trentham Road (between the A519 Newcastle Road and the A53 Whitmore Road);
- B5026 Eccleshall Road between the A34 Stafford Road/The Fillybrooks and Pirehill Lane;
- Dog Lane between the A51 The Rowe and the Proposed Scheme;
- Bent Lane between the A51 The Rowe and the Proposed Scheme;
- Tittensor Road between Stab Lane and the A51 Stone Road;
- Yarnfield Lane between the Proposed Scheme and the A34 The Fillybrooks;
- Pirehill Lane between the Proposed Scheme and the B5026 Eccleshall Road; and
- Bottom Lane between the A51 Stone Road and the A519 Newcastle Road.

9.4.71 The increase in traffic described 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, which are shown to operate over capacity in the future year with the addition of the Proposed Scheme:

- A34 Stone Road/A500 Queensway;
- A5182 Whitmore Road/Newcastle Road;
- A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange);
- A34 The Fillybrooks/A520 Stafford Road/A34 Stafford Road/B5026 Eccleshall Road; and
- A51 Stone Bypass/A34 Stone Road/Brooms Road.

9.4.72 In each of these locations the junctions are shown to operate over capacity in the future baseline, with substantial increases in queue lengths and either RFC/DoS reported as a result of the Proposed Scheme construction traffic.

9.4.73 It should be noted that these junctions are shown to operate either close to, or at capacity in the future baseline regardless of the Proposed Scheme and 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

9.4.74 The impacts on accident and safety will not be substantial. At one junction, the A500 Queensway/A519 Newcastle Road Roundabout, where there are existing highway safety issues, there will be an increase in traffic flows and congestion. However the overall change in traffic flow will not be sufficient to raise additional safety concerns. Although there will be increases in construction traffic on other links and junctions none have been identified in the baseline assessment as the location of a known safety concern.

Parking and loading

9.4.75 There are no expected impacts on parking and loading during construction of the Proposed Scheme in the Stone and Swynnerton area.

Public transport

Rail network

9.4.76 Construction of Filly Brook Viaduct will require possession of the Norton Bridge to Stone railway. In addition, construction of the Stone railhead will require possessions for commissioning of new crossovers and sidings on the Norton Bridge to Stone railway, the railhead connection and associated signalling and overhead line equipment. Works will typically be carried out in non-disruptive possessions[4] and where this is not possible, possessions and blockades will be agreed through close working with Network Rail to ensure that disruption is reduced.

[4] A non-disruptive possession is any possession of the operational railway which has no impact on the users of the railway. These possessions generally occur overnight, in existing maintenance or 'engineering access' periods which exist for the purposes of inspection, maintenance or renewal activities. i.e. a non-disruptive possession will allow passenger train services to operate as per their normal schedule.

9.4.77 Rail possessions in the Stone and Swynnerton area will be required over a four year period between 2020 and 2024. While the majority of possessions will be non-disruptive, there will be the need in this area for six longer, 54-hour weekend possessions. The number of weekend possessions required in the Stone and Swynnerton area are summarised in Table 301.

Table 301: Summary of likely possessions requirements in the Stone and Swynnerton area

	54-hour possessions
Possessions Summary	6

9.4.78 Rail users at Stone station will experience some limited disruption. However this is not expected to be substantial, since it is expected that Stone Station and the Macclesfield to Colwich Line will remain open, and the impact of the closures will be managed to ensure that any disruption is planned for weekend, off-peak and overnight possessions.

9.4.79 Rail possessions in adjacent areas could have the potential to disrupt travellers in the area. However, possessions in adjoining areas would be limited, where reasonably practicable, to non-disruptive possessions to reduce any impact on rail travellers. Rail replacement services would be provided as necessary when rail possessions were in place.

Local bus services

9.4.80 The only diversion required for construction which affects bus services in the Stone and Swynnerton area is on A519 Newcastle Road. This diversion will not affect buses in the construction phase, as they will be able to maintain their current route, turning to and from A51 Stone Road at the existing Roundabout before the diversion. It is not expected that any lane or overnight closures required to tie-in to the new scheme will be timed such as to affect the bus routes that run through this location. On completion of temporary works, the A519 Newcastle Road/A51 Stone Road diversion will operate as for the assessment of the operation below.

9.4.81 It is not expected that the temporary diversions required on B5016 Eccleshall Road or Yarnfield Lane will affect bus services, as they are expected to take place primarily in the evenings and weekends, when bus services on these routes largely do not operate.

Public transport interchanges

9.4.82 There are no substantial public transport interchanges in the Stone and Swynnerton area and therefore no construction activity impacts on public transport interchange facilities in the Stone and Swynnerton area.

Pedestrians, cyclists and equestrians

9.4.83 Compared to the existing baseline, the works required to construct the Proposed Scheme will affect routes used by pedestrians, cyclists and equestrians on both highways and PRoWs, primarily where the scheme construction results in changes to the affected routes.

9.4.84 Pedestrians and other non-motorised users may also be affected by changes in traffic levels due, particularly, to HS2 construction traffic. Roads with substantial changes in traffic levels are listed above.

9.4.85 Locations where routes used by pedestrians, cyclists and equestrians are temporarily diverted, realigned or closed are shown in Table 302, which summarises the temporary diversions, realignments and extensions to PRoW required to accommodate the construction of the Proposed Scheme.

9.4.86 The A519 Newcastle Road will be diverted temporarily off-line, some 50m north of the existing alignment over a distance of around 500m for a period of one year. However, the overall increase in distance travelled will be less than 100m, and hence this diversion is not expected to have any substantial impact on traffic, pedestrians, cyclists or equestrians.

Table 302: CA3 construction changes on public rights of way for non-motorised users

PRoW name	Change in distance	Duration
Stone Rural Bridleway 0.1135	Temporary diversion is same distance as permanent	18 months
Stone Rural Footpath 28	Temporary diversion is 250m longer.	18 months
Stone Rural Footpath 33	Temporary diversion is 900m longer.	36 months
Swynnerton Footpath 10	Temporary diversion is 50m longer.	18 months
Swynnerton Footpath 15	Temporary diversion is 1.2km longer	36 months
Swynnerton Footpath 17	Temporary diversion is 200m longer	18 months
Swynnerton Footpath 27	Temporary diversion is 90m longer.	18 months
Swynnerton Footpath 52	Temporary diversion is 30m longer.	18 months
Swynnerton Bridleway 54	Temporary diversion is 200m longer than permanent extension.	18 months

9.4.87 Within these ten temporary diversions, half of the routes affected experience either minimal changes in length (i.e. less than 100m in three cases), or result in diversions which increase route length only by less than 250m (such as on Stone Rural Footpath 28 and Swynnerton Bridleway 54.

9.4.88 Other routes do experience larger changes in length of diversion, including up to 1.2km on Swynnerton Bridleway 54; and up to 900m in the case of Stone Rural Footpath 33, which is diverted around a large area of construction activity where the railhead/IMB-R is to be constructed.

Waterways and canals

9.4.89 No diversions or closures of navigable waterways or canals are required during construction and consequently there are no construction impacts on navigable waterways in the in the Stone and Swynnerton area.

9.5 CA3 Proposed Scheme operation description

9.5.1 This section provides an overview of the impacts resulting from the operation of the Proposed Scheme. These impacts are related to the IMB-R, as well as road closures and the permanent diversion and realignment of roads and PRoW in the Stone and Swynnerton area.

9.5.2 Maintenance of the Proposed Scheme will generate a limited number of vehicular trips associated with servicing and maintenance and there will be some minor local reassignment of traffic due to road diversions but these impacts will not be substantial.

Transport demand generated by Proposed Scheme

9.5.3 The only substantial changes in vehicular demand in CA3 will occur as a result of the proposed IMB-R near Stone.

9.5.4 The assumptions and estimates for trip generation and distribution at the IMB-R site are set out in Table 303 and Table 304. This trip generation is assumed to be the same in both 2027 and 2041. The methodology uses a first principles approach to estimating the likely traffic demand using anticipated staff numbers, shift patterns and anticipated delivery/service vehicle movements.

Table 303: Stone IMB-R trip generation assumptions

Item	Assumption
Staff numbers	100 staff based at the site
Shift patterns	Shift 1: 09:00-17:00 (25 office based operatives) Shift 2: 07:00 – 15:00 (25 site based operatives) Shift 3: 15:00 – 23:00 (25 site based operatives) Shift 4: 23:00 – 07:00 (25 site based operatives)
Impact on network	All workers arrive in the hour before their shift commences and depart in the hour after their shift finishes.
Access modes	All staff are assumed to arrive/depart the site in private vehicles and single vehicle occupancy
Distribution and assignment	Staff trips have been assigned to the network based on a distribution that utilises Journey to Work Census Data (2011). This is consistent with the approach developed for employee trips accessing construction compounds.
Visitors	Visitors are assumed to represent 50% of day time office staff trips and arrive/depart throughout the day. Ten percent of trips are assumed to arrive in the AM and PM Peak hours (assumed to represent 2 vehicles arriving and departing in each peak hour)
Deliveries	It is assumed that the IMB-R will generate 5 HGV movements and 10 LGV movements per day, with 10% occurring in peak hours (assumed to represent one vehicle of each class (HGV/LGV) arriving and departing in each peak hour
Parking	100 car parking spaces are to be assumed for staff vehicles and road based plant

Table 304: Stone IMB-R trip generation summary

Time Period	Staff Trips (Cars)		Visitor Trips (Cars)		Deliveries (HGV)		Deliveries (LGV)	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
AM peak (08:00 – 09:00)	25	0	2	2	1	1	1	1
PM Peak (17:00 – 18:00)	0	25	2	2	1	1	1	1
Daily (weekday)	100	100	13	13	5	5	1	1

9.5.5 The IMB-R will employ approximately 100 staff who will work in three shifts during each 24-hour period with shift changeover times generally outside of the peak hours. The maximum number of staff on site is likely to be during the night shift at the start and end of the maintenance periods (00:00 to 04:59/07:59 Sunday only) when approximately 30 to 50 people may be at the Stone IMB-R at any time. Access to the Stone IMB-R is via the strategic network using the southbound slip road from the M6 that are constructed to access the Stone railhead. Local worker access is via Yarnfield Lane. As the main arrivals and departures will be outside of the peak periods, it can be concluded that the Stone IMB-R does not generate a substantial amount of traffic in the peak periods or across the day.

9.5.6 Although traffic generation from the Stone IMB-R is modest, it is proposed that a workforce travel plan will be developed for its operation. This will help to mitigate any operational impacts of traffic and transport movements, including measures to reduce single occupancy car journeys and encourage use of sustainable modes of transport. The impact of the travel plan on reducing traffic has not been taken into account in this assessment, which means that impacts may be over-stated. A servicing and delivery strategy for the Stone IMB-R will also be implemented, which will include movement of materials by rail to reduce movement by road.

9.6 CA3 Proposed Scheme assessment of operation impacts

Key operation transport issues

9.6.1 The main operational impacts relate to the diversion of roads and relocation of junctions in order to accommodate the Proposed Scheme. The Stone IMB-R does not generate substantial levels of traffic on the network, although these trips are considered in the future year forecasts with the Proposed Scheme.

9.6.2 Table 305 and summarise the key infrastructure changes to the transport network, with the traffic generation of the Stone IMB-R considered in Table 304.

Highway network

Highway diversions, realignments and closures

9.6.3 Table 305 summarises the permanent road diversions, realignments and extensions required to accommodate the Proposed Scheme.

Table 305: CA3 permanent highway diversion/stopping-up

Highway name	Description	Change in length
B5026 Eccleshall Road	Realignment approximately 25m north-west of the existing alignment via the B5026 Eccleshall Road overbridge	Realignment results in a minimal change in travel distance
Yarnfield Lane	Realigned approximately 25 north-west of existing via new Yarnfield Lane overbridge (over M6), Yarnfield Lane IMB-R underbridge (under IMB-R reception tracks) and Yarnfield Lane underbridge (under HS2 main line).	Realignment results in a minimal change in travel distance
M6 Motorway (south-bound)	Horizontal Realignment of M6 lanes (southbound) as a result of the M6 viaduct	No change
Tittensor Road	Diverted approximately 375m north-west of existing alignment via Tittensor Road overbridge	Diverted route is approximately 400m longer
A51 Stone Road	Diversion of 1.6km in length to join A519 Newcastle Road approximately 400m north-west of the existing location, forming a new Roundabout junction with the A519 Newcastle Road	Diverted route is approximately 300m longer
Stab Lane	Closure of approximately 175m of the northern end of Stab Lane	Diverted route is approximately 250m longer
A51 Stone Road Closure	Closure of approximately 900m east of the A51 Stone Road/A519 Newcastle Road Roundabout. A51 Stone Road to be stopped up approximately 250m east of the A51 Stone Road/A519 Newcastle Road Roundabout.	Diverted route is approximately 300m longer
A519 Newcastle Road	Realignment of the A519 Newcastle Road on existing route via A519 Newcastle Road overbridge	Realignment results in a minimal change in travel distance
Bottom Lane	Closure of approximately 275m of the southern end of Bottom Lane	Diverted route is approximately 150m longer
Dog Lane	Realignment of Dog Lane to approximately 125m north-west of existing alignment via Dog Lane overbridge	Diverted route is approximately 150m longer
Bent Lane (north)	Diversion of Bent Lane (north) adjacent to the northern side of the route, from a connection off Dog Lane continuing into CA4	Diverted route is approximately 50m longer
Bent Lane (south)	Realignment of Bent Lane (south) to remain adjacent to the southern side of the route, continuing into CA4 where this will be stopped up	Diverted route is approximately 570m shorter

PRoW diversions, realignments and closures

9.6.4 Table 306 summarises the permanent PRoW diversions and realignments required to accommodate the Proposed Scheme.

Table 306: CA3 permanent PRoW diversions

PRoW name	Description	Change in length
Stone Rural Bridleway 0.1135	Minor diversion to new overbridge and via new access road	Diversion is 150m longer
Stone Rural Footpath 28	Minor diversion on to new overbridge	Diversion is 250m longer
Stone Rural Footpath 32	Major diversion between M6 underpass and around Walton Heath Farm via new overbridge and on farm access road	Diversion is 550m longer
Stone Rural Footpath 33	Major diversion around new IMB-R facility, between M6 underpass and north of Yarnfield Lane	Diversion is 700m longer
Swynnerton Footpath 10	Minor diversion to new underbridge and upgrade to access road along full length of FP, with further minor diversion around balancing pond	Diversion to underbridge and diversion round new pond result in minimal change in travel distance
Swynnerton Footpath 15	Minor diversion to new overbridge	Diversion results in minimal change in travel distance
Swynnerton Footpath 17	Minor diversion to new underbridge, shared with Footpath 27	Diversion is 200m longer
Swynnerton Bridleway 24	Route extended to meet new Tittensor Road diversion, using part of the closed Tittensor Road route and via a new underbridge and access roads	Route is extended by 850m; diversion is 800m longer
Swynnerton Footpath 27	Minor diversion to new underbridge, shared with Footpath 17	Diversion is 100m longer
Swynnerton Footpath 52	Minor diversion to new underbridge, and upgrade of Common Lane to access road along full length of Footpath	Diversion results in minimal change in travel distance
Swynnerton Bridleway 54	Truncated short to new A51 alignment. New length of Bridleway to be provided on north east side of A51 to new Tittensor Road alignment and to link back to Bridleway 24	Diversion results in minimal change in travel distance

Strategic and local road network traffic flows 2027

9.6.5 Traffic flows on road links in CA3 are primarily unchanged from the future baseline or result in very minor increases due to maintenance traffic, the IMB-R or reassignment as a result of the realignments and closures.

9.6.6 Table 307 and Table 308 set out the 2027 traffic flows on highway links affected by the realignments, closures proposed, alongside the Stone IMB-R where the increase in traffic is substantial.

9.6.7 To assess the impact of the Proposed Scheme in these locations, traffic flows on affected links are presented with 2027 future baseline and 2027 future baseline with the Proposed Scheme, alongside the percentage increase from the future baseline.

Table 307: 2027 future baseline and with the Proposed Scheme traffic (vehicles) - AM peak hour (08:00 – 09:00)

Location	Direction	2027 baseline		2027 with Proposed Scheme		With HS2 % change from 2027 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Yarnfield Lane (between The Fillybrooks and the Proposed Scheme)	EB	263	5	264	5	1%	7%
	WB	226	8	236	9	4%	4%
Yarnfield Lane (between the Proposed Scheme and Yarnfield Lane/north-bound)	EB	258	7	259	7	1%	5%
	WB	238	8	248	8	4%	4%
A51 Stone Road (between the Proposed Scheme and Tittensor Road)	EB	310	14	389	21	26%	47%
	WB	245	13	296	13	21%	4%
A519 Newcastle Road (between Stone Road and the Proposed Scheme)	NB	239	21	515	33	115%	60%
	SB	202	25	435	52	116%	105%
Dog Lane (between The Rowe and the Proposed Scheme)	NB	19	1	142	1	654%	0%
	SB	7	0	30	0	357%	50%
Stab Lane (between Tittensor Road and the Proposed Scheme)	NB	81	4	0	0	-100%	-100%
	SB	69	5	0	0	-100%	-100%
Bottom Lane (between Stone Road and Newcastle Road)	EB	54	4	0	0	-100%	-100%
	WB	86	2	0	0	-100%	-100%
A51 Stone Road (Baseline - between the Proposed Scheme and Newcastle Road, with HS2, Realigned north of the Proposed Scheme)	EB	312	13	396	16	27%	27%
	WB	223	13	257	13	15%	4%

Table 308: 2027 future baseline and with the Proposed Scheme traffic (vehicles) - PM peak hour (17:00 – 18:00)

Location	Direction	2027 baseline		2027 with Proposed Scheme		With HS2 % change from 2027 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Yarnfield Lane (between The Fillybrooks and the Proposed Scheme)	EB	176	3	186	3	6%	12%
	WB	232	3	234	3	1%	12%
Yarnfield Lane (between the Proposed Scheme and Yarnfield Lane/north-bound)	EB	173	3	183	4	6%	10%
	WB	243	3	244	4	1%	10%
A51 Stone Road (between the Proposed Scheme and Tittensor Road)	EB	234	11	291	11	24%	1%
	WB	262	4	387	5	48%	26%
A519 Newcastle Road (between Stone Road and the Proposed Scheme)	NB	217	8	436	11	101%	39%
	SB	248	10	541	12	118%	25%
Dog Lane (between The Rowe and the Proposed Scheme)	NB	13	0	38	0	200%	0%
	SB	13	0	98	0	678%	N/A
Stab Lane (between Tittensor Road and the Proposed Scheme)	NB	51	1	0	0	-100%	-100%
	SB	110	4	0	0	-100%	-100%

Location	Direction	2027 baseline		2027 with Proposed Scheme		With HS2 % change from 2027 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Bottom Lane (between Stone Road and Newcastle Road)	EB	99	1	0	0	-100%	-100%
	WB	56	0	0	0	-100%	-100%
A51 Stone Road (Baseline - between the Proposed Scheme and Newcastle Road, with HS2, Realigned north of Proposed Scheme)	EB	228	10	295	10	29%	1%
	WB	247	5	342	6	39%	26%

9.6.8 The assessment of traffic flows shows that in 2027, there are increases in traffic flow on Yarnfield Lane as a result of the proposed IMB-R and increases on the A51 Stone Road/A519 Newcastle Road as a result of the proposed diversion and realignment. As part of this diversion, traffic flows will be reduced on Bottom Lane and Stab Lane as they are closed and permanently stopped-up. An increase in traffic flow is also reported at Dog Lane as a result of the Bent Lane (north) diversion.

9.6.9 The diversions described above result in changes to traffic flows and/or re-location of the following junctions, which are considered further in terms of capacity assessments.

- A51 Stone Road/Tittensor Road - re-located junction following realignment of Tittensor Road and re-assigned traffic flows following Stab Lane closure;
- A51 Stone Road/A519 Newcastle Road - existing roundabout and new junction following Realignment;
- A51 The Rowe/Bent Lane – Bent Lane (south) closed and flows re-assigned; and
- Dog Lane/Bent Lane – New junction formed following Bent Lane diversion.

9.6.10 The new Yarnfield junction has been assessed for likely traffic demands, which indicates that the IMB-R generates a small number of movements to/from the M6 in peak periods and therefore a capacity assessment has not been undertaken for the junction as there is unlikely to be a substantial impact on the M6.

Junction performance 2027

A51 Stone Road/Tittensor Road (new junction)

9.6.11 Tittensor Road will be diverted to the north of its existing alignment and will form a new junction onto the A51 Stone Road. Existing traffic using Stab Lane will be re-assigned onto Tittensor Road. The junction will be upgraded to provide additional capacity to the right turn flare at Tittensor Road.

9.6.12 Table 309 sets out the capacity assessment results of the proposed junction layout with the addition of the Proposed Scheme.

Table 309: A51 Stone Road/Tittensor Road new junction 2027 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme (proposed location)**		
Tittensor Road (left)	-	-	-	58	0.13	0
Tittensor Road (right)	-	-	-	137	0.40	1
A51 Stone Road (west) (diverted) (ahead + right)	-	-	-	160	0.25	1
A51 Stone Road (west) (diverted) (ahead)	-	-	-	240	-	-
A51 Stone Road (east) (left)	-	-	-	180	-	-
A51 Stone Road (east) (ahead)	-	-	-	308	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Tittensor Road (left)	-	-	-	156	0.41	1
Tittensor Road (right)	-	-	-	213	0.62	2
A51 Stone Road (west) (diverted) (ahead + right)	-	-	-	101	0.16	0
A51 Stone Road (west) (diverted) (ahead)	-	-	-	210	-	-
A51 Stone Road (east) (left)	-	-	-	152	-	-
A51 Stone Road (east) (ahead)	-	-	-	311	-	-

9.6.13 The proposed junction layout operates within capacity with the addition of the Proposed Scheme.

A51 Stone Road/A519 Newcastle Road (existing junction)

9.6.14 As a result of the A51 Stone Road diversion, the A51 Stone Road (east) arm will be closed and diverted traffic travelling to/from the east will use the northern arm of the A519 Newcastle Road to continue their journeys to/from the south and west. Table 310 summarises the results of the junction capacity assessments with the Proposed Scheme. The '2027 future baseline' results include the junction with its existing layout, the 2027 Proposed Scheme results include the junction with the A51 Stone Road (east) arm closed.

Table 310: A51 Stone Road/A519 Newcastle Road existing junction 2027 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
A519 Newcastle Road (north)	252	0.22	0	528	0.40	1
A51 Stone Road (east)	309	0.24	0	0	0.00	0
A 519 Newcastle Road (south)	319	0.20	0	320	0.20	0
A51 Stone Road (west)	283	0.22	0	283	0.22	0
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
A519 Newcastle Road (north)	271	0.22	0	582	0.43	1
A51 Stone Road (east)	336	0.26	0	0	0.00	0
A 519 Newcastle Road (south)	269	0.17	0	268	0.17	0
A51 Stone Road (west)	226	0.17	0	226	0.17	0

9.6.15 The junction performance with the Proposed Scheme is comparable to that for the existing junction in the future baseline, with the junction shown to operate within capacity.

A51 Stone Road/A519 Newcastle Road (new junction)

9.6.16 As a result of the A51 Stone Road diversion, a new junction will be provided between the A51 and A519 Newcastle Road, approximately 400m north of the existing A51/A519 roundabout junction. The proposed junction will take the form of a three arm priority-controlled Roundabout, with comparable geometry to the existing A51/A519 roundabout junction. Table 311 summarises the results of the junction capacity assessments with the Proposed Scheme.

Table 311: A51 Stone Road/A519 Newcastle Road new junction 2027 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
A519 Newcastle Road (north)	-	-	-	316	0.27	0
A51 Stone Road (east)	-	-	-	353	0.27	0
A519 Newcastle Road (south)	-	-	-	542	0.32	1
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
A519 Newcastle Road (north)	-	-	-	337	0.28	0
A51 Stone Road (east)	-	-	-	457	0.35	1
A519 Newcastle Road (south)	-	-	-	430	0.26	0

9.6.17 The proposed junction operates within capacity in 2027 with the Proposed Scheme.

A51 The Rowe/Dog Lane/Bent Lane

9.6.18 Bent Lane will be closed to the north of the existing A51 The Rowe/Bent Lane junction as a result of the Proposed Scheme. The junction layout will remain unchanged. Table 312 summarises the results of the junction capacity assessments with the Proposed Scheme.

9.6.19 The '2027 future baseline' results include the junction in its existing location and Bent Lane open. The 2027 Proposed Scheme results include the junction in its new location with Bent Lane traffic assigned to Dog Lane.

9.6.20 In order to replicate existing conditions, it is necessary to model the junction as a linked priority junction in the Junctions 9 model. The junction has been modelled using the lane simulation mode and on this basis only queue length results values are available.

Table 312: A51 The Rowe/Dog Lane/Bent Lane junction 2027 baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Dog Lane	11	-	0	40	-	0
A51 The Rowe (west)	286	-	0	288	-	1
A51 The Rowe (south)	248	-	0	244	-	0
Bent Lane	32	-	0	0	-	0
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Dog Lane	9	-	0	82	-	8
A51 The Rowe (west)	301	-	0	296	-	1
A51 The Rowe (south)	195	-	0	191	-	0
Bent Lane	74	-	0	0	-	0

9.6.21 The proposed junction layout operates within capacity in 2027 with the Proposed Scheme.

Dog Lane/Bent Lane

9.6.22 A new junction is to be formed with the Realigned Bent Lane and Dog Lane. The junction will take the form of a priority controlled T-junction with no controlled pedestrian crossing facilities. Table 313 summarises the results of the junction capacity assessments with the Proposed Scheme.

Table 313: Dog Lane/Bent Lane junction 2027 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Dog Lane (west) (left)	-	-	-	7	0.01	0
Dog Lane (west) (right)	-	-	-	3	0.01	0
Dog Lane (east) (ahead + right)	-	-	-	19	0.03	0
Dog Lane (east) (ahead)	-	-	-	96	-	-
Bent Lane (left)	-	-	-	0	-	-
Bent Lane (ahead)	-	-	-	34	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Dog Lane (west) (left)	-	-	-	10	0.02	0
Dog Lane (west) (right)	-	-	-	0	0.00	0
Dog Lane (east) (ahead + right)	-	-	-	15	0.03	0
Dog Lane (east) (ahead)	-	-	-	29	-	-
Bent Lane (left)	-	-	-	2	-	-
Bent Lane (ahead)	-	-	-	71	-	-

9.6.23 The proposed junction layout operates within capacity in 2027 with the Proposed Scheme.

Yarnfield Junction – M6 Access

9.6.24 As described earlier in this report, once the IMB-R is operational, access will be available from the M6 via southbound on and off slip roads. Whilst the majority of vehicular movements will take place outside of peak periods, there are forecast to be a small number of trips arriving and departing during the peak hours. These are quantified in Table 314.

Table 314: The proposed Yarnfield Junction between M6 junction 14 and 15 2027 baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	Flow, PCU/hr
08:00 – 09:00	**2027 future baseline**	**2027 with the Proposed Scheme**
South-bound off slip	-	2
South-bound on slip	-	20
17:00 – 18:00	**2027 future baseline**	**2027 with the Proposed Scheme**
South-bound off slip	-	18
South-bound on slip	-	2

9.6.25 The IMB-R is forecast to generate a small number of movements to/from the M6 in peak periods. This is unlikely to result in any substantial impacts to the operation of the M6 in this location.

Strategic and local road network traffic flows 2041

9.6.26 Table 315 and Table 316 set out the 2041 traffic flows on highway links affected by the realignments, closures proposed, alongside the Stone IMB-R where the increase in traffic is greatest. Traffic flows on all other links are either unaffected from the future baseline or result in very minor increases due to maintenance traffic, IMB-R or re-assignment as a result of the realignments/closures.

9.6.27 To assess the impact of the Proposed Scheme in these locations, traffic flows on affected links are presented with 2027 future baseline and 2027 future baseline with the Proposed Scheme, alongside the percentage increase from the future baseline.

Table 315: 2041 future baseline and with the Proposed Scheme traffic (vehicles) - AM peak hour (08:00 – 09:00)

Location	Direction	2041 baseline		2041 with HS2		With HS2 % change from 2041 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Yarnfield Lane (between The Fillybrooks and the Proposed Scheme)	EB	287	5	288	6	0%	7%
	WB	247	9	257	9	4%	4%
Yarnfield Lane (between the Proposed Scheme and Yarnfield Lane/north-bound)	EB	282	8	283	8	0%	5%
	WB	260	9	270	9	4%	4%
A51 Stone Road (between the Proposed Scheme and Tittensor Road)	EB	338	15	425	23	26%	47%
	WB	267	14	323	14	21%	4%
A519 Newcastle Road (between Stone Road and the Proposed Scheme)	NB	261	23	563	36	115%	60%
	SB	221	28	476	57	116%	105%
Dog Lane (between The Rowe and the Proposed Scheme)	NB	21	1	156	1	654%	0%
	SB	7	0	33	0	357%	50%
Stab Lane (between Tittensor Road and the Proposed Scheme)	NB	89	4	0	0	-100%	-100%
	SB	76	5	0	0	-100%	-100%
Bottom Lane (between Stone Road and Newcastle Road)	EB	59	4	0	0	-100%	-100%
	WB	94	3	0	0	-100%	-100%
A51 Stone Road (Baseline - between the Proposed Scheme and Newcastle Road, with HS2, Realigned north of Proposed Scheme)	EB	341	14	433	18	27%	27%
	WB	244	14	281	14	15%	4%

Table 316: 2041 future baseline and with the Proposed Scheme traffic (vehicles) - PM peak hour (17:00 – 18:00)

Location	Direction	2041 baseline		2041 with HS2		With HS2 % change from 2041 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Yarnfield Lane (between The Fillybrooks and the Proposed Scheme)	EB	194	3	205	4	5%	11%
	WB	257	3	259	4	1%	10%
Yarnfield Lane (between the Proposed Scheme and Yarnfield Lane/north-bound)	EB	191	4	201	4	5%	9%
	WB	269	4	270	4	1%	9%
A51 Stone Road (between the Proposed Scheme and Tittensor Road)	EB	259	12	322	12	24%	1%
	WB	290	5	428	6	48%	26%
A519 Newcastle Road (between Stone Road and the Proposed Scheme)	NB	241	9	483	13	101%	39%
	SB	274	11	598	13	118%	25%
Dog Lane (between The Rowe and the Proposed Scheme)	NB	14	0	42	0	200%	0%
	SB	14	0	108	0	678%	N/A
Stab Lane (between Tittensor Road and the Proposed Scheme)	NB	57	1	0	0	-100%	-100%
	SB	122	4	0	0	-100%	-100%
Bottom Lane (between Stone Road and Newcastle Road)	EB	110	1	0	0	-100%	-100%
	WB	62	0	0	0	-100%	-100%
A51 Stone Road (Baseline - between the Proposed Scheme and Newcastle Road, with HS2, Realigned north of the Proposed Scheme)	EB	252	11	326	12	29%	1%
	WB	273	5	378	6	39%	26%

9.6.28 These results are similar to those for 2027 with the only change being further growth in background traffic.

Junction performance 2041

A51 Stone Road/Tittensor Road (new junction)

9.6.29 Table 317 sets out the capacity assessment results of the proposed junction layout with the addition of the Proposed Scheme at 2041.

Table 317: A51 Stone Road/Tittensor Road junction 2041 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme (proposed location)**		
Tittensor Road (left)	-	-	-	58	0.13	0
Tittensor Road (right)	-	-	-	137	0.40	1
A51 Stone Road (west) (diverted) (ahead + right)	-	-	-	160	0.25	1
A51 Stone Road (west) (diverted) (ahead)	-	-	-	240	-	-
A51 Stone Road (east) (left)	-	-	-	180	-	-
A51 Stone Road (east) (ahead)	-	-	-	308	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme (proposed location)**		
Tittensor Road (left)	-	-	-	156	0.41	1
Tittensor Road (right)	-	-	-	213	0.62	2
A51 Stone Road (west) (diverted) (ahead + right)	-	-	-	101	0.16	0
A51 Stone Road (west) (diverted) (ahead)	-	-	-	210	-	-
A51 Stone Road (east) (left)	-	-	-	152	-	-
A51 Stone Road (east) (ahead)	-	-	-	311	-	-

9.6.30 The proposed junction layout operates within capacity with the addition of the Proposed Scheme.

A51 Stone Road/A519 Newcastle Road (existing junction)

9.6.31 Table 318 summarises the results of the changes to the junction as a result of the Proposed Scheme at 2041.

9.6.32 The 2041 future baseline results include the junction with its existing layout, the 2041 Proposed Scheme results including the junction with the A51 Stone Road (east) arm closed.

Table 318: A51 Stone Road/A519 Newcastle Road existing junction 2041 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
A519 Newcastle Road (north)	275	0.24	0	528	0.40	1
A51 Stone Road (east)	337	0.26	0	0	0.00	0
A 519 Newcastle Road (south)	348	0.22	0	320	0.20	0
A51 Stone Road (west)	309	0.25	0	283	0.22	0
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
A519 Newcastle Road (north)	296	0.25	0	582	0.43	1
A51 Stone Road (east)	366	0.29	0	0	0.00	0
A 519 Newcastle Road (south)	293	0.19	0	268	0.17	0
A51 Stone Road (west)	246	0.19	0	226	0.17	0

9.6.33 The junction performance with the Proposed Scheme is comparable to that for the existing junction in the future baseline, with the junction shown to operate within capacity.

A51 Stone Road/A519 Newcastle Road (new junction)

9.6.34 Table 319 summarises the results of the performance of the proposed junction with the addition of the Proposed Scheme at 2041.

Table 319: A51 Stone Road/A519 Newcastle Road (new junction) with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
A519 Newcastle Road (north)	-	-	-	316	0.27	0
A51 Stone Road (east)	-	-	-	353	0.27	0
A519 Newcastle Road (south)	-	-	-	542	0.32	1
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
A519 Newcastle Road (north)	-	-	-	337	0.28	0
A51 Stone Road (east)	-	-	-	457	0.35	1
A519 Newcastle Road (south)	-	-	-	430	0.26	0

9.6.35 The junction operates within capacity in 2041 with the Proposed Scheme.

A51 The Rowe/Dog Lane/Bent Lane

9.6.36 Table 320 summarises the results the junction capacity assessments with the Proposed Scheme in 2041.

9.6.37 The 2041 future baseline results include the junction in its existing location and with Bent Lane open. The 2041 with the Proposed Scheme results include the junction in its new location with Bent Lane traffic assigned to Dog Lane.

9.6.38 In order to replicate existing conditions, it is necessary to model the junction as a linked priority junction in the Junctions 9 model. The junction has been modelled using the lane simulation mode and on this basis only queue length results values are available.

Table 320: A51 The Rowe/Dog Lane/Bent Lane junction 2041 future baseline and with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Dog Lane	12	-	0	40	-	0
A51 The Rowe (west)	315	-	0	288	-	1
A51 The Rowe (south)	272	-	0	244	-	0
Bent Lane	36	-	0	0	-	0
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Dog Lane	11	-	0	82	-	8
A51 The Rowe (west)	332	-	0	296	-	1
A51 The Rowe (south)	210	-	0	191	-	0
Bent Lane	81	-	0	0	-	0

9.6.39 The proposed junction layout operates within capacity in 2041 with the Proposed Scheme.

Dog Lane/Bent Lane

9.6.40 Table 321 summarises the results the junction capacity assessments with the Proposed Scheme in 2041.

Table 321: Dog Lane/Bent Lane junction with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Dog Lane (west) (left)	-	-	-	7	0.01	0
Dog Lane (west) (right)	-	-	-	3	0.01	0
Dog Lane (east) (ahead + right)	-	-	-	19	0.03	0
Dog Lane (east) (ahead)	-	-	-	96	-	-
Bent Lane (left)	-	-	-	0	-	-
Bent Lane (ahead)	-	-	-	34	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Dog Lane (west) (left)	-	-	-	10	0.02	0

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
Dog Lane (west) (right)	-	-	-	0	0.00	0
Dog Lane (east) (ahead + right)	-	-	-	15	0.03	0
Dog Lane (east) (ahead)	-	-	-	29	-	-
Bent Lane (left)	-	-	-	2	-	-
Bent Lane (ahead)	-	-	-	71	-	-

9.6.41 The proposed junction layout operates within capacity in 2041 with the Proposed Scheme.

Yarnfield Junction –M6 Access

9.6.42 The forecast operational trips at the IMB-R at 2041 are the same as those described at 2027. The IMB-R is forecast to generate a small number of movements to/from the M6 in peak periods and is unlikely to result in any substantial impacts to the operation of the M6 in this location at 2041.

Accidents and safety

9.6.43 There are no locations in the Stone and Swynnerton area where there are substantial forecast increases in traffic flows due to the operation of the Proposed Scheme. New highway links and junctions will be constructed to current standards and or in keeping with the existing infrastructure. Therefore, the Proposed Scheme is unlikely to create any new safety concerns.

Parking and loading

9.6.44 It is not expected that the Proposed Scheme will have any substantial impacts on car parking or parking restrictions in the Stone and Swynnerton area, in terms of either the 2027 or 2041 operation assessments.

Public transport

Rail network

9.6.45 The IMB-R, used to maintain the Proposed Scheme, will not have an impact on rail users during operation as maintenance will be undertaken when rail services are not operating.

9.6.46 There are no local changes to the rail network or operations in this CA as a result of the Proposed Scheme. The wider impacts of HS2 services in considered in chapter 12, Route-wide and Off-route assessment.

Local bus services

9.6.47 Local bus routes will be affected where the road corridors used cross the Proposed Scheme, and where the Proposed Scheme results in the changes in the route taken.

9.6.48 Of the five corridors in the existing baseline (further details in Annex B Tables B10 to B14), services operating along three corridors are affected by the Proposed Scheme:

- the B5026 Eccleshall Road - served by one bus service (number 13), which provides connections to Stafford, Norton Bridge and Stone;
- Yarnfield Lane - served by three bus services (numbers 12, 13A and 14/14A/14B), which provide connections to Stafford, Stone, Barlaston, Longton, Norton Bridge, Eccleshall and Hanley; and
- A519 Newcastle Road/ A51 Stone Road – served by two bus services (numbers 13A and 15), which provide connections to Stone, Stafford, Newport, Eccleshall and Norton Bridge.

9.6.49 Table 322 below sets out the routes affected, their frequency and impact in relation to travel distance and journey time. However, the impacts are very small, at less than one minute of extra travel time on the three routes affected, which operate few trips within peak periods.

Table 322: CA3 Public transport journey change assessment summary

Bus service	Service frequency (both directions)					Travel distance/time Change for bus journeys	
	AM peak 0800-0900	PM Peak 1700-1800	Daily	Saturday	Sunday	Diversion length (m)	Journey time (seconds)
12	0	1	2	0	0	>50m	0
13	0	0	9	9	0	>50m	0
13A	0	0	3	3	0	>300m	30
14/A/B	2	1	24	21	0	>50m	0
15	1	0	2	0	0	>300m	30

Public transport interchanges

9.6.50 There are no substantial public transport interchange facilities in the Stone and Swynnerton area and no committed proposals for public transport interchange facilities in this area in terms of either the 2027 or 2041 operation assessments.

Pedestrians, cyclists and equestrians

9.6.51 Compared to the existing baseline, the operational scheme will affect PRoW used by pedestrians, cyclists and equestrians that cross the route of the Proposed Scheme and where the operation of the Proposed Scheme results in changes to affected PRoW routes.

9.6.52 Locations where routes used by pedestrians, cyclists and equestrians are diverted, realigned or reinstated are shown in Table 323 and Table 324, which summarise the permanent diversions, realignments and extensions required to PRoW and roads to accommodate the Proposed Scheme.

Table 323: CA3 permanent changes to public rights of way for non-motorised users

PRoW name	Change in length	New over-or under bridge
Stone Rural Bridleway 0.1135	Diversion is 150m longer	Stone Rural Bridleway 0.1135 accommodation overbridge
Stone Rural Footpath 28	Diversion is 250m longer	Stone Rural Footpath 28 accommodation overbridge
Stone Rural Footpath 32	Diversion is 550m longer	Stone Rural Footpath 32 accommodation overbridge
Stone Rural Footpath 33	Diversion is 700m longer	None
Swynnerton Footpath 10	Diversions to underbridge and around new pond result in minimal change in travel distance	Swynnerton Footpath 10 accommodation underbridge
Swynnerton Footpath 15	Diversion results in minimal change in travel distance	Swynnerton Footpath 15 accommodation overbridge
Swynnerton Footpath 17	Diversion is 200m longer	Swynnerton Footpath 27 accommodation underbridge
Swynnerton New Bridleway	New route is 850m in length diversion from former road alignment adds 400m to overall route	Swynnerton New Bridleway accommodation underbridge
Swynnerton Footpath 27	Diversion is 100m longer	Swynnerton Footpath 27 accommodation underbridge
Swynnerton Footpath 52	Diversion results in minimal change in travel distance	Swynnerton Footpath 52 accommodation underbridge
Swynnerton Bridleway 54	Diversion results in minimal change in travel distance. New section of Bridleway alongside A51 adds 350m to overall route.	None

Table 324: CA3 changes to highways for non-motorised users

Road name	Change in length	New over/under bridge
B5026 Eccleshall Road	Realignment results in a minimal change in travel distance	B5026 Eccleshall Road overbridge
Yarnfield Lane	Realignment results in a minimal change in travel distance	Yarnfield Lane overbridge
Tittensor Road	Diverted route is approximately 400m longer via new Bridleway or 450m longer via the realigned road	Tittensor Road overbridge
A51 Stone Road	Realigned route is approximately 350m longer	None
Stab Lane	Diverted route is approximately 150m longer	Tittensor Road overbridge
A519 Newcastle Road	Realignment results in a minimal change in travel distance	A519 Newcastle Road overbridge
Bottom Lane	Diverted route via A519/A51 is approximately 200m longer	None
Dog Lane	Diverted route is approximately 100m longer	Dog Lane overbridge
Bent Lane (north)	Diversion results in minimal change in travel distance	Swynnerton Footpath 10 underbridge
Bent Lane (south)	Diverted route is approximately 550m shorter	Swynnerton Footpath 10 underbridge

9.6.53 Within these diversions and reinstatements, around half of the routes affected experience either minimal changes in length, or the routes become shorter (e.g. on Bent Lane (south)). A further five changes result in diversions which increase route length up to 250m on footpaths, as well as on Dog Lane, Bottom Lane and Stab Lane.

9.6.54 Other routes experience larger changes in length of diversion, including up to 500m on the realigned A51 Stone Road and Tittensor Road, and up to 550m for the diversion south of Stone Rural Footpath 32 on to a new accommodation overbridge. Stone Rural Footpath 33 is also diverted up to 700m around the new IMB-R compound.

9.6.55 A new Swynnerton Bridleway is created from the former Tittensor Road alignment along scheme access roads south to a new overbridge, returning to the Tittensor Road alignment west of the Proposed Scheme. While this creates a longer, higher-standard route, journey distance is increased by up to 400m for travel from the A519 Newcastle Road towards Swynnerton village.

Waterways and canals

9.6.56 The Proposed Scheme makes no changes to waterways or canals in CA3 and consequently has no impact upon them.

10 CA4 Whitmore Heath to Madeley – appraising the impact of the Proposed Scheme

10.1 Assessment Methodology

10.1.1 The assessment methodology is as outlined in the overarching methodology section of the report, with specific details and exceptions outlined in the following sections.

10.2 CA4 Proposed Scheme future baseline

Key future baseline issues

10.2.1 The key changes in baseline in relation to the Whitmore Heath to Madeley area are expected to relate to general background growth in traffic flows between 2016 and 2041 that will occur irrespective of the Proposed Scheme.

10.2.2 There are no major committed changes to the transport networks.

Land use assumptions

10.2.3 The following sources have been analysed in order to determine the impact of future land uses upon future traffic and transport conditions:

- TEMPro Growth Rates;
- Local Plan Documents (Newcastle-under-Lyme and Stoke-on-Trent Core Spatial Strategy); and
- Local Planning Authority Planning Portals to obtain details of recently consented, committed developments potentially not already included in the sources above. This allows the impact of these committed developments to be considered at a very local level i.e. at roads and junctions in close proximity to the committed sites.

10.2.4 The only committed development that needed to be included within these calculations is the Land at End of Gateway Avenue, Baldwins Gate, Newcastle-under-Lyme, Staffordshire, comprising development of up to 113 residential dwellings. Traffic resulting from the committed development was assigned to links using assumptions obtained from supporting planning application documents.

10.2.5 The use of TEMPro and local traffic models, with further adjustment for known developments, means that forecast traffic growth will not be uniform on all links and at junctions. Necessarily traffic growth will be aligned to specific vehicle trip generators and attractors and or transport scheme interventions. The result is that growth factors vary across the CA. Notwithstanding this, it is possible to produce an overall average growth factor for links in CA4, calculated using the total link flows for each future year. These overall growth factors are summarised in Table 325.

Table 325: CA4 traffic growth summary

Period	AM Peak	PM Peak
2016 - 2023	+7%	+7%
2016 - 2027	+10%	+10%
2016 - 2041	+19%	+17%

Transport supply assumptions

10.2.6 No substantial committed changes to the transport network in Whitmore Heath to Madeley have been identified.

Highway network

10.2.7 As appropriate and except where otherwise stated, this assessment includes in the future baseline changes in traffic flows or networks arising from the HS2 Phase One scheme. However, in CA4 there are no such impacts on the future baseline.

Strategic road network and primary road traffic flows

10.2.8 Table 326 summarises the 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows, in comparison to the 2016 baseline flows.

Local road network traffic flows

10.2.9 Table 327 summarises the 2023, 2027, and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows for roads where it is expected that there is the potential for a substantial impact either during construction or through the operation of the Proposed Scheme.

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
A51 at Willoughbridge (between Maerway Lane and London Road)	NB	143	4	154	5	159	5	172	5	179	2	193	2	200	3	217	3
	SB	193	4	208	4	215	4	232	5	190	3	205	3	212	3	230	3
A51 London Road (between Newcastle Road and Yew Tree Lane)	NB	264	3	285	4	295	4	319	4	216	2	233	3	240	3	261	3
	SB	164	6	177	7	183	7	198	8	285	4	307	4	317	4	344	5
A51 London Road (between London Road and Newcastle Road)	NB	325	14	351	15	363	15	393	17	337	10	363	11	375	11	407	12
	SB	275	5	297	6	307	6	332	6	331	2	357	2	369	2	401	3
A51 London Road (between Yew Tree Lane and Checkley Lane)	NB	223	5	242	6	248	6	268	6	242	4	263	4	270	4	299	4
	SB	186	6	202	6	207	7	224	7	229	2	248	2	255	2	282	2
A51 Nantwich Road (between Newcastle Road and Maerway Lane)	WB	147	4	156	4	160	5	172	5	218	3	231	3	237	3	249	3
	EB	446	5	475	5	488	5	525	6	232	3	247	4	253	4	266	4
A51 Nantwich Road (between Newcastle Road and Stone Road)	WB	812	61	865	65	888	66	955	71	535	22	568	23	582	24	611	25
	EB	504	38	537	40	551	41	593	44	805	33	854	35	875	36	920	38
A53 Newcastle Road (between Bent Lane and the Proposed Scheme)	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
A53 Newcastle Road (between Holly Bush Lane and Nantwich Road)	WB	341	44	363	47	372	49	400	52	385	16	409	17	419	17	440	18
	EB	588	24	626	25	642	26	691	28	389	25	413	26	424	27	445	28
A53 Newcastle Road (between the Proposed Scheme and Common 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

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	654	50	696	53	714	55	768	59	429	25	455	26	466	27	490	28
	EB	330	25	352	27	361	28	388	30	431	25	457	26	469	27	492	28

Table 327: Local 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	
		Vehicle	HGV	Vehicle	HGV	Vehicle	HGV	Vehicle	HGV	Vehicle	HGV	Vehicle	HGV	Vehicle	HGV	Vehicle	HGV
A525 Bar Hill Lane (between Red Lane and the Proposed Scheme)	EB	166	6	178	6	184	6	200	7	123	5	132	6	135	6	146	6
	WB	141	5	152	5	156	5	170	6	154	1	165	1	170	1	184	2
A525 Bar Hill Lane (between Red Lane and Manor Road)	EB	181	1	194	1	200	1	217	2	146	2	156	2	161	2	174	2
	WB	134	3	144	4	149	4	161	4	153	0	164	0	169	0	182	0
A525 Bar Hill Road (between Gravenhunger Moss and the Proposed Scheme)	EB	172	7	185	8	190	8	207	9	152	3	163	3	168	3	182	4
	WB	140	8	150	9	155	9	168	10	176	5	189	6	194	6	210	6
A525 Newcastle Road (between Gravenhunger Moss and London Road)	EB	139	1	151	2	156	2	168	2	111	2	120	2	124	2	134	2
	WB	98	3	106	3	109	3	118	4	135	1	146	1	151	1	164	1
Madeley Road (between Holly Bush Lane and Newcastle Road)	WB	101	8	108	8	111	9	119	9	61	4	65	4	67	4	70	4
	EB	59	5	63	5	65	5	70	5	73	4	77	4	79	5	83	5
Manor Road (between Bar Hill and the Proposed Scheme)	SB	53	3	57	3	58	3	63	3	51	2	55	2	57	2	61	2
	NB	57	3	61	3	63	3	68	4	47	1	50	1	51	1	56	1
Manor Road (between the Proposed Scheme and Camp Hill)	NB	60	5	64	5	66	5	71	6	71	1	75	1	77	1	81	1
	SB	93	3	99	3	101	3	109	3	51	2	54	2	55	2	58	2

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
Three Mile Lane (between Newcastle Road and Lymes Road)	NB	115	1	122	1	126	1	135	1	52	1	55	1	57	1	60	1
	SB	33	1	35	1	36	1	39	1	84	0	89	0	91	0	96	0
Bower End Lane (between Moss Lane and the Proposed Scheme)	WB	2	0	3	0	3	0	3	0	5	0	5	0	5	0	5	0
	EB	3	0	3	0	3	0	3	0	3	0	3	0	3	0	4	0
Moss Lane (between Bar Hill and Bower End Lane)	NB	25	0	27	0	27	0	30	0	24	0	26	0	26	0	29	0
	SB	17	0	18	0	19	0	20	0	18	0	19	0	20	0	21	0
Holly Bush Lane (between Newcastle Road and Madeley Road)	NB	60	5	64	5	66	5	71	6	71	1	75	1	77	1	81	1
	SB	93	3	99	3	101	3	109	3	51	2	54	2	55	2	58	2
Heath Road (between Common Lane and the Proposed Scheme)	NB	3	0	3	0	3	0	3	0	2	0	2	0	2	0	2	0
	SB	6	0	6	0	6	0	7	0	2	0	2	0	2	0	2	0
Heath Road (between Common Lane and the Proposed Scheme)	NB	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0
	SB	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0
Common Lane (between Newcastle Road and Heath Road)	WB	27	2	28	2	29	2	31	2	14	1	15	1	16	1	16	1
	EB	7	0	8	0	8	0	8	1	20	1	22	1	22	1	23	1
Red Lane (between Bar Hill and north of the Proposed Scheme)	SB	2	0	2	0	2	0	2	0	1	0	1	0	1	0	1	0
	NB	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Junction operation – future baseline

10.2.10 The operation of the key junctions which form the main access routes from the SRN through the study area to the construction sites, or are affected by the operation of the scheme, have been assessed using the future baseline traffic flows and the results are summarised in the following tables.

10.2.11 Where a junction will be affected by the construction of the Proposed Scheme, future baseline results will be included for 2023. Where a junction is affected by the operation of the Proposed Scheme, which is primarily due to changes in traffic as a result of infrastructure changes in the Proposed Scheme, results will be included for 2027 and 2041. Junctions affected by both the construction and operation will include results for all three assessment years.

10.2.12 As for the existing baseline, the results for CA4 are presented in the order of Roundabout junctions, priority controlled (give-way) and signalised junctions. The results for the AM and PM peak hours are presented and the 2016 baseline results are included for reference. The models developed to assess the existing baseline have been used, except where otherwise stated.

A53 Whitmore Road/A5182 Trentham Road

10.2.13 The future baseline performance of this junction is shown in Table 328. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 328: Future year baseline performance at A53 Whitmore Road/5182 Trentham Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A53 Whitmore Road	249	0.19	0	271	0.2	0
A5182 Trentham Road	304	0.23	0	331	0.25	0
A53 from A5182 Trentham Road to Bent Lane	844	0.42	1	919	0.46	1
	2016 PM			**2023 PM**		
A53 Whitmore Road	474	0.35	1	515	0.39	1
A5182 Trentham Road	382	0.32	1	415	0.36	1
A53 from A5192 Trentham Road to Bent Lane	554	0.28	0	602	0.3	1

10.2.14 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road

10.2.15 The future baseline performance of this junction is shown in Table 329. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 329: Future year baseline performance at A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A53 Newcastle Road (left)	6	0.14	0	7	1.05	1
A53 Newcastle Road (right)	370	0.92	8	403	1.03	19
A51 Stone Road (east) (ahead + right)	0	0	0	0	0	0
A51 Stone Road (east) (ahead)	183	-	-	199	-	-
A51 Nantwich Road (west) (left)	678	-	-	739	-	-
A51 Nantwich Road (west) (ahead)	159	-	-	173	-	-
	2016 PM			**2023 PM**		
A53 Newcastle Road (left)	3	1.14	1	3	1.25	1
A53 Newcastle Road (right)	451	1.11	34	490	1.24	62
A51 Stone Road (east) (ahead + right)	0	0	0	0	0	0
A51 Stone Road (east) (ahead)	357	-	-	388	-	-
A51 Nantwich Road (west) (left)	410	-	-	445	-	-
A51 Nantwich Road (west) (ahead)	147	-	-	160	-	-

10.2.16 The model shows that in 2023 the junction operates over capacity in the AM and PM peak periods on the A53 Newcastle Road approach to the junction, with queue lengths of 19 and 62 PCUs observed in the AM and PM peak periods respectively.

A51 Nantwich Road/A525 Audlem Road

10.2.17 The future baseline performance of this junction is shown in Table 330. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 330: Future year baseline performance at A51 Nantwich Road/A525 Audlem Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A525 Audlem Road (west) (left + right)	144	0.34	1	155	0.38	1
A51 Nantwich Road (south) (ahead + right)	6	0.01	0	6	0.01	0
A51 Nantwich Road (south) (ahead)	198	-	-	213	-	-
A51 Nantwich Road (north) (left)	91	-	-	98	-	-
A51 Nantwich Road (north) (ahead)	321	-	-	344	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM		
17:00 – 18:00	2016 PM			2023 PM		
A525 Audlem Road (west) (left + right)	73	0.18	0	78	0.2	0
A51 Nantwich Road (south) (ahead + right)	23	0.03	0	26	0.04	0
A51 Nantwich Road (south) (ahead)	296	-	-	317	-	-
A51 Nantwich Road (north) (left)	103	-	-	111	-	-
A51 Nantwich Road (north) (ahead)	238	-	-	255	-	-

10.2.18 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 Nantwich Road/A51 London Road/A525 Newcastle Road

10.2.19 The future baseline performance of this junction is shown in Table 331. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 331: Future year baseline performance at A51 Nantwich Road/A51 London Road/A525 Newcastle Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM		
A525 Newcastle Road (left + right)	151	0.34	1	162	0.37	1
A51 London Road(ahead + right)	163	0.23	1	182	0.25	1
A51 London Road (ahead)	269	-	-	282	-	-
A51 Nantwich Road (left)	75	-	-	81	-	-
A51 Nantwich Road (ahead)	238	-	-	256	-	-
17:00 – 18:00	2016 PM			2023 PM		
A525 Newcastle Road (left + right)	152	0.33	1	163	0.36	1
A51 London Road(ahead + right)	88	0.13	0	98	0.15	0
A51 London Road (ahead)	228	-	-	241	-	-
A51 Nantwich Road (left)	62	-	-	66	-	-
A51 Nantwich Road (ahead)	309	-	-	332	-	-

10.2.20 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A525 Bar Hill/Manor Road

10.2.21 The future baseline performance of this junction is shown in Table 332. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 332: Future year baseline performance at A525 Bar Hill/Manor Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Manor Road (left + right)	65	0.16	0	71	0.17	0
A525 Bar Hill (west) (ahead + right)	8	0.01	0	9	0.02	0
A525 Bar Hill (west) (ahead)	179	-	-	196	-	-
A525 Bar Hill (east) (left)	49	-	-	54	-	-
A525 Bar Hill (east) (ahead)	131	-	-	144	-	-
	2016 PM			**2023 PM**		
Manor Road (left + right)	49	0.12	0	54	0.13	0
A525 Bar Hill (west) (ahead + right)	6	0.01	0	7	0.01	0
A525 Bar Hill (west) (ahead)	136	-	-	149	-	-
A525 Bar Hill (east) (left)	42	-	-	46	-	-
A525 Bar Hill (east) (ahead)	150	-	-	164	-	-

10.2.22 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A53 Newcastle Road/Common Lane

10.2.23 The future baseline performance of this junction is shown in Table 333. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 333: Future year baseline performance at A53 Newcastle Road/Common Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Common Lane (left + right)	26	0.09	0	28	0.11	0
A53 Newcastle Road (east) (ahead + right)	10	0.02	0	13	0.02	0
A53 Newcastle Road (east) (ahead)	459	-	-	511	-	-
A53 Newcastle Road (west) (left)	3	-	-	3	-	-
A53 Newcastle Road (west) (ahead)	827	-	-	935	-	-
	2016 PM			**2023 PM**		
Common Lane (left + right)	14	0.04	0	15	0.04	0
A53 Newcastle Road (east) (ahead + right)	73	0.08	0	97	0.1	0
A53 Newcastle Road (east) (ahead)	708	-	-	786	-	-
A53 Newcastle Road (west) (left)	1	-	-	1	-	-
A53 Newcastle Road (west) (ahead)	488	-	-	550	-	-

10.2.24 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

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

10.2.25 The future baseline performance of this junction is shown in Table 334. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only

Table 334: Future year baseline performance at A51 London Road/Gravenhunger Lane/A51 Pipegate/B5206 London Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Gravenhunger Lane (left + right)	6	0.01	0	7	0.01	0
A51 London Road (north) (left)	2	-	-	2	-	-
A51 London Road (north) (ahead)	154	-	-	170	-	-
A51 London Road (north) (right)	129	-	-	142	-	-
A51 London Road (north) (ahead + right)	171	0.27	1	194	0.3	1
A51 London Road (north) (ahead)	117	-	-	124	-	-
B5026 London Road (left + right)	208	0.37	1	229	0.41	1
A51 Pipegate (south) (left)	22	-	-	24	-	-
A51 Pipegate (south) (ahead)	134	-	-	148	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 Pipegate (south) (right)	0	-	-	0	-	-
A51 Pipegate (south) (straight + right)	5	0.01	0	6	0.01	0
A51 Pipegate (south) (ahead)	300	-	-	331	-	-
	2016 PM			**2023 PM**		
Gravenhunger Lane (left + right)	0	0	0	0	0	0
A51 London Road (north) (left)	2	-	-	2	-	-
A51 London Road (north) (ahead)	196	-	-	216	-	-
A51 London Road (north) (right)	169			186	-	-
A51 London Road (north) (ahead + right)	233	0.36	1	266	0.41	1
A51 London Road (north) (ahead)	131	-	-	136	-	-
B5026 London Road (left + right)	174	0.3	1	192	0.34	1
A51 Pipegate (south) (left)	20	-	-	22	-	-
A51 Pipegate (south) (ahead)	177	-	-	195	-	-
A51 Pipegate (south) (right)	3	-	-	3	-	-
A51 Pipegate (south) (straight + right)	14	0.02	0	17	0.02	0
A51 Pipegate (south) (ahead)	326	-	-	358	-	-

10.2.26 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 Nantwich Road/A53 Newcastle Road (west)

10.2.27 The future baseline performance of this junction is shown in Table 335. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 335: Future year baseline performance at A51 Nantwich Road/A53 Newcastle Road (west) junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A53 Newcastle Road (left + right)	338	0.93	9	369	1.05	21
A51 Nantwich Road (west) (ahead + right)	7	0.01	0	8	0.01	0
A51 Nantwich Road (west) (ahead)	498	-	-	542	-	-
A51 Nantwich Road (east) (left)	387	-	-	421	-	-
A51 Nantwich Road (east) (ahead)	149	-	-	162	-	-
	2016 PM			**2023 PM**		
A53 Newcastle Road (left + right)	309	0.85	5	336	0.96	11
A51 Nantwich Road (west) (ahead + right)	3	0.01	0	4	0.01	0
A51 Nantwich Road (west) (ahead)	248	-	-	269	-	-
A51 Nantwich Road (east) (left)	549	-	-	596	-	-
A51 Nantwich Road (east) (ahead)	256	-	-	278	-	-

10.2.28 The model shows that in 2023 the junction operates over capacity in the AM Peak on the A53 Newcastle Road approach, with an RFC value of 1.05 and a corresponding queue length of 21 PCUs. In the PM peak the A53 Newcastle Road is also approaching capacity with an RFC of 0.96 and a corresponding queue length of 11 PCUs.

Accidents and safety

10.2.29 No issues have been identified for the future baseline network operation as a result of changes to the highway network or travel demands, and the accident and safety records for the baseline assessment are assumed to provide a relevant basis for assessment.

Parking and loading

10.2.30 Compared to the existing baseline, no changes are assumed.

Public transport

Rail

10.2.31 Compared to the existing baseline, no changes are assumed.

Local bus services

10.2.32 Since it is not possible to forecast how services may change in the future, it has been assumed that bus services for the future years of assessment will be the same as those currently operating.

Public transport interchanges

10.2.33 Compared to the existing baseline, no changes are assumed.

Pedestrians, cyclists and equestrians

10.2.34 Compared to the existing baseline, no changes are assumed.

Waterways and Canals

10.2.35 Compared to the existing baseline, no changes are assumed.

10.3 CA4 Proposed Scheme construction description

10.3.1 This section provides an overview of the construction traffic and transport impacts for the section of the Proposed Scheme that will pass through the Whitmore Heath to Madeley area.

10.3.2 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 Proposed Scheme and therefore it is considered to be reasonably representative.

Construction activities

10.3.3 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 the works. The peak month that is assessed also includes cumulative impacts arising from construction in the adjoining community areas as well as for movements through the area. The assessment also considers any substantial closures that are proposed.

Compounds and construction sites

10.3.4 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. For the construction programme refer to Volume 2: Community Area 4, Whitmore Heath to Madeley, Section 2.3.

10.3.5 The location of the construction compounds and the associated access routes are shown in the TR-08 Map Series (Volume 5: Traffic and Transport Map Book) as summarised in Table 337.

10.3.6 Table 336 summarises the anticipated average and peak workforce to be required at each construction compound. Table 336 also provides details of workers and staff.

Table 336: Assumed workforce at construction sites

Compound type	Location	Total Number of Workers		Number of workers (Peak)	Number of Staff
		Average	Peak		
Satellite	Stableford North embankment satellite compound	24	36	24	6
Satellite	Whitmore Heath tunnel satellite compound	80	120	80	20
Satellite	Whitmore North cutting satellite compound	28	42	28	7
Satellite	River Lea viaduct satellite compound	40	60	40	10
Satellite	Madeley cutting satellite compound	12	18	12	3
Satellite	Madeley tunnel (south) satellite compound	84	126	84	21
Satellite	Madeley tunnel (north) satellite compound	4	6	4	1
Satellite	Checkley South embankment satellite compound	28	42	28	7

10.3.7 Typical vehicle trip generation for construction site compounds in this area are shown in Table 337. For each compound 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, with the average daily combined two-way vehicle trips shown for the peak month being the upper end of the range.

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/set up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (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) from the south for site set-up and servicing and followed by haul route thereafter to the A53 Newcastle Road	October 2020	4 years and 6 months	2	48 - 66	139 - 139
Transfer node	Transfer node associated with Whitmore Heath tunnel satellite compound	A53 Newcastle Road	October 2020	4 years and 6 months	3	N/A	497 - 551
Satellite	Whitmore Heath tunnel south portal satellite compound	A53 Newcastle Road from the east	January 2025	1 year	8	16 - 22	up to 10
Satellite	Whitmore Heath tunnel satellite compound	A53 Newcastle Road from the east	October 2020	4 years and 6 months	2	160 - 220	162 - 167
Satellite	Whitmore Heath tunnel north portal satellite compound	Snape Hall Road/haul road	January 2025	1 year and 6 months	17	52 - 84	22 - 22
Satellite	Whitmore North cutting satellite compound	Initially from Snape Hall south for site set-up and servicing and followed by haul route thereafter via haul road to the east from Whitmore Heath Tunnel satellite compound and on to A53 Newcastle Road	October 2020	4 years and 6 months	5	56 - 77	83 - 92
Satellite	Whitmore north auto-transformer station satellite compound	Snape Hall Road/haul road	July 2024	1 year and 3 months	10	57 - 84	up to 10

Compound type	Location	Access to / from compound to main road network	Indicative start/set up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/ LGV	HGV
Satellite	River Lea viaduct satellite compound	Initially from Manor Road for site set up and limited access. Main access will be via haul route from A53 using temporary crossing of the WCML	October 2020	4 years and 6months	4	80 - 110	114 - 176
Satellite	Madeley cutting satellite compound	A525 Bar Hill Road	October 2020	4 years and 6 months	1	24 - 33	93 - 93
Transfer node	Transfer node associated with Madeley cutting satellite compound	A525 Bar Hill Road	October 2020	4 years and 6 months	3	N/A	262 - 343
Satellite	Madeley tunnel (south) satellite compound	A525 Bar Hill Road and then via the site haul route constructed to the north of the Proposed Scheme	October 2020	Civil engineering 4 years and 3 months	14	168 - 231	64 - 81
			July 2025	Railway systems - 9 months	8	16 - 22	up to 10
Satellite	Madeley tunnel (north) satellite compound	A525 Bar Hill Road and via the site haul route constructed to access the compound for HGVs	October 2020	Civil engineering - 3 years and 6 months	34	8 - 11	up to 10
Satellite	Madeley tunnel north portal satellite compound	A525 Bar Hill Road and via the site haul route constructed to access the compound for HGVs	July 2024	Railway systems - 2 years and 3 months	17	80 - 166	18 - 26
Satellite	Checkley South embankment satellite compound	Initially accessed for site set-up and limited access from Checkley Lane or Bridleway 2 Farm access. Main access will be via haul route back to A525 Bar Hill Road	October 2020	4 years and 6 months	2	56 - 77	74 - 82

Construction HGV routes

10.3.8 Construction vehicle movements required to construct the Proposed 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.

10.3.9 HGV have been routed where reasonably practicable along the strategic or primary road network, although some access locations will be off secondary roads. In CA4, the SRN 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 set-up, access for environmental surveys and on-going servicing (including refuse collection and general deliveries).

10.3.10 The location of the construction compounds and the associated access routes are shown in the TR-08 Map Series (Volume 5: Traffic and Transport Map Book) that reflect the transport activity at each site during the busy period as summarised in Table 337.

10.3.11 Table 338 summarises the peak daily construction traffic flow, both in HGV and total vehicles on each link within CA4 that is on a construction route.

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	274	350
	SB	274	350
A51 London Road (between Newcastle Road and Yew Tree Lane)	NB	66	97
	SB	66	97
A51 London Road (between London Road and Newcastle Road)	NB	274	350
	SB	274	350
A51 London Road (between Yew Tree Lane and Checkley Lane)	NB	66	97
	SB	66	97
A51 Nantwich Road (between Newcastle Road and Maerway Lane)	WB	274	350
	EB	274	350
A51 Nantwich Road (between Newcastle Road and Stone Road)	WB	407	530
	EB	407	530
A53 Newcastle Road (between Bent Lane and Proposed Scheme)	WB	250	461
	EB	250	461
A53 Newcastle Road (between Holly Bush Lane and Nantwich Road)	WB	254	364
	EB	254	364
A53 Newcastle Road (between Proposed Scheme and Common Lane)	WB	250	461

Location	Direction	Peak HGV	Peak all vehicles
	EB	250	461
A53 Newcastle Road (between Madeley Road and Holly Bush Lane)	WB	254	309
	EB	254	309
A525 Bar Hill Lane (between Red Lane and Proposed Scheme)	EB	238	603
	WB	238	603
A525 Bar Hill Lane (between Red Lane and Manor Road)	EB	85	254
	WB	85	254
A525 Bar Hill Road (between Gravenhunger Moss and Proposed Scheme)	EB	261	297
	WB	261	297
A525 Newcastle Road (between Gravenhunger Moss and London Road)	EB	261	297
	WB	261	297
Madeley Road (between Holly Bush Lane and Newcastle Road)	WB	9	138
	EB	9	138
Manor Road (between Bar Hill and Proposed Scheme)	SB	85	190
	NB	85	190
Manor Road (between Proposed Scheme and Camp Hill)	NB	94	320
	SB	94	320
Bower End Lane (between Moss Lane and Proposed Scheme)	WB	0	9
	EB	0	9
Holly Bush Lane (between Newcastle Road and Madeley Road)	NB	94	320
	SB	94	320
Heath Road (between Common Lane and Proposed Scheme)	NB	52	135
	SB	52	135
Common Lane (between Newcastle Road and Heath Road)	WB	52	135
	EB	52	135

Traffic management, road closures and diversions

10.3.12 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing highways as well as traffic management. The construction of the Proposed Scheme has been carefully planned to limit disruption to travellers through any traffic management, road closures and diversions. Where closures are necessary, the general approach is to undertake closures for short discrete periods to ensure that the impact on users is reduced. Section 4 of the TA sets out the general approach to mitigation. This includes constructing new roads prior to the closure of any existing roads, where reasonably practicable.

10.3.13 Where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing road network, traffic control measures will be implemented and could include the provision of temporary Roundabouts or signals, which would be removed on completion of the works. These traffic control measures are not expected to have a substantial impact on traffic flows and delays for vehicle occupants.

10.3.14 Utilities works have been assessed in detail where they are major and where the traffic and transport impacts from the works separately, or in combination with other works, will be greater than other construction activities arising within the area. Minor utilities works are expected to result in only localised traffic and pedestrian diversions, which will be of short-term duration. No additional substantial impacts from these works are expected. Similarly other minor works will involve a low level of use of local roads. Such use is not expected to give rise to substantial construction traffic impacts.

10.3.15 Permanent closures are addressed in the operational scheme section of this report.

PRoW closures and diversions

10.3.16 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing footpaths and roadside footways as well as some bridleways. The impact on footpaths (including roadside footways), cycleways and bridleway links along the route of the Proposed Scheme has been reduced, as far as reasonably practicable, through the design process. Section 4 of the TA, mitigation, documents the general approach to construction. This includes constructing new PRoW prior to the closure of any existing PRoW where reasonably practicable.

10.3.17 As with highways, where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing PRoW network, active control measures will be implemented to manage the safety of PRoW users and could include staffed crossings and the provision of temporary gates or signals, which would be removed on completion of the works. These control measures are not expected to have a substantial impact on delays for pedestrian, cyclist or equestrian users of the network.

10.4 CA4 Proposed Scheme assessment of construction impacts

Key construction transport issues

10.4.1 The temporary traffic and transport impacts within 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.

10.4.2 The construction assessment has also considered any impacts in this area that arise from construction of the Proposed Scheme in the adjoining CAs.

10.4.3 There will be temporary alternative routes for three roads and 10 PRoW, which includes the A53 Newcastle Road that will be locally diverted via a two-lane diversion adjacent to the existing alignment. On completion of the associated works, the A53 Newcastle Road will be reinstated on its pre-existing alignment.

Highway network

Highway closures and diversions

10.4.4 Temporary road or lane closures and associated diversions will be required in a number of locations including:

- A53 Newcastle Road;
- Snape Hall Road / Common Lane;
- Manor Road; and
- A525 Bar Hill Road.

10.4.5 In most cases, these works will be restricted to short-term overnight and/or weekend closures and 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, where reasonably practicable. As a result, impacts will not be substantial. Where works are of a longer duration these are addressed below.

10.4.6 The A53 Newcastle Road will be locally diverted via a two-lane diversion adjacent to the existing alignment in order to facilitate the construction of the Whitmore Heath cut and cover tunnel. On completion of the cut and cover tunnel, the A53 Newcastle Road will be reinstated on its existing alignment. The diversion is expected to be required for approximately one year and nine months and will maintain capacity on the A53 Newcastle Road. The length of the temporary diversion and the implementation of a temporary Roundabout to facilitate construction access is not likely to have a substantial impact on road users in relation to traffic flows and delays for vehicle occupants.

10.4.7 To facilitate the road upgrading at Snape Hall Road and Common Lane, access to private properties will be retained. These temporary access routes may be required for nine months and will not have a substantial impact on road users in relation to traffic flows and delays for vehicle occupants.

10.4.8 At Manor Road and A525 Bar Hill Road localised lane diversions to facilitate the construction of the Manor Road overbridge and the A525 Bar Hill Road overbridge will be required. At both locations, localised diversions are expected to be required for approximately three months and traffic management will be required to facilitate the implementation of the proposed overbridges. The impact of these diversions will not have a substantial impact on road users in relation to traffic flows and delays for vehicle occupants.

PRoW closures and diversions

10.4.9 Table 339 summarises the temporary PRoW diversions and realignments required to accommodate the construction of the Proposed Scheme. In most cases this will also include the construction of diverted routes and accommodation over and underbridges which will carry the permanent diversions of these PRoW. In some cases, PRoW will revert to their pre-existing alignment after construction is completed.

Table 339: CA4 temporary PRoW

PRoW name	Description	Change in length
Whitmore Footpath 4	Stage 1 – diverted north around tunnel construction to rejoin existing alignment Stage 2 – diverted south around satellite compound, via realigned A53 Newcastle Road rejoining current alignment at A53 / Common Lane junction	Stage 1 diversion is 450m longer Stage 2 diversion is 650m longer
Whitmore Footpath 5	Stage 1 – diverted south-west of current alignment, around Snape Hall Farm Stage 2 – major diversion west along Footpath P 18 to diverted A53 Newcastle Road, in lieu of using Snape Hall Road	Stage1 temporary diversion is 250m longer Stage2 temporary diversion is 1km longer
Whitmore Footpath 6	Diverted slightly west from junction with Footpath 5 around site boundary, crosses Proposed Scheme south of Whitmore Wood overbridge, and continues east of alignment to Footpath 14	Temporary diversion is 200m longer
Madeley Bridleway 1	Stage 1: Temporary diversion south-east round Red Lane highways works Stage 2: Temporary diversion west around satellite compound and on to realigned A525 Bar Hill and overbridge	Stage1 temporary diversion is 100m longer Stage2 temporary diversion is 400m longer
Madeley Bridleway 2	Temporary diversion less than 100m west to temporary underbridge while permanent underbridge is constructed	Temporary diversion is same length overall
Madeley Bridleway 5	Diversion around access road construction north of Bower End Lane, then around Bower End Farm and compound, to rejoin existing route	Temporary diversion is 150m longer
Madeley Footpath 7	Diversion from River Lea on east side of Proposed Scheme, to the south to join Bridleway 2 temporary crossing route, then north around western edge of compound to rejoin River Lea	Temporary diversion is 1.1km longer
Madeley Footpath 14	Diverted from Whitmore Footpath 6 to east of new embankment and round construction site boundary and haul roads to temporary bridge over disused railway, some 150m east of the existing crossing	Temporary diversion is less than 100m shorter
Madeley Footpath 24	Diversion east on to Footpath 26 and WCML overbridge to Moss Lane, then south to A525 Bar Hill and west along A525 to rejoin the existing alignment	Temporary diversion is 1km longer
Madeley Footpath 26	Minor diversion to the east around edge of construction compound, where route turns south, then east towards WCML	Temporary diversion is less than 50m shorter

Strategic and local road network traffic flows

10.4.10 During the construction period there will be a number of highway links that will be affected by the construction of the Proposed Scheme. An assessment of the impact of construction related vehicle movements and diversions has been undertaken and is detailed below. 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.

10.4.11 Table 340 and Table 341 set out the 2023 traffic flows on highway links affected by construction traffic associated with the Proposed Scheme for the AM and PM peak hour respectively. Traffic flows on all other links are either unaffected from the future baseline or result in very minor increases.

10.4.12 To show the impact of the construction of the Proposed Scheme in these locations, traffic flows on affected links are presented for the 2023 future baseline and the 2023 future baseline with the Proposed Scheme, alongside the percentage increase from the future baseline.

Table 340: 2023 future baseline and with the Proposed 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	209	32	35.5%	575.7%
	SB	208	4	263	32	26.3%	666.6%
A51 London Road (between Newcastle Road and Yew Tree Lane)	NB	285	4	308	10	8.1%	180.7%
	SB	177	7	200	13	13.0%	97.5%
A51 London Road (between London Road and Newcastle Road)	NB	351	15	406	42	15.5%	183.6%
	SB	297	6	352	33	18.4%	496.7%
A51 London Road (between Yew Tree Lane and Checkley Lane)	NB	242	6	265	12	9.5%	120.3%
	SB	202	6	225	13	11.4%	103.9%
A51 Nantwich Road (between Newcastle Road and Maerway Lane)	WB	156	4	211	32	35.0%	611.3%
	EB	475	5	530	33	11.5%	534.9%
A51 Nantwich Road (between Newcastle Road and Stone Road)	WB	865	65	943	105	9.0%	62.9%
	EB	537	40	615	81	14.5%	101.3%
A53 Newcastle Road (between Bent Lane and the Proposed Scheme)	WB	458	51	516	76	12.6%	49.3%
	EB	823	27	881	52	7.0%	93.9%
A53 Newcastle Road (between Holly Bush Lane and Nantwich Road)	WB	363	47	414	73	14.2%	53.7%
	EB	626	25	678	51	8.2%	101.0%
A53 Newcastle Road (between the Proposed Scheme and Common Lane)	WB	458	51	516	76	12.6%	49.3%
	EB	823	27	881	52	7.0%	93.9%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A53 Newcastle Road (between Madeley Road and Holly Bush Lane)	WB	696	53	735	79	5.5%	47.5%
	EB	352	27	390	52	10.9%	94.0%
A525 Bar Hill Lane (between Red Lane and the Proposed Scheme)	EB	178	6	291	30	63.2%	399.4%
	WB	152	5	264	29	74.3%	471.0%
A525 Bar Hill Lane (between Red Lane and Manor Road)	EB	194	1	244	10	25.8%	610.7%
	WB	144	4	194	12	34.7%	233.5%
A525 Bar Hill Road (between Gravenhunger Moss and the Proposed Scheme)	EB	185	8	221	34	19.4%	333.6%
	WB	150	9	186	35	23.8%	291.9%
A525 Newcastle Road (between Gravenhunger Moss and London Road)	EB	151	2	186	28	23.8%	1721.4%
	WB	106	3	142	29	33.9%	803.3%
Madeley Road (between Holly Bush Lane and Newcastle Road)	WB	108	8	120	9	11.6%	10.7%
	EB	63	5	76	6	19.7%	18.3%
Manor Road (between Bar Hill and the Proposed Scheme)	SB	57	3	73	11	28.7%	292.1%
	NB	61	3	77	12	26.7%	266.7%
Manor Road (between the Proposed Scheme and Camp Hill)	NB	64	5	92	14	43.4%	186.6%
	SB	99	3	127	13	28.3%	299.5%
Bower End Lane (between Moss Lane and Proposed Scheme)	WB	3	0	3	0	7.2%	0.0%
	EB	3	0	3	0	6.9%	0.0%
Holly Bush Lane (between Newcastle Road and Madeley Road)	NB	64	5	92	14	43.4%	186.6%
	SB	99	3	127	13	28.3%	299.5%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Heath Road (between Common Lane and the Proposed Scheme)	NB	0	0	19	5	4787.5%	3019.4%
	SB	1	0	20	5	2925.7%	N/A
Common Lane (between Newcastle Road and Heath Road)	WB	28	2	47	7	66.6%	294.7%
	EB	8	0	26	6	247.3%	1094.6%

Table 341: 2023 future baseline and with the Proposed 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	242	30	25.5%	1103.5%
	SB	205	3	254	30	24.0%	940.0%
A51 London Road (between Newcastle Road and Yew Tree Lane)	NB	233	3	247	9	6.2%	256.5%
	SB	307	4	321	11	4.7%	153.9%
A51 London Road (between London Road and Newcastle Road)	NB	363	11	412	38	13.6%	256.4%
	SB	357	2	406	30	13.8%	1208.6%
A51 London Road (between Yew Tree Lane and Checkley Lane)	NB	263	4	277	10	5.5%	174.6%
	SB	248	2	263	9	5.8%	339.5%
A51 Nantwich Road (between Newcastle Road and Maerway Lane)	WB	231	3	281	30	21.3%	919.6%
	EB	247	4	296	31	20.0%	757.3%
A51 Nantwich Road (between Newcastle Road and Stone Road)	WB	568	23	647	64	14.0%	174.2%
	EB	854	35	934	76	9.3%	115.7%

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 Proposed Scheme)	WB	737	21	834	46	13.2%	119.1%
	EB	477	25	574	50	20.4%	101.3%
A53 Newcastle Road (between Holly Bush Lane and Nantwich Road)	WB	409	17	476	42	16.4%	151.6%
	EB	413	26	481	52	16.2%	96.9%
A53 Newcastle Road (between the Proposed Scheme and Common Lane)	WB	737	21	834	46	13.2%	119.1%
	EB	477	25	574	50	20.4%	101.3%
A53 Newcastle Road (between Madeley Road and Holly Bush Lane)	WB	455	26	501	52	10.2%	96.8%
	EB	457	26	504	52	10.1%	96.4%
A525 Bar Hill Lane (between Red Lane and the Proposed Scheme)	EB	132	6	258	29	95.9%	427.0%
	WB	165	1	291	25	76.5%	1707.9%
A525 Bar Hill Lane (between Red Lane and Manor Road)	EB	156	2	210	10	34.0%	467.7%
	WB	164	0	217	9	32.5%	1987.8%
A525 Bar Hill Road (between Gravenhunger Moss and the Proposed Scheme)	EB	163	3	203	29	24.0%	779.7%
	WB	189	6	228	32	20.8%	467.8%
A525 Newcastle Road (between Gravenhunger Moss and London Road)	EB	120	2	159	28	32.8%	1341.5%
	WB	146	1	185	27	26.9%	3018.4%
Madeley Road (between Holly Bush Lane and Newcastle Road)	WB	65	4	114	5	75.0%	23.6%
	EB	77	4	126	5	63.3%	20.0%
Manor Road (between Bar Hill and the Proposed Scheme)	SB	55	2	108	10	96.1%	438.4%
	NB	50	1	103	9	105.8%	1363.8%

Location	Direction	2023 baseline		2023 with HS2		with HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Manor Road (between the Proposed Scheme and Camp Hill)	NB	75	1	173	11	129.2%	758.3%
	SB	54	2	151	11	180.6%	568.7%
Bower End Lane (between Moss Lane and the Proposed Scheme)	WB	5	0	13	0	170.9%	0.0%
	EB	3	0	12	0	252.7%	0.0%
Holly Bush Lane (between Newcastle Road and Madeley Road)	NB	75	1	173	11	129.2%	758.3%
	SB	54	2	151	11	180.6%	568.7%
Heath Road (between Common Lane and the Proposed Scheme)	NB	1	0	24	5	2953.5%	N/A
	SB	1	0	24	5	4641.2%	N/A
Common Lane (between Newcastle Road and Heath Road)	WB	15	1	38	6	152.7%	967.5%
	EB	22	1	45	6	106.9%	677.3%

Summary of link flows

10.4.13 The results show that the majority of roads assessed in CA4 have low future baseline traffic flows in the AM and PM peak periods, which often results in relatively large percentage increases when the construction traffic associated with the Proposed Scheme is considered.

10.4.14 Only one link in the whole CA4 is forecast to have a HGV flow of over 100 per hour (A51 Nantwich Road (between Newcastle Road and Stone Road) in the peak periods and the majority of links are substantially less than this.

10.4.15 All roads identified as construction routes show a similar pattern, with high percentage increases in HGVs but with minor increases in total vehicular flow. A summary of routes/corridors with percentage increases of over 30% in either total vehicle movements or HGV is set out below:

- A51 London Road between Dog Lane and Checkley Lane;
- A53 Newcastle Road between the A51 London Road and the A5182 Trentham Road;
- A525 Bar Hill Road between the A51 London Road and the Proposed Scheme;
- A525 Bar Hill Road between the Proposed Scheme and Manor Road;
- Manor Road between the Proposed Scheme and the A525 Bar Hill Road; and
- Snape Hall Road between Common Lane and the Proposed Scheme.

10.4.16 The impact of the increase in traffic flow on capacity at key junctions has been assessed and is described in the subsequent section of this report.

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

Junction performance 2023

10.4.18 The following tables and commentary set out the performance at junctions where there is the potential for the Proposed Scheme to have substantial impacts.

10.4.19 As for the future baseline, the results for CA4 are presented in the order of Roundabout junctions, priority controlled (give-way) and signalised junctions. 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

10.4.20 Table 342 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 342: A53 Whitmore Road/A5182 Trentham Road Roundabout 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A53 Whitmore Road	271	0.2	0	273	0.23	0
A5182 Trentham Road	331	0.25	0	581	0.45	1
A53 from A5192 Trentham Road to Bent Lane	919	0.46	1	1168	0.59	2
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A53 Whitmore Road	515	0.39	1	523	0.45	1
A5182 Trentham Road	415	0.36	1	675	0.59	2
A53 from A5192 Trentham Road to Bent Lane	602	0.3	1	861	0.43	1

10.4.21 The results show that this junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road

10.4.22 Table 343 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 343: A51 Nantwich Road/A53 Newcastle Road/A51 Stone Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A53 Newcastle Road (left)	7	1.05	1	7	1.08	1
A53 Newcastle Road (right)	403	1.03	19	403	1.06	23
A51 Stone Road (east) (ahead + right)	0	0	0	0	0	0
A51 Stone Road (east) (ahead)	199	-	-	211	-	-
A51 Nantwich Road (west) (left)	739	-	-	790	-	-
A51 Nantwich Road (west) (ahead)	173	-	-	185	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A53 Newcastle Road (left)	3	1.25	1	3	0.98	1
A53 Newcastle Road (right)	490	1.24	62	490	1.28	70
A51 Stone Road (east) (ahead + right)	0	0	0	0	0	0
A51 Stone Road (east) (ahead)	388	-	-	396	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 Nantwich Road (west) (left)	445	-	-	528	-	-
A51 Nantwich Road (west) (ahead)	160	-	-	177	-	-

10.4.23 The model shows that the A53 Newcastle Road arm is operating above capacity in the future baseline, regardless of the Proposed Scheme. The addition of the Proposed Scheme construction traffic is small, with the queue on the A53 Newcastle Road increasing from 63 to 71 PCUs in the PM peak. This is not considered a substantial increase taking into account that the A53 Newcastle Road arm is already operating over capacity in the future baseline.

A51 Nantwich Road/A53 Newcastle Road (west)

10.4.24 Table 344 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 344: A51 Nantwich Road/A53 Newcastle Road (west) junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A53 Newcastle Road (left + right)	369	1.05	21	415	1.32	65
A51 Nantwich Road (west) (ahead + right)	8	0.01	0	24	0.03	0
A51 Nantwich Road (west) (ahead)	542	-	-	605	-	-
A51 Nantwich Road (east) (left)	421	-	-	462	-	-
A51 Nantwich Road (east) (ahead)	162	-	-	236	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A53 Newcastle Road (left + right)	336	0.96	11	378	1.21	44
A51 Nantwich Road (west) (ahead + right)	4	0.01	0	4	0.01	0
A51 Nantwich Road (west) (ahead)	269	-	-	342	-	-
A51 Nantwich Road (east) (left)	596	-	-	638	-	-
A51 Nantwich Road (east) (ahead)	278	-	-	352	-	-

10.4.25 The model shows that the A53 Newcastle Road arm operates above capacity in the future baseline AM peak and approaching capacity in the PM peak, regardless of the

Proposed Scheme. With the addition of the Proposed Scheme construction traffic, RFC value on the A53 Newcastle Road arm increases from 1.05 to 1.32 in the AM peak, with the queue shown to increase from 21 to 65 PCUs.

10.4.26 The increase in traffic flow at the junction is not substantial in comparison to the future baseline (the increase in flow on the A53 Newcastle Road as a result of the Proposed Scheme equates to 46 PCUs across the AM peak hour). Nonetheless, HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A51 Nantwich Road/A525 Audlem Road

10.4.27 Table 345 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 345: A51 Nantwich Road/A525 Audlem Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A525 Audlem Road (west) (left + right)	155	0.38	1	155	0.39	1
A51 Nantwich Road (south) (ahead + right)	6	0.01	0	6	0.01	0
A51 Nantwich Road (south) (ahead)	213	-	-	234	-	-
A51 Nantwich Road (north) (left)	98	-	-	98	-	-
A51 Nantwich Road (north) (ahead)	344	-	-	366	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A525 Audlem Road (west) (left + right)	78	0.2	0	78	0.2	0
A51 Nantwich Road (south) (ahead + right)	26	0.04	0	26	0.04	0
A51 Nantwich Road (south) (ahead)	317	-	-	328	-	-
A51 Nantwich Road (north) (left)	111	-	-	111	-	-
A51 Nantwich Road (north) (ahead)	255	-	-	268	-	-

10.4.28 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A51 Nantwich Road/A51 London Road/A525 Newcastle Road

10.4.29 Table 346 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 346: A51 Nantwich Road/A51 London Road/A525 Newcastle Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
A525 Newcastle Road (left + right)	162	0.37	1	221	0.5	1
A51 London Road(ahead + right)	182	0.25	1	299	0.41	1
A51 London Road (ahead)	282	-	-	243	-	-
A51 Nantwich Road (left)	81	-	-	81	-	-
A51 Nantwich Road (ahead)	256	-	-	276	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A525 Newcastle Road (left + right)	163	0.36	1	226	0.49	1
A51 London Road (ahead + right)	98	0.15	0	201	0.3	0
A51 London Road (ahead)	241	-	-	212	-	-
A51 Nantwich Road (left)	66	-	-	67	-	-
A51 Nantwich Road (ahead)	332	-	-	343	-	-

10.4.30 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A525 Bar Hill/Manor Road

10.4.31 Table 347 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 347: A525 Bar Hill/Manor Road junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
Manor Road (left + right)	71	0.17	0	95	0.23	0
A525 Bar Hill (west) (ahead + right)	9	0.02	0	46	0.07	0
A525 Bar Hill (west) (ahead)	196	-	-	217	-	-
A525 Bar Hill (east) (left)	54	-	-	57	-	-
A525 Bar Hill (east) (ahead)	144	-	-	179	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Manor Road (left + right)	54	0.13	0	88	0.2	0
A525 Bar Hill (west) (ahead + right)	7	0.01	0	45	0.08	0
A525 Bar Hill (west) (ahead)	149	-	-	172	-	-
A525 Bar Hill (east) (left)	46	-	-	53	-	-
A525 Bar Hill (east) (ahead)	164	-	-	199	-	-

10.4.32 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

A53 Newcastle Road/Common Lane

10.4.33 Table 348 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 348: A53 Newcastle Road/Common Lane junction 2023 future baseline and with the Proposed 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 Proposed Scheme**		
Common Lane (left + right)	28	0.11	0	54	0.24	0
A53 Newcastle Road (east) (ahead + right)	13	0.02	0	71	0.1	0
A53 Newcastle Road (east) (ahead)	511	-	-	538	-	-
A53 Newcastle Road (west) (left)	3	-	-	13	-	-
A53 Newcastle Road (west) (ahead)	935	-	-	1004	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Common Lane (left + right)	15	0.04	0	43	0.15	0
A53 Newcastle Road (east) (ahead + right)	97	0.1	0	243	0.25	1
A53 Newcastle Road (east) (ahead)	786	-	-	764	-	-
A53 Newcastle Road (west) (left)	1	-	-	9	-	-
A53 Newcastle Road (west) (ahead)	550	-	-	655	-	-

10.4.34 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

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

10.4.35 Table 349 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 349: A51 London Road/Gravenhunger Lane/A51 Pipegate/B5206 London Road junction 2023 future baseline and with the Proposed 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 Proposed 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	-	-	249	-	-
A51 London Road (north) (right)	142	-	-	142	-	-
A51 London Road (north) (ahead + right)	194	0.3	1	223	0.33	1
A51 London Road (north) (ahead)	124	-	-	175	-	-
B5026 London Road (left + right)	229	0.41	1	229	0.43	1
A51 Pipegate (south) (left)	24	-	-	24	-	-
A51 Pipegate (south) (ahead)	148	-	-	227	-	-
A51 Pipegate (south) (right)	0	-	-	0	-	-
A51 Pipegate (south) (straight + right)	6	0.01	0	7	0.01	0
A51 Pipegate (south) (ahead)	331	-	-	410	-	-
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Gravenhunger Lane (left + right)	0	0	0	0	0	0
A51 London Road (north) (left)	2	-	-	2	-	-
A51 London Road (north) (ahead)	216	-	-	290	-	-
A51 London Road (north) (right)	186	-	-	186	-	-
A51 London Road (north) (ahead + right)	266	0.41	1	303	0.45	1
A51 London Road (north) (ahead)	136			173		
B5026 London Road (left + right)	192	0.34	1	192	0.35	1
A51 Pipegate (south) (left)	22	-	-	22	-	-
A51 Pipegate (south) (ahead)	195	-	-	269	-	-
A51 Pipegate (south) (right)	3	-	-	3	-	-
A51 Pipegate (south) (straight + right)	17	0.02	0	19	0.03	0
A51 Pipegate (south) (ahead)	358	-	-	429	-	-

10.4.36 The results show that the junction operates within capacity in 2023 with the addition of the Proposed Scheme construction traffic, without any substantial increases in queuing or RFC from the future baseline.

Summary of highway impacts

10.4.37 The construction of the Proposed Scheme will result in substantial percentage increases in peak hour traffic flows (in relation to either total vehicles and/or HGV) at the locations listed below. It should be noted that these are not the only locations where traffic is shown to increase, however these routes have been identified as having large percentage increases from the future baseline as a result of the Proposed Scheme.

10.4.38 In CA4, the main highway impacts relate to the increase in traffic flows on the surrounding highway network as a result of the construction of the Proposed Scheme.

10.4.39 The assessment shows substantial percentage increases in peak hour traffic flows (in relation to either total vehicles and/or HGV) at the following locations:

- A51 London Road between Dog Lane and Checkley Lane;
- A53 Newcastle Road between the A51 London Road and the A5182 Trentham Road;
- A525 Bar Hill Road between the A51 London Road and the Proposed Scheme;
- A525 Bar Hill Road between the Proposed Scheme and Manor Road;
- Manor Road between the Proposed Scheme and the A525 Bar Hill Road; and
- Snape Hall Road between Common Lane and the Proposed Scheme.

10.4.40 The increase in traffic 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 A51 Nantwich Road /A53 Newcastle Road West junction, which will operate over capacity in the 2023 future baseline with the Proposed Scheme with increases in queue lengths on the A53 Newcastle Road.

10.4.41 It should be noted that these junctions are shown to operate either close to, or at capacity in the future baseline regardless of the Proposed Scheme and 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

10.4.42 The impacts on accident and safety risks will not be substantial as there are no locations where there are both accident clusters and substantial increases in traffic during construction that have been identified. Although there will be increases in construction traffic on other links and junctions, none have been identified in the baseline assessment as the location of a known safety concern.

Parking and loading

10.4.43 There are no impacts on parking and loading during construction of the Proposed Scheme in the Whitmore Heath to Madeley area.

Public Transport

Rail network

10.4.44 Construction of Stableford South Embankment will require possession of the WCML. In addition construction of the River Lea Viaduct will require possessions of the WCML, the out of use Silverdale Line (Stoke to Market Drayton railway) and the Madeley Chord. Works will typically be carried out in non-disruptive possessions[5] and where this is not possible, possessions and blockades will be agreed through close working with Network Rail to ensure that disruption is reduced.

10.4.45 Rail possessions in the Whitmore Heath to Madeley area will be required over a three year period between 2021 and 2024. While the majority of possessions will be non-disruptive, there will be the need in this area for four longer, 54-hour weekend possessions. The number of weekend possessions required in the Whitmore Heath to Madeley area are summarised in Table 350.

Table 350: Summary of likely possessions requirements in the Whitmore Heath to Madeley area

	54-hour possessions
Possessions Summary	4

10.4.46 These rail possessions are not expected to substantially disrupt the travelling public.

10.4.47 Rail possessions in adjacent areas could have the potential to disrupt travellers in the area. However, possessions in adjoining areas would be limited, where reasonably practicable, to non-disruptive possessions to reduce any impact on rail travellers. Rail replacement services would be provided as necessary when rail possessions were in place.

10.4.48 The impact on rail users in the Whitmore Heath to Madeley area will not be substantial.

Local bus services

10.4.49 Services that run along the two identified corridors that cross the Proposed Scheme may be affected by temporary construction diversions. These include the A53 Newcastle Road; and the A525 Bar Hill Road.

10.4.50 The bus services potentially affected are shown in Table 351 below.

[5] A non-disruptive possession is any possession of the operational railway which has no impact on the users of the railway. These possessions generally occur overnight, in existing maintenance or 'engineering access' periods which exist for the purposes of inspection, maintenance or renewal activities. i.e. a non-disruptive possession will allow passenger train services to operate as per their normal schedule.

Table 351: Local bus services temporary journey changes summary

Bus service	Service frequency (both directions)					Changes in bus journeys	
	AM Peak 08:00 - 09:00	PM Peak 17:00 - 18:00	Daily	Saturday	Sunday	Routes affected	Disruption duration
164	2	2	24	22	0	A53 Newcastle Road	21 months
79	0	0	2	0	0	A525 Bar Hill	3 months
85B	0	0	4	0	0	A525 Bar Hill	3 months

10.4.51 The A53 Newcastle Road construction works will require the diversion of the 164 bus service to an off-line temporary diversion route, which is approximately 150m longer than the existing route, for a period of up to one year and nine months. There are no bus stops in the vicinity of the temporary diversion, and the resulting additional distance is expected to result in less than 30 seconds additional running time.

10.4.52 The A525 Bar Hill overbridge construction will require localised lane diversions for approximately three months and traffic management will be used to facilitate the implementation of the reinstatement and proposed overbridge. Only six bus services per day run through this location and the diversion is not expected to result in any substantial impacts upon bus services and users in terms of delay.

10.4.53 None of the other corridors will be subject to any full-time temporary diversions, with works managed by short-term lane closures and partial lane closures under traffic control for tie-ins, intermittent lane restrictions and temporary road closures. These will be restricted to short-term overnight and/or weekend closures, where reasonably practicable, and as such will impact primarily at times when bus services do not run.

Public transport interchanges

10.4.54 There are no substantial public transport interchanges in the Whitmore Heath to Madeley area and consequently no construction activity impacts on public transport interchange facilities.

Pedestrian, cyclists and equestrians

10.4.55 Compared to the existing baseline, the works required to construct the Proposed Scheme will affect routes used by pedestrians, cyclists and equestrians, primarily where the construction results in changes to the affected routes.

10.4.56 Pedestrians and other non-motorised users may also be affected by changes in traffic levels due, particularly, to HS2 construction traffic. Roads with substantial changes in traffic levels are listed above.

10.4.57 Locations where routes used by pedestrians, cyclists and equestrians are diverted, realigned or reinstated are shown in Table 352, which summarises temporary diversions, realignments and extensions to PRoW required to accommodate the Proposed Scheme.

10.4.58 In addition, the A53 Newcastle Road will be diverted temporarily off-line, to some 60m south of the existing alignment, for a distance of around 700m and a period of 18 months. However, the overall increase in distance to be travelled will be less than

200m and it is not expected to have any substantial impact on traffic, pedestrians, cyclists or equestrians.

Table 352: CA4 construction changes on PRoW for non-motorised users

PRoW name	Change in distance	Duration
Whitmore Footpath 4	Stage 1 diversion is 450m longer Stage 2 diversion is 650m longer	6 months in Stage 1 30 months in Stage 2
Whitmore Footpath 5	Stage 1 temporary diversion 250m longer Stage 2 temporary diversion is 1km longer	18 months in Stage 1 18 months in Stage 2
Whitmore Footpath 6	Temporary diversion is 200m longer	36 months
Madeley Bridleway 1	Stage 1 temporary diversion 100m longer Stage 2 temporary diversion 400m longer	18 months in Stage 1 18 months in Stage 2
Madeley Bridleway 2	Temporary diversion is same length overall	18 months
Madeley Bridleway 5	Temporary diversion is 150m longer	36 months
Madeley Footpath 7	Temporary diversion is 1.1km longer	18 months
Madeley Footpath 14	Temporary diversion is less than 100m shorter	36 months
Madeley Footpath 24	Temporary diversion is 1km longer	45 months
Madeley Footpath 26	Temporary diversion is 40m shorter	36 months

10.4.59 Within these 10 temporary diversions and realignments, around half of the routes affected experience either no or minimal changes in length, or the routes become shorter (e.g. Madeley Footpaths 14 and 24). None result in any diversions which increase route length by more than 250m on footpaths or bridleways, including the highways diversion of A53 Newcastle Road.

10.4.60 Other routes do experience larger changes in length of diversion, including three over 1km (Whitmore Footpath 5, Madeley Footpath 7 and Madeley Footpath 24), all of which are effectively diverted on to another nearby PRoW route to share a crossing point of the Proposed Scheme for a temporary period.

10.4.61 There are also diversions of up to 650m on Whitmore Footpath 4, and up to 400m on Madeley Bridleway 1, both of which are diverted on to nearby roads (A53 Newcastle Road and A525 Bar Hill respectively) to avoid the construction sites for linked to the works to realign these highways, including temporary diversions.

Waterways and Canals

10.4.62 No diversions or closures of navigable waterways or canals are required during construction and consequently there are no construction impacts on navigable waterways in the Whitmore Heath to Madeley area.

10.5 CA4 Proposed Scheme operation description

Key operation transport issues

10.5.1 This section provides an overview of the impacts resulting from the operation of the Proposed Scheme. These impacts are related to road closures and the permanent diversion and realignment of roads and PRoW in the Whitmore Heath to Madeley area. The operation of the Proposed Scheme is programmed to begin in 2027.

10.6 CA4 Proposed Scheme assessment of operation impacts

Key operation transport issues

10.6.1 The main potential operational impacts relate to the diversion, realignment of roads and implementation of new junctions in order to accommodate the Proposed Scheme, together with changes to PRoW.

10.6.2 Operations will not have any substantial impacts within the Whitmore Heath to Madeley area due to increased traffic, as there are no HS2 stations or depots proposed. The maintenance of the Proposed Scheme will generate a limited number of vehicular trips associated with servicing and maintenance and there will be some minor local reassignment of traffic due to road diversions but these impacts will not be substantial.

10.6.3 Table 353 and Table 354 summarise the key infrastructure changes to the transport network. There are no key issues over and above these changes.

Highway network

Highway diversions, realignments and closures

10.6.4 Table 353 summarises the permanent road diversions, realignments and extensions required to accommodate the Proposed Scheme.

Table 353: CA4 permanent highway diversion/realignment/stopping-up

Highway name	Description	Change in length
Bent Lane (south)	Closure (it is realigned in CA3 to CA4 and then closed in CA4) access is maintained for Severn Trent Water's Whitmore borehole facility only	See below for Bent Lane (north)
Bent Lane (north)	Diversion route to replace Bent Lane south	Diversion results in less than 100m change in travel distance
A53 Newcastle Road	Reinstatement on A53 Newcastle Road overbridge. Road raised on overbridge and embankments	Reinstatement results in no change in travel distance
Snape Hall Road	Widening to the west to provide access to the rescue area at the northern porous portal of Whitmore Heath tunnel Closure either side of the Proposed Scheme.	Widening results in no change in travel distance Longest possible diversion is via Heath Road, at approximately 1.5km
Manor Road	Realignment onto Manor Road overbridge	Realignment results in minimal change in travel distance for road users, diversion to private farm track is 950m longer
A525 Bar Hill	Realignment onto A525 Bar Hill Road overbridge	Realignment results in minimal change in travel distance
Bower End Lane	Realignment and upgrade to access road	Realignment results in no change in travel distance

PRoW diversions, realignments and closures

10.6.5 Table 354 summarises the permanent PRoW diversions and realignments required to accommodate the Proposed Scheme.

Table 354: CA4 permanent PRoW diversions and realignments

PRoW name	Description	Change in length
Whitmore Footpath 6	Footpath is realigned around new embankment	Realigned route is 150m longer
Madeley Bridleway 1	Minor online realignment over new Red Lane overbridge	Realignment results in no overall change in travel distance
Madeley Bridleway 2	Affected by the rerouting of Bridleway 5 between junction with Footpath 28 and minor diversion on to new Bridleway 2 accommodation underbridge	Diversion results in minimal change in travel distance
Madeley Bridleway 5	Diverted to north-west of Proposed Scheme using former Footpath 28 route (to be upgraded to Bridleway), then meeting Bridleway 2 north of existing junction. Uses new Bridleway 2 underbridge for access towards the south	Diversion results in reduction of 200m in travel distance for travel to north and increase of less than 100m in distance for travel to west
Madeley Footpath 24	Realignment to east on Proposed Scheme access road between Bar Hill and Bower End Lane. Junction with Footpath 26 is relocated east	Realignment results in minimal change in travel distance
Madeley Footpath 26	Realignment to east on Proposed Scheme access road between Bar Hill and Bower End Lane. Junction with Footpath 24 is relocated east.	Realignment results in minimal change in travel distance.

Strategic and local road network traffic flows 2027

10.6.6 Traffic flows on road links in CA4 are primarily unchanged from the future baseline or result in very minor increases due to maintenance traffic or reassignment as a result of the realignments and closures in 2027. The main potential operational impacts relate to the diversion of a road in order to accommodate the Proposed Scheme.

10.6.7 Bent Lane is being permanently diverted and traffic is reassigned from the closed Bent Lane (south) to the new Bent Lane (north), with no change in traffic flow predicted. The impacts of the diversion in terms of the capacity of new junctions resulting from the proposed diversions are discussed in CA3 (Stone and Swynnerton).

Junction performance 2027

10.6.8 On the basis that there are no substantial changes in traffic flow predicted, new junctions proposed or amendments proposed to existing junctions in this area, no junction capacity assessments are relevant.

Strategic and local road network traffic flows 2041

10.6.9 The operational impacts at 2041 do not differ from those reported at 2027.

Junction performance 2041

10.6.10 The operational impacts at 2041 do not differ from those reported at 2027.

Accidents and safety

10.6.11 The baseline safety analysis identified no locations that had experienced an accident cluster over a three year period. In any case, there are no locations in the Whitmore Heath to Madeley area where there are substantial forecast increases in traffic flows due to the operation of the Proposed Scheme that might create any new safety concerns.

Parking and loading

10.6.12 It is not expected that the Proposed Scheme will have any substantial impacts on car parking or parking restrictions in the Whitmore Heath to Madeley area, in terms of either the 2027 or 2041 operation assessments.

Public transport

Rail network

10.6.13 There are no local changes to the rail network or operations in this CA as a result of the Proposed Scheme. The wider impacts of HS2 services are considered in Section 12 of this report.

Local bus services

10.6.14 Local bus routes will be affected where road corridors used cross the Proposed Scheme and where the Proposed Scheme results in changes in the route taken.

10.6.15 No routes crossing the Proposed Scheme are affected by the operation of the Proposed Scheme or require any diversion affecting the bus route length or additional operating time requirements.

Public transport interchanges

10.6.16 There are no substantial public transport interchange facilities in the Whitmore Heath to Madeley area and no committed proposals for public transport interchange facilities in this area in terms of either the 2027 or 2041 operation assessments.

Pedestrian, cyclist and equestrian

10.6.17 Compared to the existing baseline, the operational scheme will affect PRoW used by pedestrians, cyclists and equestrians that cross the Proposed Scheme and the operation of the Proposed Scheme results in changes to the PRoW.

10.6.18 Locations where routes used by pedestrians, cyclists and equestrians are permanently diverted, realigned or reinstated are shown in Table 355 and Table 356. The tables summarise the permanent diversions, realignments and extensions required to PRoW and roads to accommodate the Proposed Scheme.

Table 355: CA4 permanent changes to PRoW for non-motorised users

PRoW name	Change in length	New over-or under bridge
Whitmore Footpath 6	Realigned route is 150m longer	None
Madeley Bridleway 1	Realignment results in a minimal change in travel distance	Madeley Bridleway 1 accommodation overbridge
Madeley Bridleway 2	Realignment results in a minimal change in travel distance	Madeley Bridleway 2 accommodation underbridge
Madeley Bridleway 5	Diversion route for travel to the south is under 100m longer, via new underbridge. Diversion for travel to the north-east is 200m shorter	Madeley Bridleway 2 accommodation underbridge (for travel towards the south only)
Madeley Footpath 24	Realignment results in minimal change in travel distance	None
Madeley Footpath 26	Realignment results in minimal change in travel distance	None

Table 356: CA4 permanent changes to roads for non-motorised users

Road name	Change in length	New over/under bridge
Bent Lane (north)	Diversion results in less than 100m change in travel distance	None
A53 Newcastle Road	Reinstatement results in no change in travel distance	A53 Newcastle Road overbridge
Snape Hall Road	Closure. Longest possible diversion is via Heath Road, at approximately 1.5km	None
Manor Road	Realignment results in minimal change in travel distance	Manor Road overbridge
A525 Bar Hill Road	Realignment results in minimal change in travel distance	A525 Bar Hill overbridge
Bower End Lane	Realignment results in no change in travel distance	None

10.6.19 Within these diversions and realignments, the majority of routes affected experience only minimal changes in length. The longest diversion, of Madeley Bridleway 5 on to the route of upgraded Footpath 28, moves the whole route to the east of the Proposed Scheme such that trips towards the east are made shorter, whilst trips to the west are slightly longer.

10.6.20 The Proposed Scheme requires the closure of Snape Hall Road, with a diversion of some 1.5km via Heath Road required to access destinations to the east. However, this is not a PRoW and would mainly affect residents of the three dwellings along this section.

Waterways and canals

10.6.21 The Proposed Scheme makes no changes to waterways or canals in CA4 and consequently has no impact upon them.

11 CA5 South Cheshire – appraising the impact of the Proposed Scheme

11.1 Assessment Methodology

11.1.1 The assessment methodology is as outlined in the overarching methodology section of the report, with specific details and exceptions outlined in the following sections.

11.1.2 Analysis has also been undertaken to consider the potential cumulative impacts in the event the construction programmes of the Proposed Scheme and the proposed Crewe Hub were to overlap, see Section 11.7 for further details.

11.2 CA5 Proposed Scheme future baseline

Key future baseline issues

11.2.1 The key changes in baseline in relation to the South Cheshire area (CA5) are expected to relate to general background growth in traffic flows between 2016 and 2041 that will occur irrespective of the Proposed Scheme.

Land use assumptions

11.2.2 The following sources have been analysed in order to determine the impact of future land uses upon future traffic and transport conditions:

- TEMPro Growth Rates;
- Cheshire East Crewe SATURN model (and supporting forecast methodology documents);
- M6 J13-15 SATURN model;
- Local Plan Documents (Borough of Crewe and Nantwich Local Plan and Congleton Borough Local Plan); and
- Local Planning Authority Planning Portals to obtain details of recently consented, committed development that is not already included in the sources above. This allows the impact of these committed developments to be considered at a very local level i.e. at roads and junctions in close proximity to the committed sites.

11.2.3 Future baseline traffic volumes for the Crewe area have been provided by CEC from the Crewe SATURN model (documented in the Crewe Saturn Model Forecasting Report – B1832014 – January 2016), which includes committed and planned developments and future transport infrastructure. This model contains up to date assumptions regarding committed development and on this basis no further committed sites were identified for inclusion within the model area.

11.2.4 The future baseline traffic volumes for the wider area have been calculated by applying growth factors derived from TEMPro for the future years of 2023, 2027 and 2041. Growth factors from TEMPro have been checked to ensure that committed developments are appropriately reflected in the growth forecasts. No further

consented, committed development in addition to local plan development has been identified in the wider area.

11.2.5 The use of TEMPro and local traffic models, with further adjustment for known developments, means that forecast traffic growth will not be uniform on all links and at junctions. Necessarily traffic growth will be aligned to specific vehicle trip generators and attractors and/or transport scheme interventions. The result is that growth factors vary across the CA. Notwithstanding this, it is possible to produce an overall average growth factor for links within CA5, calculated using the total link flows for each future year. These overall growth factors are summarised in Table 357.

Table 357: CA5 traffic growth summary

Period	AM Peak	PM Peak
2016 – 2023	+12%	+14%
2016 – 2027	+10%	+13%
2016 – 2041	+21%	+22%

Transport supply assumptions

11.2.6 Committed transport schemes in CA5 include HS2 Phase One (in terms of the impact of increased passenger movements to Crewe Station) and the M6 J16-19 SMP.

11.2.7 The Crewe SATURN model includes the impact of committed transport schemes within the Crewe area. No further changes other than those described above have been identified in the wider South Cheshire area.

Highway network

11.2.8 As appropriate and except where otherwise stated, this assessment includes in the future baseline, changes in traffic flows or networks arising from the HS2 Phase One scheme. However, in CA5 the only changes relate to changes in passenger use of Crewe Station arising from HS2 Phase One.

Strategic road network and primary road traffic flows

11.2.9 Table 358 summarises the 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows, in comparison to the 2016 baseline flows.

Local road network traffic flows

11.2.10 Table 359 summarises the 2023, 2027 and 2041 AM (08:00 – 09:00) and PM (17:00 – 18:00) peak forecast traffic flows for roads where it is expected that there is the potential for a substantial impact either during construction or through the operation of the Proposed Scheme.

Table 358: 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
M6 (between M6 junction 16 slip Road and B5078 Radway Green Road)	NB	3667	785	4057	869	4205	901	4722	1011	4026	619	4406	678	4617	710	5067	780
	SB	3965	812	4293	879	4393	900	4743	971	4391	768	4841	846	4864	850	5540	968
A500 Newcastle Road (between M6 junction 16 and Meremoor Roundabout)	WB	1184	152	1394	111	1330	117	1374	128	1272	89	1518	69	1515	72	1504	82
	EB	1048	124	1405	113	1189	136	1152	141	1152	59	1345	53	1230	57	1286	65
A500 Shavington ByPass (between A5020 David Whitby Way and the Proposed Scheme)	WB	974	98	1452	81	1551	90	1435	87	1018	43	1789	32	1695	35	1738	36
	EB	809	81	1505	70	1593	87	1533	88	899	49	1626	48	1554	51	1708	58
A500 Shavington ByPass (between the Proposed Scheme and B5071 Jack Mills Way)	WB	974	98	1452	81	1551	90	1435	87	1018	43	1789	32	1695	35	1738	36
	EB	809	81	1505	70	1593	87	1533	88	899	49	1626	48	1554	51	1708	58
A500 Shavington ByPass (between B5071 Jack Mills Way and Rope Lane)	WB	815	85	1295	81	1206	88	1110	91	967	38	1371	32	1500	36	1172	36
	EB	758	69	1186	52	1229	71	1200	67	767	44	1158	39	1267	43	1112	47
A500 Shavington ByPass (between Rope Lane and A51 Nantwich Bypass)	WB	888	63	1295	81	1206	88	1110	91	1151	41	1371	32	1500	36	1172	36
	EB	1034	55	1186	52	1229	71	1200	67	916	51	1158	39	1267	43	1112	47
A51 Elwood Way (between A51 Newcastle Road and A51 London Road)	SB	520	10	391	18	312	19	371	25	855	6	325	8	238	9	195	7
	NB	777	31	202	9	187	9	220	12	636	14	299	12	268	12	333	14
A51 London Road (between Annions Lane and First Dig Lane)	NB	196	7	60	2	55	2	79	6	186	8	79	1	75	1	120	1
	SB	172	7	111	3	95	1	139	2	169	7	84	1	88	2	129	2
A51 London Road (between B5071 Crewe Road and Annions Lane)	NB	180	8	60	2	55	2	79	6	187	8	79	1	75	1	120	1
	SB	152	6	111	3	95	1	139	2	153	7	84	1	88	2	129	2

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 London Road (between Back Lane and Wybunbury Road)	NB	164	7	163	2	146	2	184	3	165	7	242	3	222	3	247	4
	SB	129	10	222	2	191	2	232	2	150	2	232	2	192	2	242	2
A51 London Road (between Checkley Lane and Mill Lane)	NB	217	9	163	2	146	2	184	3	203	5	242	3	222	3	247	4
	SB	196	9	222	2	191	2	232	2	213	4	232	2	192	2	242	2
A51 London Road (between First Dig Lane and Wybunbury Lane)	NB	284	8	307	9	316	9	341	10	316	4	343	4	353	4	390	5
	SB	337	9	364	10	374	10	404	11	246	3	267	3	275	3	304	3
A51 London Road (between Mill Lane and Back Lane)	NB	218	5	163	2	146	2	184	3	230	3	242	3	222	3	247	4
	SB	193	3	222	2	191	2	232	2	225	3	232	2	192	2	242	2
A51 London Road (between Wybunbury Lane and A51 Elwood Way)	NB	339	8	41	2	23	1	46	4	368	5	40	3	37	3	74	7
	SB	318	7	118	3	42	1	40	2	334	2	75	1	75	1	47	1
A51 Newcastle Road (between A51 Nantwich Bypass and A51 Elwood Way)	WB	778	18	979	35	984	40	1111	44	1018	16	1211	19	1106	21	1242	20
	EB	766	20	902	15	922	21	1075	26	859	9	983	21	857	23	1116	31
A531 Crewe Road (between Bowsey Wood Road and A525 Newcastle Road)	NB	394	4	423	4	436	4	473	4	234	1	251	1	258	1	279	1
	SB	182	2	195	2	201	2	219	2	285	1	306	1	314	1	340	1
A531 Main Road (between Checkley Lane and Bowsey Wood Road)	SB	452	12	174	7	163	4	231	7	333	2	216	3	230	3	259	3
	NB	308	7	159	2	148	2	164	5	379	3	120	3	124	3	162	4
A531 Main Road (between Waybutt Lane and Checkley Lane)	SB	341	6	366	6	377	7	410	7	394	2	422	2	435	2	470	2
	NB	338	4	363	4	374	4	406	5	315	1	338	2	348	2	376	2
A531 Newcastle Road (between A500 Shavington ByPass and Main Road)	SB	264	20	144	2	163	2	129	2	289	7	315	3	359	1	321	2
	NB	213	8	194	0	192	0	183	1	166	3	158	6	157	7	153	8

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
A531 Newcastle Road (between Main Road and B5500 Four Lanes End)	EB	522	16	554	20	428	14	476	24	599	9	776	9	800	9	892	10
	WB	516	20	601	22	606	23	857	27	424	8	644	24	601	25	1033	30
A531 Newcastle Road (between Waybutt Lane and B5500 Balterley Green Road)	EB	522	16	554	20	428	14	476	24	599	9	776	9	800	9	892	10
	WB	516	20	601	22	606	23	857	27	424	8	644	24	601	25	1033	30
A532 Weston Road (between A534 Nantwich R3d and A5020 University Way)	NB	727	14	839	32	810	32	799	32	400	17	550	9	584	9	627	10
	SB	300	14	529	26	555	27	566	32	616	7	656	9	663	8	633	10
A534 Nantwich Road (between A532 Weston Road and A5019 Mill Street)	WB	805	18	798	23	810	23	747	22	878	19	1060	10	1061	11	1102	12
	EB	909	20	956	26	1023	30	1058	24	660	6	634	6	759	6	702	6

Table 359: Local road network AM Peak Hour (08.00 – 09.00) and PM Peak Hour (17.00 – 18.00) future baseline traffic flows

Location	Direction	2016		2023		2027		2041		2016		2023		2027		2041	
		Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV
A5020 David Whitby Way (between A500 Shavington ByPass and A532 Weston Road)	NB	1146	34	927	66	1067	73	930	64	546	25	813	53	710	57	755	61
	SB	324	13	457	43	497	57	478	64	892	8	1267	22	1284	24	1317	26
A525 Bar Hill (between Moss Lane and New Road)	SB	194	3	208	3	215	3	233	4	239	2	256	2	264	2	285	2
	NB	231	4	248	4	255	4	277	5	200	2	214	2	220	2	238	2
A525 Newcastle Road (between New Road and A531 Crewe Road)	NB	251	2	270	2	278	2	302	2	232	1	248	1	256	1	276	1
	SB	264	3	283	3	292	3	317	4	340	3	364	3	375	3	405	3
B5071 Bridge Street (between Back Lane and Wrinehill Road)	NB	194	5	112	2	96	0	128	1	215	4	185	2	162	2	155	2
	SB	193	1	120	1	100	1	108	4	189	1	170	1	119	1	141	1
B5071 Crewe Road (between Weston Lane and B5071 Jack Mills Way)	SB	203	10	261	12	261	12	230	11	367	5	554	3	523	3	608	4

Location	Direction	2016		2023		2027		2041		2016		2023		2027		2041	
		Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV
	NB	290	8	721	7	686	6	874	9	257	5	409	6	398	6	473	7
B5071 Crewe Road (between Weston Lane and Newcastle Road)	SB	168	2	180	2	184	2	197	2	274	1	292	1	299	1	318	2
	NB	276	3	295	3	302	3	323	4	231	1	247	1	252	1	268	1
B5071 Jack Mills Way (between Crewe Road and Link Road/junction with Crewe Road)	WB	136	6	149	7	136	6	139	8	241	2	457	2	454	2	571	2
	EB	245	9	517	5	584	7	810	8	239	4	250	5	243	5	292	6
B5071 Wybunbury Road (middle of Wybunbury Road and A51 London Road)	NB	114	0	112	2	96	0	128	1	116	0	185	2	162	2	155	2
	SB	78	1	120	1	100	1	108	4	88	0	170	1	119	1	141	1
B5071 Wybunbury Road (between Back Lane and middle of Wybunbury Road)	NB	108	1	112	2	96	0	128	1	106	1	185	2	162	2	155	2
	SB	96	1	120	1	100	1	108	4	95	0	170	1	119	1	141	1
Bowsey Wood Road (between A531 Main Road and A525 Newcastle Road)	NB	90	0	97	0	100	0	108	0	62	1	66	1	68	1	74	1
	SB	68	2	73	2	75	2	82	2	98	0	105	0	108	0	117	0
Checkley Lane (between Proposed Scheme and A531 Main Road)	EB	63	2	68	2	70	2	76	3	44	0	47	1	49	1	53	1
	WB	46	2	50	2	51	2	56	3	45	0	48	0	50	0	54	0
Casey Lane (between Back Lane and the Proposed Scheme)	NB	52	0	57	0	44	0	122	0	12	1	63	0	53	0	43	0
	SB	8	1	19	0	18	0	24	0	17	0	76	0	48	2	60	0
Casey Lane (between the Proposed Scheme and Weston Lane)	NB	52	0	57	0	44	0	122	0	12	1	63	0	53	0	43	0
	SB	8	1	19	0	18	0	24	0	17	0	76	0	48	2	60	0
Checkley Lane (between A51 London Road and the Proposed Scheme)	EB	67	3	73	3	75	3	81	3	41	1	44	1	45	1	50	1
	WB	47	3	51	3	52	3	56	3	43	1	47	1	48	1	53	1
Chorlton Lane (between the Proposed Scheme and Waybutt Lane)	EB	5	0	5	0	6	0	6	0	3	0	4	0	4	0	4	0
	WB	5	0	5	0	6	0	6	0	2	0	2	0	2	0	2	0

Location	Direction	2016		2023		2027		2041		2016		2023		2027		2041	
		Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV
Chorlton Lane (between Waybutt Lane and Newcastle Road)	NB	16	1	18	1	18	1	20	1	7	0	8	0	8	0	9	0
	SB	8	0	9	1	9	1	10	1	12	0	13	0	14	0	15	0
Den Lane (between Mill Lane and Den Lane)	EB	21	1	23	5	12	2	16	4	10	0	11	2	8	2	10	2
	WB	6	0	1	0	1	0	5	4	18	0	1	1	1	1	1	1
Mill Lane (between Beech Farm and A51 London Road)	WB	11	0	12	0	12	0	13	0	13	1	14	1	14	1	16	1
	EB	7	0	7	0	8	0	8	0	11	0	12	0	12	0	13	0
Mill Lane (between Den Lane and Beech Farm)	SB	7	0	7	0	8	0	8	0	7	0	8	0	8	0	9	0
	NB	8	0	9	0	9	0	10	0	6	0	7	0	7	0	8	0
Middle section of Wrinehill Road	EB	18	0	23	5	12	2	16	4	15	0	11	2	8	2	10	2
	WB	15	1	1	0	1	0	5	4	18	0	1	1	1	1	1	1
Newcastle Road (between Casey Lane and the Proposed Scheme)	WB	372	20	320	23	271	24	553	32	480	5	517	27	442	26	728	33
	EB	381	14	598	18	452	12	519	23	350	7	415	8	367	9	447	9
Newcastle Road (between Chorlton Lane and the Proposed Scheme)	WB	372	20	320	23	271	24	553	32	480	5	517	27	442	26	728	33
	EB	381	14	598	18	452	12	519	23	350	7	415	8	367	9	447	9
Newcastle Road (between Chorlton Lane and A531 Newcastle Road)	WB	365	17	390	18	399	18	424	19	382	6	408	6	417	6	423	6
	EB	367	17	392	18	401	18	426	20	387	6	413	6	422	6	429	7
Waybutt Lane (south of Chorlton Lane)	SB	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0
	NB	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0
Waybutt Lane (west of A531 Newcastle Road)	EB	5	0	5	0	5	0	5	0	2	0	2	0	2	0	2	0
	WB	10	0	11	1	11	1	12	1	2	0	2	0	2	0	2	0
Weston Lane (between B5071 Crewe Road and the Proposed Scheme)	WB	58	2	101	2	53	0	152	5	120	1	103	0	96	0	119	4

Location	Direction	2016		2023		2027		2041		2016		2023		2027		2041	
		Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV
	EB	123	1	65	0	72	1	105	2	59	1	80	1	61	1	86	1
Weston Lane (between Casey Lane and Cemetery Road)	WB	69	2	120	2	71	1	176	6	138	1	179	0	143	2	179	4
	EB	173	2	122	0	117	2	228	2	67	1	143	1	114	1	129	1
Weston Lane (between Casey Lane and Larch Avenue)	WB	58	2	101	2	53	0	152	5	120	1	103	0	96	0	119	4
	EB	123	1	65	0	72	1	105	2	59	1	80	1	61	1	86	1
Wrinehill Road (between Bridge Street and Wrinehill Road/east-bound)	EB	84	0	29	5	17	2	38	4	67	0	70	2	62	2	48	3
	WB	64	0	8	1	6	1	10	4	85	0	27	1	7	1	11	1
Wrinehill Road (between Wrinehill Road/east-bound and Cobbs Lane)	EB	81	0	29	5	17	2	38	4	63	0	70	2	62	2	48	3
	WB	63	0	8	1	6	1	10	4	84	0	27	1	7	1	11	1
Wrinehill Road (east of Cobbs Lane)	SB	20	2	23	5	12	2	16	4	21	1	11	2	8	2	10	2
	NB	20	1	1	0	1	0	5	4	19	1	1	1	1	1	1	1
Wrinehill Road (north-west of Mill Lane)	EB	25	1	23	5	12	2	16	4	15	1	11	2	8	2	10	2
	WB	12	1	1	0	1	0	5	4	20	0	1	1	1	1	1	1

Junction operation – future baseline

11.2.11 The operation of the key junctions which form the main access routes from the SRN through the study area to the construction sites, or are affected by the operation of the Proposed Scheme, have been assessed using the future baseline traffic flows and the results are summarised in the following tables.

11.2.12 Where a junction will be affected by the construction of the Proposed Scheme, future baseline results will be included for 2023. Where a junction is affected by the operation of the Proposed Scheme, which is primarily due to changes in traffic as a result of infrastructure changes in the Proposed Scheme and the impact of changes in passenger use of Crewe Station, results will be included for 2027 and 2041. Junctions affected by both the construction and operation will include results for all three assessment years.

11.2.13 As for the existing baseline, the results for CA5 are presented in the order of Roundabout junctions, priority controlled (give-way), signalised junctions and M6 junction 16. The results for the AM and PM peak hours are presented and the 2016 baseline results are included for reference. The models developed to assess the existing baseline have been used, except where otherwise stated.

A51 Newcastle Road/A51 Nantwich Bypass/A500 Shavington Bypass

11.2.14 The future baseline performance of this junction is shown in Table 360. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 360: Future year baseline performance A51 Newcastle Road/A51 Nantwich Bypass/A500 Shavington Bypass junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
A51 Nantwich Bypass	833	0.58	2	765	0.57	2
Cheerbrook Road	189	0.18	0	279	0.3	0
A500 Shavington Bypass	1007	0.43	1	1850	0.76	4
A51 Newcastle Road (north)	388	0.35	1	465	0.67	2
Newcastle Road (west)	968	0.72	3	1039	0.94	13
	2016 PM			**2023 PM**		
A51 Nantwich Bypass	991	0.68	2	906	0.72	3
Cheerbrook Road	160	0.16	0	355	0.45	1
A500 Shavington Bypass	1304	0.59	2	1664	0.78	4
A51 Newcastle Road (north)	275	0.3	0	376	0.55	2
Newcastle Road (west)	892	0.67	2	1165	0.95	14

11.2.15 The model shows that the junction will approach capacity in the AM and PM peak periods, with RFC values of 0.94 and 0.95 and corresponding queue lengths of 13 and 14 PCUs respectively in the AM and PM peak periods on the Newcastle Road (west) arm.

A500 Shavington Bypass/B5071 Jack Mills Way

11.2.16 The future baseline performance of this junction is shown in Table 361. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 361: Future year baseline performance at A500 Shavington Bypass/B5071 Jack Mills Way junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
B5071 Jack Mills Way (north)	329	0.21	0	675	0.49	1
A500 Shavington Bypass (east)	1131	0.48	1	2043	0.91	11
B5071 Road (south)	297	0.23	0	394	0.6	2
A500 Shavington Bypass (west)	1135	0.48	1	1555	0.71	3
	2016 PM			**2023 PM**		
B5071 Jack Mills Way (north)	531	0.3	0	825	0.59	2
A500 Shavington Bypass (east)	1602	0.72	3	2143	0.97	20
B5071 Road (south)	169	0.17	0	280	0.43	1
A500 Shavington Bypass (west)	994	0.42	1	1494	0.71	3

11.2.17 The model shows that the junction will approach capacity in the AM and PM peak periods, with RFC values of 0.91 and 0.97 and corresponding queue lengths of 11 and 20 PCUs respectively in the AM and PM peak periods on the A500 Shavington Bypass (east) arm.

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

11.2.18 The future baseline performance of this junction is shown in Table 362. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 362: Future year baseline performance at A500 Shavington Bypass/B5472 Weston Road/A500 Newcastle Road/A531 Newcastle Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
B5472 Weston Road	392	0.32	1	509	0.61	2
A500 Shavington Bypass (east)	1419	0.57	2	2079	0.84	7
A531 Newcastle Road	235	0.25	0	207	0.37	1
A500 Newcastle Road (west)	993	0.45	1	1710	0.73	3
	2016 PM			**2023 PM**		
B5472 Weston Road	376	0.32	1	412	0.45	1
A500 Shavington Bypass (east)	1424	0.58	1	2021	0.82	5
A531 Newcastle Road	176	0.18	0	191	0.29	0
A500 Newcastle Road (west)	1218	0.53	1	1546	0.71	3

11.2.19 The model shows that the junction will approach capacity in the AM and PM peak periods, with RFC values of 0.84 and 0.82 and corresponding queue lengths of seven and five PCUs respectively in the AM and PM peak periods on the A500 Shavington Bypass (east) arm.

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

11.2.20 The future baseline performance of this junction is shown in Table 363. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 363: Future year baseline performance at Newcastle Road/Main Road/A531 Newcastle Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Main Road	176	0.13	0	439	0.34	1
A531 Newcastle Road (east)	293	0.22	0	178	0.17	0
A531 Newcastle Road (south)	854	0.56	1	1136	0.71	3
Newcastle Road (west)	393	0.3	0	738	0.6	2
	2016 PM			**2023 PM**		
Main Road	437	0.31	1	662	0.49	1
A531 Newcastle Road (east)	376	0.33	1	367	0.38	1
A531 Newcastle Road (south)	524	0.35	1	1046	0.67	2
Newcastle Road (west)	375	0.25	0	525	0.38	1

11.2.21 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A500 Shavington Bypass/A5020 David Whitby Way

11.2.22 The future baseline performance of this junction is shown in Table 364. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 364: Future year baseline performance at A500 Shavington Bypass/A5020 David Whitby Way junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM		
A5020 David Whitby Way	385	0.21	0	1212	0.71	3
A500 Shavington Bypass (east)	1275	0.57	1	2016	1.02	46
A500 Shavington Bypass (west)	1831	0.83	5	1963	0.98	25
	2016 PM			2023 PM		
A5020 David Whitby Way	922	0.51	1	981	0.6	2
A500 Shavington Bypass (east)	1212	0.6	2	1544	0.79	4
A500 Shavington Bypass (west)	1469	0.64	2	2043	0.88	8

11.2.23 The model shows that this junction is operating over capacity in the AM peak hour with an RFC of over 1 on the A500 Shavington Bypass (east) and a corresponding queue length of 46 PCUs. The A500 Shavington Bypass (west) arm shows an RFC of 0.98 and a queue length of 25 PCUs in the same time period. The junction also operates close to capacity in the PM peak hour with an RFC of 0.88 on the A500 Shavington Bypass (west) and a corresponding queue length of eight PCUs.

A51 London Road/Checkley Lane/Hunsterson Road

11.2.24 The future baseline performance of this junction is shown in Table 365. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 365: Future year baseline performance at A51 London Road/Checkley Lane/Hunsterson Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM		
Checkley Lane (ahead + left + right)	40	0.08	0	44	0.09	0
A51 London Road (north) (ahead + left + right)	36	0.06	0	41	0.06	0
A51 London Road (north) (left)	19	-	-	21	-	-
A51 London Road (north) (ahead)	150	-	-	164	-	-
Hunsterson Road (ahead + left + right)	50	0.1	0	55	0.11	0
A51 London Road (south) (ahead + left + right)	45	0.07	0	52	0.08	0
A51 London Road (south) (left)	18	-	-	20	-	-
A51 London Road (south) (ahead)	185	-	-	203	-	-

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 PM			2023 PM		
Checkley Lane (ahead + left + right)	43	0.08	0	48	0.09	0
A51 London Road (north) (ahead + left + right)	14	0.02	0	16	0.02	0
A51 London Road (north) (left)	6	-	-	7	-	-
A51 London Road (north) (ahead)	180	-	-	200	-	-
Hunsterson Road (ahead + left + right)	37	0.07	0	41	0.08	0
A51 London Road (south) (ahead + left + right)	36	0.05	0	41	0.06	0
A51 London Road (south) (left)	9	-	-	9	-	-
A51 London Road (south) (ahead)	186	-	-	205	-	-

11.2.25 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 London Road/Mill Lane

11.2.26 The future baseline performance of this junction is shown in Table 366. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 366: Future year baseline performance at A51 London Road/Mill Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			2023 AM		
Mill Lane (left + right)	9	0.02	0	10	0.02	0
A51 London Road (south) (straight + right)	0	0	0	0	0	0
A51 London Road (south) (ahead)	218	-	-	241	-	-
A51 London Road (north) (left)	2	-	-	2	-	-
A51 London Road (north) (ahead)	198	-	-	219	-	-
	2016 PM			2023 PM		
Mill Lane (left + right)	6	0.01	0	7	0.02	0
A51 London Road (south) (straight + right)	8	0.01	0	10	0.01	0
A51 London Road (south) (ahead)	219	-	-	243	-	-
A51 London Road (north) (left)	10	-	-	11	-	-
A51 London Road (north) (ahead)	199	-	-	221	-	-

11.2.27 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

A51 London Road/B5071 Wybunbury Road/B5071 Crewe Road

11.2.28 The future baseline performance of this junction is shown in Table 367. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 367: Future year baseline performance at A51 London Road/B5071 Wybunbury Road/B5071 Crewe Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
B5071 Wybunbury Road (ahead + left + right)	95	0.24	0	105	0.27	0
A51 London Road (north) (ahead + left + right)	21	0.03	0	23	0.03	0
A51 London Road (north) (left)	38	-	-	42	-	-
A51 London Road (north) (ahead)	127	-	-	140	-	-
B5071 Crewe Road (ahead + left + right)	85	0.2	0	94	0.23	0
A51 London Road (south) (ahead + left + right)	16	0.02	0	18	0.03	0
A51 London Road (south) (left)	5	-	-	5	-	-
A51 London Road (south) (ahead)	163	-	-	180	-	-
	2016 PM			**2023 PM**		
B5071 Wybunbury Road (ahead + left + right)	86	0.2	0	95	0.23	0
A51 London Road (north) (ahead + left + right)	8	0.01	0	9	0.01	0
A51 London Road (north) (left)	6	-	-	7	-	-
A51 London Road (north) (ahead)	111	-	-	123	-	-
B5071 Crewe Road (ahead + left + right)	103	0.23	0	114	0.26	0
A51 London Road (south) (ahead + left + right)	10	0.02	0	11	0.02	0
A51 London Road (south) (left)	2	-	-	2	-	-
A51 London Road (south) (ahead)	127	-	-	141	-	-

11.2.29 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

Newcastle Road/Chorlton Lane

11.2.30 The future baseline performance of this junction is shown in Table 368. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 368: Future year baseline performance at Newcastle Road/Chorlton Lane junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2016 AM			**2023 AM**		
Chorlton Lane (left + right)	20	0.05	0	22	0.05	0
Newcastle Road (west) (ahead + right)	17	0.02	0	19	0.03	0
Newcastle Road (west) (ahead)	378	-	-	403	-	-
Newcastle Road (east) (left)	9	-	-	10	-	-
Newcastle Road (east) (ahead)	382	-	-	408	-	-
	2016 PM			**2023 PM**		
Chorlton Lane (left + right)	11	0.03	0	12	0.03	0
Newcastle Road (west) (ahead + right)	5	0.01	0	6	0.01	0
Newcastle Road (west) (ahead)	348	-	-	371	-	-
Newcastle Road (east) (left)	6	-	-	7	-	-
Newcastle Road (east) (ahead)	478	-	-	509	-	-

11.2.31 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

Newcastle Road/Casey Lane

11.2.32 The future baseline performance of this junction is shown in Table 369. As the junction is located both on a construction route and will be affected by the operation of the Proposed Scheme, future baseline results are presented for 2023, 2027 and 2041.

Table 369: Future year baseline performance at Newcastle Road/Casey 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
	2016 AM			**2023 AM**			**2027 AM**			**2041 AM**		
Casey Lane (left + right)	40	0.08	0	42	0.09	0	67	0.15	0	124	0.28	1
Newcastle Road (east) (ahead + right)	64	0.09	0	72	0.1	0	87	0.13	0	495	0.62	4
Newcastle Road (east) (ahead)	320	-	-	338	-	-	296	-	-	257	-	-
Newcastle Road (west) (left)	8	-	-	9	-	-	0	-	-	0	-	-
Newcastle Road (west) (ahead)	371	-	-	396	-	-	500	-	-	550	-	-
	2016 PM			**2023 PM**			**2027 PM**			**2041 PM**		
Casey Lane (left + right)	64	0.13	0	68	0.14	0	74	0.16	0	96	0.21	0
Newcastle Road (east) (ahead + right)	81	0.11	0	91	0.12	0	265	0.35	1	688	0.78	7
Newcastle Road (east) (ahead)	413	-	-	436	-	-	326	-	-	228	-	-
Newcastle Road (west) (left)	10	-	-	11	-	-	0	-	-	0	-	-
Newcastle Road (west) (ahead)	300	-	-	320	-	-	399	-	-	497	-	-

11.2.33 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches.

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

11.2.34 The future baseline performance of this junction is shown in Table 370. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 370: Future year baseline performance at A51 London Road/A530 Peter DeStapleigh Way/A51 Elwood Way junction

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
	2016 AM			**2023 AM**		
A51 London Road (north)	57	47%	2	63	52%	2
A51 Elwood Way	638	53%	8	711	57%	9
A530 Peter DeStapleigh Way	642	70%	12	702	72%	13
A51 London Road (south)	384	57%	9	425	70%	11
	2016 PM			**2023 PM**		
A51 London Road (north)	36	30%	1	39	32%	1
A51 Elwood Way	996	91%	21	1089	89%	21
A530 Peter DeStapleigh Way	387	43%	6	427	44%	6
A51 London Road (south)	362	62%	9	399	90%	14

11.2.35 The model shows that this junction operates close to its capacity in the PM peak period in the 2023 baseline with DoS values of 89% and 90% on the A51 Elwood Way and A51 London Road (south) arms and corresponding queue lengths of 21 and 14 PCUs respectively in the PM peak period.

A51 Elwood Way/B5074 Newcastle Road/A51 Newcastle Road

11.2.36 The future baseline performance of this junction is shown in Table 371. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 371: Future year baseline performance at A51 Elwood Way/B5074 Newcastle Road /A51 Newcastle Road junction

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
	2016 AM			**2023 AM**		
A51 Elwood Way	871	88%	21	947	98%	32
A51 Newcastle Road	916	90%	19	1006	96%	27
B5074 Newcastle Road	403	65%	6	451	87%	7
	2016 PM			**2023 PM**		
A51 Elwood Way	585	90%	17	634	98%	23
A51 Newcastle Road	1136	96%	25	1228	100%	38
B5074 Newcastle Road	629	52%	6	676	83%	9

11.2.37 The model shows that all arms are approaching capacity in the future baseline in the AM and PM peak periods with DoS values of 87%-98% and corresponding queue lengths of seven to 32 PCUs in the AM peak period and DoS values of 83%-100% and corresponding queue lengths of nine to 38 PCUs in the PM peak period.

A534 Crewe Road/A532 Weston Road/A534 Nantwich Road/Tommys Lane/A532 Macon Way (Crewe Arms Roundabout)

11.2.38 The baseline performance of this junction is shown in Table 372. As the junction is only affected by the operation of the Proposed Scheme, future baseline results are presented for 2027 and 2041 only.

Table 372: Future year baseline performance at A534 Crewe Road/A532 Weston Road/A534 Nantwich Road/Tommys Lane/A532 Macon Way (Crewe Arms Roundabout) junction

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
	2016 AM			**2027 AM**			**2041 AM**		
A532 Macon Way	294	88%	7	1112	116%	108	1345	158%	303
Tommys Lane	40	7%	0	28	10%	0	33	5%	0
A534 Nantwich Road	1014	78%	18	1248	81%	20	1312	154%	275
A532 Weston Road - kerbside lane	321	83%	10	352	51%	7	287	55%	7
A532 Weston Road - farside lane	394	88%	10	381	51%	5	435	73%	7
A534 Crewe Road - kerbside lane	494	85%	13	623	113%	56	434	103%	26
A534 Crewe Road - farside lane	49	11%	1	77	20%	2	189	50%	5
	2016 PM			**2027 PM**			**2041 PM**		
A532 Macon Way	272	72%	5	566	62%	8	585	85%	12
Tommys Lane	58	11%	1	65	12%	1	71	15%	1
A534 Nantwich Road	956	88%	23	836	71%	13	788	62%	9
A532 Weston Road - kerbside lane	229	88%	9	425	56%	9	425	55%	9
A532 Weston Road - farside lane	380	95%	11	573	73%	10	712	86%	15
A534 Crewe Road - kerbside lane	581	92%	15	642	79%	13	733	85%	16
A534 Crewe Road - farside lane	121	29%	3	154	26%	3	117	18%	2

11.2.39 The model shows that in 2027 and 2041, the junction operates over capacity, with large queues forecast on both A534 Nantwich Road and A532 Macon Way.

A534 Nantwich Road/Pedley Street/Gresty Road

11.2.40 The baseline performance of this junction is shown in Table 373. The results are presented based upon the anticipated layout of the junction in the future year as derived from the CEC Crewe SATURN model and supporting documentation. As the junction is only affected by the operation of the Proposed Scheme, future baseline results are presented for 2027 and 2041 only.

Table 373: Future year baseline performance at A534 Nantwich Road/Pedley Street/Gresty Road junction

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
	2027 AM			**2041 AM**		
Gresty Road (Exit only) (ahead + left + right)	0	0	0	0	0	0
A534 Nantwich Road (east) (left)	334	-	-	322	-	-
A534 Nantwich Road (east) (ahead)	612	-	-	623	-	-
A534 Nantwich Road (east) (right)	88	0.26	0	74	0.23	0
Pedley St (ahead + left + right)	261	0.68	2	291	0.79	3
A534 Nantwich Road (west) (left)	35	-	-	35	-	-
A534 Nantwich Road (west) (ahead)	976	-	-	1027	-	-
A534 Nantwich Road (west) (right)	0	0	0	0	0	0
	2027 PM			**2041 PM**		
Gresty Road (Exit only) (ahead + left + right)	0	0	0	0	0	0
A534 Nantwich Road (east) (left)	390	-	-	374	-	-
A534 Nantwich Road (east) (ahead)	729	-	-	758	-	-
A534 Nantwich Road (east) (right)	126	0.28	10	130	0.28	0
Pedley St (ahead + left + right)	354	0.72	23	369	0.72	2
A534 Nantwich Road (west) (left)	28	-	-	36	-	-
A534 Nantwich Road (west) (ahead)	539	-	-	454	-	-
A534 Nantwich Road (west) (right)	0	0	0	0	0	0

11.2.41 The results show that the future junction layout operates within capacity in the future year of 2027 and 2041. Pedley Street is shown to have a RFC value of 0.79 and queue length of three PCUs in the AM Peak.

A534 Nantwich Road/B5071 South Street/A5019 Mill Street

11.2.42 The baseline performance of this junction is shown in Table 374. The results are presented based upon the anticipated layout of the junction in the future year as derived from the CEC Crewe SATURN model and supporting documentation. As the junction is only affected by the operation of the Proposed Scheme and not the construction, future baseline results are presented for 2027 and 2041 only.

Table 374: Future year baseline performance at A534 Nantwich Road/B5071 South Street/A5019 Mill Street junction

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
	2027 AM			**2041 AM**		
B5071 South Street (left + right + ahead)	612	134%	105	624	149%	135
A534 Nantwich Road (left + right + ahead)	220	22%	4	239	23%	4
A534 Nantwich Road (left + right + ahead)	1251	133%	209	1442	147%	294
A5019 Mill St (left + right + ahead)	506	132%	85	543	149%	117
	2027 PM			**2041 PM**		
B5071 South St (left + right + ahead)	729	114%	76	758	126%	112
A534 Nantwich Road (left + right + ahead)	733	87%	16	832	98%	22
A534 Nantwich Road (left + right + ahead)	641	116%	72	738	128%	112
A5019 Mill St (left + right + ahead)	345	117%	41	307	119%	40

11.2.43 This junction is located on an existing traffic congested corridor and despite planned improvements to the layout the model shows that in 2027 and 2041, the junction operates over capacity, with large queues forecast on A534 Nantwich Road, the B5071 South Street and to a lesser extent, the A5019 Mill Street. Clearly, in this instance, there is limited scope to improve this junction given the constraints of the existing highway boundary.

M6 junction 16

11.2.44 Table 375 shows the results of the baseline SATURN M6 J13-15 model for M6 junction 16. The queues are average SATURN link queues. As the junction is not affected by the operation of the Proposed Scheme, future baseline results are presented for 2023 only.

Table 375: Future year baseline performance at M6 junction 16

08:00 – 09:00	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
	2012 baseline			**2023 future baseline**		
South-bound off slip	1313	91%	7	1511	70%	24
South-bound on slip	535	25%	0	595	29%	0
North bound off slip	524	44%	0	526	27%	3
North bound on slip	972	42%	0	979	47%	0
A500(T) exit to east	1911	49%	0	2184	56%	0

08:00 – 09:00	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
A500(T) west-bound approach	1975	99%	6	1871	102%	29
A500 Newcastle Road east-bound approach	805	58%	1	882	64%	4
A500 Newcastle Road exit to west	1382	100%	1	1368	99%	2
B5078 approach	440	35%	0	586	44%	1
B5078 exit	257	19%	0	175	13%	0
17:00 – 18:00	**2012 baseline**			**2023 future baseline**		
Approach	**Flow, PCU/hr**	**V/C**	**Q, PCU**	**Flow, PCU/hr**	**V/C**	**Q, PCU**
South-bound off slip	1196	83%	6	1368	63%	8
South-bound on slip	331	16%	0	399	20%	0
North-bound off slip	400	32%	0	494	25%	3
North-bound on slip	1048	48%	0	1019	54%	0
A500(T) Exit to east	2023	52%	0	2203	57%	0
A500(T) WB Approach	1954	88%	1	1862	102%	24
A500 Newcastle Road east-bound approach	973	71%	1	923	67%	5
A500 Newcastle Road exit to west	1275	92%	0	1213	88%	0
B5078 approach	352	31%	0	428	32%	0
B5078 exit	188	14%	0	184	14%	0

11.2.45 The model results show that the A500(T) west-bound approach and the A500 Newcastle Road exit to the west arms exceed their capacity during the AM and PM peaks in 2012 and 2023, showing the V/C over 100%.

Accidents and safety

11.2.46 No issues have been identified for the future baseline network operation as a result of changes to the highway network or travel demands, and the accident and safety records for the baseline assessment are assumed to provide a relevant basis for assessment.

Parking and loading

11.2.47 Compared to the existing baseline, no changes are assumed.

Public transport

Rail network

11.2.48 Compared to the existing baseline, no changes are forecast/expected, other than those related to increases in rail demand at Crewe Station associated with HS2 Phase One, as referenced above.

Local bus services

11.2.49 Since it is not possible to forecast how services may change in the future, it has been assumed that bus services for the future years of assessment will be the same as those currently operating.

Public transport interchanges

11.2.50 Compared to the existing baseline, no changes are assumed.

Pedestrians, cyclists and equestrians

11.2.51 Compared to the existing baseline, no changes are assumed.

Taxis

11.2.52 Compared to the existing baseline, no changes are assumed.

Waterways and Canals

11.2.53 Compared to the existing baseline, no changes are assumed.

11.3 CA5 Proposed Scheme construction description

11.3.1 This section provides an overview of the construction traffic and transport impacts for the section of the Proposed Scheme that will pass through the South Cheshire area.

11.3.2 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 Proposed Scheme and is therefore considered to be reasonably representative.

Construction activities

11.3.3 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 the works. The peak month that is assessed also includes for cumulative impacts arising from construction in the adjoining community area as well as for movements through the area. The assessment also considers any substantial closures that are proposed.

Compounds and construction sites

11.3.4 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. For the construction programme refer to Volume 2: Community Area 5, South Cheshire, Section 2.3.

11.3.5 The location of the construction compounds and the associated access routes are shown in the TR-08 Map Series (Volume 5: Traffic and Transport Map Book).

11.3.6 Table 376 summarises the anticipated average and peak workforce to be required at each construction compound. It also provides details of the number of workers and staff.

Table 376: Assumed workforce at construction sites

Compound type	Location	Total Number of Workers		Number of workers (Peak)	Number of Staff
		Average	Peak		
Satellite	Checkley North embankment satellite compound	16	24	16	4
Satellite	Blackenhall northbound spur embankment satellite compound (WCML)	68	102	68	17
Satellite	Blackenhall cutting Satellite compound	28	42	28	7
Satellite	Crewe South cutting satellite compound	64	96	64	16
Main	Chorlton cutting main compound	16	24	16	4
Satellite	Crewe South portal satellite compound	12	18	12	3
Main	Basford cutting main compound	200	300	200	50

11.3.7 Typical vehicle trip generation for construction site compounds in this area are shown in Table 377. For each compound 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 shown for the busy period is the lower end of the range, with the average daily combined two-way vehicle trips shown for the peak month, the upper end of the range.

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/set-up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite and main	Checkley Lane East main compound (including Checkley North Embankment satellite)	Checkley Lane for site set-up and servicing and followed by haul route thereafter to the A53 Newcastle Road	October 2020	Civil engineering 4 years and 3 months	4	32 - 44	49 - 77
			January 2025	1 year and 9 months	8	42 - 82	16 - 34
Satellite	Checkley Lane West satellite compound	Accessed via Checkley Lane to the east and west and then via the site permanent maintenance roads constructed to the east and west of the Proposed Scheme	January 2025	1 year and 3 months	8	26 - 58	19 - 34
Satellite	Den Lane Welfare satellite compound	Den Lane to the A51 London Road and site haul route to Newcastle Road	January 2025	6 months	3	99 - 224	up to 10
Satellite	Den Lane East satellite compound	Den Lane to the A51 London Road and site haul route to Newcastle Road	January 2024	2 years and 3 months	7	18 - 18	up to 10
Satellite	Den Lane West satellite compound	Den Lane to the A51 London Road and site haul route to Newcastle Road	January 2024	2 years and 3 months 2 years and 3 months	4	38 - 224	up to 10

Compound type	Location	Access to / from compound to main road network	Indicative start/set-up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Blakenhall Northbound Spur embankment satellite compound	Den Lane and then via the site haul route constructed to the west of the Proposed Scheme	October 2020	4 years and 3 months	4	136 - 187	126 - 182
Satellite	Blakenhall cutting satellite compound	Chorlton Lane or Den Lane and then via the site haul route	October 2020	3 years	1	56 - 77	101 - 101
Satellite	Delta Junction satellite compound	Accessed via Den Lane and then site haul route	January 2025	1 year and 3 months	11	14 - 18	up to 10
Satellite	Crewe South cutting satellite compound	Accessed via the diverted Chorlton Lane from Newcastle Road	October 2020	Civil engineering 4 years and 3 months	11	128 - 176	146 - 199
			July 2024	Rail systems 1 year and 6 months	10	57 - 84	up to 10
Satellite	Waybutt Lane satellite compound	Den Lane or Chorlton Lane and site haul routes	January 2025	1 year	9	58 - 84	up to 10
Satellite	Swill Brook satellite compound	Chorlton Lane and site haul routes	April 2026	6 months	3	18 - 30	up to 10

Compound type	Location	Access to / from compound to main road network	Indicative start/set-up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite	Heath Farm satellite compound	Chorlton Lane and site haul routes	July 2025	9 months	6	29 - 32	28 - 32
Satellite	Chorlton cutting satellite compound	Newcastle Road	October 2020	4 years and 3 months	5	32 - 44	59 - 89
Satellite	Creamery Bridge satellite compound	Newcastle Road and site haul routes	January 2024	2 years 9 months	1	23 - 114	up to 10
Satellite	Crewe South portal satellite compound	Newcastle Road	October 2020	Civil engineering 4 years 3 months	16	24 - 33	54 - 86
			January 2024	Rail systems 2 years and 9 months (12 month overlap with civils)	4	23 - 114	up to 10
Satellite	Casey Lane East rail systems compound	Accessed via Weston Lane or Newcastle Road and site haul route	January 2024	2 years	13	18 - 18	up to 10
Satellite	Basford Hall Southbound satellite compound	Accessed via Weston Lane or Casey Lane and site haul route	January 2024	2 years and 9 months	9	34 - 124	up to 10

Compound type	Location	Access to / from compound to main road network	Indicative start/set-up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Main	Basford cutting main compound	A500 Shavington Bypass	October 2020	6 years and 3 months Civils is 3 years, with 3 years 3 months for worker accommodation and continued main compound	4	400-550	88-93
Transfer node	Transfer node associated with Basford cutting main compound	A500 Shavington Bypass	October 2020	4 years and 3 months	12	N/A	615-930
Satellite	Crewe South Crossovers satellite compound	A500 Shavington Bypass	January 2024	2 years	4	37-134	3-12
Main	Motorail Terminal main compound	A500 Shavington Bypass	October 2020	2 years and 9 months	3	130-130	11-25
Satellite	Alexandra Stadium satellite compound (existing Network Rail land)	A500 Shavington Bypass	October 2020	2 years and 9 months	33	34-34	up to 10

Construction HGV routes

11.3.8 Construction vehicle movements required to construct the Proposed 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.

11.3.9 HGV have been routed where reasonably practicable along the strategic or primary road network, although some access locations will be off secondary roads. In CA5, 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, the A51 Nantwich Bypass and the B5071 Crewe Road/Jack Mills Way/Gresty Road. Where reasonably practicable the use of the local road network has been limited to site set-up, access for environmental surveys and on-going servicing (including refuse collection and general deliveries).

11.3.10 The location of the compound, and the associated access routes are shown on the TR-08 Map Series (Volume 5: Traffic and Transport Map Book) that reflects the transport activity at each site during the busy period as summarised in Table 377.

11.3.11 Table 378 summarises the peak daily construction traffic flow, both in HGV and total vehicles on each link within CA5 that is on a construction route.

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	381	3220
	SB	381	3220
A500 Newcastle Road (between M6 and Meremoor Roundabout)	WB	571	1044
	EB	571	1044
A500 Shavington ByPass (between A5020 David Whitby Way and the Proposed Scheme)	WB	887	1298
	EB	887	1298
A500 Shavington ByPass (between the Proposed Scheme and Jack Mills Way)	WB	887	1298
	EB	887	1298
A500 Shavington ByPass (between Jack Mills Way and Rope Lane)	WB	36	36
	EB	36	36
A500 Shavington ByPass (between Rope Lane and Nantwich Bypass)	WB	36	36
	EB	36	36
A51 Elwood Way (between Newcastle Road and London Road)	SB	36	36
	NB	36	36
A51 London Road (between Annions Lane and First Dig Lane)	NB	36	36
	SB	36	36
A51 London Road (between Crewe Road and Annions Lane)	NB	36	36
	SB	36	36

Location	Direction	Peak HGV	Peak all vehicles
A51 London Road (between Back Lane and Wybunbury Road)	NB	26	26
	SB	26	26
A51 London Road (between Checkley Lane and Mill Lane)	NB	26	26
	SB	26	26
A51 London Road (between First Dig Lane and Wybunbury Lane)	NB	36	36
	SB	36	36
A51 London Road (between Mill Lane and Back Lane)	NB	26	26
	SB	26	26
A51 London Road (between Wybunbury Lane and A51 Elwood Way)	NB	36	36
	SB	36	36
A51 Newcastle Road (between Nantwich Bypass and Elwood Way)	WB	36	36
	EB	36	36
A531 Crewe Road (between Bowsey Wood Road and A525 Newcastle Road)	NB	0	229
	SB	0	229
A531 Main Road (between Checkley Lane and Bowsey Wood Road)	SB	0	229
	NB	0	229
A531 Main Road (between Waybutt Lane and Checkley Lane)	SB	0	659
	NB	0	659
A531 Newcastle Road (between A500 Shavington ByPass and Main Road)	SB	66	393
	NB	66	393
A531 Newcastle Road (between Main Road and B5500 Four Lanes End)	EB	0	367
	WB	0	367
A531 Newcastle Road (between Waybutt Lane and B5500 Balterley Green Road)	EB	0	367
	WB	0	367
A534 Nantwich Road (between A532 Weston Road and A5019 Mill Street)	WB	31	118
	EB	31	118
A531 Newcastle Road (between Chorlton Lane and Newcastle Road)	WB	85	332
	EB	85	332
A5020 David Whitby Way (between Shavington ByPass and Weston Road)	NB	14	72
	SB	14	72
A525 Bar Hill (between Moss Lane and New Road)	SB	0	122
	NB	0	122
A525 Newcastle Road (between New Road and Crewe Road)	NB	0	122

Location	Direction	Peak HGV	Peak all vehicles
	SB	0	122
B5071 Bridge Street (between Back Lane and Wrinehill Road)	NB	33	33
	SB	33	33
B5071 Crewe Road (between Weston Lane and Link Road)	SB	0	84
	NB	0	84
B5071 Wybunbury Road (middle of Wybunbury Road and London Road)	NB	66	66
	SB	66	66
B5071 Wybunbury Road (between Back Lane and middle of Wybunbury Road)	NB	33	33
	SB	33	33
Checkley Lane (between the Proposed Scheme and Main Road)	EB	0	133
	WB	0	133
Casey Lane (between Back Lane and the Proposed Scheme)	NB	15	168
	SB	15	168
Casey Lane (between the Proposed Scheme and Weston Lane)	NB	15	168
	SB	15	168
Checkley Lane (between London Road and the Proposed Scheme)	EB	82	213
	WB	82	213
Chorlton Lane (between Waybutt Lane and Newcastle Road)	NB	4	46
	SB	4	46
Den Lane (between Mill Lane and Den Lane)	EB	18	763
	WB	18	763
A532 Weston Road (between Nantwich Road and University Way)	NB	14	93
	SB	14	93
Middle section of Wrinehill Road	EB	51	182
	WB	51	182
Newcastle Road (between Casey Lane and the Proposed Scheme)	WB	61	304
	EB	61	304
Newcastle Road (between Chorlton Lane and the Proposed Scheme)	WB	61	304
	EB	61	304
Weston Lane (between Crewe Road and the Proposed Scheme)	WB	5	81
	EB	5	81
Weston Lane (between Casey Lane and Cemetery Road)	WB	0	48
	EB	0	48

Location	Direction	Peak HGV	Peak all vehicles
Weston Lane (between Casey Lane and Larch Avenue)	WB	5	81
	EB	5	81
Wrinehill Road (between Bridge Street and Wrinehill Road/east-bound)	EB	33	33
	WB	33	33
Wrinehill Road (between Wrinehill Road/east-bound and Cobbs Lane)	EB	33	33
	WB	33	33
Wrinehill Road (east of Cobbs Lane)	SB	33	33
	NB	33	33
Wrinehill Road (north-west of Mill Lane)	EB	18	174
	WB	18	174

Traffic management, road closures and diversions

11.3.12 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing highways as well as traffic management. The construction of the Proposed Scheme has been carefully planned to limit disruption to travellers through any traffic management, road closures and diversions. Where closures are necessary, the general approach is to undertake closures for short discrete periods to ensure that the impact on users is reduced. Section 4 of the TA, sets out the general approach to construction. This includes constructing new roads prior to the closure of any existing roads, where reasonably practicable.

11.3.13 Where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing road network, traffic control measures will be implemented and could include the provision of temporary Roundabouts or signals, which would be removed on completion of the works. These traffic control measures are not expected to have a substantial impact on traffic flows and delays for vehicle occupants.

11.3.14 Utilities works have been assessed in detail where they are major and where the traffic and transport impacts from the works separately, or in combination with other works, will be greater than other construction activities arising within the area. Minor utilities works are expected to result in only localised traffic and pedestrian diversions, which will be of short-term duration. No additional substantial impact from these works are expected. Similarly, other minor works will involve a low level of use of local roads. Such use is not expected to give rise to substantial construction traffic impacts.

11.3.15 Permanent closures are addressed in the operational scheme section of this report.

PRoW closures and diversions

11.3.16 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing footpaths and roadside footways as well as some bridleways. The impact on footpaths (including roadside footways), cycleways and bridleway links along the route of the Proposed Scheme has been reduced, as far as reasonably practicable, through the design process. Section 4 of the TA, documents the general approach to construction. This includes constructing new PRoW or

alternative routes prior to the closure of any existing PRoW where reasonably practicable.

11.3.17 As with highways, where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing PRoW network, active control measures will be implemented to manage the safety of PRoW users and could include staffed crossings and the provision of temporary gates or signals, which would be removed on completion of the works. These control measures are not expected to have a substantial impact on delays for pedestrian, cyclist or equestrian users of the network.

11.4 CA5 Proposed Scheme assessment of construction impacts

Key construction transport issues

11.4.1 The temporary traffic and transport impacts within this area will include:

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

11.4.2 The construction assessment has also considered any impacts in the South Cheshire area that arise from construction of the Proposed Scheme in the adjoining community areas.

11.4.3 There will be temporary alternative routes for four roads and 13 PRoW, which includes Chorlton Lane that will be closed permanently at the point where it crosses the Proposed Scheme and the WCML. The impact of this closure has been assessed within the operational assessment.

Highway network

Highway closures and diversions

11.4.4 Temporary road or lane closures and associated diversions will be required in a number of locations including:

- Checkley Lane;
- Den Lane;
- Chorlton Lane;
- Newcastle Road; and
- Casey Lane.

11.4.5 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

11.4.6 Table 379 summarises the temporary PRoW diversions and realignments required to accommodate the construction of the Proposed Scheme. In most cases this will also include the construction of diverted routes and accommodation over and underbridges which will carry the permanent diversions of these PRoWs. In some cases, PRoW will revert to their pre-existing alignment after construction is completed.

Table 379: CA5 temporary PRoW diversions

PRoW name	Description	Change in length
Checkley cum Wrinehill Footpath 4	Minor diversion around west edge of construction site for Checkley North embankment. Becomes part of diversion for Footpath 8 (as permanent diversion)	Temporary diversion is same length overall
Checkley cum Wrinehill Footpath 5	Diversion from Footpath 8 junction to north-east round construction site, meeting Checkley Lane some 300m east of existing junction and 200m east of the junction for the permanent diversion	Temporary diversion is 350m longer
Checkley cum Wrinehill Footpath 8	Diversion to south around the edge of the construction site for Checkley North embankment. Joins Madeley Footpath 7 around the west side of embankment via Footpath 4 (as in permanent diversion)	Temporary diversion is 450m longer.
Checkley cum Wrinehill Footpath 15	Stage 1 diversion: south round boundary of borrow pit, then north adjacent to haul route, to rejoin existing alignment (Stage 2 is under Blakenhall Footpath 17 below)	Temporary diversion Stage 1 is 250m longer
Blakenhall Footpath 7	Diversion north from west of WCML overbridge, then west via existing route of Bridleway 12 to rejoin existing alignment west of the Proposed Scheme	Temporary diversion via existing Bridleway 12 is 450m longer
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 route is same length
Blakenhall Footpath 11	Diverted in two locations; one to the west around satellite compound and auto-transformer station, and a second further north around a balancing pond and stockpile	Temporary diversion to the west is 450m longer
Blakenhall Bridleway 12	Diversion around edge of site east of WCML, then across existing overbridge and via further diversion to the south to avoid construction of the access roads and new Bridleway 12 overbridges	Temporary diversion is less than 100m longer
Blakenhall Footpath 17	(Stage 1 diversion see under Checkley cum Wrinehill FP15). Stage 2 diversion is south along edge of construction site then on to diverted Checkley Lane and new overbridge, follows Lane to original junction with Checkley cum Wrinehill Footpath 15	Temporary diversion Stage 2 is 950m longer
Chorlton Footpath 8	Diverted some to the east of existing junction at Newcastle Road around the tie in between Newcastle Road and Casey Lane junction realignment	Temporary diversion is 200m longer to west, but 70m shorter to east
Basford Footpath 3	Truncated east of Casey Lane realignment works and then temporarily diverted on to the section of Footpath 4 shared with the haul route, west of Casey Lane diversion (assessed as Footpath 4)	Truncated route is less than 100m shorter

PRoW name	Description	Change in length
Basford Footpath 4	Diversion 300m to the south within the construction site, to avoid junction works between the realigned Newcastle Road and diverted Casey Lane route, then shared route to north with FP_3, alongside haul route to rejoin existing Casey Lane	Temporary diversion is less than 100m longer
Basford Footpath 5	Diversion to south then west and around construction of Newcastle Road realignment, to rejoin Newcastle Road some 400m west of existing junction	Temporary diversion is 400m longer

Strategic and local road network traffic flows

11.4.7 During the construction period there will be a number of highway links that will be affected by the construction of the Proposed Scheme. An assessment of the impact of construction related vehicle movements and diversions has been undertaken and is detailed below. 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.

11.4.8 Table 380 and Table 381 set out the 2023 traffic flows on highway links affected by construction traffic associated with the Proposed Scheme for the AM and PM peak hour respectively. Traffic flows on all other links are either unaffected from the future baseline or result in very minor increases.

11.4.9 To show the impact of the construction of the Proposed Scheme in these locations, traffic flows on affected links are presented for the 2023 future baseline and the 2023 future baseline with the Proposed Scheme, alongside the percentage increase from the future baseline.

Table 380: 2023 future baseline and with the Proposed 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	4699	907	15.8%	4.4%
	SB	4293	879	4934	917	14.9%	4.3%
A500 Newcastle Road (between M6 and Meremoor Roundabout)	WB	1394	111	1556	168	11.6%	51.6%
	EB	1405	113	1566	170	11.5%	50.4%
A500 Shavington ByPass (between A5020 David Whitby Way and the Proposed Scheme)	WB	1452	81	1611	169	10.9%	109.9%
	EB	1505	70	1663	159	10.5%	126.4%
A500 Shavington ByPass (between the Proposed Scheme and B5071 Jack Mills Way)	WB	1452	81	1611	169	10.9%	109.9%
	EB	1505	70	1663	159	10.5%	126.4%
A500 Shavington ByPass (between B5071 Jack Mills Way and Rope Lane)	WB	1295	81	1298	84	0.3%	4.4%
	EB	1186	52	1190	56	0.3%	6.9%
A500 Shavington ByPass (between Rope Lane and A51 Nantwich Bypass)	WB	1295	81	1298	84	0.3%	4.4%
	EB	1186	52	1190	56	0.3%	6.9%
A51 Elwood Way (between A51 Newcastle Road and A51 London Road)	SB	391	18	395	22	0.9%	19.4%
	NB	202	9	206	12	1.8%	41.5%
A51 London Road (between Annions Lane and First Dig Lane)	NB	60	2	64	6	6.0%	183.9%
	SB	111	3	115	6	3.2%	128.8%
A51 London Road (between B5071 Crewe Road and Annions Lane)	NB	60	2	64	6	6.0%	183.9%
	SB	111	3	115	6	3.2%	128.8%

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	163	2	165	5	1.6%	120.5%
	SB	222	2	224	4	1.2%	140.2%
A51 London Road (between Checkley Lane and Mill Lane)	NB	163	2	165	5	1.6%	120.5%
	SB	222	2	224	4	1.2%	140.2%
A51 London Road (between First Dig Lane and Wybunbury Lane)	NB	307	9	311	13	1.2%	39.4%
	SB	364	10	367	13	1.0%	36.8%
A51 London Road (between Mill Lane and Back Lane)	NB	163	2	165	5	1.6%	120.5%
	SB	222	2	224	4	1.2%	140.2%
A51 London Road (between Wybunbury Lane and A51 Elwood Way)	NB	41	2	45	5	8.7%	236.7%
	SB	118	3	122	6	3.0%	134.2%
A51 Newcastle Road (between A51 Nantwich Bypass and A51 Elwood Way)	WB	979	35	983	39	0.4%	10.1%
	EB	902	15	906	18	0.4%	24.3%
A531 Crewe Road (between Bowsey Wood Road and A525 Newcastle Road)	NB	423	4	504	4	19.1%	0.0%
	SB	195	2	276	2	41.5%	0.0%
A531 Main Road (between Checkley Lane and Bowsey Wood Road)	SB	174	7	255	7	46.7%	0.0%
	NB	159	2	240	2	51.0%	0.0%
A531 Main Road (between Waybutt Lane and Checkley Lane)	SB	366	6	569	6	55.3%	0.0%
	NB	363	4	566	4	55.8%	0.0%
A531 Newcastle Road (between A500 Shavington ByPass and Main Road)	SB	144	2	229	8	59.6%	367.4%
	NB	194	0	280	7	44.1%	1662.1%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A531 Newcastle Road (between Main Road and B5500 Four Lns End)	EB	554	20	657	20	18.6%	0.0%
	WB	601	22	704	22	17.2%	0.0%
A531 Newcastle Road (between Waybutt Lane and B5500 Balterley Green Road)	EB	554	20	657	20	18.6%	0.0%
	WB	601	22	704	22	17.2%	0.0%
A534 Nantwich Road (between A532 Weston Road and A5019 Mill Street)	WB	798	23	821	27	2.9%	13.4%
	EB	956	26	979	29	2.4%	12.1%
A531 Newcastle Road (between Chorlton Lane and A531 Newcastle Road)	WB	390	18	473	26	21.4%	47.9%
	EB	392	18	475	26	21.3%	47.6%
A5020 David Whitby Way (between A500 Shavington ByPass and A532 Weston Road)	NB	927	66	930	67	0.3%	2.1%
	SB	457	43	459	44	0.6%	3.3%
A525 Bar Hill (between Moss Lane and New Road)	SB	208	3	252	3	21.0%	0.0%
	NB	248	4	291	4	17.6%	0.0%
A525 Newcastle Road (between New Road and A531 Crewe Road)	NB	270	2	313	2	16.2%	0.0%
	SB	283	3	327	3	15.4%	0.0%
B5071 Bridge Street (between Back Lane and Wrinehill Road)	NB	112	2	115	5	2.9%	165.9%
	SB	120	1	123	4	2.8%	384.6%
B5071 Crewe Road (between Weston Lane and B5071 Jack Mills Way)	SB	261	12	290	12	11.1%	0.0%
	NB	721	7	750	7	4.0%	0.0%
B5071 Wybunbury Road (middle of Wybunbury Road and London Road)	NB	112	2	119	9	5.9%	331.8%
	SB	120	1	126	7	5.5%	769.2%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
B5071 Wybunbury Road (between Back Lane and middle of Wybunbury Road)	NB	112	2	115	5	2.9%	165.9%
	SB	120	1	123	4	2.8%	384.6%
Checkley Lane (between the Proposed Scheme and A531 Main Road)	EB	68	2	103	2	51.2%	0.0%
	WB	50	2	85	2	70.2%	0.0%
Casey Lane (between Back Lane and the Proposed Scheme)	NB	57	0	81	2	40.8%	655.3%
	SB	19	0	43	2	120.8%	629.1%
Casey Lane (between the Proposed Scheme and Weston Lane)	NB	57	0	81	2	40.8%	655.3%
	SB	19	0	43	2	120.8%	629.1%
Checkley Lane (between A51 London Road and the Proposed Scheme)	EB	73	3	129	11	77.0%	261.0%
	WB	51	3	107	11	110.2%	279.9%
Chorlton Lane (between Waybutt Lane and Newcastle Road)	NB	18	1	29	1	63.4%	73.5%
	SB	9	1	20	1	123.0%	83.3%
Den Lane (between Mill Lane and the A531 Main Road)	EB	23	5	181	7	694.2%	37.2%
	WB	1	0	160	2	12004.4%	386.6%
A532 Weston Road (between A534 Nantwich Road and A5020 University Way)	NB	839	32	859	33	2.4%	4.5%
	SB	529	26	549	27	3.8%	5.5%
Middle section of Wrinehill Road	EB	23	5	61	10	169.3%	105.2%
	WB	1	0	40	6	2927.9%	1092.6%
Newcastle Road (between Casey Lane and the Proposed Scheme)	WB	320	23	385	29	20.3%	26.9%
	EB	598	18	663	25	10.9%	33.4%

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 Proposed Scheme)	WB	320	23	385	29	20.3%	26.9%
	EB	598	18	663	25	10.9%	33.4%
Weston Lane (between B5071 Crewe Road and the Proposed Scheme)	WB	101	2	120	2	19.7%	31.1%
	EB	65	0	85	1	30.3%	201.6%
Weston Lane (between Casey Lane and Cemetery Road)	WB	120	2	140	2	16.8%	0.0%
	EB	122	0	143	0	16.4%	0.0%
Weston Lane (between Casey Lane and Larch Avenue)	WB	101	2	120	2	19.7%	31.1%
	EB	65	0	85	1	30.3%	201.6%
Wrinehill Road (between Bridge Street and Wrinehill Road/east-bound)	EB	29	5	32	8	11.5%	67.2%
	WB	8	1	11	4	42.2%	494.1%
Wrinehill Road (between Wrinehill Road/east-bound and Cobbs Lane)	EB	29	5	32	8	11.5%	67.2%
	WB	8	1	11	4	42.2%	494.1%
Wrinehill Road (east of Cobbs Lane)	SB	23	5	26	8	14.5%	68.6%
	NB	1	0	5	4	250.0%	712.6%
Wrinehill Road (north-west of Mill Lane)	EB	23	5	61	7	165.9%	36.6%
	WB	1	0	39	2	2868.4%	380.0%

Table 381: 2023 future baseline and with the Proposed 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	5379	716	22.1%	5.6%
	SB	4841	846	5814	884	20.1%	4.5%
A500 Newcastle Road (between M6 and Meremoor Roundabout)	WB	1518	69	1746	126	15.0%	83.2%
	EB	1345	53	1573	110	17.0%	108.0%
A500 Shavington ByPass (between A5020 David Whitby Way and the Proposed Scheme)	WB	1789	32	2025	121	13.2%	275.2%
	EB	1626	48	1861	137	14.5%	185.4%
A500 Shavington ByPass (between the Proposed Scheme and B5071 Jack Mills Way)	WB	1789	32	2025	121	13.2%	275.2%
	EB	1626	48	1861	137	14.5%	185.4%
A500 Shavington ByPass (between B5071 Jack Mills Way and Rope Lane)	WB	1371	32	1375	36	0.3%	11.0%
	EB	1158	39	1161	43	0.3%	9.1%
A500 Shavington ByPass (between Rope Lane and A51 Nantwich Bypass)	WB	1371	32	1375	36	0.3%	11.0%
	EB	1158	39	1161	43	0.3%	9.1%
A51 Elwood Way (between A51 Newcastle Road and A51 London Road)	SB	325	8	329	12	1.1%	43.9%
	NB	299	12	303	15	1.2%	31.0%
A51 London Road (between Annions Lane and First Dig Lane)	NB	79	1	83	5	4.5%	294.7%
	SB	84	1	88	5	4.2%	262.1%
A51 London Road (between B5071 Crewe Road and Annions Lane)	NB	79	1	83	5	4.5%	294.7%
	SB	84	1	88	5	4.2%	262.1%

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	1.1%	90.5%
	SB	232	2	234	4	1.1%	144.4%
A51 London Road (between Checkley Lane and Mill Lane)	NB	242	3	245	5	1.1%	90.5%
	SB	232	2	234	4	1.1%	144.4%
A51 London Road (between First Dig Lane and Wybunbury Lane)	NB	343	4	347	8	1.0%	90.1%
	SB	267	3	271	6	1.3%	128.2%
A51 London Road (between Mill Lane and Back Lane)	NB	242	3	245	5	1.1%	90.5%
	SB	232	2	234	4	1.1%	144.4%
A51 London Road (between Wybunbury Lane and A51 Elwood Way)	NB	40	3	44	6	8.9%	124.2%
	SB	75	1	78	5	4.8%	374.4%
A51 Newcastle Road (between A51 Nantwich Bypass and A51 Elwood Way)	WB	1211	19	1214	23	0.3%	18.8%
	EB	983	21	986	25	0.4%	16.9%
A531 Crewe Road (between Bowsey Wood Road and A525 Newcastle Road)	NB	251	1	301	1	20.1%	0.0%
	SB	306	1	356	1	16.5%	0.0%
A531 Main Road (between Checkley Lane and Bowsey Wood Road)	SB	216	3	267	3	23.3%	0.0%
	NB	120	3	171	3	42.0%	0.0%
A531 Main Road (between Waybutt Lane Checkley Lane)	SB	422	2	573	2	35.6%	0.0%
	NB	338	2	488	2	44.5%	0.0%
A531 Newcastle Road (between A500 Shavington ByPass and Main Road)	SB	315	3	425	9	34.8%	245.1%
	NB	158	6	268	13	69.6%	104.6%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
A531 Newcastle Road (between Main Road and B5500 Four Lns End)	EB	776	9	872	9	12.4%	0.0%
	WB	644	24	740	24	15.0%	0.0%
A531 Newcastle Road (between Waybutt Lane and B5500 Balterley Green Road)	EB	776	9	872	9	12.4%	0.0%
	WB	644	24	740	24	15.0%	0.0%
A534 Nantwich Road (between A532 Weston Road and A5019 Mill Street)	WB	1060	10	1094	13	3.2%	31.2%
	EB	634	6	667	9	5.3%	55.1%
A531 Newcastle Road (between Chorlton Lane and A531 Newcastle Road)	WB	408	6	468	15	14.6%	137.2%
	EB	413	6	472	15	14.5%	135.6%
A5020 David Whitby Way (between A500 Shavington ByPass and A532 Weston Road)	NB	813	53	846	55	4.1%	2.7%
	SB	1267	22	1300	23	2.6%	6.5%
A525 Bar Hill (between Moss Lane and New Road)	SB	256	2	281	2	9.5%	0.0%
	NB	214	2	238	2	11.4%	0.0%
B5071 Bridge Street (between Back Lane and Wrinehill Road)	NB	185	2	189	5	1.8%	171.4%
	SB	170	1	173	4	1.9%	457.4%
B5071 Wybunbury Road (middle of Wybunbury Road and London Road)	NB	185	2	192	9	3.6%	342.7%
	SB	170	1	176	7	3.9%	914.8%
B5071 Wybunbury Road (between Back Lane and middle of Wybunbury Road)	NB	185	2	189	5	1.8%	171.4%
	SB	170	1	173	4	1.9%	457.4%
Checkley Lane (between the Proposed Scheme and A531 Main Road)	EB	47	1	78	1	65.1%	0.0%
	WB	48	0	79	0	63.6%	0.0%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Casey Lane (between Back Lane and the Proposed Scheme)	NB	63	0	120	2	90.9%	331.1%
	SB	76	0	133	2	75.1%	2246.6%
Casey Lane (between the Proposed Scheme and Weston Lane)	NB	63	0	120	2	90.9%	331.1%
	SB	76	0	133	2	75.1%	2246.6%
Checkley Lane (between A51 London Road and the Proposed Scheme)	EB	44	1	87	9	98.1%	771.1%
	WB	47	1	90	9	92.0%	1156.7%
Chorlton Lane (between Waybutt Lane and Newcastle Road)	NB	8	0	19	1	142.7%	622.3%
	SB	13	0	25	1	85.0%	311.2%
Den Lane (between Mill Lane and Den Lane)	EB	11	2	203	4	1701.5%	95.6%
	WB	1	1	192	2	26946.9%	280.4%
A532 Weston Road (between A534 Nantwich Road and A5020 University Way)	NB	550	9	575	10	4.6%	15.9%
	SB	656	9	682	10	3.9%	16.6%
Middle section of Wrinehill Road	EB	11	2	57	7	404.3%	270.3%
	WB	1	1	46	6	6402.3%	792.3%
Newcastle Road (between Casey Lane and the Proposed Scheme)	WB	517	27	600	34	16.2%	22.3%
	EB	415	8	499	14	20.1%	75.6%
Newcastle Road (between Chorlton Lane and the Proposed Scheme)	WB	517	27	600	34	16.2%	22.3%
	EB	415	8	499	14	20.1%	75.6%
Weston Lane (between Crewe Road and the Proposed Scheme)	WB	103	0	125	1	21.0%	151.9%
	EB	80	1	102	1	27.0%	71.3%

Location	Direction	2023 baseline		2023 with HS2		With HS2 % change from 2023 baseline	
		Vehicles	HGV	Vehicles	HGV	Vehicles	HGV
Weston Lane (between Casey Lane and Cemetery Road)	WB	179	0	187	0	4.5%	0.0%
	EB	143	1	151	1	5.7%	0.0%
Weston Lane (between Casey Lane and Larch Avenue)	WB	103	0	125	1	21.0%	151.9%
	EB	80	1	102	1	27.0%	71.3%
Wrinehill Road (between Bridge Street and Wrinehill Road/east-bound)	EB	70	2	74	6	4.7%	147.2%
	WB	27	1	30	4	12.4%	436.7%
Wrinehill Road (between Wrinehill Road/east-bound and Cobbs Lane)	EB	70	2	74	6	4.7%	147.2%
	WB	27	1	30	4	12.4%	436.7%
Wrinehill Road (east of Cobbs Lane)	SB	11	2	15	5	29.3%	176.3%
	NB	1	1	4	4	464.3%	516.7%
Wrinehill Road (north-west of Mill Lane)	EB	11	2	56	4	398.1%	94.0%
	WB	1	1	46	2	6305.1%	275.6%

Summary of link flows

11.4.10 The results show that in the AM peak period the A500 Shavington Bypass has increases in total vehicle traffic of less than 12% and less than 20% in the PM peak period. Increases in HGV traffic in both time periods are generally higher than this in percentage terms. However, this is a result of there being a relatively low number of HGVs forecast in the future baseline.

11.4.11 Other roads identified as the construction routes show a similar pattern, with high percentage increases in HGV but with minor increases in total vehicular flow. A summary of routes/corridors with percentage increases of over 30% in either total vehicle movements or HGV is set out below:

- A500 Shavington Bypass between the A51 Nantwich Bypass and the M6 junction 16;
- A51 London Road between Checkley Lane and the B5071 Wybunbury Road;
- A51 London Road between the B5071 Wybunbury Road and the A500 Shavington Bypass;
- A531 Newcastle Road between the A531 Weston Roundabout and the A500 Meremoor Roundabout;
- Checkley Lane between the A51 London Road and the Proposed Scheme;
- Den Lane between Wrinehill Road and the WCML;
- Casey Lane between Newcastle Road and the Proposed Scheme;
- Chorlton Lane between Waybutt Lane and Newcastle Road;
- Wybunbury Road between the A51 London Road and Wrinehill Road; and
- Wrinehill Road between Bridge Street and Den Lane.

11.4.12 The impact of the increase in traffic flow on capacity at key junctions has been assessed and is described in the subsequent section of this report.

11.4.13 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

11.4.14 The following tables and commentary set out the performance at junctions where there is the potential for the Proposed Scheme to have substantial impacts.

11.4.15 As for the future baseline, the results for CA2 are presented in the order of Roundabout junctions, priority controlled (give-way), signalised junctions and M6 junction 16. 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

11.4.16 Table 382 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 382: A51 Newcastle Road/A51 Nantwich Bypass/A500 Shavington Bypass junction with the Proposed 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 Proposed Scheme**		
A51 Nantwich Bypass	765	0.57	2	765	0.57	2
Cheerbrook Road	279	0.3	0	279	0.3	0
A500 Shavington Bypass	1850	0.76	4	1857	0.76	4
A51 Newcastle Road (north)	465	0.67	2	465	0.67	2
Newcastle Road (west)	1039	0.94	13	1045	0.95	14
17:00 – 18:00	**2023 baseline**			**2023 with the Proposed 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	1670	0.78	4
A51 Newcastle Road (north)	376	0.55	2	376	0.55	2
Newcastle Road (west)	1165	0.95	14	1174	0.95	15

11.4.17 The results show that the junction is approaching capacity in the AM and PM peak periods, particularly on the Newcastle Road (west) arm, regardless of the Proposed Scheme. The addition of the Proposed Scheme construction traffic is small, with the RFC value on the Newcastle Road (west) arm only increasing from 0.94 to 0.95 in the AM peak, with the queue shown to increase from 13 PCU to 14.

11.4.18 The addition of the Proposed Scheme construction traffic does not result in any substantial increases in queuing or RFC from the future baseline.

A500 Shavington Bypass/B5071 Jack Mills Way

11.4.19 Table 383 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 383: A500 Shavington Bypass/B5071 Jack Mills Way junction with the Proposed 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 Proposed Scheme**		
B5071 Jack Mills Way (north)	675	0.49	1	675	0.6	2
A500 Shavington Bypass (east)	2043	0.91	11	2384	1.06	97
B5071 Road (south)	394	0.6	2	421	0.77	3
A500 Shavington Bypass (west)	1555	0.71	3	1869	0.86	7
17:00 – 18:00	**2023 baseline**			**2023 with the Proposed Scheme**		
B5071 Jack Mills Way (north)	825	0.59	2	825	0.71	3
A500 Shavington Bypass (east)	2143	0.97	20	2469	1.11	151
B5071 Road (south)	280	0.43	1	384	0.6	2
A500 Shavington Bypass (west)	1494	0.71	3	1717	0.83	6

11.4.20 The results show that the 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 Proposed Scheme results in the increase of RFC and queuing levels on this approach to the junction, with the RFC in the PM peak increasing from 0.97 to 1.11 and a corresponding queue length increase from 20 to 151 PCU.

11.4.21 The Proposed Scheme construction traffic will increase queuing and delay through this junction, although the junction already operates close to capacity in the AM and PM peak in the future baseline. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

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

11.4.22 Table 384 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 384: A500 Shavington Bypass/B5472 Weston Road/A500 Newcastle Road/A531 Newcastle Road junction with the Proposed 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 Proposed Scheme**		
A5020 Weston Road	509	0.61	2	509	0.89	8
A500 Shavington Bypass (east)	2079	0.84	7	2556	1.04	76
A531 Newcastle Road	207	0.37	1	287	0.7	2
A500 Newcastle Road (west)	1710	0.73	3	2157	0.94	15
17:00 - 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A5020 Weston Road	412	0.45	1	412	0.6	2
A500 Shavington Bypass (east)	2021	0.82	5	2422	1	40
A531 Newcastle Road	191	0.29	0	294	0.57	1
A500 Newcastle Road (west)	1546	0.71	3	1968	0.91	11

11.4.23 The model shows that the 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 Proposed Scheme results in an increase of RFC and queuing levels on this approach to the junction, with the RFC increasing in the AM peak from 0.84 to 1.04 with a corresponding queue length increase from 7 to 76 PCUs.

11.4.24 The Proposed Scheme construction traffic will increase queuing and delay through this junction, although the junction is shown to already operate close to capacity in the AM and PM peak in the future baseline. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

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

11.4.25 Table 385 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 385: Newcastle Road/Main Road/A531 Newcastle Road junction with the Proposed 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 Proposed Scheme**		
Main Road	439	0.34	1	439	0.36	1
A531 Newcastle Road (east)	178	0.17	0	341	0.33	1
A531 Newcastle Road (south)	1136	0.71	3	1268	0.82	5
Newcastle Road (west)	738	0.6	2	796	0.66	2
17:00 - 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Main Road	662	0.49	1	662	0.52	1
A531 Newcastle Road (east)	367	0.38	1	498	0.52	1
A531 Newcastle Road (south)	1046	0.67	2	1144	0.74	3
Newcastle Road (west)	525	0.38	1	575	0.43	1

11.4.26 The model shows that the junction will operate within capacity, both in the future baseline and with the addition of the Proposed Scheme, without any substantial increases in queuing or RFC from the future baseline. With the addition of the Proposed Scheme construction traffic, the RFC value on the A531 Newcastle Road (east) arm increases from 0.71 to 0.82 in the AM Peak, with the queue shown to increase from three to five PCU.

A500 Shavington Bypass/A5020 David Whitby Way

11.4.27 Table 386 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 386: A500 Shavington Bypass/A5020 David Whitby Way junction with the Proposed 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 Proposed Scheme**		
A5020 David Whitby Way	1212	0.71	3	1478	0.86	7
A500 Shavington Bypass (east)	2016	1.02	46	2253	1.23	248
A500 Shavington Bypass (west)	1963	0.98	25	2354	1.15	187
17:00 - 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A5020 David Whitby Way	981	0.6	2	1201	0.75	3
A500 Shavington Bypass (east)	1544	0.79	4	1893	1.02	44
A500 Shavington Bypass (west)	2043	0.88	8	2317	1.01	48

11.4.28 The model shows that the A531 Newcastle Road and A500 (west) arm of the junction either approach or exceed capacity in the 2023 future baseline during the AM and PM peaks. The addition of the Proposed Scheme results in the increase of RFC and

queuing levels, with the RFC increasing in the AM peak from 1.02 to 1.23 with a corresponding queue length increase from 46 to 248 PCU.

11.4.29 The Proposed Scheme construction traffic will increase queuing and delay through this junction, although the junction is shown to already operate close to capacity in the AM and PM peak in the future baseline. HS2 Ltd will work with the relevant highway authority to seek to reduce the impact at this location.

A51 London Road/Checkley Lane/Hunsterson Road

11.4.30 Table 387 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 387: A51 London Road/Checkley Lane/Hunsterson Road junction with the Proposed 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 Proposed Scheme**		
Checkley Lane (ahead + left + right)	44	0.09	0	106	0.2	1
A51 London Road (north) (ahead + left + right)	41	0.06	0	42	0.07	0
A51 London Road (north) (left)	21	-	-	26	-	-
A51 London Road (north) (ahead)	164	-	-	168	-	-
Hunsterson Road (ahead + left + right)	55	0.11	0	55	0.12	0
A51 London Road (south) (ahead + left + right)	52	0.08	0	135	0.2	1
A51 London Road (south) (left)	20	-	-	17	-	-
A51 London Road (south) (ahead)	203	-	-	182	-	-
17:00 - 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Checkley Lane (ahead + left + right)	48	0.09	0	97	0.18	0
A51 London Road (north) (ahead + left + right)	16	0.02	0	16	0.02	0
A51 London Road (north) (left)	7	-	-	12	-	-
A51 London Road (north) (ahead)	200	-	-	204	-	-
Hunsterson Road (ahead + left + right)	41	0.08	0	41	0.08	0
A51 London Road (south) (ahead + left + right)	41	0.06	0	104	0.15	0
A51 London Road (south) (left)	9	-	-	9	-	-
A51 London Road (south) (ahead)	205	-	-	191	-	-

11.4.31 The model shows that the junction will operate within capacity, both in the future baseline and with the addition of the Proposed Scheme, without any substantial increases in queuing or RFC from the future baseline.

A51 London Road/Mill Lane

11.4.32 Table 388 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 388: A51 London Road/Mill Lane junction with the Proposed 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 Proposed Scheme**		
Mill Lane (left + right)	10	0.02	0	10	0.02	0
A51 London Road (south) (straight + right)	0	0	0	0	0	0
A51 London Road (south) (ahead)	241	-	-	245	-	-
A51 London Road (north) (left)	2	-	-	2	-	-
A51 London Road (north) (ahead)	219	-	-	223	-	-
17:00 - 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Mill Lane (left + right)	7	0.02	0	7	0.02	0
A51 London Road (south) (straight + right)	10	0.01	0	10	0.01	0
A51 London Road (south) (ahead)	243	-	-	248	-	-
A51 London Road (north) (left)	11	-	-	11	-	-
A51 London Road (north) (ahead)	221	-	-	225	-	-

11.4.33 The model shows that the junction will operate within capacity, both in the future baseline and with the addition of the Proposed Scheme, without any substantial increases in queuing or RFC from the future baseline.

A51 London Road/B5071 Wybunbury Road/B5071 Crewe Road

11.4.34 Table 389 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 389: A51 London Road/B5071 Wybunbury Road/B5071 Crewe Road junction with the Proposed 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 Proposed Scheme**		
B5071 Wybunbury Road (ahead + left + right)	105	0.27	0	118	0.3	1
A51 London Road (north) (ahead + left + right)	23	0.03	0	24	0.03	0
A51 London Road (north) (left)	42	-	-	47	-	-
A51 London Road (north) (ahead)	140	-	-	140	-	-
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	29	0.04	0

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
A51 London Road (south) (left)	5	-	-	5	-	-
A51 London Road (south) (ahead)	180	-	-	177	-	-
17:00 - 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
B5071 Wybunbury Road (ahead + left + right)	95	0.23	0	109	0.26	0
A51 London Road (north) (ahead + left + right)	9	0.01	0	10	0.01	0
A51 London Road (north) (left)	7	-	-	12	-	-
A51 London Road (north) (ahead)	123	-	-	123	-	-
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	-	-	139	-	-

11.4.35 The model shows that the junction will operate within capacity, both in the future baseline and with the addition of the Proposed Scheme, without any substantial increases in queuing or RFC from the future baseline.

Newcastle Road/Chorlton Lane

11.4.36 Table 390 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 390: Newcastle Road/Chorlton Lane junction with the Proposed 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 Proposed Scheme**		
Chorlton Lane (left + right)	22	0.05	0	22	0.06	0
Newcastle Road (west) (ahead + right)	19	0.03	0	23	0.03	0
Newcastle Road (west) (ahead)	403	-	-	500	-	-
Newcastle Road (east) (left)	10	-	-	10	-	-
Newcastle Road (east) (ahead)	408	-	-	513	-	-
17:00 - 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Chorlton Lane (left + right)	12	0.03	0	21	0.05	0
Newcastle Road (west) (ahead + right)	6	0.01	0	25	0.04	0
Newcastle Road (west) (ahead)	371	-	-	442	-	-
Newcastle Road (east) (left)	7	-	-	7	-	-
Newcastle Road (east) (ahead)	509	-	-	592	-	-

11.4.37 The model shows that the junction will operate within capacity, both in the future baseline and with the addition of the Proposed Scheme, without any substantial increases in queuing or RFC from the future baseline.

Newcastle Road/Casey Lane

11.4.38 Table 391 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 391: Newcastle Road/Casey Lane junction with the Proposed 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 Proposed Scheme**		
Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
Casey Lane (left + right)	42	0.09	0	181	0.43	1
Newcastle Road (east) (ahead + right)	72	0.1	0	243	0.35	1
Newcastle Road (east) (ahead)	338	-	-	280	-	-
Newcastle Road (west) (left)	9	-	-	0	-	-
Newcastle Road (west) (ahead)	396	-	-	641	-	-
17:00 - 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Casey Lane (left + right)	68	0.14	0	205	0.43	1
Newcastle Road (east) (ahead + right)	91	0.12	0	573	0.72	5
Newcastle Road (east) (ahead)	436	-	-	188	-	-
Newcastle Road (west) (left)	11	-	-	0	-	-
Newcastle Road (west) (ahead)	320	-	-	409	-	-

11.4.39 The model shows that this junction operates within capacity in the AM and PM peak hours with minimal queuing on all approaches, without any substantial increases in queuing or RFC from the future baseline.

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

11.4.40 Table 392 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 392: A51 London Road/A530 Peter DeStapleigh Way/A51 Elwood Way junction with the Proposed Scheme junction capacity assessment

Approach	**Flow, PCU/hr**	**DoS**	**MMQ, PCU**	**Flow, PCU/hr**	**DoS**	**MMQ, PCU**
08:00 - 09:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A51 London Road (north)	63	52%	2	63	52%	2
A51 Elwood Way	711	57%	9	717	57%	9
A530 Peter DeStapleigh Way	702	72%	13	702	72%	13
A51 London Road (south)	425	70%	11	431	71%	11
17:00 - 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A51 London Road (north)	39	32%	1	39	32%	1
A51 Elwood Way	1089	89%	21	1095	91%	21
A530 Peter DeStapleigh Way	427	44%	6	427	38%	6
A51 London Road (south)	399	90%	14	405	87%	13

11.4.41 The model shows that the junction will operate close to capacity, both in the future baseline and with the addition of the Proposed Scheme, without any substantial increases in queuing or RFC from the future baseline. The DoS value on the A51 Elwood Way increases in the PM peak from 89% to 91% with a corresponding queue of 21 in each scenario.

A51 Elwood Way/B5074 Newcastle Road/A51 Newcastle Road

11.4.42 Table 393 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 393: A51 Elwood Way/B5074 Newcastle Road/A51 Newcastle Road junction with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
08:00 - 09:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A51 Elwood Way	947	98%	32	953	98%	33
A51 Newcastle Road	1006	96%	27	1012	97%	27
B5074 Newcastle Road	451	87%	7	451	87%	7
17:00 - 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
A51 Elwood Way	634	98%	23	640	99%	25
A51 Newcastle Road	1228	100%	38	1234	100%	39
B5074 Newcastle Road	676	83%	9	676	83%	9

11.4.43 The model shows that the junction will operate at capacity, both in the future baseline and with the addition of the Proposed Scheme. However, the addition of the Proposed Scheme construction traffic does not result in any substantial increases in queuing or RFC from the future baseline. The DoS value on the A51 Newcastle Road in the AM peak is maintained at 100% with a corresponding increase in queue from 38 to 39 PCU.

M6 junction 16

11.4.44 Table 394 summarises the results of the changes to the performance of the junction as a result of the Proposed Scheme in 2023.

Table 394: M6 junction 16 with the Proposed 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 Proposed Scheme**		
South-bound off slip	1511	70%	24	1544	72%	30
South-bound on slip	595	29%	0	634	32%	0
North-bound off slip	526	27%	3	564	29%	3
North-bound on slip	979	47%	0	1043	50%	0
A500(T) exit to east	2184	56%	0	2194	56%	0
A500(T) West-bound approach	1871	102%	29	1882	103%	34

Approach	Flow, PCU/hr	V/C	Q, PCU	Flow, PCU/hr	V/C	Q, PCU
A500 Newcastle Road east-bound approach	882	64%	4	926	67%	5
A500 Newcastle Road exit to west	1368	99%	2	1395	101%	9
B5078 Approach	586	44%	1	613	46%	1
B5078 exit	175	13%	0	167	13%	0
17:00 – 18:00	**2023 future baseline**			**2023 with the Proposed Scheme**		
Approach	**Flow, PCU/hr**	**RFC**	**Q, PCU**	**Flow, PCU/hr**	**RFC**	**Q, PCU**
South-bound off slip	1368	63%	8	1335	62%	7
South-bound on slip	399	20%	0	404	21%	0
North-bound off slip	494	25%	3	543	28%	3
North-bound on slip	1019	54%	0	1089	58%	0
A500(T) exit to east	2203	57%	0	2153	55%	0
A500(T) west-bound approach	1862	102%	24	1885	103%	36
A500 Newcastle Road east-bound approach	923	67%	5	974	71%	5
A500 Newcastle Road exit to west	1213	88%	0	1252	91%	0
B5078 approach	428	32%	0	436	34%	0
B5078 exit	184	14%	0	192	15%	0

11.4.45 The results show that the A500 (T) westbound approach exceeds capacity and the A500 Newcastle Road westbound exit is approaching capacity in the AM and PM peak period in the future baseline. The introduction of the Proposed Scheme results in a minor increase of 1% on the A500 (T) westbound approach and 2% in the AM and 3% in the PM on the A500 Newcastle Road westbound exit.

Summary of highway impacts

11.4.46 The construction of the Proposed Scheme will result in substantial percentage increases in peak hour traffic flows (in relation to total vehicles and/or HGV) at the locations listed below.

11.4.47 This is often due to the future baseline traffic flows having a low baseline level of vehicles or HGV, resulting in large percentage increases following only a minor increase in actual vehicle/HGV numbers.

11.4.48 The assessment shows substantial percentage increases in peak hour traffic flows (in relation to either total vehicles and/or HGVs) at the following locations:

- A500 Shavington Bypass between the A51 Nantwich Bypass and the M6 junction 16;
- A51 London Road between Checkley Lane and the B5071 Wybunbury Road;

- A51 London Road between the B5071 Wybunbury Road and the A500 Shavington Bypass;
- A531 Newcastle Road between the A531 Weston Roundabout and the A500 Meremoor Roundabout;
- Checkley Lane between the A51 and the Proposed Scheme;
- Den Lane between Wrinehill Road and the WCML;
- Casy Lane between Newcastle Road and the Proposed Scheme;
- Chorlton Lane between Waybutt Lane and Newcastle Road;
- Wybunbury Road between the A51 London Road and Wrinehill Road; and
- Wrinehill Road between Bridge Street and Den Lane.

11.4.49 The increase in traffic 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/Crewe Green Link Road south;
- A500 Shavington Bypass/A5020 Weston Road/A531 Newcastle Road; and
- A500 Shavington Bypass/B5071 Jack Mills Way.

11.4.50 It should be noted that these junctions are shown to operate either close to, or at capacity in the future baseline regardless of the Proposed Scheme and 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

11.4.51 The impacts on accident and safety risks will not be substantial. At one junction, the A500 Shavington Bypass/A5020 Weston Road/A531 Newcastle Road Roundabout (Meremoor Roundabout), where there are existing highway safety issues, there will be an increase in traffic flow and congestion. However, the overall change in traffic flow will not be sufficient to raise additional safety concerns.

11.4.52 Although there will be increases in construction traffic on other links and junctions, none have been identified in the baseline assessment as the location of a known safety concern.

Parking and loading

11.4.53 The construction activity associated with the Proposed Scheme will not have any substantial impacts on parking facilities at Crewe Station or elsewhere in South Cheshire.

Public transport

Rail network

11.4.54 Construction of HS2 will require possessions of the WCML at a number of locations to the south of Crewe (connection of HS2 mainline to WCML) and to the north of Crewe

(section 12 of the TA provides more details). Works will typically be carried out in non-disruptive possessions[6] and where this is not possible, possessions and blockades will be agreed through close working with Network Rail to ensure that disruption is reduced.

11.4.55 Rail possessions in the South Cheshire area will be required over a five year period between 2021 and 2026. While the majority of possessions will be non-disruptive, there will be the need in this area for a number of weekend possessions and blockades. The number of weekend possessions and blockades required in the South Cheshire area are summarised in Table 395.

Table 395: Summary of likely possessions requirements in the South Cheshire area

	27-hour possessions	54-hour possessions	72-hour possessions	100-hour possessions	Blockades
Possessions Summary (WCML south of Crewe)	32	32	1	1	1x6-day 1x9-day
Possessions Summary (Independent freight lines, west of Crewe Station)		38			1x14-day 1x365-day

11.4.56 Possessions on the WCML will be a mixture of full and partial closures, where some lines would be kept open. It is expected that further work will see a reduction in disruptive possessions through combining works.

11.4.57 These rail possessions will be planned for weekends and are not expected to substantially disrupt the travelling public. The proposed blockades have the potential to disrupt the travelling public. The shorter blockades will be to the WCML and be managed through a combination of some diversions and replacement bus services that will reduce the disruption to the travelling public. The longer 14-day and 365-day blockades will be partial blockades (where some lines are kept open) on the independent lines (freight use) at Crewe and will not directly affect the travelling public. It is anticipated that during these blockades some freight trains will divert through the main station.

11.4.58 Rail possessions in adjacent areas could have the potential to disrupt travellers in the area. However, possessions in adjoining areas would be limited, where reasonably practicable, to non-disruptive possessions to reduce any impact on rail travellers. Rail replacement services would be provided as necessary when rail possessions were in place.

11.4.59 The impact on rail users in the South Cheshire area will not be substantial.

11.4.60 The Proposed Scheme will require construction of a new island platform at Crewe Station in order to accommodate additional rail services on the WCML. However rail

[6] A non-disruptive possession is any possession of the operational railway which has no impact on the users of the railway. These possessions generally occur overnight, in existing maintenance or 'engineering access' periods which exist for the purposes of inspection, maintenance or renewal activities. i.e. a non-disruptive possession will allow passenger train services to operate as per their normal schedule.

users at Crewe station are unlikely to experience disruption resulting from these works and other works, since the closures will be managed to ensure that any disruption is planned for weekend, off-peak and overnight possessions.

Local bus services

11.4.61 No bus routes in the South Cheshire area operate along any corridors which cross the Proposed Scheme. Moreover, none of the highway routes scheduled to be diverted in relation to the construction of the Proposed Scheme carry any buses. Hence, there is not expected to be any material impact on bus services during the construction of the Proposed Scheme.

Public transport interchanges

11.4.62 The construction activity associated with the Proposed Scheme is expected to have no substantial impacts on interchange facilities at Crewe Station. Although works will be carried out to provide a new island platform at Crewe Station, a key local interchange, these are not expected to substantially affect users of the interchange.

Pedestrians, cyclists and equestrians

11.4.63 Compared to the existing baseline, the works required to construct the Proposed Scheme will affect routes used by pedestrians, cyclists and equestrians, primarily where the construction results in changes to the affected routes.

11.4.64 Pedestrians and other non-motorised users may also be affected by changes in traffic levels due, particularly, to HS2 construction traffic. Roads with substantial changes in traffic levels are listed above.

11.4.65 Locations where routes used by pedestrians, cyclists and equestrians are temporarily diverted, realigned or closed are shown below. There are no temporary highway diversion routes required on any routes in CA5.

11.4.66 Table 396 summarises the temporary diversions, realignments and extensions to PRoW required to accommodate the construction of the Proposed Scheme.

Table 396: CA5 construction changes on PRoW for non-motorised users

PRoW name	Change in distance	Duration
Checkley cum Wrinehill Footpath 4	Temporary diversion is same length overall	36 months
Checkley cum Wrinehill Footpath 5	Temporary diversion is 350m longer	36 months
Checkley cum Wrinehill Footpath 8	Temporary diversion is 450m longer	36 months
Checkley cum Wrinehill Footpath 15	Temporary diversion stage 1 (linked with Blakenhall Footpath 17) is 250m longer	36 months
Blakenhall Footpath 7	Temporary diversion via existing Bridleway 12 is 450m longer	36 months
Blakenhall Bridleway 8	Temporary diversion route is same length	18 months
Blakenhall Footpath 11	Temporary diversion to the west is 450m longer	18 months
Blakenhall Bridleway 12	Temporary diversion is less than 100m longer	18 months
Blakenhall Footpath 17	Temporary diversion stage 2 (linked with Checkley cum Wrinehill Footpath 15) is 950m longer	36 months

PRoW name	Change in distance	Duration
Chorlton Footpath 8	Temporary diversion is 200m longer to west, but up to 100m shorter to east	6 months
Basford Footpath 3	Truncated route is up to 100m shorter	18 months
Basford Footpath 4	Temporary diversion is less than 100m longer	36 months
Basford Footpath 5	Temporary diversion is 400m longer	18 months

11.4.67 Within these 13 diversions and realignments of PRoW, three of the routes affected experience either no or minimal change in length, or the routes become shorter (as in Basford Footpath 3). A further four changes result in diversions which increase route length by no more than 250m.

11.4.68 Other routes do experience larger changes in length of diversion, with an increase of 450m on Checkley cum Wrinehill Footpath 8, Blakenhall Footpath 7 and Basford Footpath 4, all of which are effectively diverted on to another nearby PRoW route to share a crossing point of the Proposed Scheme for a temporary period; while Basford Footpath 4 is diverted to the temporary route of Newcastle Road.

11.4.69 Similarly, Blakenhall Footpath 17 (effectively considered as one route with Checkley cum Wrinehall Footpath 15, itself diverted for the initial 18 month works period) undergoes a 950m temporary diversion via the diversion around Checkley Lane, until the accommodation overbridge is built in the later stages of the programme, which then becomes the permanent footpath diversion route.

Taxis

11.4.70 Construction of the Proposed Scheme will have no impact on taxi services and facilities at Crewe Station or elsewhere in the South Cheshire area.

Waterways and Canals

11.4.71 No diversions or closures of navigable waterways or canals are required during construction and consequently there are no construction impacts on navigable waterways in the South Cheshire area.

11.5 CA5 Proposed Scheme operation description

11.5.1 This section provides an overview of the impacts resulting from the operation of the Proposed Scheme, which is programmed to begin in 2027.

11.5.2 The Proposed Scheme will introduce new HS2 services at Crewe Station. The service pattern for Phase 2a is assumed to be six trains per hour, in each direction, with two an hour (in each direction) stopping at Crewe. The journey time savings between London and Crewe Station as a result of the Proposed Scheme equate to 13 minutes and a combined reduction of 35 minutes when considered alongside HS2 Phase One.

11.5.3 There will be increased demand at the existing Crewe Station as a consequence of the Proposed Scheme, which will have some localised impacts on roads around the station. However, apart from this, the operation of the Proposed Scheme will not have any substantial impacts within the South Cheshire area due to increased traffic, as there are no HS2 stations or depots proposed. The maintenance of the Proposed

Scheme will generate a limited number of vehicular trips and there will be some minor local reassignment of traffic due to road diversion, but the impacts will not be substantial.

Transport demand generated by Proposed Scheme

11.5.4 The primary increase in demand associated with the Proposed Scheme is associated with the increase in passenger trips to/from Crewe Station.

11.5.5 In order to quantify this increase in demand, the following methodology has been adopted:

- The PFM model was used to forecast the change in passenger demand at Crewe Station as a result of HS2 Phase One and HS2 Phase 2a;
- The percentage increase in trips was then applied to existing car trips to/from the existing Crewe Station car parking and drop-off/pick-up areas assuming no change in the proportion of passengers using cars and taxis. This uplift in trips is therefore considered to represent the vehicle trip generation associated with the operation of the Proposed Scheme in 2027 and 2041, as a result of increased passenger movements to/from Crewe Station; and
- The calculated generation was then assigned, outside the Crewe SATURN model, to key junctions in the vicinity of Crewe Station using the existing trip distribution pattern to/from the Crewe Station car parking area SATURN model zones.

11.5.6 Table 397 summarises the Proposed Scheme operational trip generation at Crewe Station in 2027 and 2041.

Table 397: Proposed Scheme Crewe Station trip generation summary

Scenario	Percentage increase	AM peak		PM peak	
		Arrival trips (vehicles)	Departure trips (vehicles)	Arrival trips (vehicles)	Departure trips (vehicles)
	2027				
HS2 Phase One	+4.81%	28	17	21	30
HS2 Phase 2a	+2.13%	13	8	11	14
HS2 Phase One & 2a	+6.94%	41	25	30	44
	2041				
HS2 Phase One	+4.67%	37	22	28	40
HS2 Phase 2a	+1.95%	16	10	11	16
HS2 Phase One & 2a	+6.62%	53	32	39	56

11.5.7 This shows that the Proposed Scheme will generate up to 2.1% additional rail passengers at Crewe Station and up to 6.9% cumulatively with HS2 Phase One.

11.5.8 Assuming no change in mode share, this generates a similar percentage uplift to all station access modes with a small number of additional vehicle trips on the

surrounding road network, both when considered in isolation and when combined with HS2 Phase One.

11.5.9 The impact of the vehicle trips are assessed in the junction capacity assessments.

11.5.10 Trips associated with maintenance of the Proposed Scheme are very low and will generally occur outside of the peak periods.

11.6 CA5 Proposed Scheme assessment of operation impacts

Key operation transport issues

11.6.1 The main potential operational impacts relate to: the change in passenger numbers at Crewe Station; the diversion, realignment of roads and implementation of new junctions in order to accommodate the Proposed Scheme; and the changes to PRoW.

11.6.2 Table 398 and Table 399 summarise the key infrastructure changes to the transport network, with the operational impacts related to localised impacts around Crewe Station (as set out in Table 397) also assessed. There are no key issues over and above these changes.

11.6.3 In addition, the final part of the CA5 assessment considers the potential combined construction impacts if the Crewe Hub scheme promoted by others were to progress alongside the Proposed Scheme and construction activities were to overlap.

Highway network

Highway diversions, realignments and closures

11.6.4 Table 398 summarises the permanent road diversions, realignments and extensions required to accommodate the Proposed Scheme.

Table 398: CA5 permanent highway diversions/stopping-up

Highway name	Description	Change in length
Checkley Lane	Realigned slightly to south on to a new overbridge, with new junctions to access roads. Part of former route to east is retained for farm access.	Realignment is 20m shorter
Den Lane	Realigned to the south on to a new overbridge, with a new junction to access roads east of the Proposed Scheme, and a new arm at the Mill Lane junction.	Diversion is 150m longer
Chorlton Lane	Existing underbridge to WCML will be closed to public access. Diversion from village to west of Proposed Scheme for pedestrians via Footpath 13, Footpath 9 and Footpath 7 overbridge then access roads.	Diversion is 3.5km longer via realigned Newcastle Road and Proposed Scheme access roads
Newcastle Road	Realigned to the north on to a new overbridge and a new junction with the diverted Casey Lane. Part of former route on both sides is retained as access.	Realignment is 150m longer
Casey Lane	Closed with diversion east of Proposed Scheme to realigned Newcastle Road. Part of former route to both sides of Proposed Scheme retained as access roads.	Diversion via realigned Newcastle Road is 500m longer

PRoW diversions and closures

11.6.5 Table 399 summarises the permanent PRoW diversions and realignments required to accommodate the Proposed Scheme.

Table 399: CA5 permanent PRoW diversions

PRoW name	Description	Change in length
Checkley cum Wrinehill Footpath 5	Minor diversion on to Checkley Lane and new overbridge	Diversion is 150m longer
Checkley cum Wrinehill Footpath 8	Diversion on to route of existing Checkley cum Wrinehill Footpath 4 and around new embankment	Diversion is 400m longer
Checkley cum Wrinehill Footpath 9	Serves as part of the diversion route for Footpath 15. Realigned on to WCML overbridge	Diversion results in minimal change in travel distance
Checkley cum Wrinehill Footpath 15	Major diversion via Checkley cum Wrinehill Footpath 9, Checkley Lane and new overbridge, and extended Blakenhall Footpath 17	Diversion to the junction with Blakenhall Footpath 17 is 650m longer
Blakenhall Footpath 7	Diversion onto rerouted Bridleway12 and via access road to new Bridleway 12 overbridge. Major diversion between WCML and Den Lane via Bridleway W 12 and Unnamed Lane.	Diversion to realigned Bridleway 12 is 200m shorter; diversion to Den Lane via Bridleway 12 is 1km longer
Blakenhall Bridleway 8	Minor diversion to north for the replacement of existing WCML overbridge	Diversion results in minimal change in travel distance
Blakenhall Footpath 9	Minor diversion via realigned Den Lane and underbridge on access road	Diversion results in less than 50m change in travel distance
Blakenhall Footpath 11	Diversion via new access roads to new route of Bridleway, then on to Den Lane approximately 250m north of the existing junction	Diversion to realigned Bridleway 12 is 400m shorter; diversion to Den Lane via Bridleway 12 is 100m longer
Blakenhall Bridleway 12	Major diversion to new Bridleway 12 overbridge and to new junction on Den Lane approximately 250m north of existing	Diversion for travel to the west via Den Lane is 100m longer; diversion to the east via Den Lane is 600m longer
Blakenhall New Bridleway	New length of route created between Bridleway 8 and Bridleway 12	Approximately 500m of new Bridleway will be established
Blakenhall Footpath 17	Extended to south-east to Checkley Lane to provide route for Checkley cum Wrinehall Footpath 15 diversion	Length of extension is 700m
Hough Footpath 11	Diversion at end of route on to Blakenhall Bridleway 11	Diversion results in minimal change in travel distance
Chorlton Bridleway 2	Extension north of existing Bridleway terminus, on land to the west of Waybutt Lane, to Chorlton Lane	Approximately 1.1km of new Bridleway will be established
Chorlton Footpath 3	Major diversion to the south on to new Bridleway 12 overbridge	Diversion to junction with Hough Footpath 11 is 800m longer
Chorlton Footpath 7	Minor diversion on to new WCML and HS2 overbridge	Diversion results in minimal change in travel distance
Chorlton Footpath 9	Minor diversion around planting area to meet Footpath 7 less than 50m east of existing junction	Diversion results in minimal change in travel distance
Chorlton Footpath 11	Closed with alternative route via the realigned Newcastle Road	Diversion to replace Footpath 11 and 17 is 250m longer

PRoW name	Description	Change in length
Chorlton Footpath 12	Closure and diversion on to diverted Chorlton Footpath 13 along east of WCML and via section of Chorlton Footpath 9 to new Footpath 7 overbridge	Diversion results in minimal change in travel distance
Chorlton Footpath 13	Diverted along the west side of WCML to junction with Footpath 9 and new Footpath 7 overbridge	Diversion results in less than 100m increase in travel distance
Chorlton Footpath 17	Closed with alternative route via the realigned Newcastle Road	Diversion to replace Footpath 11 and 17 is 250m longer
Basford Footpath 3	Truncated at junction with new Casey lane and Footpath4, due to the diversion of Casey Lane	Truncated route is up to 100m shorter
Basford Footpath 4	Rerouted on to Casey Lane diversion and across embankment for diverted route of Newcastle Road	Diversion is a minimal distance longer
Basford Footpath 5	Diverted on to new route of Newcastle Road and link to Chorlton Footpath 11 closed off	Diversion is 200m longer

Strategic and local road network traffic flows 2027

11.6.6 Traffic flows on road links in CA5 are largely unchanged from the future baseline or result in minor increases due to passenger trips to Crewe Station, maintenance traffic or reassignment as a result of the realignments and closures in 2027.

11.6.7 The Chorlton Lane closure, Checkley Lane and Newcastle Road diversion are the main changes to the road network as a result of the Proposed Scheme. Traffic flows on these links do not change substantially as a result of the Proposed Scheme. However, new junctions or alterations to existing junctions will be provided at the following locations and are assessed for capacity in the following section:

- Newcastle Road/Chorlton Lane (diverted) – a new junction where the diverted Chorlton Lane meets Newcastle Road;
- Newcastle Road/Casey Lane (realigned) – a new junction where the diverted Casey Lane meets Newcastle Road;
- Newcastle Road/Back Lane – existing junction of Newcastle Road/Back Lane, where the Newcastle Road (East) arm will be Realigned; and
- Casey Lane (realigned)/Casey Lane (closed) – new junction where the Realigned Casey Lane meets the new Casey Lane.

11.6.8 The impact of the additional passenger trips to/from Crewe Station are assessed at the following junctions in the vicinity of the station:

- A534 Nantwich Road/A5019 Mill Street/B5071 South Street;
- A534 Crewe Road/B5071Gresty Road; and
- A534 Crewe Road/A534 Nantwich Road/A532 Macon Way (Crewe Arms Roundabout).

11.6.9 Traffic flows on all other links in CA5 are either unaffected from the future baseline or result in very minor increases due to maintenance traffic or reassignment as a result of the realignments/closures in 2027.

Junction performance 2027

Newcastle Road/Chorlton Lane (diverted)

11.6.10 As a result of the Chorlton Lane diversion, a new junction will be provided approximately 150m west of the Proposed Scheme. The junction will take the form of a priority controlled (give way) junction with no controlled pedestrian crossing facilities. Table 400 summarises the results of the junction capacity assessments with the Proposed Scheme.

Table 400: Newcastle Road/Chorlton Lane (diverted) new junction with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Chorlton Lane (realigned) (left)	-	-	-	12	0.02	0
Chorlton Lane (realigned) (right)	-	-	-	10	0.03	0
Newcastle Lane (east) (ahead + right)	-	-	-	0	0.00	0
Newcastle Lane (east) (ahead)	-	-	-	528	-	-
Newcastle Lane (west) (left)	-	-	-	10	-	-
Newcastle Lane (west) (ahead)	-	-	-	467	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Chorlton Lane (realigned) (left)	-	-	-	8	0.02	0
Chorlton Lane (realigned) (right)	-	-	-	4	0.02	0
Newcastle Lane (east) (ahead + right)	-	-	-	9	0.01	0
Newcastle Lane (east) (ahead)	-	-	-	543	-	-
Newcastle Lane (west) (left)	-	-	-	7	-	-
Newcastle Lane (west) (ahead)	-	-	-	649	-	-

11.6.11 The proposed junction layout operates within capacity in 2027 with the Proposed Scheme.

Newcastle Road/Casey Lane (realigned)

11.6.12 As a result of the Newcastle Road Realignment and Casey Lane diversion, a new junction will be provided approximately 200m east of the Proposed Scheme. The junction will take the form of a priority controlled (give way) junction with no controlled pedestrian crossing facilities. Table 401 summarises the results of the junction capacity assessments with the Proposed Scheme.

Table 401: A51 Newcastle Road/Casey Lane (realigned) new junction with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Casey Lane (realigned) (left)	-	-	-	0	0.00	0
Casey Lane (realigned) (right)	-	-	-	23	0.07	0
Newcastle Lane (east) (ahead + right)	-	-	-	0	0.00	0
Newcastle Lane (east) (ahead)	-	-	-	431	-	-
Newcastle Lane (west) (left)	-	-	-	53	-	-
Newcastle Lane (west) (ahead)	-	-	-	432	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Casey Lane (realigned) (left)	-	-	-	0	0.00	0
Casey Lane (realigned) (right)	-	-	-	62	0.19	0
Newcastle Lane (east) (ahead + right)	-	-	-	0	0.00	0
Newcastle Lane (east) (ahead)	-	-	-	532	-	-
Newcastle Lane (west) (left)	-	-	-	62	-	-
Newcastle Lane (west) (ahead)	-	-	-	428	-	-

11.6.13 The proposed junction layout operates within capacity in 2027 with the Proposed Scheme.

Newcastle Road/Casey Lane

11.6.14 As a result of the Newcastle Road realignment, the existing junction of Newcastle Road and Back Lane will be amended, with the Newcastle Road arm realigned. As a result of the Newcastle Road/Casey Lane and Chorlton Lane diversions/realignment, some changes in demand are expected. Table 402 summarises the results of the junction capacity assessments with the Proposed Scheme.

Table 402: A51 Newcastle Road/Casey Lane with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline (existing Junction Layout)**			**2027 with the Proposed Scheme (proposed Junction layout)**		
Casey Lane (left + right)	67	0.15	0	67	0.15	0
Newcastle Lane (east) (ahead + right)	87	0.13	0	91	0.14	0
Newcastle Lane (east) (ahead)	296	-	-	315	-	-
Newcastle Lane (west) (left)	0	-	-	0	-	-
Newcastle Lane (west) (ahead)	500	-	-	554	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Casey Lane (left + right)	74	0.16	0	74	0.16	0
Newcastle Lane (east) (ahead + right)	265	0.35	1	297	0.38	1
Newcastle Lane (east) (ahead)	326	-	-	355	-	-
Newcastle Lane (west) (left)	0	-	-	0	-	-
Newcastle Lane (west) (ahead)	399	-	-	462	-	-

11.6.15 The proposed junction layout operates within capacity in 2027 with the Proposed Scheme.

Casey Lane (realigned)/Casey Lane (closed)

11.6.16 As a result of the Newcastle Road realignment and Casey Lane diversion, a new junction will be provided approximately 200m east of the Proposed Scheme, where the realigned Casey Lane meets the closed Casey Lane. The junction will take the form of a priority controlled (give way) junction with no controlled pedestrian crossing facilities. Table 403 summarises the results of the junction capacity assessments with the Proposed Scheme.

Table 403: Casey Lane (realigned)/Casey Lane (closed) new junction with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Casey Lane (closed))(left+right)	-	-	-	0	0.00	0
Casey Lane (realigned) (north)(ahead + right)	-	-	-	0	0.00	0
Casey Lane (realigned) (north) (ahead)	-	-	-	19	-	-
Casey Lane (realigned) (south) (left)	-	-	-	0	-	-
Casey Lane (realigned) (south) (ahead)	-	-	-	53	-	-
17:00 – 18:00	**2027 future baseline**			**2027 with the Proposed Scheme**		
Casey Lane (closed) (left + right)	-	-	-	0	0.00	0
Casey Lane (realigned) (north) (ahead + right)	-	-	-	0	0.00	0
Casey Lane (realigned) (north) (ahead)	-	-	-	62	-	-
Casey Lane (realigned) (south) (left)	-	-	-	0	-	-
Casey Lane (realigned) (south) (ahead)	-	-	-	62	-	-

11.6.17 The proposed junction layout operates within capacity in 2027 with the Proposed Scheme.

A534 Crewe Road/A532 Weston Road/A534 Nantwich Road/Tommys Lane/A532 Macon Way (Crewe Arms Roundabout)

11.6.18 The future year results with both HS2 Phase One and the Proposed Scheme are presented below, against the future baseline results for 2027. The results for the AM and PM peak hours are shown in Table 404.

Table 404: A534 Crewe Road/A532 Weston Road/A534 Nantwich Road/Tommys Lane/A532 Macon Way (Crewe Arms Roundabout) junction with the Proposed Scheme junction capacity assessment

	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
08:00 – 09:00	**2027 future baseline**			**2027 future baseline with HS2 Phase One**			**2027 future baseline with HS2 Phase One plus Proposed Scheme**		
A532 Macon Way	1112	116%	108	1112	120%	125	1112	136%	182
Tommys Lane	28	10%	0	28	9%	0	28	11%	0
A534 Nantwich Road	1248	81%	20	1259	79%	17	1263	79%	17
A532 Weston Road - kerbside lane	352	51%	7	356	72%	9	357	6120%	8
A532 Weston Road - farside lane	381	51%	5	383	62%	5	384	56%	5
A534 Crewe Road - kerbside lane	623	113%	56	627	112%	51	577	106%	38
A534 Crewe Road - farside lane	77	20%	2	77	23%	2	128	26%	3
17:00 – 18:00	**2027 future baseline**			**2027 future baseline with HS2 Phase One**			**2027 future baseline with HS2 Phase One plus Proposed Scheme**		
A532 Macon Way	566	62%	8	566	79%	13	566	105%	32
Tommys Lane	65	12%	1	65	12%	0	65	11%	1
A534 Nantwich Road	836	71%	13	846	67%	12	850	78%	16
A532 Weston Road - kerbside lane	425	56%	9	432	56%	9	438	56%	9
A532 Weston Road - farside lane	573	73%	10	577	68%	8	573	69%	9
A534 Crewe Road - kerbside lane	642	79%	13	676	70%	13	647	92%	20
A534 Crewe Road - farside lane	154	26%	3	122	15%	2	152	24%	3

11.6.19 The results show that the junction operates over capacity in the 2027 future baseline without HS2 Phase One and the Proposed Scheme. The impact of both HS2 Phase One and the Proposed Scheme, in isolation and cumulatively, results in minor increases in queue lengths and DoS against the 2027 future baseline.

A534 Nantwich Road/Pedley Street/Gresty Road

11.6.20 The future year results with both HS2 Phase One and the Proposed Scheme are presented below, against the future baseline results for 2027. The results for the AM and PM peak hours are shown in Table 405.

Table 405: A534 Nantwich Road/Pedley Street/Gresty Road junction with the Proposed Scheme junction capacity assessment

	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2027 future baseline**			**2027 future baseline with HS2 Phase One**			**2027 future baseline with HS2 Phase One plus Proposed Scheme**		
Gresty Road (exit only) (ahead + left + right)	0	0	0	0	0	0	0	0	0
A534 Nantwich Road (east) (left)	334	-	-	334	-	-	337	-	-
A534 Nantwich Road (east) (ahead)	612	-	-	612	-	-	624	-	-
A534 Nantwich Road (east) (right)	88	0.26	0	88	0.26	0	88	0.26	0
Pedley St (ahead + left + right)	261	0.68	2	261	0.68	2	271	0.71	2
A534 Nantwich Road (west) (left)	35	-	-	35	-	-	35	-	-
A534 Nantwich Road (west) (ahead)	976	-	-	976	-	-	983	-	-
A534 Nantwich Road (west) (right)	0	0	0	0	0	0	0	0	0
17:00 – 18:00	**2027 future baseline**			**2027 future baseline with HS2 Phase One**			**2027 future baseline with HS2 Phase One plus Proposed Scheme**		
Gresty Road (exit only) (ahead + left + right)	0	0	0	0	0	0	0	0	0
A534 Nantwich Road (east) (left)	390	-	-	395	-	-	382	-	-
A534 Nantwich Road (east) (ahead)	729	-	-	739	-	-	774	-	-
A534 Nantwich Road (east) (right)	126	0.28	10	126	0.29	0	130	0.28	0
Pedley St (ahead + left + right)	354	0.72	23	362	0.74	3	381	0.74	3
A534 Nantwich Road (west) (left)	28	-	-	28	-	-	36	-	-
A534 Nantwich Road (west) (ahead)	539	-	-	545	-	-	464	-	-
A534 Nantwich Road (west) (right)	0	0	0	0	0	0	0	0	0

11.6.21 The results show that the junction operates within capacity with the addition of both HS2 Phase One and the Proposed Scheme.

A534 Nantwich Road/B5071 South Street/A5019 Mill Street

11.6.22 The future year results with both HS2 Phase One and the Proposed Scheme are presented below, against the future baseline results for 2027. The results for the AM and PM peak hours are shown in Table 406.

Table 406: A534 Nantwich Road/B5071 South Street/A5019 Mill Street junction with the Proposed Scheme junction capacity assessment

	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
08:00 – 09:00	**2027 future baseline**			**2027 future baseline with HS2 Phase One**			**2027 future baseline with HS2 Phase One plus Proposed Scheme**		
B5071 South St (left + right + ahead)	612	134%	105	618	135%	109	621	135%	110
A534 Nantwich Road (left + right + ahead)	220	22%	4	229	23%	4	232	24%	4
A534 Nantwich Road (left + right + ahead)	1251	133%	209	1256	133%	212	1257	134%	212
A5019 Mill St (left + right + ahead)	506	132%	85	506	132%	85	506	132%	85
17:00 – 18:00	**2027 future baseline**			**2027 future baseline with HS2 Phase One**			**2027 future baseline with HS2 Phase One plus Proposed Scheme**		
B5071 South St (left + right + ahead)	729	114%	76	734	118%	87	736	118%	88
A534 Nantwich Road (left + right + ahead)	733	87%	16	744	89%	17	746	90%	17
A534 Nantwich Road (left + right + ahead)	641	116%	72	644	117%	76	645	118%	76
A5019 Mill St (left + right + ahead)	345	117%	41	351	112%	36	353	113%	37

11.6.23 The results show that the junction operates over capacity in the 2027 future baseline without HS2 Phase One and the Proposed Scheme. The impact of both HS2 Phase One and the Proposed Scheme, in isolation and cumulatively, results in minor increases in queue lengths and DoS against the 2027 future baseline.

Strategic and local road network traffic flows 2041

11.6.24 The operational impacts at 2041 do not differ substantially from those reported at 2027, although there are increases in passenger flows to/from Crewe Station in line with general travel growth.

11.6.25 Junctions are assessed for capacity where they are either new/altered junctions as a result of highway diversions or have been identified as being key junctions within the vicinity of Crewe Station.

Junction performance 2041

Newcastle Road/Chorlton Lane (diverted)

11.6.26 Table 407 summarises the results of the junction capacity assessments with the Proposed Scheme in 2041.

Table 407: A51 Newcastle Road/Chorlton Lane (diverted) new junction with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Chorlton Lane (realigned) (left)	-	-	-	13	0.03	0
Chorlton Lane (realigned) (right)	-	-	-	11	0.04	0
Newcastle Lane (east) (ahead + right)	-	-	-	35	0.04	0
Newcastle Lane (east) (ahead)	-	-	-	698	-	-
Newcastle Lane (west) (left)	-	-	-	11	-	-
Newcastle Lane (west) (ahead)	-	-	-	510	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Chorlton Lane (realigned) (left)	-	-	-	8	0.02	0
Chorlton Lane (realigned) (right)	-	-	-	4	0.02	0
Newcastle Lane (east) (ahead + right)	-	-	-	9	0.01	0
Newcastle Lane (east) (ahead)	-	-	-	543	-	-
Newcastle Lane (west) (left)	-	-	-	7	-	-
Newcastle Lane (west) (ahead)	-	-	-	649	-	-

11.6.27 The proposed junction layout operates within capacity in 2041 with the Proposed Scheme.

Newcastle Road/Casey Lane (diverted)

11.6.28 Table 408 summarises the results of the junction capacity assessments with the Proposed Scheme at 2041

Table 408: A51 Newcastle Road/Casey Lane (realigned) new junction with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Casey Lane (realigned) (left)	-	-	-	0	0.00	0
Casey Lane (realigned) (right)	-	-	-	31	0.10	0
Newcastle Lane (east) (ahead + right)	-	-	-	0	0.00	0
Newcastle Lane (east) (ahead)	-	-	-	459	-	-
Newcastle Lane (west) (left)	-	-	-	137	-	-
Newcastle Lane (west) (ahead)	-	-	-	459	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Casey Lane (realigned) (left)	-	-	-	0	0.00	0
Casey Lane (realigned) (right)	-	-	-	75	0.24	0
Newcastle Lane (east) (ahead + right)	-	-	-	0	0.00	0
Newcastle Lane (east) (ahead)	-	-	-	540	-	-
Newcastle Lane (west) (left)	-	-	-	55	-	-
Newcastle Lane (west) (ahead)	-	-	-	435	-	-

11.6.29 The proposed junction layout operates within capacity in 2041 with the Proposed Scheme.

Newcastle Road/Casey Lane

11.6.30 Table 409 summarises the results of the junction capacity assessments with the Proposed Scheme in 2041.

Table 409: Newcastle Road/Casey Lane junction with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline (existing junction layout)**			**2041 with the Proposed Scheme (proposed junction layout)**		
Casey Lane (left + right)	124	0.28	1	124	0.30	1
Newcastle Lane (east) (ahead + right)	495	0.62	4	546	0.69	5
Newcastle Lane (east) (ahead)	257	-	-	237	-	-
Newcastle Lane (west) (left)	0	-	-	0	-	-
Newcastle Lane (west) (ahead)	550	-	-	687	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Casey Lane (left + right)	96	0.21	0	96	0.22	0
Newcastle Lane (east) (ahead + right)	688	0.78	7	809	0.89	14
Newcastle Lane (east) (ahead)	228	-	-	182	-	-
Newcastle Lane (west) (left)	0	-	-	0	-	-
Newcastle Lane (west) (ahead)	497	-	-	552	-	-

11.6.31 The results indicate that with the addition of the Proposed Scheme, the junction will continue to operate within capacity, although the Newcastle Road (east) operates with an RFC value of 0.89 and corresponding queue length of 14 PCUs in comparison to the future baseline results, which show an RFC value of 0.78 and corresponding queue length of seven PCUs in the PM peak period.

Casey Lane (realigned)/Casey Lane (closed)

11.6.32 Table 410 summarises the results of the junction capacity assessments with the Proposed Scheme.

Table 410: Casey Lane (realigned)/Casey Lane (closed) new junction with the Proposed Scheme junction capacity assessment

Approach	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Casey Lane (closed) (left + right)	-	-	-	0	0.00	0
Casey Lane (realigned) (north) (ahead + right)	-	-	-	0	0.00	0
Casey Lane (realigned) (north) (ahead)	-	-	-	31	-	-
Casey Lane (realigned) (south) (left)	-	-	-	0	-	-
Casey Lane (realigned) (south) (ahead)	-	-	-	143	-	-
17:00 – 18:00	**2041 future baseline**			**2041 with the Proposed Scheme**		
Casey Lane (closed) (left + right)	-	-	-	0	0.00	0
Casey Lane (realigned) (north) ((ahead + right)	-	-	-	0	0.00	0
Casey Lane (realigned) (north) (ahead)	-	-	-	75	-	-
Casey Lane (realigned) (south) (ahead	-	-	-	0	-	-
Casey Lane (realigned) (south) (ahead)	-	-	-	55	-	-

11.6.33 The proposed junction layout operates within capacity in 2041 with the Proposed Scheme.

A534 Crewe Road/A532 Weston Road/A534 Nantwich Road/Tommys Lane/A532 Macon Way (CreweArms Roundabout)

11.6.34 The future year results with both HS2 Phase One and the Proposed Scheme are presented below, against the future baseline results for 2041. The results for the AM and PM peak hours are shown in Table 411.

Table 411: A534 Crewe Road/A532 Weston Road/A534 Nantwich Road/Tommys Lane/A532 Macon Way (Crewe Arms Roundabout) junction with the Proposed Scheme junction capacity assessment

	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
08:00 – 09:00	**2041 future baseline**			**2041 future baseline with HS2 Phase One**			**2041 future baseline with HS2 Phase One plus Proposed Scheme**		
A532 Macon Way	1345	158%	303	1346	125%	179	1347	119%	150
Tommys Lane	33	5%	0	33	5%	0	33	5%	0
A534 Nantwich Road	1312	154%	275	1330	165%	310	1335	181%	353
A532 Weston Road - kerbside lane	287	55%	7	292	61%	7	294	47%	6
A532 Weston Road - farside lane	435	73%	7	439	80%	9	440	73%	10
A534 Crewe Road - kerbside lane	434	103%	26	499	108%	37	501	113%	48
A534 Crewe Road - farside lane	189	50%	5	131	32%	3	131	33%	3
17:00 – 18:00	**2041 future baseline**			**2041 future baseline with HS2 Phase One**			**2041 future baseline with HS2 Phase One plus Proposed Scheme**		
A532 Macon Way	585	85%	12	585	72%	12	585	71%	11
Tommys Lane	71	15%	1	71	16%	1	71	19%	1
A534 Nantwich Road	788	62%	9	804	72%	14	808	79%	17
A532 Weston Road - kerbside lane	425	55%	9	436	50%	8	439	51%	8
A532 Weston Road - farside lane	712	86%	15	712	77%	12	713	86%	17
A534 Crewe Road - kerbside lane	733	85%	16	696	86%	19	729	107%	49
A534 Crewe Road - farside lane	117	18%	2	157	22%	3	124	25%	3

11.6.35 As for 2027, the results show that the junction operates over capacity in the 2041 future baseline without HS2 Phase One and the Proposed Scheme. The impact of both HS2 Phase One and the Proposed Scheme, in isolation and cumulatively, results in minor increases in queue lengths and DoS against the 2041 future baseline.

A534 Nantwich Road/Pedley Street/Gresty Road

11.6.36 The future year results with both HS2 Phase One and the Proposed Scheme are presented below, against the future baseline results for 2041. The results for the AM and PM peak hours are shown in Table 412.

Table 412: A534 Nantwich Road/Pedley Street/Gresty Road junction with the Proposed Scheme junction capacity assessment

	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU	Flow, PCU/hr	RFC	Q, PCU
08:00 – 09:00	**2041 future baseline**			**2041 future baseline with HS2 Phase One**			**2041 future baseline with HS2 Phase One plus Proposed Scheme**		
Gresty Road (exit only) (ahead + left + right)	0	0	0	0	0	0	0	0	0
A534 Nantwich Road (east) (left)	322	-	-	325	-	-	326	-	-
A534 Nantwich Road (east) (ahead)	623	-	-	637	-	-	641	-	-
A534 Nantwich Road (east) (right)	74	0.23	0	74	0.23	0	74	0.23	0
Pedley St (ahead + left + right)	291	0.79	3	303	0.83	4	306	0.84	4
A534 Nantwich Road (west) (left)	35	-	-	35	-	-	35	-	-
A534 Nantwich Road (west) (ahead)	1027	-	-	1036	-	-	1038	-	-
A534 Nantwich Road (west) (right)	0	0	0	0	0	0	0	0	0
17:00 – 18:00	**2041 future baseline**			**2041 future baseline with HS2 Phase One**			**2041 future baseline with HS2 Phase One plus Proposed Scheme**		
Gresty Road (exit only) (ahead + left + right)	0	0	0	0	0	0	0	0	0
A534 Nantwich Road (east) (left)	374	-	-	382	-	-	384	-	-
A534 Nantwich Road (east) (ahead)	758	-	-	774	-	-	779	-	-
A534 Nantwich Road (east) (right)	130	0.28	0	130	0.28	0	130	0.28	0
Pedley St (ahead + left + right)	369	0.72	2	381	0.74	3	385	0.75	3
A534 Nantwich Road (west) (left)	36	-	-	36	-	-	36	-	-
A534 Nantwich Road (west) (ahead)	454	-	-	464	-	-	467	-	-
A534 Nantwich Road (west) (right)	0	0	0	0	0	0	0	0	0

11.6.37 The results show that the junction operates within capacity, with the addition of both HS2 Phase One and the Proposed Scheme, with minor increases in queue lengths and RFC values against the 2041 future baseline.

A534 Nantwich Road/B5071 South Street/A5019 Mill Street

11.6.38 The future year results with both HS2 Phase One and the Proposed Scheme are presented below, against the future baseline results for 2041. The results for the AM and PM peak hours are shown in Table 413.

Table 413: A534 Nantwich Road/B5071 South Street/A5019 Mill Street junction with the Proposed Scheme junction capacity assessment

	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU	Flow, PCU/hr	DoS	MMQ, PCU
08:00 – 09:00	**2041 future baseline**			**2041 future baseline with HS2 Phase One**			**2041 future baseline with HS2 Phase One plus Proposed Scheme**		
B5071 South Street (left + right + ahead)	624	149%	135	634	146%	131	637	146%	133
A534 Nantwich Road (left + right + ahead)	239	23%	4	253	30%	4	257	32%	4
A534 Nantwich Road (left + right + ahead)	1442	147%	294	1449	150%	306	1451	150%	307
A5019 Mill Street (left + right + ahead)	543	149%	117	544	149%	117	544	149%	117
17:00 – 18:00	**2041 future baseline**			**2041 future baseline with HS2 Phase One**			**2041 future baseline with HS2 Phase One plus Proposed Scheme**		
B5071 South Street (left + right + ahead)	758	126%	112	766	127%	116	768	127%	117
A534 Nantwich Road (left + right + ahead)	832	98%	22	848	101%	26	853	102%	30
A534 Nantwich Road (left + right + ahead)	738	128%	112	742	130%	117	743	130%	118
A5019 Mill Street (left + right + ahead)	307	119%	40	316	123%	45	318	125%	48

11.6.39 As for 2027, the results show that the junction operates over capacity in the 2041 future baseline without HS2 Phase One and the Proposed Scheme. The impact of both HS2 Phase One and the Proposed Scheme, in isolation and cumulatively, results in minor increases in queue lengths and DoS against the 2041 future baseline.

Accidents and safety

11.6.40 The baseline safety analysis identified five accident clusters over a three year period, located on A500 Meremoor Roundabout; the A51 Nantwich Road Roundabout; the A530 Middlewich Road/Colleys Lane junction; the A532 Earle Street Roundabout; and

the A5019 Mill Street/A5078 Oak Street junction. However, there are no locations in the South Cheshire area where there are substantial forecast increases in traffic flows due to the operation of the Proposed Scheme that might generate safety concerns. New highway links and junctions will be constructed to current standards and/or in keeping with the existing infrastructure. Therefore, the Proposed Scheme is unlikely to create any new safety concerns.

Parking and loading

11.6.41 The Proposed Scheme will add up to 2.1% in demand for car parking, drop-off and taxi facilities at Crewe Station. As part of this assessment, the Virgin Trains live parking availability website[7] has been analysed.

11.6.42 Analysis of the data reveals that maximum parking occupancy observed was 73% on Wednesday 05May at 15:00. The average occupancy over all four days was observed as 57%. The two busiest days were Wednesday and Thursday, with average parking occupancy observed as 68% and 66% respectively. Therefore, it can be concluded that the observed data indicates that there is sufficient spare capacity to accommodate HS2 generated parking demand in respect of both HS2 Phase One and the Proposed Scheme.

11.6.43 When considering the Proposed Scheme in combination with HS2 Phase One, the increase in demand is up to 6.9%. With the potential exception of impacts on traffic congestion (considered under junction assessment), this level of increase would be unlikely to generate impacts that are of concern regarding transport infrastructure or users.

Public transport

Rail network

11.6.44 As a result of the Proposed Scheme, rail passengers in South Cheshire will benefit from increased capacity, greater rail network resilience and faster journeys to London when compared with existing conventional services. The journey time saving from Crewe to London will be 13 minutes and this is in addition to the 22 minute journey time saving relating to HS2 Phase One.

11.6.45 The introduction of the new HS2 services will also create new journey opportunities, including through interchange with other rail services and access modes to/from Crewe Station.

11.6.46 In order to release sufficient capacity at Crewe Station and accommodate additional rail services, the Proposed Scheme includes a new island platform to be provided at Crewe Station. The relocation of conventional rail services to the island platform will impact on rail users accessing services that stop at this platform, in terms of additional walk times and hindrances. These changes within the station are unlikely to result in substantial impacts on rail users.

[7] Online at: https://www.virgintrains.co.uk/stations-destinations/parking - Parking availability data was collected for the weekdays Tuesday 02May to Friday 05 May 2017 between the hours of 09:00 –to 17:00. Sample parking availability was recorded on the hour between these times and on all days.

11.6.47 Once completed, the Proposed Scheme has the potential to deliver a change in capacity. However, the assessment of the Proposed Scheme includes an assumption that there will be no change to the conventional rail or freight services as a result of released capacity over and above those assessed for HS2 Phase One.

11.6.48 Whilst the Proposed Scheme assumes the same service patterns as HS2 Phase One, passengers on conventional rail services will benefit from long distance passengers transferring from conventional rail services to high speed services and thereby releasing passenger capacity on existing services, including those serving Crewe Station. Section 12 of this TA provides further details.

Local bus services

11.6.49 No bus routes in the South Cheshire area operate along any of the corridors that would cross the Proposed Scheme and consequently they will be unaffected by the Proposed Scheme other than any general impacts on highway users due to diversions or congestion.

11.6.50 The increase in rail use of Crewe Station will be expected to increase use of bus services to access the station. If the percentage of rail passengers using buses remained unchanged, this would result in up to a 2.1% increase in rail users accessing buses due to the Proposed Scheme and up to 6.9% cumulatively from HS2 Phase One and the Proposed Scheme.

Public transport interchanges

11.6.51 The Proposed Scheme in combination with HS2 Phase One results in increased interchange opportunities, aided by the additional flexibility with the provision of a new island platform as part of the Proposed Scheme. The increase in demand at Crewe Station as a result of the Proposed Scheme (up to 2.1%) and combined with HS2 Phase One (up to 6.9%) will not have a substantial impact on existing infrastructure or in the case of public transport, existing service provision.

Pedestrians, cyclists and equestrians

11.6.52 Compared to the existing baseline, the operational scheme will impact on PRoW used by pedestrians, cyclists and equestrians that cross the route of the Proposed Scheme and the operation of the Proposed Scheme results in changes to PRoW.

11.6.53 Locations where roads used by pedestrians, cyclists and equestrians are permanently diverted, realigned or reinstated are shown in Table 414 and Table 415. The tables summarise the permanent diversions, realignments and extensions required to PRoW and roads to accommodate the Proposed Scheme.

Table 414: CA5 permanent changes to PRoW for non-motorised users

PRoW name	Change in length	New over-or under bridge
Checkley cum Wrinehill Footpath 5	Diversion is 150m longer	Checkley Lane overbridge
Checkley cum Wrinehill Footpath 8	Diversion is 400m longer	None
Checkley cum Wrinehill Footpath 9	Diversion results in minimal change in travel distance	None
Checkley cum Wrinehill Footpath 15	Diversion to the junction with former Blakenhall Footpath 17 route is 650m longer	Checkley Lane overbridge

PRoW name	Change in length	New over-or under bridge
Blakenhall Footpath 7	Diversion to meet realigned Bridleway 12 is 100m shorter; diversion for travel to Den Lane via Bridleway 12 is 1km longer	Bridleway 12 overbridge
Blakenhall Bridleway 8	Diversion results in minimal change in travel distance	Replacement WCML overbridge
Blakenhall Footpath 9	Diversion results in minimal change in travel distance	Den Lane underbridge
Blakenhall Footpath 11	Diversion to meet realigned Bridleway 12 is 400m shorter; diversion for travel to Den Lane via bridleway 12 is 100m longer	None
Blakenhall Bridleway 12	Diversion for travel to the west via Den Lane is 150m longer; diversion for travel to the east via Den Lane is 650m longer	Blakenhall Bridleway 12 accommodation bridges
Blakenhall New Bridleway	Approximately 500m of new bridleway will be established	None
Blakenhall Footpath 17	Length of extension (with Checkley Footpath 15) is 700m	None
Hough Footpath 11	Diversion results in minimal change in travel distance	None
Chorlton Bridleway 2	Approximately 1.1km of new Bridleway will be established	None
Chorlton Footpath 3	Diversion is 800m longer	Blakenhall Bridleway 12 accommodation bridges
Chorlton Footpath 7	Diversion results in minimal change in travel distance	Chorlton Footpath 7 overbridge
Chorlton Footpath 9	Diversion results in minimal change in travel distance	None
Chorlton Footpath 11	Diversion to replace Footpath 11 and 17 is 250m longer	Newcastle Road overbridge
Chorlton Footpath 12	Diversion results in minimal change in travel distance	None
Chorlton Footpath 13	Diversion results in less than 100m increase in travel distance	Chorlton Footpath 7 overbridge
Chorlton Footpath 17	Diversion to replace Footpath 11 and 17 is 250m longer	None
Basford Footpath 3	Truncated route is up to 100m shorter	None
Basford Footpath 4	Diversion is a minimal distance longer	Newcastle Road embankment
Basford Footpath 5	Diversion is 200m longer	Newcastle Road overbridge

Table 415: CA5 permanent changes to roads for non-motorised users

Highway name	Change in length	New over or under bridge
Checkley Lane	Realignment results in minimal change in travel distance	Checkley Lane overbridge
Den Lane	Diverted route is 150m longer	None
Chorlton Lane	Diverted route is 3.5km longer via realigned Newcastle Road and access roads Route via Chorlton Footpath 7 overbridge is up to 1.8km longer	None
Newcastle Road	Realigned route is 150m longer	Newcastle Road overbridge
Casey Lane	Diverted route is 500m longer	Newcastle Road overbridge

11.6.54 The Proposed Scheme will require the permanent stopping-up of Checkley cum Wrinehill Footpath 15 between Checkley cum Wrinehill Footpath 9 and Blakenhall Footpath 17. Users will be permanently diverted along the Checkley cum Wrinehill Footpath 9 diversion to Checkley Lane, before crossing the route of the Proposed Scheme over the Checkley Lane overbridge and rejoining Blakenhall Footpath 17 along the Blakenhall Footpath 17 diversion. The closure of Checkley cum Wrinehill Footpath 15 will increase travel distance by up to 650m for non-motorised users.

11.6.55 Chorlton Footpath 11 and Chorlton Footpath 17 will be permanently stopped up. Chorlton Footpath 11 and Chorlton Footpath 17 connect Newcastle Road to Basford Footpath 5. Users travelling east-bound on Newcastle Road will be permanently diverted via Chorlton Footpath 14 and the Newcastle Road realignment. Users travelling west-bound on Newcastle Road will be permanently diverted via the retained section of the Newcastle Road, to the west of the Proposed Scheme and Casey Lane. The stopping up of Chorlton Footpath 11 and Chorlton Footpath 17 will increase travel distance by up to 250m for non-motorised users.

11.6.56 Chorlton Footpath 12 will be permanently stopped up. Chorlton Footpath 12 connects Chorlton Lane to Chorlton Footpath 7. Users will be diverted via the Chorlton Footpath 13 diversion and there is no change in travel distance via the alternative route.

11.6.57 Within these diversions and reinstatements, 10 of the routes affected experience either minimal change in length, or the routes become shorter (e.g. Basford Footpath 3 and Blakenhall Footpaths 7 and 11 towards Bridleway 12). A further seven changes result in diversions which increase route length up to 250m on footpaths, as well as on Den Lane and Newcastle Road.

11.6.58 Other routes experience larger changes in length of diversion, with an increase of 400m on Checkley cum Wrinehill Footpath 4 rerouting around a new embankment to meet Footpath 8; and Basford Footpath 4, which is diverted on to the realigned Casey Lane and Newcastle Road, resulting in an increase in route length of 700m. Casey Lane itself experiences an increase in route length of 500m, due to a diversion to the east of the Proposed Scheme on to the realigned Newcastle Road.

11.6.59 Blakenhall Footpath 7 and Bridleway 12 are both diverted north after they cross the WCML to a set of new accommodation overbridges crossing the Proposed Scheme.

This leads to an overall increase in route length up to 1km for the entire route west to Den Lane. In addition, Chorlton Bridleway 2 is extended at the eastern end parallel to Waybutt Lane to provide additional connectivity to Chorlton village. Chorlton Footpath 3 is also diverted south on to this new set of overbridges, and this results in an increase in route length of up to 1.2km.

11.6.60 Due to closure of the existing railway underbridge west of Chorlton village, the relatively few non-motorised users of Chorlton Lane travelling to the west of the WCML will experience an increase in travel distance. A diversion via the realigned Newcastle Road will increase travel distance up to 3.5km for cyclists and equestrian users from east of Chorlton travelling west of the Proposed Scheme.

11.6.61 However, a shorter diversion of 1.8km exists for pedestrians, by using Chorlton Footpaths 13 and 9, Footpath 7 overbridge, and on access roads to the west of the Proposed Scheme. Whilst still a long diversion, the surveys taken in summer 2016 showed only six pedestrian users on this route.

11.6.62 Highways diversions around the realignment of Newcastle Road will also affect pedestrians and cyclist and equestrian users in different ways. The closure of Casey Lane will require the permanent diversion of the Regional Route 70 cycle route, which will be diverted via Back Lane and Weston Lane and this will increase travel distance for cycle users of Regional Route 70 by up to 700m.

11.6.63 However, a shorter (400m) diversion will be available for pedestrians, so this only impacts upon cyclists, for whom the increased distance will be substantially less of a hindrance.

Taxis

11.6.64 The existing baseline outlined provision for drop-off and taxi facilities at Crewe Station on the A534 Nantwich Road (outside the station entrance), short stay parking on Pedley Street and a taxi waiting area off the A532 Weston Road.

11.6.65 The increase in vehicle trips generated by the Proposed Scheme (up to 2.1%) and HS2 Phase One and the Proposed Scheme combined (up to 6.9%) at Crewe Station will result in a small increase in taxi use.

Waterways and canals

11.6.66 The Proposed Scheme makes no changes to waterways or canals in CA5 and consequently has no impact upon them.

11.7 Crewe Hub

11.7.1 There are aspirations by a number of organisations including NR and CEC for a redevelopment scheme to improve Crewe Station, its operation and service opportunities.

11.7.2 Details relating to the Crewe Hub proposal are limited due to the early stages of development of the scheme. Nevertheless, the combined construction impacts of the Proposed Scheme and the Crewe Hub proposal have been assessed in the event that the latter proceeds at the same time as the Proposed Scheme.

11.7.3 At the time the Phase 2a assessment was undertaken, the proposals for Crewe Hub were limited to a preferred location at the existing Crewe Station as announced in November 2016. There is insufficient information on which a detailed assessment of the cumulative effects can be made. As the aspiration is to have Crewe Hub operational in line with the year of opening (2027) of the Proposed Scheme, there is potential for construction activity associated with the Proposed Scheme and the Crewe Hub proposal to overlap.

11.7.4 Construction works for the Proposed Scheme predominantly impact to the south of Crewe and along the A500 corridor from M6 junction 16. There is some limited access required to Crewe Station for works to the station, including a new island platform, and traffic associated with these is routed from the M6 junction 16 along the A500 Newcastle Road, the B5472 Weston Road, the A532 Weston Road and the A534 Nantwich Road. These are the only roads along which there is considered to be an interface during construction of the Proposed Scheme and the proposed Crewe Hub. It should be noted that construction traffic relating to the proposed Crewe Hub is likely to use other roads in addition to those identified above and the impacts on these would be considered as part of the EIA/TA associated with the Crewe Hub proposal.

11.7.5 The potential construction traffic associated with Crewe Hub has been derived by considering other major station redevelopment schemes, in particular Glasgow Central. Based on the information available, the following assumptions are adopted for the cumulative assessment of the Proposed Scheme with the proposed Crewe Hub:

- the peak in construction activity for the Crewe Hub proposal is likely to be during demolitions at Crewe Station and has been based on the rate for Glasgow Central, which was 59 HGV (118 HGV two-way trips) per day. In addition, a further 50 car/LGV two-way trips per day are included for workers; and
- Crewe Hub has the potential for construction access from the rail network as well as multiple vehicle routes. To provide a reasonable worst case assumption, 50% of the vehicle trips are assumed to access the station area using the same routes as the Proposed Scheme construction traffic, which equates to 59 HGV movements and 25 car movements a day combined with the Proposed Scheme peak month flows on the above roads only.

11.7.6 Table 416 summarises the resultant Crewe Hub construction traffic, in terms of both total vehicles and HGV across the AM peak, PM peak and daily weekday flow.

Table 416: Crewe Hub traffic generation summary

Time Period	All vehicles		HGV	
	Arrivals	Departures	Arrivals	Departures
AM peak (08:00 – 09:00)	16	3	3	3
PM peak (17:00 – 18:00)	3	16	3	3
Daily (weekday)	43	43	30	30

11.7.7 Table 417 summarises the impact of the Crewe Hub construction traffic against the 2023 future baseline and against the 2023 future baseline plus the Proposed Scheme.

Table 417: Crewe Hub text link assessment

Link	2023 baseline		HS2 Phase 2a (Proposed Scheme)		Proposed Scheme % change from baseline		2023 baseline + Proposed Scheme + Crewe Hub		Cumulative % change from baseline	
	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV	Veh	HGV
	AM Peak (08:00 – 09:00)									
A500 Newcastle Road	1394	111	1556	168	11.6%	51.6%	1572	171	12.7%	54.3%
	1405	113	1566	170	11.5%	50.4%	1569	173	11.7%	53.1%
A532 Weston Road	839	32	859	33	2.4%	4.5%	875	36	4.3%	14.0%
	529	26	549	27	3.8%	5.5%	552	30	4.3%	17.1%
A534 Nantwich Road	798	23	821	27	2.9%	13.4%	837	30	2.9%	13.4%
	956	26	979	29	2.4%	12.1%	982	32	2.4%	12.1%
	PM Peak (17:00 – 18:00)									
A500 Newcastle Road	1518	69	1746	126	15.0%	83.2%	1749	129	15.2%	87.5%
	1345	53	1573	110	17.0%	108.0%	1589	113	18.2%	113.7%
A532 Weston Road	550	9	575	10	4.6%	15.9%	578	13	5.2%	49.6%
	656	9	682	10	3.9%	16.6%	698	13	6.3%	51.9%
A534 Nantwich Road	1060	10	1094	13	3.2%	31.2%	1097	16	3.2%	31.2%
	634	6	667	9	5.3%	55.1%	683	12	5.3%	55.1%
	Daily									
A500 Newcastle Road	19,882	1,736	20969	2307	5.5%	32.9%	21012	2337	5.7%	34.6%
	18,773	1,607	19860	2178	5.8%	35.5%	19903	2208	6.0%	37.4%
A532 Weston Road	8,563	363	8663	377	1.2%	3.9%	8706	407	1.7%	12.2%
	7,309	308	7410	322	1.4%	4.6%	7453	352	2.0%	14.3%
A534 Nantwich Road	14,305	295	14441	327	0.9%	10.6%	14484	357	1.2%	10.6%
	12,235	280	12371	311	1.1%	11.2%	12414	341	1.1%	11.2%

11.7.8 The link assessment above shows that the Proposed Scheme and Crewe Hub construction traffic does not result in any substantial changes to those impacts identified for the Proposed Scheme. On this basis it can be concluded that the impacts identified as part of the Proposed Scheme assessment would not be substantially altered by the in-combination construction impacts of the Proposed Scheme and Crewe Hub.

12 Route-wide and off-route assessment

12.1 Introduction

12.1.1 This section presents an assessment of the potential impacts of the Proposed Scheme in terms of route-wide and off-route impacts.

12.1.2 A route-wide TA has been undertaken which considers those impacts that have potential to be wide-area impacts due to activities or changes in travel patterns.

12.1.3 Those aspects of the construction and operation of the Proposed Scheme that have the potential to generate substantial impacts in locations remote to the route corridor (i.e. 'off-route') are also considered. The nature of the Proposed Scheme means that such impacts are related to implications for other transport infrastructure.

12.1.4 Off-route impacts are defined as those that may occur at locations beyond the route of the Proposed Scheme and its associated local environment and which are not covered within the spatial scope of the individual CAs.

12.1.5 This assessment also considers route-wide and off-route cumulative impacts in relation to HS2 Phase One.

12.1.6 This section sets out the potential impacts of the Proposed Scheme for:

- route-wide - construction and operation; and
- off-route - construction and operation.

12.2 Route-wide

12.2.1 The geographical extent of the Proposed Scheme is such that there is the potential for traffic and transport impacts at a route-wide level due to activities or changes in travel patterns. This assessment considers those impacts. Traffic and transport impacts at a local scale are assessed and considered within the relevant CA assessments in earlier sections in this TA.

12.2.2 An initial review of the range of potential impacts was undertaken to identify aspects that might have the potential to have route-wide impacts. It was considered the potential route-wide impacts might arise during construction and operation as a result of:

- Construction:
  - impacts on the strategic highway network during construction;
  - impacts on the wider railway network during construction; and
  - impacts associated with the operation of the railhead at Stone; and
- operation:
  - impacts arising during operation - changes in passenger demand.

12.3 Route-wide construction

Impacts on the strategic road network during construction

12.3.1 The cumulative impacts of construction vehicles from all construction activities along the Proposed Scheme route have been assessed in the relevant sections of this TA. These have considered the impact of traffic generated by the Proposed 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.

12.3.2 The impacts of construction traffic are primarily focused on the road network close to the Proposed Scheme, which includes the principal corridors for movement of excavated material. These are considered within the relevant CA assessment sections of this TA. These assessments consider the impact of construction activity on roads extending from the Proposed Scheme to the SRN. Once on the SRN, the cumulative impacts associated with the movement of excavated and fill materials will not be substantial as the construction traffic movements represent a very small proportion of total traffic on the SRN. As part of the construction of the Proposed Scheme, excavated material will be reused where suitable and reasonably practicable, which reduces potential construction traffic. A number of further measures have been included within the Proposed Scheme to help reduce construction traffic movements. These include the use of rail to transport materials through the railhead near Stone and the use of borrow pits.

12.3.3 The use of rail access for construction, particularly the railhead near Stone, to transport bulk materials (including such as track slab, ballast, rails and sleepers), where reasonably practicable, will help to reduce wider traffic impacts of such movements. This is supported by direct access from the M6 via the temporary slips on to the M6, which reduces the potential for use of more local roads.

12.3.4 The Proposed Scheme includes the use of borrow pits to reduce the impact of construction traffic on the road network. These have been used to enable construction material to be obtained locally. Following excavation of construction material, the borrow pits will be backfilled with materials generated from the construction of the Proposed Scheme, thereby reducing the wider potential impacts on the road network of disposal of surplus excavated material. Table 418 shows that the use of borrow pits reduces the number of HGV movements on the road network by over 900,000 movements.

Table 418: Reduction of potential route-wide HGV movements from borrow pits

Borrow pits	Potential routes benefiting from reduction in traffic	Total HGV movement savings
Borrow pits located in CA1 (at Kings Bromley South, located on either side of Crawley Lane on the east side and to the south of Ashby Sitch; at Kings Bromley North, located adjacent to the realigned A515 Lichfield Road and at Kings Bromley North, located adjacent to the realigned Shaw Lane)	A513 Rugeley Road, A515 Lichfield Road, A51 Stafford Road, A5192 Eastern Avenue and the A38(T)	85,000

Borrow pits	Potential routes benefiting from reduction in traffic	Total HGV movement savings
Borrow pit located for works in CA1 and CA2 (at Blithbury, located to the east of the River Trent viaduct)	A51 Lichfield Road, A5192 Eastern Avenue and the A38(T) to the south and the A51 Lichfield Road, A518 Weston Road, A513 Beaconside, A34 and the M6 motorway	390,000
Borrow pit located in CA4 (west of Netherset Hey Farm)	A525 Bar Hill Road, the A51, A53 Newcastle Road, A5182 Trentham Road, A519 Newcastle Road, A500 to the M6 motorway	230,000
Borrow pit located in CA5 (north of Checkley Lane)	A500 Shavington Bypass and the M6 motorway	210,000
Total		915,000

Impacts on the railway network during construction

12.3.5 The design of the Proposed Scheme aims to reduce operational disruption to the conventional rail network during construction, where reasonably practicable. Where it is safe to do so, works to the Proposed Scheme will be undertaken while conventional train services are still running. Where this would not be safe, works will have to be undertaken when trains are not running, in possessions.

12.3.6 In so far as reasonably practicable, many of these works will be undertaken in the normal night time maintenance possessions in order to reduce disruption to passenger and freight services. However, for certain major works that cannot be accommodated within these maintenance periods, weekend closures of a day's duration or longer will be required. These are referred to as weekend possessions. Where the works are particularly complex and require more time than a normal or bank holiday weekend, durations longer than a weekend will be required and are referred to as blockades.

12.3.7 Possessions are a standard technique widely used for the maintenance and renewal of the conventional railway. These possessions will be consistent with those adopted for current Network Rail working practices. HS2 Ltd will work with Network Rail to, where reasonably practicable, co-ordinate possessions with existing planned maintenance and renewals to reduce overall disruption to the travelling public and to ensure that the disruption impact of the works is not substantial.

12.3.8 The assessment of impacts to conventional rail services during construction has been based on a review of the proposed works either on or near the national rail network. From this review the likely number, location, duration and nature of works, as well as how they will be carried out, has been established. These factors have been used to assess the potential levels of disruption to passenger services on the conventional rail network. There are a number of works proposed that are of sufficient scale that they could potentially create disruption and delay to rail passenger and freight services. These are outlined below with reference to the relevant community area:

- Great Haywood, Macclesfield to Colwich Line: (Colwich to Yarlet community area (CA2)): Works include Great Haywood viaduct, required to span the

Macclesfield to Colwich Line. Possession of this part of the Macclesfield to Colwich Line will be required for temporary crossing of the railway, minor modifications to the overhead line equipment, access to pier locations and for launching of the reinforced concrete trapezoidal box structure. Most of these works will be undertaken in non-disruptive possessions[8] however, one 54-hour weekend possession will be required for the launch of the main structure. It is expected that diversionary routes via Norton Bridge will be kept open;

- Stone, Norton Bridge to Stone Railway (Stone and Swynnerton area (CA3)): Works include Filly Brook viaduct, Norton Bridge to Stone Railway underbridge, Yarnfield South embankment and the railhead connection to the conventional railway. Possessions of the Norton Bridge to Stone railway will be required for viaduct foundations adjacent to the railway, for lifting precast beams into place to form the viaduct deck, and some finishing work to the viaduct structure may which be required above the railway. Possessions will also be required for the installation and commissioning of the Stone railhead connection to the Norton Bridge to Stone railway. Most of these works will be undertaken in non-disruptive possessions. However, six 54-hour weekend possession will be required;

- near Madeley, WCML (Whitmore Heath to Madeley area (CA4)): Works include Stableford South embankment and the River Lea Viaduct. At Stableford, possessions of the WCML will be required for diversion of an overhead power line and gas mains, to be buried under the WCML. For the River Lea viaduct, a concrete box girder structure carrying the route of the Proposed Scheme over the WCML, the disused Stoke to Market Drayton railway and Madeley Chord will require possessions to support area setup and installation of piling platform and sheet piling at foundation locations. These works are expected to be undertaken in non-disruptive possessions, however four 54-hour weekend possessions will be required for lifting portal structures into place and for pushing the viaduct structure across WCML;

- Crewe South, WCML (South Cheshire area (CA5)) – Works include utility diversions, multiple bridge demolitions and constructions, diversion/realignment of the WCML, installation of new junctions, signalling, telecoms and power equipment on the WCML and the connection to the Proposed Scheme, including testing and commissioning. The design facilitates a large amount of the diverted WCML and bridges over this section to be completed away from the operational railway. These works are expected to require 64 either 27 or 54-hour weekend possessions and two longer possessions of up to 100-hours. Two blockades are envisaged to be required for the more complex junction installation works, including testing and commissioning of signalling and power systems. These works will be staged so that weekend possessions and blockades are shared where possible. Utility

[8] A non-disruptive possession is any possession of the operational railway which has no impact on the users of the railway. These possessions generally occur overnight, in existing maintenance or 'engineering access' periods which exist for the purposes of inspection, maintenance or renewal activities. i.e. a non-disruptive possession will allow passenger train services to operate as per their normal schedule.

diversions, site set up works and other preparatory works will be undertaken in non-disruptive possessions;

- Crewe Central, Manchester Independent Line (South Cheshire area (CA5)) – Works include installation of an island platform and remodelling of the existing junctions. Site set up works and other preparatory works will be undertaken in non-disruptive possessions. Thirty-eight 54-hour weekend possessions will be required for major bridge construction works, installation of new junctions and the commissioning of the Proposed Scheme. A longer blockade of the Manchester Independent Line is envisaged to be required for the more complex installation works. Diversionary routes for freight trains through the existing station exist and detailed arrangements will need to be agreed;
- Crewe Central, WCML (South Cheshire area (CA5)) – Works include installation of signalling, telecoms, and other interfacing systems to allow HS2 trains to run from the WCML onto the Proposed Scheme. Most of these works will be undertaken in 'non-disruptive' possessions or interfaced with other weekend closures in the area; and
- Off-route modifications to the Crewe to Manchester railway line (part of the WCML) at Maw Green and Sandbach: required to facilitate train operations that occur as a result of HS2 Phase 2a services. Works will include reconfiguration of the track layout, new track switches, raising of an existing footbridge and modifications to the existing rail systems including new or relocated signalling and overhead line equipment. These works are expected to be undertaken in non-disruptive possessions, 14 27-hour possessions, one 72-hour and two 100-hour weekend possessions. One blockade is envisaged to be required for the more complex works. These works will be staged so that weekend possessions and blockades are shared where possible.

12.3.9 A temporary railhead is proposed near Stone in the Stone and Swynnerton community area (CA3), which will connect to the conventional rail network and will be used as the delivery location for bulk rail-borne materials such as fill material, track slab, rails, ballast and sleepers. It will also be used for the removal of excavated material. Facilities at the railhead will include offices, storage, a rail marshalling yard and pre-assembly depot and rail reception maintenance loops. The railhead will operate 24 hours a day, seven days a week. On completion of the construction works, the railhead will be converted into a permanent maintenance facility, referred to as the Infrastructure Maintenance Base Rail (IMB-R) for the Proposed Scheme.

Analysis of impacts

12.3.10 The Proposed Scheme works will be undertaken in compliance with the measures set out in the draft Code of Construction Practice (CoCP) and the Network Rail Rule Book to ensure that disruption to travelling passengers and freight is reduced as far as reasonably practicable.

12.3.11 These measures include: carefully programming the Proposed Scheme works to coincide with possessions that are required and planned for the general maintenance of the railway; planning the required works so that they can be undertaken in short overnight stages when passenger services are not disrupted; and programming longer

closures at the weekend and on bank holidays to reduce the number of passengers affected.

12.3.12 The potential scale of impact from works on or near the national rail network will depend on a number of factors including the type and complexity of interaction, duration of interaction, level of use of the rail line affected and timing of the interaction. For example, railheads and rail sidings will not have a direct impact on the operation of the conventional rail network as they can be implemented without the need for disruption to the railway and delay to passenger journeys. However, major track re-modelling has greater potential to affect services. While most railway works will be undertaken overnight or during weekend possessions (and thus will have limited impacts in isolation), a long programme of works across a route could, over a period of time, cause disruption to the travelling public and freight services. There are a number of longer possessions and blockades that are likely to be required during a six year period, with the type and number of possessions required route-wide summarised in Table 419.

Table 419: Summary of likely route-wide possession and blockade requirements

	27-hour possessions	**54-hour possessions**	**72-hour possessions**	**100-hour possessions**	**Blockades**
Possessions Summary (passenger and freight route-wide)	46	81	2	3	1x6-day 2x9-day 1x14-day* 1x365-day*

* These longer blockades are partial blocks on the freight only Independent lines to the west of Crewe station. Diversion routes through the station are expected to be used.

12.3.13 The Proposed Scheme also includes connections to the conventional rail network in the South Cheshire area (CA5) and are considered in the relevant CA assessment report. The works are generally localised and short-term in duration and not expected to have route-wide impacts.

12.3.14 The method for implementing works will be through a series of overnight or weekend possessions (often referred to as planned non-disruptive possessions) of the conventional rail network. Possessions will be booked by or through Network Rail in accordance with standard industry processes. The possessions planning process includes consultation with the wider railway industry, including passenger and freight operators, to ensure that the relevant information is provided, that the possessions are considered in the context of wider railway operations, and that appropriate mitigation measures are put in place, such as diversionary routes.

12.3.15 The railhead near Stone is the temporary facility responsible for the management of construction of rail systems for the Proposed Scheme. It is situated between the route of the Proposed Scheme and the M6. The main part of the facility, where most of the construction will be directed from, is situated between the existing conventional rail line (WCML) and the route of the Proposed Scheme where it crosses the M6.

12.3.16 The movement of trains to and from the sidings/railhead on the conventional rail network will utilise available train paths and will comprise a very small percentage of total train movements on the conventional rail network. No substantial impacts associated with train movements to and from the railhead during the construction of the Proposed Scheme are therefore expected.

12.3.17 HS2 Ltd will work with Network Rail to, where reasonably practicable, co-ordinate possessions with existing planned maintenance to reduce disruption to the travelling public and to ensure that the disruption impact of the works are not substantial and will be managed and limited through good planning and communication. Furthermore, coordination of possessions at a route-wide level will reduce the frequency of potential disruption.

12.4 Route-wide – operation

Impacts arising during operation

12.4.1 The introduction of the Proposed Scheme will provide improved journey times on HS2 services and build on the already substantial beneficial impacts of HS2 Phase One, which were reported in the HS2 Phase One ES. This section considers the impacts of the Proposed Scheme where HS2 Phase One is included in the future baseline and then considers the cumulative effects of HS2 Phase One and the Proposed Scheme. The assessment also considers the impacts on the conventional rail network.

12.4.2 The operation of HS2 services, together with the timetable, service and infrastructure changes on the conventional rail network have been assessed, including:

- potential journey time benefits that will be achieved by the introduction of the Proposed Scheme;
- changes in passenger demand including the extent of changes in mode share;
- changes in vehicle and passenger kilometres by mode and in typical journey times; and
- any impact of released capacity.

12.4.3 The assessment of the Proposed Scheme includes an assumption that there will be no change to the conventional rail services as a result of released capacity over and above those changes resulting from the operation of HS2 Phase One. The assessment does, however, consider how the Proposed Scheme changes demand on conventional rail.

12.4.4 Travel on the Proposed Scheme; the HS2 network; other rail services; and other transport modes has been estimated. This identifies mode share information for car, rail and air modes both with and without the Proposed Scheme. Expected changes in passenger use at stations (including stations on the route of HS2 Phase One) are identified and these are considered further in the off-route section.

12.4.5 These estimates are based on a series of assumptions including 'do-minimum' assumptions on forecasts for rail, car and domestic air travel. Assumptions are also made on the use of released capacity for modelling purposes. There are many potential combinations of released capacity and the assumptions in the model represent one possible set of assumptions and have been developed for demand

modelling purposes and do not infer that this will be the specification implemented. The Economic Case for the Proposed Scheme carries out further sensitivity testing, to assess the impact of changes in external and internal factors on the mode share and passenger use estimations.

Changes in journey times

12.4.6 The Proposed Scheme is assumed to have the same service pattern as HS2 Phase One. This means that the same number of services are assumed for the Proposed Scheme as HS2 Phase One. The service patterns assumed for HS2 Phase One indicate that there would be up to seven high speed conventional compatible services per hour in each direction from London to the north-west that would use the high speed section of track from London and connect to the WCML via the Handsacre Link. This is indicatively shown in Figure 3.

12.4.7 The Proposed Scheme enables some of these services to use the new high speed section of track before joining WCML south of Crewe and therefore benefit from further journey time savings. This is indicatively shown in Figure 4.

Figure 3: HS2 Phase One – peak hour one-way train flow (HS2 Phase One year of opening 2026)

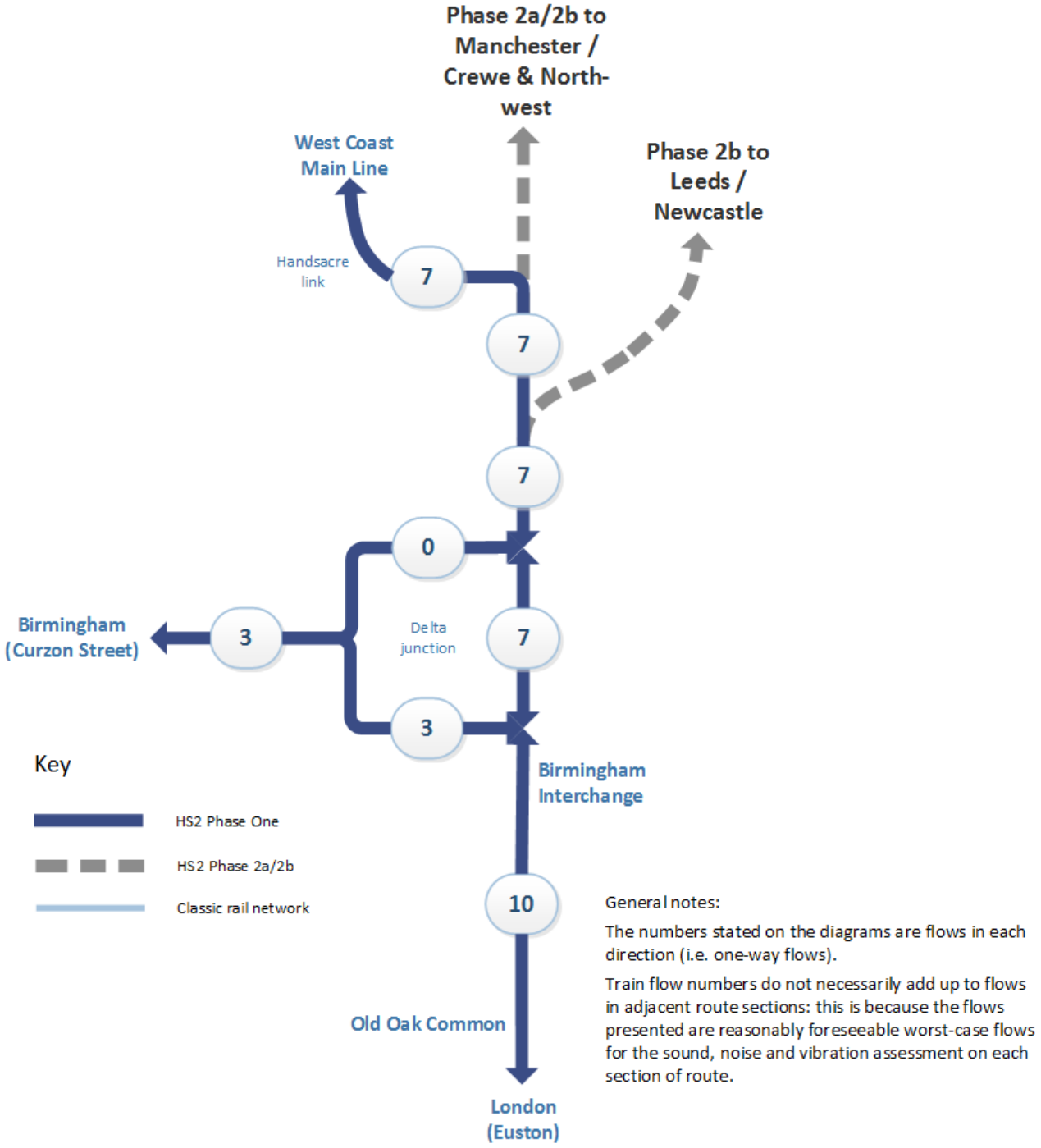
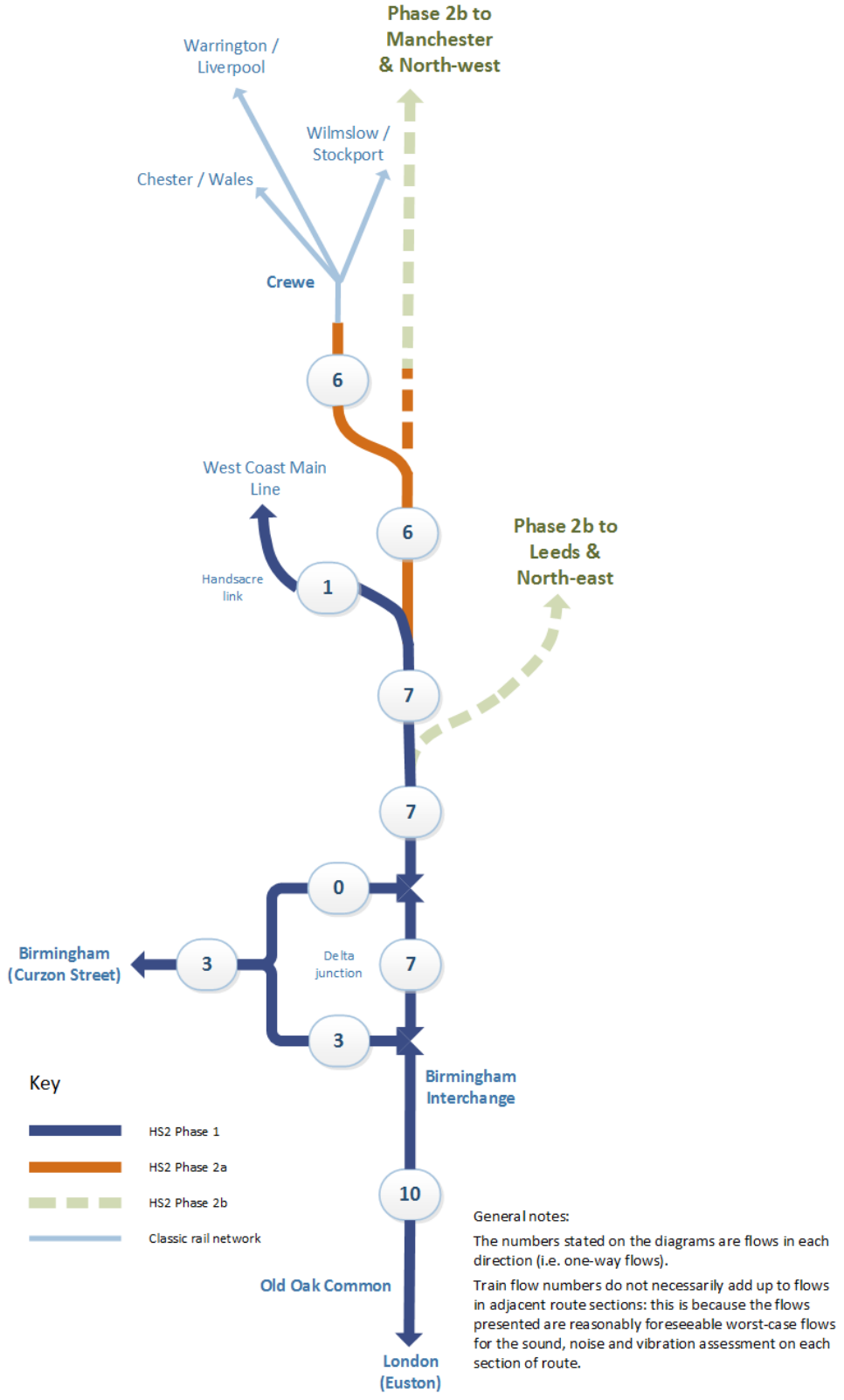


Figure 4: Proposed Scheme – peak hour one-way train flow (Phase 2a year of opening 2027)



12.4.8 The Proposed Scheme assumes that up to six high speed conventional compatible services per hour, which would have used the Handsacre Link, would benefit from use of the additional section of highspeed track reducing journey time from London Euston to stations including Glasgow Central, Liverpool Lime Street, Preston, Crewe and Manchester Piccadilly. Table 420 shows the current journey times between London Euston and the above destinations and the expected journey times for the

Proposed Scheme when compared against a future baseline which includes HS2 Phase One.

Table 420: Journey times between key destinations 'without' and 'with' the Proposed Scheme in operation

Origin / destination	without HS2 (i.e. current baseline)	with HS2 Phase One	with the Proposed Scheme
London Euston – Crewe	1 hour 30 minutes	1 hour 8 minutes	55 minutes
London Euston – Manchester Piccadilly	2 hours 7 minutes	1 hour 41 minutes	1 hour 30 minutes
London Euston – Preston	2 hours 8 minutes	1 hour 41 minutes	1 hour 30 minutes
London Euston – Liverpool Lime Street	2 hours 14 minutes	1 hour 46 minutes	1 hour 34 minutes
London Euston – Glasgow Central	4 hours 5 minutes/ 4 hours 31 minutes	3 hours 56 minutes	3 hours 45 minutes

12.4.9 Table 420 shows that the Proposed Scheme is forecast to reduce journey times by up to 13 minutes from London to destinations including Crewe, Manchester Piccadilly and Liverpool Lime Street. This equates to a 19% reduction in journey times to Crewe and an 11% reduction in journey times to Manchester Piccadilly and Liverpool Lime Street.

12.4.10 When combined with Phase One, the Proposed Scheme will reduce journey times between London and Manchester Piccadilly by around 37 minutes, or 29%, between London and Liverpool Lime Street by around 40 minutes, or 30%, and between London and Crewe by around 35 minutes, or 39%.

Changes in passenger demand

12.4.11 As noted, travel demand on the Proposed Scheme, the HS2 network, other rail services and other transport modes has been estimated. HS2 provides an attractive substitute for many users of the long distance road and rail trips from the improved journey times as a result of the Proposed Scheme. Table 421 shows the HS2 forecast passenger number of trips for 2027 and 2037, including the numbers of generated new trips that will have transferred from other modes of travel for HS2 Phase One and the Proposed Scheme.

Table 421: Origin mode of HS2 passenger trips – typical day

From mode	Origin of trips (average day, combined both directions)			
	2027 HS2 Phase One	2027 Proposed Scheme	2037 HS2 Phase One	2037 Proposed Scheme
Conventional rail	94,014 (77%)	97,009 (75%)	117,845 (75%)	120,985 (73%)
Generated by the Proposed Scheme	24,484 (20%)	27,996 (22%)	34,621 (22%)	38,472 (23%)
Air	886 (1%)	1,079 (1%)	1,106 (1%)	1,293 (1%)
Car	3,437 (3%)	3,786 (3%)	4,124 (3%)	4,433 (3%)
Total	122,820	129,871	157,697	165,182

12.4.12 Table 421 shows that the Proposed Scheme increases demand on HS2 services by over 7,000 passengers per day in the opening year, 2027, and around 7,500 passengers per day in 2037. While half of the demand is newly generated, over 42% of the additional trips generated by the Proposed Scheme transfer from the conventional rail network, thereby releasing capacity on conventional rail services over and above that resulting from Hs2 Phase One.

12.4.13 Table 422 shows that the Proposed Scheme will increase use of HS2 services by up to 2.3 million passenger trips per annum in 2027, with the combined HS2 Phase One and Proposed Scheme attracting 41.7 million users. The Proposed Scheme adds approximately 2.4 million passenger trips per annum by 2037, with the combined HS2 Phase One and Proposed Scheme attracting 52.8 million users.

Table 422: Origin mode of HS2 passenger trips – annual

From mode	Origin of trips (annual, combined both directions)			
	2027 HS2 Phase One	2037 Proposed Scheme	2027 HS2 Phase One	2037 Proposed Scheme
Conventional rail	30,552,446 (78%)	31,577,275 (76%)	38,202,613 (76%)	39,281,907 (74%)
Generated by the Proposed Scheme	7,476,739 (19%)	8,560,978 (21%)	10,550,761 (21%)	11,738,277 (22%)
Air	276,613 (1%)	337,028 (1%)	344,769 (1%)	402,756 (1%)
Car	1,112,623 (3%)	1,230,751 (3%)	1,332,609 (3%)	1,436,970 (3%)
Total	39,418,421	41,706,032	50,430,752	52,859,910

12.4.14 The introduction of the Proposed Scheme will increase the number of annual rail passenger trips and reduce vehicle trips. This is quantified in the table above, which shows an increase in rail trips in 2027 of approximately 1.2 million rising to 1.4 million in 2037, increasing the substantial growth in rail demand as a result of Phase One by a further 13% in 2027 and 11% in 2037. There is a corresponding fall in car trips of approximately 100,000 in 2027 and 2037.

12.4.15 The transfer of passengers from the conventional rail network and from mode transfer from car will result in benefits through reducing forecast congestion on both the strategic road and the conventional rail network. The extent of reduction in vehicle kilometres as a result of the Proposed Scheme is shown in Table 423.

Table 423: Reduction in vehicle kilometres resulting from mode shift

	2027 future baseline with HS2 Phase One	2027 with the Proposed Scheme	2037 future baseline with HS2 Phase One	2037 with the Proposed Scheme
Annual reduction in vehicle kilometres as a result of mode shift to the Proposed Scheme	162.9 million	22.9 million	178.6 million	11.7 million

12.4.16 Table 423 shows that the Proposed Scheme will reduce annual vehicle travel by car on strategic long distance routes in 2027 by approximately 22.9 million kilometres and approximately 11.7 million kilometres in 2037. This represents an increase of

approximately 14% in 2027 and 7% in 2037 over and above the substantial benefits derived from HS2 Phase One.

12.4.17 Phase 2a has some potential to release capacity on existing rail lines. However, the assessment of the Proposed Scheme includes the assumption that there will be no change to the conventional rail or freight services as a result of released capacity over and above those assessed for HS2 Phase One.

12.4.18 Whilst the Proposed Scheme assumes the same service patterns as HS2 Phase One, passengers on conventional rail services will benefit from long distance passengers transferring from conventional rail services to high speed services and thereby releasing passenger capacity on existing services. Table 422 shows that the Proposed Scheme will abstract 1.0 million users per annum from conventional rail services in 2027 and 1.1 million users per annum from conventional rail services in 2037.

12.4.19 The Proposed Scheme will also relieve pressure on bottlenecks, improve reliability and performance, and create extra capacity on the WCML and at stations between Handsacre and immediately south of Crewe. In particular, any released capacity could be used to run additional freight services to Basford Hall yard, a major freight interchange immediately south of Crewe although the benefits of this have not been considered within this assessment.

12.4.20 The increases and decreases in daily passenger use of stations has also been estimated. This results from a combination of new HS2 services, use of released capacity and the reduction in congestion on conventional rail services due to users transferring to HS2 services. Table 424 shows those stations where there is forecast to be a 5% change in passenger numbers (or where there is a change of more than 700 users per day) from either HS2 Phase One or the Proposed Scheme.

Table 424: Percentage changes in passenger numbers arriving/departing at stations in 2027 and 2037

Station	**2027 future baseline with HS2 Phase One**	**2027 with the Proposed Scheme**	**2037 future baseline with HS2 Phase One**	**2037 with the Proposed Scheme**
	% Change	**% Change**	**% Change**	**% Change**
Increase				
Runcorn	28%	27%	30%	31%
Wilmslow	3%	5%	4%	6%
Watford Junction	5%	6%	6%	6%
Stafford	11%	11%	11%	11%
Wolverhampton	4%	4%	5%	5%
Crewe	5%	7%	5%	7%
Rugby	3%	3%	4%	4%
Northampton	2%	2%	2%	2%
Manchester Airport	2%	2%	1%	2%
Warrington Bank Quay	21%	23%	18%	20%

Station	2027 future baseline with HS2 Phase One	2027 with the Proposed Scheme	2037 future baseline with HS2 Phase One	2037 with the Proposed Scheme
	% Change	% Change	% Change	% Change
Preston	5%	6%	5%	6%
Decrease				
Wellingborough	-5%	-5%	-7%	-7%
Cheltenham Spa	1%	1%	1%	1%
Lancaster	-3%	-2%	-3%	-2%
Coventry	-15%	-15%	-15%	-15%
Leamington Spa	-3%	-3%	-3%	-3%
Worcester Shrub Hill	-4%	-4%	-5%	-5%

12.4.21 Table 424 shows that, compared to the baseline including HS2 Phase One alone, the introduction of the Proposed Scheme will have little impact on the numbers of passengers arriving/departing at stations in either 2027 or 2037. The most substantial changes are at stations in the north-west region and served by HS2 services. The impact of the Proposed Scheme on these stations is considered further in the off-route section of this TA.

12.5 Off-route assessment

12.5.1 This section provides an assessment of the off-route impacts of the Proposed Scheme, in relation to changes and any works at off-route rail stations and modifications to the Crewe to Manchester Line (part of the WCML) north of Crewe. This section also considers the impacts associated with highway improvement works on a number of roads which are proposed to facilitate either construction access and/or permanent maintenance access for the Proposed Scheme. These works are located on land that is separate from the land required for the main elements of the Proposed Scheme and therefore considered in this off-route section.

12.5.2 The off-route proposals are shown in Volume 4: Off-route Map Book.

12.6 Off-route construction

Modifications to the Crewe to Manchester (WCML) conventional railway line at Maw Green and Sandbach

12.6.1 Modifications will be required to the Crewe to Manchester railway line (part of the WCML) infrastructure at two locations between Crewe and Manchester. These are required to make best use of existing capacity while maintaining operational flexibility on the existing railway as a result of the operation of the Proposed Scheme.

12.6.2 The proposed modifications to the Crewe to Manchester railway line comprise two distinct areas of works: at Maw Green (located approximately 2.5km north of Crewe Station); and Sandbach (located approximately 5.5km north of Crewe Station) respectively.

12.6.3 The proposed works include:

- 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.

12.6.4 These works will 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. They will also aid the provision of train paths for freight trains.

Sandbach Station area

12.6.5 The proposed works at Sandbach span a 1.5km section of the railway, from 1.2km south-west of Sandbach Station to 300m north-east of Sandbach Station. Sandbach Station is located to the west of Sandbach, at Elworth. To the west of the station is a residential area extending south to the point at which the Sandbach Footpath 46 crosses over the existing railway on a footbridge. Further to the south of Footpath 46 and to the west of the works for the Proposed Scheme, the land use is primarily industrial.

12.6.6 All works will be contained within the corridor of the existing railway. Rookery Bridge Road Rail Access Point satellite compound (an existing NR compound adjacent to the railway) and Sandbach Station compound, located within Sandbach Station car park, will manage the works. As this car park, although it permits 24 hour parking, is used mainly for daytime commuter parking, the compound will be used at night only during the week and during weekend rail possessions, when no train services are running and the car park is less likely to be used. Plant and equipment will only be kept at the Sandbach Station satellite compound during periods of construction. At all other times, plant and equipment will be removed so that the parking spaces are available for use. Rookery Bridge Road Rail Access Point satellite compound will be operational for seven months and Sandbach Station satellite compound will be operational for eight months.

12.6.7 Construction materials and equipment will be predominantly brought in and removed by rail, although access by road (using the A553 London Road and the B5079 Station Road) will also be required. As a result of the limited scope of the works, the number of two-way construction vehicle movements to compounds is expected to be low. The main traffic movements associated with the works are expected to be worker vehicle movements and will occur outside of the local road network peak periods. It is estimated that in the peak month of activity there would be up to 232 two-way vehicle movements to the Sandbach Station compound, of which only six two-way movements are expected to be HGV. It is estimated that in the peak month of activity there would be up to 126 two-way vehicle movements to the Rookery Bridge compound, of which only six two-way movements are expected to be HGV.

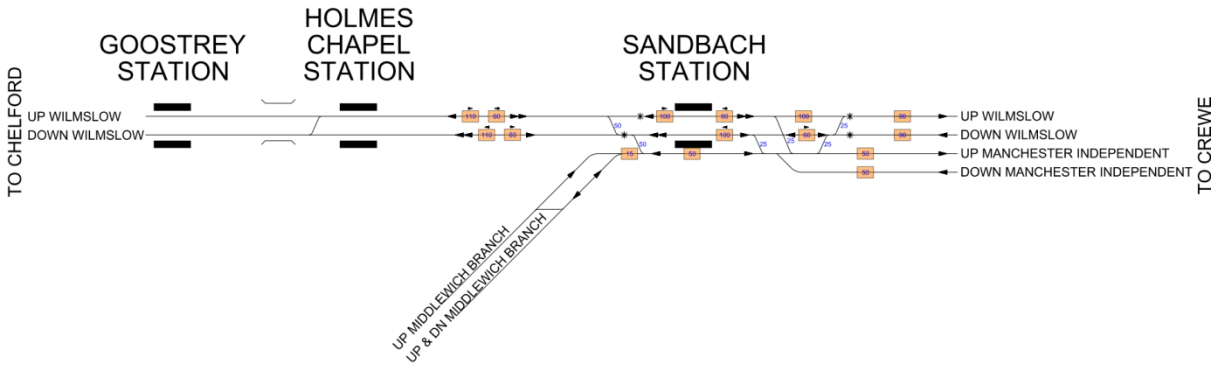
12.6.8 Overall, as the number of additional traffic movements at each site is limited and these movements are expected to occur outside of the network peak periods, the additional traffic movements will not be substantial in the context of the surrounding urban environment.

12.6.9 Works are required to the track layout around Sandbach Station to enable the efficient use of the railway by HS2 Phase 2a services. The track layout will be reconfigured to improve speeds at which trains can travel through crossings and to ensure that parallel movements are possible for trains travelling in opposite directions using Platform 2 and Platform 3. Works will also enable either Platform 2 or Platform 3 to be used for regulating stopping services (that is, those stopping at Sandbach and other stations).

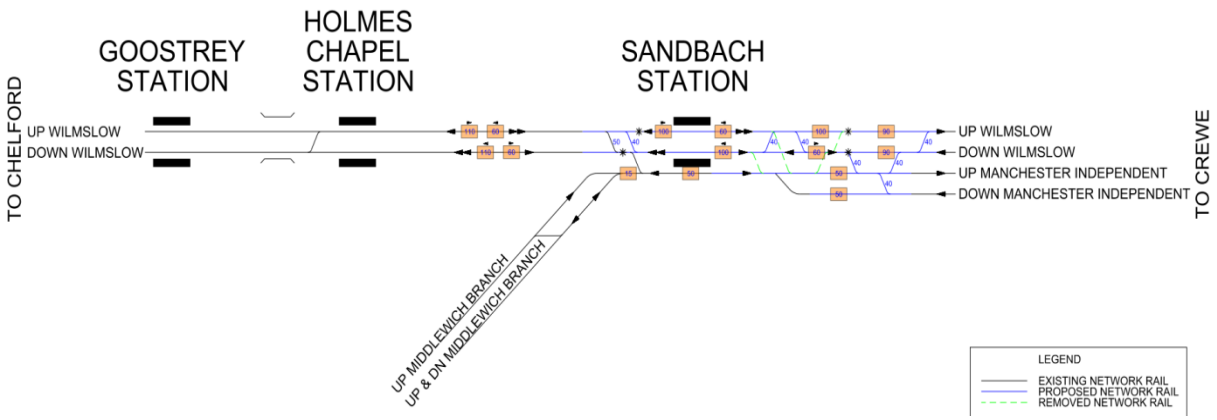
12.6.10 As part of these works, there is a need for a minor realignment of the existing tracks to accommodate additional crossings. The works involve the removal of five crossings and the relaying of seven crossings. Installation of new crossings typically requires removal and replacement of rails, sleepers and ballast on top of the existing formation. Construction of the new crossings requires modifications to the existing rail systems, including new or relocated signalling, overhead line equipment and other associated railway assets.

12.6.11 Figure 5 illustrates the existing track layout at Sandbach Station and the proposed track layout with the realignment of tracks and amended crossings.

Figure 5: Schematic diagram of existing and proposed track layout at Sandbach Station



Existing track layout



Proposed track layout

12.6.12 None of the proposed works around Sandbach Station will require changes to the width of the existing railway corridor. The vertical track alignment will be subject to minor adjustments to improve the geometry of the tracks, increasing the speed at which trains can travel on this section from 25mph to 40mph.

12.6.13 In order to modify the existing overhead line equipment, it will be necessary to raise the existing steel pedestrian overbridge Number 18 (Sandbach Footpath 46) by approximately 1m. The footbridge will be closed for approximately three months, during which period users will be able to cross the railway via the A533 London Road bridge via a diversion of approximately 220m. Surveys undertaken at the footbridge indicated that on the survey day there were 99 users recorded that would be affected.

Maw Green

12.6.14 The proposed works at Maw Green will be on the Crewe to Manchester (WCML) Line embankment over a distance of approximately 600m, northward from Maw Green Road, and will take place within the existing operational railway corridor.

12.6.15 All works will be contained within the corridor of the existing railway. The proposed works will be undertaken from the Tommys Lane satellite compound, to be accessed off Tommys Lane via the A534 Nantwich Road/A532 Weston Road Roundabout, and the Crewe Retail Park satellite compound accessed off the A532 Weston Road. Construction works will be for an approximate 17 month period. However, the site will not be operational throughout as works will be organised around available track possessions.

12.6.16 Construction materials and equipment will be predominantly brought in and removed by rail, although access by road (Tommys Lane and Grand Junction Way) will also be required. As a result of the limited scope of the works, the number of two-way vehicle movements to compounds is expected to be low. 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. It is estimated that in the peak month of activity there would up to 230 two-way vehicle movements to the Tommys Lane compound of which only eight two way movements are expected to be HGVs. It is estimated that in the peak month of activity there would up to 22 two-way daily vehicle movements to the Crewe Retail Park compound of which only two two-way movements are expected to be HGV.

12.6.17 Overall, as the number of additional traffic movements at each site are limited and these movements are expected to occur outside of the network peak periods, the additional traffic movements will not be substantial in the context of the surrounding urban environment.

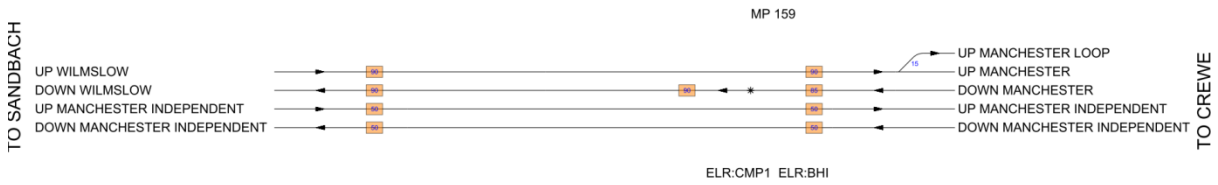
12.6.18 The works comprise the installation of three additional crossings at Maw Green to allow train services to switch from one line to another.

12.6.19 Works at Maw Green Junction are required to the track layout to complement those at Sandbach, allowing conventional and HS2 Phase 2a services to use this section of the railway more efficiently. The proposed track layout at Maw Green will be reconfigured to allow for conventional rail services and HS2 services to switch between the Crewe to Manchester lines and independent lines.

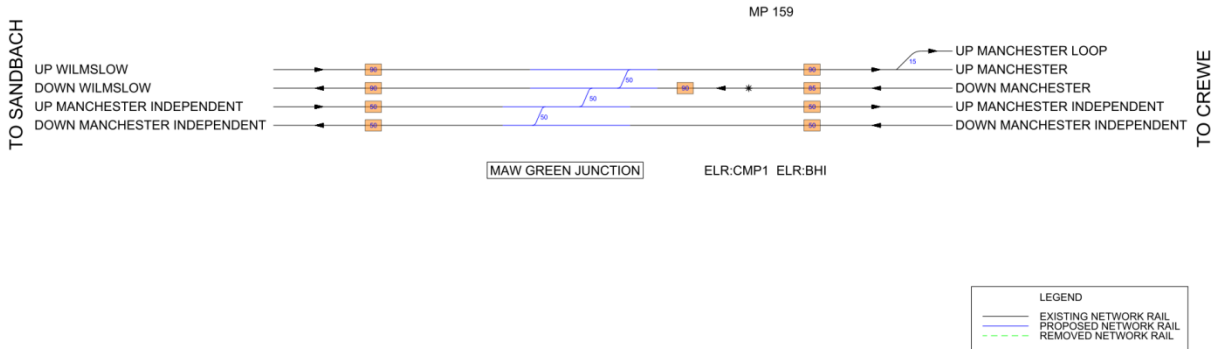
12.6.20 As part of these works, there is a need for minor realignment of existing tracks to accommodate the installation of three crossings to provide connections between the tracks. Installation of new crossings typically requires removal and replacement of rails, sleepers and ballast on top of the existing formation. Construction of the new crossings requires modifications to the existing rail systems including new or relocated signalling, overhead line equipment and other associated railway assets.

12.6.21 Figure 6 illustrates the existing track layout at Maw Green and the proposed track layout with the realignment of tracks and amended crossings.

Figure 6: Schematic diagram of existing and proposed track layout at Maw Green



Existing track layout



Proposed track layout

12.6.22 Rail possessions will be required over a two year period between 2021 and 2023. The works to the conventional railway line at Maw Green and Sandbach are expected to be undertaken in non-disruptive possessions[9] however a number of weekend possessions and a blockade are required and are summarised in Table 425.

Table 425: Percentage changes in passenger numbers arriving/departing at stations in 2027 and 2037

	27-hour possessions	72-hour possessions	100-hour possessions	Blockades
Possessions Summary	14	1	2	1x9-day

[9] A non-disruptive possession is any possession of the operational railway which has no impact on the users of the railway. These possessions generally occur overnight, in existing maintenance or 'engineering access' periods which exist for the purposes of inspection, maintenance or renewal activities. i.e. a non-disruptive possession will allow passenger train services to operate as per their normal schedule.

12.6.23 These rail possessions are not expected to substantially disrupt the travelling public.

Off-route highway modifications

12.6.24 The off-route highway modifications are part of a group of proposed works to existing roads and junctions, which are required to facilitate the construction and maintenance of the Proposed Scheme.

12.6.25 The proposed works include: kerb realignments at junctions to allow safe turning; widening of existing highways that are currently too narrow for construction vehicles to use safely; and the provision of passing bays to allow safe passing of HGV traffic, including abnormal loads and HS2 maintenance vehicles. In addition, locations have been identified where curve widening or the provision of passing places will be necessary to aid the flow of local and construction traffic.

12.6.26 Table 426 summarises the location and nature of the proposed works and identifies whether the works are required for temporary or permanent access. The 12 locations are as shown in Volume 4 Map Book: CT-05-250 to CT-06-253.

Table 426: Locations and description of off-route highway modifications

Highway modifications	Summary of works	Temporary or permanent	Location and map reference
Alrewas Hayes Road	Provision of two passing bays	Permanent	Fradley (CA1) CT-05-250 and CT-06-250
Junction of A513 Kings Bromley Lane and B5014 Uttoxeter Road	Removal of traffic islands and street furniture, and localised widening	Temporary	Handsacre (CA1) CT-05-251 and CT-06-251
B5014 Uttoxeter Road	Provision of six passing bays, localised widening and HGV control points	Temporary	Hill Ridware (CA1) CT-05-250 and CT-06-250
Junction of B5014 Uttoxeter Road and Blithbury Road	Provision of localised widening at junction (south-western corner)	Permanent	Blithbury (CA1) CT-05-251 and CT-06-251
Moor Lane	Provision of two passing bays and localised widening	Permanent	Colton (CA1) CT-05-251 and CT-06-251
Great Haywood Road	Provision of three passing bays and localised widening	Temporary	Tixall (CA2) CT-05-251 and CT-06-251
Marston Lane	Provision of three passing bays and localised widening	Permanent	Marston (CA2) CT-05-252 and CT-06-252
Yarnfield Lane	Provision of localised road widening	Temporary	Stone (CA3) CT-05-252 and CT-06-252
Junction of A51 The Rowe and Bent Lane/ Dog Lane	Provision of permanent signage and traffic management measures	Permanent	Stableford (CA3) CT-05-252 and CT-06-252

Highway modifications	Summary of works	Temporary or permanent	Location and map reference
Junction of A51 Nantwich Road and A525 Newcastle Road	Removal of street furniture at junction	Temporary	Woore (CA4) CT-05-253 and CT-06-253
A525 Bar Hill Road	Provision of 13 passing bays and localised widening	Temporary	Onneley (CA4) CT-05-253 and CT-06-253
B5071 Wybunbury Road	Provision of 12 on-road parking bays and footpath, adjacent to Primary School	Temporary	Wybunbury (CA5) CT-05-252 and CT-06-252

12.6.27 Construction of the proposed works will generally take place early in the construction programme, be localised and of short duration. Any temporary closures or traffic management required would be of a very localised nature for a short duration.

12.6.28 As the number of traffic movements at each site is limited and the works are of a localised nature, the additional traffic movements arising from these works will not be substantial. The assessment of impacts of these construction routes on road users, including non-motorised users, is reported in the relevant CA assessment in this TA.

12.6.29 On completion, the works will facilitate the safe passing of construction traffic and reduce the risk of vehicle conflicts along the construction routes. Where the highway modifications are permanent, these may provide benefits to road users over the longer term.

12.7 Off-route operation

Modifications to the Crewe to Manchester (WCML) conventional railway line at Maw Green and Sandbach

12.7.1 Once operational, the works will enable three HS2 trains per hour in each direction using the conventional Crewe to Manchester railway line. These replace the conventional high speed services. The HS2 trains will not stop at Sandbach.

12.7.2 There will be minimal change in the likely train movements after the works are completed and no material requirement for operational or maintenance access by road.

Off-route highway modifications

12.7.3 The works detailed in Table 426 include a number of works that are required to provide permanent access for maintenance of the Proposed Scheme once the Proposed Scheme is operational. These include works to Alrewas Hayes Road, Moor Lane, the junction of B5014 Uttoxeter Road and Blithbury Road, the junction of A51 The Rowe and Bent Lane/ Dog Lane, and Marston Lane.

12.7.4 The maintenance requirements are for access to the Proposed Scheme for maintenance purposes (e.g. balancing ponds, auto-transformer station etc.). These movements are considered in the individual CA sections, but are expected to be infrequent and therefore the impact of these is not considered to be substantial.

12.7.5 The permanent off-route highway modifications will result in a benefit to all users as the proposals address geometric constraints on the existing road network.

Off-route stations

Overall methodology

12.7.6 Stations where the operation of the Proposed Scheme will result in an increase in passenger numbers have been identified using the same approach used for HS2 Phase One. The potential for such increases to result in new adverse impacts either in isolation or cumulatively with HS2 Phase One is then assessed. Off-route stations identified through this process in HS2 Phase One are reported in the HS2 Phase One ES, Volume 5 Appendix: Transport Assessment (TR-001-000).

12.7.7 The first stage was to undertake a high level sift to establish which off-route stations would be impacted by the operation of the Proposed Scheme, in terms of a change in passenger numbers and which might experience transport impacts.

12.7.8 The identification of stations for assessment of off-route effects is based upon defined criteria for traffic and transport impacts. In this context it is considered that more than a 10% change in use (measured in this context in terms of station footfall) is a reasonable threshold for when impacts on transport infrastructure could become substantial and when changes in traffic might affect pedestrian and cyclist severance. Below this level of change it is not considered likely that there would be substantial impacts on transport infrastructure.

12.7.9 However, a lower threshold is appropriate in considering congestion and delays, which needs to recognise the capacity of station access routes. A minimum change in likely highway use of 5% has been adopted for this and this has been factored up to an equivalent daily change in rail passengers. If the station is served by a busy urban single carriageway road, then a threshold of a change of 700 users per day is considered appropriate. A higher threshold of 1,400 users per day has been used if higher capacity dual carriageway access is available. Below these thresholds, the potential impact on congestion, air quality and sound, noise and vibration would be negligible.

12.7.10 These passenger thresholds were based on the following conservative assumptions:

- a car mode share of 60 car trips (car/taxi) per 100 rail passengers;
- 20% of the daily passengers would arrive and depart in the peak hour; and
- a two way single carriageway road link capacity of 1,500 to 1,900 vehicles per hour (and a capacity of 4,000 to 5,000 vehicles per hour for a dual carriageway) with a 5% change in traffic flows representing: some 75 to 95 trips in the peak hour per direction for a single carriageway road; or some 150 to 190 trips in the peak hour per direction for a dual carriageway road.

12.7.11 Using the above criteria to convert rail passengers into traffic flows, indicates a daily change in passenger numbers of approximately 600 to 800 for a single carriageway road and approximately 1,400 to 1,600 for a dual carriageway road resulting in a 5% change in traffic flows on the local road network in the peak hour. This establishes the

sifting criteria of an average increase of 700 and 1,400 as the passenger threshold for a single carriageway and dual carriageway road, respectively.

12.7.12 These represent a reasonable worst case initial sift as the forecast growth in passenger numbers will be dispersed over the road network and diluted by background traffic flows on the local highway network.

Forecast changes in passenger demand

12.7.13 The forecast change in passengers as a result of HS2 Phase One and the Proposed Scheme has been provided from the PFM. The PFM is the DfT's forecasting model and has been used to develop rail demand forecasts. It is regularly updated and changes made since the HS2 Phase One analysis include:

- revisions to the HS2 proposed service pattern and conventional rail services;
- updated forecasts of the growth in travel, building on the latest evidence of current patterns of rail travel (including updating the base model);
- changes to official forecasts for the growth of the UK economy and other drivers of transport demand; and
- updates to assumptions relating to committed transport investment.

12.7.14 Data from the PFM was used to obtain forecast changes in passenger demand at off-route stations as a result of the Proposed Scheme, and of HS2 Phase One and the Proposed Scheme cumulatively. Daily passenger trips for HS2 Phase One and the Proposed Scheme in 2036 were obtained, together with the forecast change in passenger demand.

12.7.15 The PLANET data showed that when the Proposed Scheme is considered in isolation, there were no off-route stations where there would be changes in demand exceeding 5%. The forecast change in passenger demand at the off-route stations when HS2 Phase One and the Proposed Scheme are considered together is shown in Table 427 for all stations with changes in excess of a 5% change in demand.

Table 427: Change in passenger demands

Station	**Change in daily passenger demand due to HS2 Phase One and the Proposed Scheme together (2036)**	
	Change in footfall	**% change**
Stations with an increase greater than 700 trips and 5%		
Milton Keynes Central	3,608	8%
Preston	1,442	5%
Runcorn	2,940	27%
Stafford	1,189	10%
Warrington Bank Quay	995	13%
Stations with an increase of greater than 5% but less than 700 trips		
Nuneaton	516	6%
Wilmslow	597	6%

Watford Junction	536	6%
Stations with a decrease of over 700 users per day and 5%		
Birmingham International	-8,197	-21%
Birmingham New Street	-15,769	-9%
Coventry	-5,189	-14%
Stoke-on-Trent	-878	-7%
Warrington Central	-1,346	-12%
Stations with a decrease of over 5% but less than 700 users per day		
Wellingborough	-574	-7%

12.7.16 Eight stations are forecast to experience an increase in daily passenger demand greater than 5% as a consequence of the cumulative impact of HS2 Phase One and the Proposed Scheme, and these are considered further in this chapter.

12.7.17 Six stations are forecast to experience a decrease in daily passenger demand greater than 5%, with reductions ranging from 7% to 21%, which reflects the opportunity to divert to more convenient faster Proposed Scheme services. This will have the benefit of releasing capacity on the existing rail network, as well as on the traffic and transport network local to the off-route stations.

12.7.18 In the HS2 Phase One ES, the stations at Northampton, Rugby, Runcorn, Stafford and Wolverhampton were identified for detailed consideration following a similar sifting. In addition, there was a greater than 5% change at Crewe, which is considered further in the South Cheshire assessment section. As noted, the PFM has been updated since the publication of the HS2 Phase One ES. For the stations considered in the HS2 Phase One assessment, Table 428 summarises the HS2 Phase One ES assessed flows, the equivalent HS2 Phase One and Phase 2a impacts from the updated PFM.

Table 428: Comparison of PFM data for HS2 Phase One ES affected stations with updated PFM data

Station	HS2 Phase One ES Impact	The Proposed Scheme assessment, HS2 Phase One Impact	Change from HS2 Phase One ES	The Proposed Scheme assessment, HS2 Phase One & 2a Impact	Change from HS2 Phase One ES
Northampton	1,589	287	-1,302	290	-1,299
Runcorn	2,822	2,904	+82	2,940	+118
Stafford	1,886	1,296	-590	1,337	-549
Rugby	1,248	503	-744	514	-733
Wolverhampton	4,073	1,206	-2,867	1,209	-2,864

12.7.19 The table above shows that the forecast change in demand with the HS2 Phase One and the Proposed Scheme network operational is less than or very similar to that forecast in the HS2 Phase One ES. As noted, this is a consequence of the updates applied to the PFM. Given this, the analysis undertaken in the HS2 Phase One ES is

therefore considered to have addressed any potential issues arising from increases in use of the stations due to HS2.

Sifting of stations

12.7.20 Table 429 shows which of the off-route stations, in addition to those considered in Table 428 will experience an increase in use greater than the sift thresholds of 10% or 700 passenger trips.

Table 429: Station sift

Station	Increase greater than 700 or greater than 1,400 daily trips	Increase greater than 10%	Further analysis required
Stations with an increase greater than 700 users per day and 5%			
Milton Keynes Central	Yes	No	Yes
Preston	Yes	No	Yes
Warrington Bank Quay	Yes	Yes	Yes
Stations with an increase of 5% but less than 700 users per day			
Nuneaton	No	No	No
Wilmslow	No	No	No

12.7.21 At Milton Keynes Central, a series of dual carriageway boulevards provide access to the station from the A509, the A5 and other routes. As a result, the higher threshold of 1,400 users per day should be applied. In addition, there is a bus interchange at the station, and with a substantial proportion of the increased usage forecast to be local trips, it is expected that there would be a high public transport use for accessing the station. It is therefore expected that this will reduce the number of passengers leaving Milton Keynes Central by car, to below the 1,400 users per day threshold. Consequently, Milton Keynes Central Station has not been the subject of further assessment.

12.7.22 A more detailed assessment was undertaken for the remaining two stations, Preston and Warrington Bank Quay, which is set out below.

Stage two analysis of impacts

12.7.23 In terms of transport impacts, the focus was on changes to the number of cars and taxis accessing the station as a result of the operation of the Proposed Scheme. Such increases in use have the potential to give rise to more substantial impacts on the operation of the local transport network compared to bus use, walking and cycling. Existing commercial bus operators determine the frequency of bus services and would be expected to account for any changes in passenger demand when planning future services.

Methodology

12.7.24 Existing conditions at the off-route stations were established through site visits, specially commissioned traffic surveys and data from local authorities. The traffic surveys were undertaken in March 2017 and comprised:

- junction turning counts;
- automatic traffic counts;
- car park demand surveys; and
- drop-off/ pick-up surveys.

12.7.25 For the purpose of analysis, the highway peak hours were taken as 08:00 - 09:00 and 17:00 - 18:00.

12.7.26 The existing vehicular trip generation at each off-route station was established from the traffic surveys and the future baseline for the year of assessment, 2041, was estimated by applying growth in line with the DfT's TEMPro.

12.7.27 The following process was used to establish the trips generated by the operation of Hs2 Phase One and the Proposed Scheme together at the off-route station:

- existing station traffic flows were growthed to 2036 using TEMPro to align with the PLANET forecast year;
- the 2036 trip generation was increased in line with the forecast percentage growth in passengers due to the cumulative impact of HS2 Phase One and the Proposed Scheme;
- as the forecast year being used in this assessment is 2041, an uplift factor of approximately 10% (in line with projected growth rates) was applied to the 2036 generated trips to produce 2041 forecasts for the cumulative impact of HS2 Phase One and the Proposed Scheme; and
- the 2041 future baseline traffic flows were deducted from the 'with the Proposed Scheme' traffic flows, to give the trips generated by HS2 Phase One and the Proposed Scheme cumulatively.

12.7.28 The following process was used to establish the impacts on the local road network at each off-route station that met the peak hour threshold trip generation criteria of vehicle movements:

- the future baseline traffic flows on the local road network for the year of assessment, 2041, were estimated by applying growth in line with TEMPro;
- the HS2 Phase One and the Proposed Scheme generated trips were distributed onto the road network based on the existing turning movements/proportions recorded in the station traffic surveys;
- the trips generated by HS2 Phase One and Phase 2a cumulatively were added to the 2041 future baseline traffic flows to establish 2041 'with the Proposed Scheme' traffic flows; and
- a comparison of the future baseline and 'with the Proposed Scheme' traffic flows was carried out to establish whether the cumulative impact of HS2 Phase One and the Proposed Scheme will have a substantial impact on the local road network.

12.7.29 The estimated trip generation at each off-route station and where applicable, the impact on the local road network is described in the following sections.

Preston Station

12.7.30 The Proposed Scheme is planned to have services stopping at Preston Station, which together with reduced crowding on conventional services is expected to result in increased passenger demand. It is forecast that in 2036, passenger demand at Preston Station will increase by 5% as a result of the cumulative impact of HS2 Phase One and the Proposed Scheme, and that in 2041 this figure will increase to 6%.

12.7.31 Preston Station is located approximately 400m west of the town centre. The station is bordered by Fishergate to the north and Butler Street to the east. The western boundary is marked by Network Rail property and the Royal Mail delivery office, and the southern boundary by the rail corridor.

12.7.32 Vehicular access to Preston Station is off Fishergate and Butler Street. Fishergate provides access to a 'kiss and ride' and taxi pick-up/drop-off. Butler Street provides access to the short stay car park, with a one way loop at the station frontage, and also the main station car park. Butler Street is accessed off Fishergate and Corporation Street via an underpass (entry only). Corporation Street provides the link between Fishergate and the A59 Ring Way to the north. Fishergate connects to the A5072 Strand Road, Liverpool Road and Broadgate to the west, and to the east of Corporation Street is one way westbound.

12.7.33 To establish the existing station trip generation, traffic surveys were undertaken at the car park access on Butler Street, and the drop off facility on Fishergate.

12.7.34 Future baseline traffic volumes are forecast to grow by around 28% by 2041 compared to 2017.

12.7.35 The existing vehicular trips to and from the station along with the future baseline trip generation for 2041 and the estimated trip generation for HS2 Phase One and the Proposed Scheme cumulatively is shown in Table 430.

Table 430: Preston Station trip generation – existing, future baseline, HS2 Phase One and the Proposed Scheme together

Time period	Arrivals				Departures			
	Car park	Kiss and Ride	Taxi	Total	Car park	Kiss and Ride	Taxi	Total
Existing station trip generation								
AM peak	80	55	56	191	5	50	61	116
PM peak	15	98	53	166	97	81	68	246
Future baseline trip generation (2041)								
AM peak	103	71	72	246	6	64	78	148
PM peak	19	126	68	213	125	104	87	316
HS2 generated trips (Phase One and the Proposed Scheme, 2041)								
AM peak	5	4	4	13	0	3	4	7
PM peak	1	6	3	10	6	5	4	15

12.7.36 It is estimated that the cumulative impact of HS2 Phase One and the Proposed Scheme will generate 20 trips in the morning peak hour and 25 trips in the evening peak hour, compared to a future baseline trip generation of 394 and 529 respectively. The peak hour trip generation is only 33% of that considered to be substantial in the sift criteria (75 to 95 trips for a single carriageway road). The Proposed Scheme will therefore not have a substantial impact on the local road network and no further analysis is considered necessary.

12.7.37 There may be an increase of up to 6% in parking demand and use of drop-off facilities as a result of the increased passenger numbers using the station. The station owner/operator and the local highways authorities may need to give consideration to any measures to control traffic and parking in the area.

Warrington Bank Quay Station

12.7.38 The Proposed Scheme is planned to have services stopping at Warrington Bank Quay Station, which together with reduced crowding on conventional services is expected to result in increased passenger demand. It is forecast that in 2036, passenger demand at Warrington Bank Quay Station will increase by 12% as a result of the cumulative impact of HS2 Phase One and the Proposed Scheme, and that in 2041 this figure will increase to 13%.

12.7.39 Warrington Bank Quay Station is located approximately 600m south-west of the town centre. The station is bordered by the A5061 Liverpool Road to the north and A5061 Parker Street to the east. The western boundary is marked by an industrial area, and the southern boundary by the rail corridor.

12.7.40 Vehicular access to Warrington Bank Quay Station is off the A5061 Parker Street, where there is a one way loop at the station frontage for taxi and car drop-off trips. The two station car parks are accessed via the A5061 Parker Street and Slutchers Lane. The A5061 Parker Street provides access to Slutchers Lane and to the north connects with the A5061 Liverpool Road, which to the west intersects with the A57 Froghall Lane/Sankey Way. To the east, the A5061 Parker Street connects to the A49 Wilderspool Causeway/Mersey Street.

12.7.41 To establish the existing station trip generation, traffic surveys were undertaken at the car park accesses on Parker Street and Slutchers Lane, and the drop-off facility on Parker Street.

12.7.42 Future baseline traffic volumes are forecast to grow by around 27% by 2041 compared to 2017.

12.7.43 The existing vehicular trips to and from the station, along with the future baseline trip generation for 2041 and the estimated trip generation for HS2 Phase One and the Proposed Scheme is shown in Table 431.

Table 431: Warrington Bank Quay Station trip generation – existing, future baseline, HS2 Phase One and the Proposed Scheme together

Time period	Arrivals				Departures			
	Car park	Kiss and Ride	Taxi	Total	Car park	Kiss and Ride	Taxi	Total
Existing station trip generation								
AM peak	32	66	31	129	2	63	24	89
PM peak	5	50	42	97	39	64	37	140
Future baseline trip generation (2041)								
AM peak	41	84	39	164	3	80	31	114
PM peak	6	64	53	123	50	81	47	178
HS2 generated trips (Phase One and the Proposed Scheme, 2041)								
AM peak	5	11	5	21	0	10	4	14
PM peak	1	8	7	16	6	10	6	22

12.7.44 It is estimated that the cumulative impact of HS2 Phase One and the Proposed Scheme will generate 35 trips in the morning peak hour and 38 trips in the evening peak hour, compared to a future baseline trip generation of 278 and 301, respectively. The peak hour trip generation is only 50% of that considered to be substantial in the sift criteria (75 to 95 trips for a single carriageway road). The Proposed Scheme will therefore not have a substantial impact on the local road network and no further analysis is considered necessary.

12.7.45 There may be an increase of up to 13% in parking demand and use of drop-off facilities as a result of the increased passenger numbers using the station. The station owner/operator and the local highways authorities may need to give consideration to any measures to control traffic and parking in the area.

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Annex A

Framework travel plan

Contents

List of figures

List of tables

1 Introduction

1.1 Purpose and context of this document

1.1.1 This document sets out a 'framework' for developing travel plans (TP) to help reduce the impact of the travel demands of the construction sites, compounds and the Infrastructure and Maintenance Base – Rail (IMB-R) associated with High Speed Rail (West Midlands - Crewe) or HS2 Phase 2a. A framework travel plan (FTP) was produced for High Speed Two (HS2) Phase One[1]. This document builds upon the previous FTP for HS2 Phase One and is consistent with it.

1.1.2 TPs can help reduce vehicle movements and associated pollution and congestion. For worksites, they contribute to the efficiency of site operations and to the health and safety of the workforce and the travelling public.

1.1.3 This FTP document sets out the steps required to create a location specific TP. It covers the expected content and suggestions about measures that can be introduced.

1.1.4 The Proposed Scheme is being delivered by HS2 Ltd, the company set up by the Government to develop proposals for a new high speed railway line between London, the West Midlands and northern England. Powers to construct and operate the Proposed Scheme will be sought by means of a hybrid Bill to be submitted to Parliament. Responsibilities for construction will be discharged by the nominated undertaker appointed to implement the powers of the hybrid Bill. The nominated undertaker is the body appointed by the Secretary of State responsible for delivering the scheme.

1.1.5 HS2 Ltd is committed to delivering practical TPs covering both construction and operational sites and will ensure this is achieved through contractual obligations between the nominated undertaker and the relevant contractors and operators.

1.1.6 As an entirely new scheme, HS2 Ltd has the opportunity to set the highest standards for sustainable transport during construction and operation.

1.2 The Proposed Scheme

1.2.1 HS2 is a new high speed railway proposed by Government to connect major cities in Britain. When completed, it will provide a new link between London, the Midlands and the North. It will increase the capacity of the rail network to meet future demand and bring people and businesses closer together.

1.2.2 HS2 will be built in phases. HS2 Phase One comprises the first section of the network of approximately 230km (143 miles) between London, Birmingham and the West Midlands, which will become operational in 2026. It was the subject of an Environmental Statement (ES) [2] deposited with the High Speed Two (London – West Midlands) Bill in 2013, and an ES deposited with Additional Provisions to that Bill in

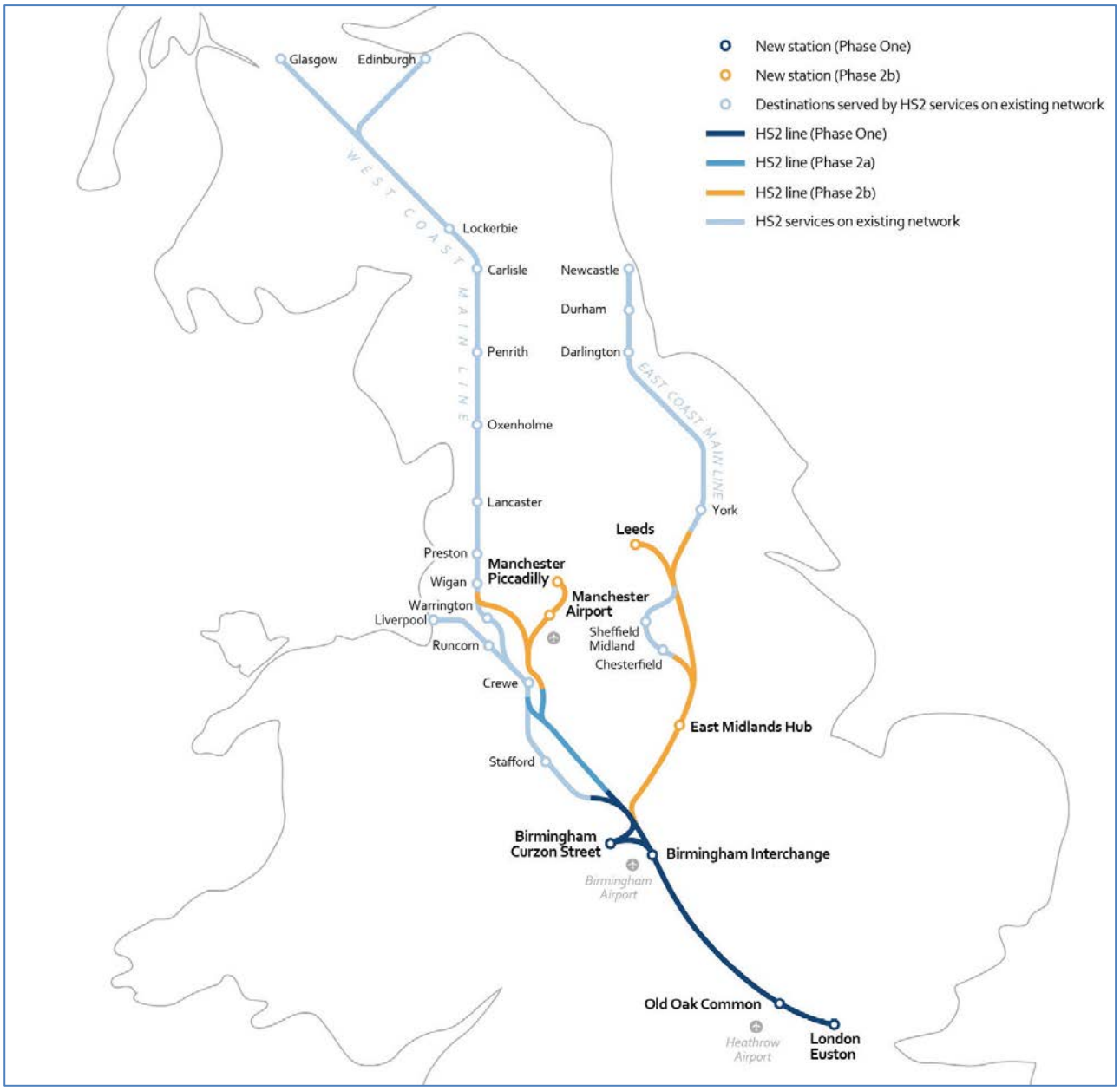
[1] HS2 Ltd (2013), *HS2 Phase One, Volume 5 Appendix: Transport Assessment (TR-001-000). Annex A: Framework travel plan,* https://www.gov.uk/government/publications/hs2-phase-one-environmental-statement-volume-5-traffic-and-transport/hs2-phase-one-environmental-statement-volume-5-traffic-and-transport

[2] HS2 Ltd (2013), *London - West Midlands Environmental Statement, Volume 5: Transport Assessment* (TR-001-000), https://www.gov.uk/government/publications/hs2-phase-one-environmental-statement-volume-5-traffic-and-transport/hs2-phase-one-environmental-statement-volume-5-traffic-and-transport

2014 and 2015. The High Speed Two (London – West Midlands) Bill achieved Royal Assent in February 2017 enabling construction to commence.

1.2.3 The proposed HS2 network and connections to existing rail lines are shown in Figure A1.

Figure A1: Proposed HS2 network



1.2.4 HS2 Phase 2a (the Proposed Scheme), the subject of this FTP comprises the western section of Phase Two between the West Midlands and Crewe, comprising approximately 36 miles (58km) of HS2 main line (including the section which would connect with and form the first part of Phase 2b) and two spurs (approximately 4 miles, 6km) south of Crewe that will allow trains to transfer between the HS2 main line and the West Coast Main Line (WCML). It will connect with HS2 Phase One near Fradley, to the north-east of Lichfield and to the WCML south of Crewe, to provide onward services beyond the HS2 network, to the north-west of England and to Scotland. The HS2 Phase Two route from Crewe to Manchester and from the West Midlands to Leeds, referred to as HS2 Phase 2b, was announced in November 2016. When completed, the HS2 Phase 2b route will connect with Phase 2a south of Crewe and form part of the western leg of the 'Y' network extending to Manchester.

1.2.5 Development of HS2 Phase 2b is continuing and will be subject to separate consultations, environmental assessment process and hybrid Bill at a later date. This FTP covers the requirements associated with the construction and operation of the Proposed Scheme only.

1.3 Construction phase

1.3.1 The Proposed Scheme will be constructed from a series of compound sites, ranging from large main sites where major works will occur, such as the IMB-R, to satellite sites covering more specific activities such as retaining wall construction, track works or bridge construction.

1.3.2 The duration of use for different compound sites will vary significantly between sites that will be active for one to two years, to those which will be active for up to seven years.

1.3.3 HS2 Ltd will endeavour to make best use of rail to transport all materials and waste from the sites. The intention, for example, is to make best use of designated rail heads (such as that proposed near to Stone) to maximise the material and waste that can be transported by rail. In addition, borrow pits are proposed in the following community areas: Fradley to Colton (CA1); Whitmore Heath to Madeley (CA4); and South Cheshire (CA5), so that material can be sourced close to where it is needed, reducing construction traffic on local roads and avoiding impacts on local aggregate resources. The borrow pits created during excavation will be backfilled with materials generated from the construction of the Proposed Scheme, typically clay. This presents a more sustainable option, reducing the need to move the extracted materials off-site, further helping to limit impacts on the local road network and communities.

1.3.4 Further details of the compound sites and the predicted workforce and construction trip generation are provided within the Transport Assessment (TA) (see ES Volume 5: Appendix TR-001-000).

1.4 Operational phase

1.4.1 An IMB-R is proposed near to Stone located within the Stone and Swynnerton community area (CA3). This will be a permanent maintenance base situated between the route of the Proposed Scheme and the M6. The facility will operate as a base for maintenance activities to support the railway infrastructure.

1.4.2 No stations are proposed as part of the Proposed Scheme.

1.5 The framework travel plan

1.5.1 The FTP sets out how TPs will be used along with a range of potential measures to mitigate the impact of transport associated with construction, maintenance and operation of the Proposed Scheme based on the current level of understanding.

1.5.2 As the Proposed Scheme is of national importance it should be noted that national policy has been used to provide the overarching principles for the development of the FTP. The Department for Transport (DfT) defines TPs generally, as "a strategy for managing the travel generated by your organisation, with the aim of reducing its environmental impact, typically involving support for walking, cycling, public transport and car sharing."

1.5.3 In relation to the construction workforce TP requirements, this FTP has been prepared using the information collated in the ES and in the associated Draft Code of Construction Practice[3] (CoCP).

1.5.4 Due to the nature and location of the proposed construction compounds and the IMB-R, it is likely that the operation of these facilities will have cross-boundary implications and a range of requirements. Nonetheless as far as reasonably practicable, consistency with local guidance has been considered, especially policies in place in the areas where facilities are located. Particular consideration has been given to policy from Staffordshire County Council (SCC) [4] and Cheshire East Council (CEC) [5].

1.5.5 The scope of the FTP includes:

- all construction workforce travel – the framework aims to inform site specific plans which the lead contractors[6] will be required to produce;
- operation of the new IMB-R near to Stone – the framework provides guidance on the expected contents of an IMB-R specific TP, which will be the responsibility of the IMB-R operator; and
- consideration of occasional maintenance activities.

1.5.6 Alongside the IMB-R TP, consideration will be given to how delivery and servicing will operate as well as a car parking management plan.

[3] Draft Code of Construction Practice, Volume 5: Appendix - CT-003-000
[4] Staffordshire County Council (2008), *Guidance for Transport Assessments and Travel Plans*, https://www.staffordshire.gov.uk/transport/staffshighways/highwayscontrol/Documents/GuidelinesforTransportAssessmentsandTravelPlansJan.pdf
[5] Cheshire East Council (undated). *Travel Planning Guidance*, http://www.cheshireeast.gov.uk/public_transport/travel_plans/business_travel_planning/business_travel_planning.aspx
[6] The lead contractor on a construction site is responsible for planning, managing and co-ordinating themselves and/or the works and all other contractors working on their site, or any other contractor directly employed by the nominated undertaker to undertake key construction works on site

2 Planning background and policy

2.1 Overview

2.1.1 TPs form a key part of the Government's drive for an environmentally conscious and responsible transport policy. They are regarded as a critical implementation tool for delivering sustainable travel patterns and encouraging sustainable travel behaviour and form a standard planning requirement. This is also reflected in the approach taken by local planning authorities in relation to the need for TPs to support the delivery of innovative transport solutions to meet local transport objectives.

2.1.2 National, regional and local policy and guidance documents should be considered when contractors and operators develop their site specific TP.

2.1.3 The following is a summary of the current policy and guidance, which is deemed relevant for review. This summary should be taken as a guide and it is essential that a full policy review is conducted by each contractor and operator at the time of producing the site specific TP. Due to the strategic importance of the Proposed Scheme, it is expected that national policy and guidance will take precedence.

2.2 National government policy

2.2.1 The Department for Communities and Local Government published the National Planning Policy Framework (the NPPF) in March 2012[7]. The NPPF replaces the previous planning Practice Guidance (PPG) and Planning Policy Statement documents.

2.2.2 With specific reference to transport, the NPPF states that "the transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel". The NPPF also indicates that "developments should be located and designed where practical to:

- accommodate the efficient delivery of goods and supplies;
- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- create safe and secure layouts, which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
- incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
- consider the needs of people with disabilities by all modes of transport".

2.2.3 The NPPF indicates that "a key tool to facilitate this will be a TP. All developments which generate significant amounts of movement should be required to provide a TP".

[7] Department for Communities and Local Government (2012), *National Planning Policy Framework* (the NPPF), https://www.gov.uk/guidance/national-planning-policy-framework

2.2.4 Following this, in March 2014 the Government published PPG [8] on Travel Plans, Transport Assessments and Statements. This lays down overarching principles for TPs, how they interact with TAs and contribute positively to key Government transport policy objectives of:

- "encouraging sustainable travel;
- lessening traffic generation and its detrimental impacts;
- reducing carbon emissions and climate impacts;
- creating accessible, connected, inclusive communities;
- improving health outcomes and quality of life;
- improving road safety; and
- reducing the need for new development to increase existing road capacity or provide new roads".

2.2.5 However, whilst the guidance contains relevant commentary on the overarching principles of these documents, and a high-level overview of what information should be included, the guidance does not contain definitive guidance on structure and methodology to be adopted in a TP. To this end, whilst this TP has been produced in accordance with these guiding principles, the DfT 'Good Practice Guidelines: Delivering Travel Plans through the Planning Process' in April 2009[9] has also been used as best practice guidance. This document sets out the actions that can be taken in producing high quality TPs. The guidelines aim to help those creating and implementing TPs understand the process involved and outlines good practice steps for achieving successful and sustainable TPs.

2.3 Local policy

2.3.1 SCC (within which the Stone IMB-R will be located), has highlighted the requirement to encourage sustainable travel behaviour including the promotion of school, workplace and individualised travel planning within their Local Transport Plan (2011) [10]. SCC has also developed a guidance document related to TP [11], which includes suggested contents of a FTP and examples of potential measures.

2.3.2 Whilst this SCC document pre-dates more recent Government guidance, it does provide useful details on matters such as: consultation and scoping with the local highway authority; the content and coverage expected of a TP (including an FTP); ranges of potential 'hard' and 'soft' measures to be used, as appropriate to specific circumstances; and processes for data collection, target-setting and monitoring.

2.3.3 SCC places great value on ongoing co-operation and collaboration, especially with the end users to develop a full TP where only an FTP has been submitted during the planning process. They state: "A successful TP involves a process of implementation

[8] Department of Transport (2014), *Planning Practice Guidance (PPG) on Travel Plans*
[9] Department of Transport (2009), *Good Practice Guidelines: Delivering Travel Plans through the Planning Process*
[10] Staffordshire County Council (2011), *Staffordshire Local Transport Plan*, https://www.staffordshire.gov.uk/transport/transportplanning/localtransportplan/staffordshirelocaltransportplan2011strategyplan.pdf
[11] Staffordshire County Council (2008)

that thrives on continuous monitoring (e.g. surveys), review and continual refinement over time. It does therefore require a high level of debate about transport problems, options and future action, as well as a demonstration of high level management commitment". They also require appointment of a named Travel Plan Co-ordinator (TPC).

2.3.4 CEC also highlights the importance of travel planning to support sustainable travel behaviour and initiatives within the Local Transport Plan Final Strategy (2011-2026) [12]. CEC has also produced a 'Travel Planning Guidance' Note (undated) which aims to provide developers, business owners and local highway authority officers with guidance on how to produce TPs in a consistent manner.

2.3.5 This references the Government's NPPF as underpinning the requirement for TPs; and allows for both 'Framework' TPs (for developments with multiple users or where "end users are unknown at time of application") and 'Interim' TPs ("when it is not possible to identify all the outcomes or measures and/or where end users are unclear"). The guidance contains extensive detail on TP governance structures and methods of co-ordination and communication, as well as material on collecting and analysing data, and its uses in setting and reviewing achievable ('SMART') implementation targets. It also contains an indicative timescale for moving from 'interim' to a 'full' TP with an action plan, once a site operator/occupier becomes known – though this is predicated on permanent facilities (such as the IMB-R), and so may need to be implemented in a different order at construction sites, which are not mentioned directly in the guidance.

2.4 Sustainability policy

2.4.1 The ES sets out the policies by which the environmental impact of construction and operation of the Proposed Scheme will be reduced. With regard to transport this includes:

- measures to reduce the impact of construction traffic – traffic management plans, construction workplace travel plan (CWTP), traffic management processes, potential for on-site accommodation for construction workers, identification of routes for construction vehicles (including heavy goods vehicles (HGV));
- where roads require temporary closures, alternative routes for buses (including temporary bus stop infrastructure) and traffic diversions will be put in place, along with diversion and/or traffic management measures to accommodate usage by pedestrians, cyclists and equestrians;
- new or realigned highways crossing the route of the Proposed Scheme will generally be built 'offline', so that they can be completed prior to the closure of an existing road;
- where Public Rights of Way (PRoW) require temporary closure during construction, the affected PRoW will usually be diverted to another available PRoW (or road if suitable), or diverted onto a safe route around a construction site prior to closure of the existing route. All diversions will have appropriate

[12] Cheshire East Council (2011), *Local Transport Plan Final Strategy (2011-2026)*

signing and will remain in place until the PRoW is either re-established or a permanent diversion is completed; and

- where site haul routes, created adjacent to the route of the Proposed Scheme, cross the existing road or PRoW networks, traffic control measures will be implemented and could include provision of temporary signals or roundabouts, or active control measures to manage the safety of PRoW users (which could include staffed crossings, provision of temporary gates or signals), all of which would be removed on completion of the works.

2.4.2 The land required permanently for the Proposed Scheme will include the operational rail corridor and the IMB-R. Some roads and PRoW will be permanently diverted. Land would also be required temporarily for construction site compounds, temporary diversion of roads, PRoW and private access routes, watercourses, utilities and borrow pits.

2.5 Draft CoCP policy on traffic and transport

2.5.1 The Draft CoCP for the Proposed Scheme sets out the general policies for construction sites.

Traffic management – general provisions

2.5.2 During construction work, the nominated undertaker will require that the impacts from construction traffic on the local community (including all local residents and businesses and their customers, visitors to the area, and users of the surrounding transport network) be minimised by its contractors where reasonably practicable.

2.5.3 For construction traffic, the impact of road-based construction traffic will be reduced by identifying clear controls on vehicle types, hours of site operation, and routes for HGV. Highway works required to accommodate construction traffic will be identified. Investigations will continue, where appropriate, to seek further ways to reduce impacts such as increased use of rail for transportation of construction materials.

2.5.4 The Draft CoCP outlines the anticipated working hours for the majority of the workforce as 08:00 – 18:00 on weekdays, excluding bank holidays, and 08:00 – 13:00 on Saturdays). The nominated undertaker would require contractors to adhere to these core hours as far as reasonably practicable. It should be noted that some construction activities will fall outside of these working hours, including 24-hour working[13].

2.5.5 For the workforce, where reasonably practicable, the number of private vehicle trips to and from the site (both workforce and visitors) will be reduced by encouraging alternative modes of transport or vehicle sharing.

[13] 24-hour working is assumed to be, but not constrained to, three shifts: 07:00 - 15:00, 15:00 - 23:00 and 23:00 - 07:00

3 Construction workforce travel plans

3.1 Aims and objectives

3.1.1 It is anticipated that the overall construction phase could last for seven years, although activity at individual locations is often of a much shorter duration. All the construction compound sites identified in the ES will have site-specific Local Environmental Management Plans (LEMP) produced. A number of these sites will be significant hubs of local on-site employment during the construction phase (and some will include worker accommodation) as well as being associated with movements of plant, equipment, excavation and construction.

3.1.2 Lead contractors will be required to produce local traffic management plans (LTMP) that will aim to:

- reduce the impact of freight movements associated with construction activities; and
- reduce any severance, disruption, diversion and damage to local roads, footpaths and other rights of way during construction.

3.1.3 This FTP, will sit alongside the LEMP and LTMP, providing guidance on the requirements for CWTP, specifically how to reduce the impact of worker travel to construction sites including any temporary car parking arrangements to minimise the impact on local residents and businesses.

3.1.4 Objectives to support these aims in relation to worker travel to sites will include:

- effective management of construction worker traffic to minimise damage to the environment, impact on the surrounding road network, danger to road users and disturbance to neighbouring properties; and
- the introduction of measures to reduce single occupancy car journeys by staff working on construction sites through the encouragement of car-sharing, public transport, cycling and walking to work where reasonably practicable.

3.1.5 Lead contractors will provide a single TP document to cover a number of compound worksites if this is appropriate, rather than duplicating documents.

3.1.6 CWTP documents will be produced by each lead contractor, which will encourage the use of sustainable modes of transport to reduce the impact of workforce travel on local residents and businesses. The plans will follow the guidance provided in the FTP and include details of the:

- identification of a TPC and a description of their responsibilities;
- key issues to consider for each compound/ construction site or group of sites;
- site activities and surrounding transport network, including relevant context plans;
- anticipated workforce trip generation and how it may change during the construction process;

- travel mitigation measures that will be introduced to reduce the impact of the construction workforce on the transport network and services;
- measures to control on-site parking provision and promoting travel by public transport where available;
- targets to reduce individual car journeys by the construction workforce;
- methods for surveying workforce travel patterns;
- the process for monitoring, reviewing and where necessary updating the CWTP; and
- proposals for transport of construction workforce and measures to ensure safe access to and from site.

3.2 Implementation: appointment of a travel plan coordinator

3.2.1 Each lead contractor with responsibility for the site(s) will appoint a TPC to lead the development and implementation of the travel plan. The TPC will act as a single point of contact for all parties with an interest in the site, from construction companies through to local planning and transport authority staff, so that concerns can be quickly raised and acted upon.

3.2.2 Where appropriated a single TPC will be responsible for a series of compound worksites on behalf of the same contractor. The TPC is critical to the success of the TP, and their role is covered in more detail in the section below on operational TP.

3.3 Site evaluation

3.3.1 The TP should include a summary of the local transport and site operation issues relevant to each construction compound. Any specific local issues raised by the consultation process will also be noted and addressed if they are relevant to the CWTP (such as local congestion pinch points and proximity of local schools).

3.4 Audit of site and surrounding network

3.4.1 The CWTP will include a description of the site and the boundaries and duration and/or phases of construction works pertaining to a particular construction compound. This will include a location plan showing the local context of the site and a more detailed plan showing the road network directly serving the site. The description should include:

- public transport services - nearest stops/stations, timetables and principal destinations served;
- non-motorised user routes - existing footways, road crossings, other rights of way (bridleways, footpaths, canal towpaths), cycle lanes and cycle tracks; and
- any constraints or traffic-sensitive locations on the local highways network, e.g. peak congestion 'hotspots', locations of schools, nurseries, hospitals etc.

3.4.2 Much of this information will be readily available from the TA, although this may need to be updated using local highway authority source information (and Highways England, if the strategic road network is affected).

3.5 Site travel requirements

3.5.1 The TP will set out the anticipated workforce travel that will be generated by the site. The nature of construction site activities changes over time and has different implications for travel and traffic generation. The travel plan will relate to the key milestones in the construction process and phasing of works from site clearance and preparation through to completion.

3.6 Workforce travel mitigation measures

3.6.1 It is proposed that three of the compound workforce construction sites will include on-site accommodation, which will assist with reducing the impact of daily workforce travel on the transport network. Details on the number of trips this reduces, and likely times and volumes of journeys by accommodation users at the start and end of their periods on site, will be included within the site-specific TP.

3.6.2 The workforce that travel directly to the site daily, or to stay in the accommodation, can benefit from some of the standard approaches that apply to travel planning in any workplace:

- gather information on travel habits to understand origin locations of workforce to enable targeted interventions on car-sharing, public transport or special staff buses;
- operate core working hours that coincide with availability of local public transport, which should be identified in the relevant CWTP;
- provision of on-site services, such as catering, to reduce the requirement to travel off site during the working day;
- encouragement of car-sharing by awareness raising measures and help with finding partners with similar journeys (this may include signing up to car-share schemes operated by the local authority and existing travel plan partners, or by commercial providers, to enable access to a wider local pool of people travelling within an area);
- potential provision of mini-bus services to assist with travel to sites and between sites to reduce traffic entering the site or travelling between construction sites;
- provision of good quality and accurate information on local public transport services;
- encouragement of the use of public transport through raising awareness of local services, offering discounted season tickets or loans for season ticket purchase;
- encouragement of cycling through awareness of local routes and discounted tax-free cycle purchase scheme or interest-free loans for cycle purchase;
- provision of secure cycle parking on site;

- measures to manage car parking on site to ensure safe access and to discourage parking in nearby settlements where this might adversely impact local residents or businesses;
- provision of safe and well-lit walking routes from nearby bus stops, car parking areas, and between accommodation and work areas within the site; and
- an on-going commitment to promote safe and sustainable transport to the workforce through events and publicity.

3.7 Targets and monitoring

3.7.1 The TPC will engage with the relevant local planning authority on appropriate targets and monitoring arrangements. This might include:

- provision of realistic targets once the site-specific travel characteristics and available options are fully appreciated. These should be based initially on the TA for the sites, recognising that traffic levels will fluctuate in different phases;
- details of worker home locations once known, so travel choices can be identified;
- worker travel surveys to enable the actual mode share information for each site to be better determined and provide a sound basis on which to develop and set bespoke targets as appropriate;
- monitoring of other supporting activities such as membership of car-share schemes, take up of employee cycle loans; and
- a review of similar compound worksites (such as Hs2 Phase One construction compound sites) to identify lessons learned, which can inform the travel plan arrangement for new compound sites.

3.8 On-going implementation and legacy

3.8.1 The TPC will remain responsive to changing circumstances during the construction period for sites with long construction periods and different phases of activity. The TPC should also continue to liaise with the relevant local authority and public transport operators to ensure that employees can take advantage of any improvements to local services or local funding opportunities for sustainable transport.

3.8.2 One construction site will eventually become an operational site, the IMB-R near to Stone. While further detail on how a full TP will operate in this instance is provided in the next chapter, early preparation will be useful.

3.8.3 The TPC will therefore need to work with the nominated undertaker's design team and the relevant local authority to ensure that future sustainable travel measures identified in outline design discussions are delivered in the final schemes, and that any changes to designs due to unforeseen site issues will not unduly prejudice long-term sustainable travel options. This could include:

- where bus services operate, checking bus facilities are convenient and stops are accessible to site entrances;

- ensuring that levels of cycle parking are sufficient to meet anticipated mode shares; and
- ensuring that walking routes are safe, direct and well-lit.

3.8.4 The final iteration of the CWTP at such sites should provide the basis for a handover to the operator to help with development of a full TP for the operational phase of this site.

4 Operational phase travel plans

4.1 Types of operational travel plans

4.1.1 The main reasons for travel during the operation of the Proposed Scheme include:

- staff and visitors to/from the IMB-R; and
- deliveries to/from the IMB-R.

4.1.2 There will also be maintenance requirements along the route of the Proposed Scheme at remote locations (such as balancing ponds, viaducts, auto-transformer stations), which do not require a TP as such trips will be small in number.

IMB-R travel plan

4.1.3 An integral part of all good travel planning is close co-operation with the local highway authority and travel awareness teams, as partners in defining the scope of the TP and in its implementation and monitoring arrangements. The IMB-R operator will be required to appoint a TPC, who will develop links with key delivery partners, and establish whatever steering group is required to manage the TP.

4.1.4 These principles are in line with local highway authority guidance, and the process is outlined in the sections below.

4.2 Definition, aims and objectives

4.2.1 The aim of a TP is to reduce any adverse impacts of travel to and from the IMB-R.

4.2.2 This is supported by a number of objectives:

- to encourage access by walking, cycling and public transport;
- to provide facilities and infrastructure that supports access by walking, cycling and public transport to reach the IMB-R site from its surrounding area, and to accommodate cycle parking within the site;
- to use promotional activities and incentives – such as preferential or discounted ticketing, media campaigns, on-site events and provision of information on internal and external websites and noticeboards to encourage sustainable travel and car-sharing; and
- to work in partnership with the local authority and other stakeholders when developing measures and promotional strategies to encourage sustainable travel.

4.2.3 The TP may include other specific objectives that reflect local transport priorities or concerns.

4.3 Site evaluation

4.3.1 The TP should include a summary of the key local transport and site operation relevant to the IMB-R. Much of this information can be found within the TA for the present situation and future baseline within the vicinity of the site, but will need to be

updated for the operational phase. Any specific local issues raised by the consultation process should also be noted and addressed if they are relevant to the TP.

4.4 Audit of site and surrounding network

4.4.1 The TP will include a description of the site. This will include a location plan showing the local context of the site and a more detailed plan showing the road network directly serving the site. The description will include:

- a note of local road infrastructure - speed limits, traffic flows and congestion hot spots;
- public transport services - nearest stops/stations, timetables and principal destinations served;
- a review of online public transport timetable information and ticket options; and
- non-motorised user routes - existing footways, road crossings, other rights of way (bridleways, footpaths, canal towpaths), cycle lanes and cycle tracks that can be used to access the site.

4.4.2 Much of this information is included in the TA, but this may need to be updated in consultation with the relevant local planning and transport authority and Highways England. As the IMB-R site will operate as a construction site, the information should be available from the CWTP.

4.5 Implementation: appointment of a TPC

4.5.1 A TPC will be appointed for the IMB-R. The TPC will have overall responsibility for the TP and act as the single point of contact for local authority and other stakeholders. The TPC should be appointed by the IMB-R operator.

4.5.2 The coordinator is vital to the TP. Their responsibilities include to:

- promote and encourage the use of travel modes other than the car;
- provide a point of contact and travel information for employees and visitors;
- manage and monitor the TP document;
- develop and disseminate appropriate TP marketing information and to ensure that all relevant and up to date material is clearly displayed on TP notice boards and websites;
- arrange for travel surveys to be undertaken and analysed when necessary;
- identify key milestones, deliverables and a programme to oversee the development and implementation of specific measures and initiatives;
- provide a point of contact with transport operators and officers of the local planning and transport authorities and work with other local businesses to pursue joint plans and initiatives;

- establish a site user group (staff), and a steering or review group (with local authorities and others such as rail and bus operators), as required, along with a regular reporting programme; and
- ensure alignment with servicing/delivery and car parking management strategies.

4.6 Evaluation of travel requirements

4.6.1 It will be important to establish where staff are travelling to and from to help create a package of measures that will meet the needs of all staff and travellers. The TPC could make use of the following information:

- the TA which include estimations of travel demand, peak times, modes of access, public transport service provision and traffic congestion hotspots; and
- staff travel surveys.

4.7 Physical measures to encourage sustainable travel

4.7.1 The design process for the Proposed Scheme is already incorporating many measures to facilitate sustainable travel. It is important however, that when delivered in the final scheme these are complemented by a programme of publicity and promotion, these measures could include:

- safe, secure and attractive well-lit walking routes from the IMB-R to the adjacent streets and connecting bus stops;
- wayfinding/signage improvements on key routes;
- secure cycle parking sufficient to meet staff demand; and
- secure motorcycle parking.

4.7.2 Some of these measures will require off-site improvements to be delivered by the local transport authorities or other agencies such as the Integrated Transport Authority or bus operators.

4.8 Working in partnership

4.8.1 Working in partnership as an important process in the success of implementing TP. For the IMB-R near to Stone the local authority is SCC.

4.8.2 The TPC will work closely with SCC to develop the travel plan for the IMB-R and to work on joint initiatives such as improved walking links, better public transport facilities, and promotional activities. These partnerships should evolve from the current engagement into active co-operation and coordination of activities during the operational stage.

4.8.3 Other partners that may be helpful in supporting the travel plan will include:

- Local Chambers of Commerce, large businesses and significant local trip generators;

- passenger groups such as Passenger Focus, local cycling and disability groups to help address any access issues from a user perspective; and
- neighbourhood forums and community groups.

4.8.4 Travel plan guidance recommends that the TPC sets up user and review groups to involve partners in the development and implementation of the travel plan.

4.9 Measures to promote and encourage sustainable travel

4.9.1 Physical measures and additional services such as buses can be expensive to provide and underused if not promoted. One of the key roles of the TPC is to get a better understanding of the 'door to door' journeys being made by staff and visitors, as well as to develop initiatives that make this journey convenient. Quite often services are available but staff and visitors may be unaware that they exist.

4.9.2 The TPC may use the following promotional strategies:

- online information about sustainable access to the IMB-R;
- postcode maps for staff and events to help them match up for car-sharing or taxi sharing;
- season ticket loans or discounts and tax-free bicycle purchase scheme for staff;
- publicity for multi-modal, advance purchase and/or discounted tickets;
- promotional events in partnership with the local authority such as national Bike Week and Active Travel promotions to encourage cycling and walking;
- posters and public transport and cycle route maps for display in staff areas;
- leaflets to help staff and visitors with advance information about sustainable access choices prior to their employment or visits; and
- staff training so that they are knowledgeable about onward travel for visitors as well as their own travel.

4.10 Targets and monitoring

4.10.1 It can be difficult to set mode share targets prior to operations commencing that will accurately reflect how staff and visitors will react to different interventions. For example, restrictions on car parking may not reduce car travel, but create 'kiss and ride' drop-off activity and informal parking off site, which may have a negative impact on traffic and the environment.

4.10.2 It is also difficult to disaggregate the effect of individual interventions, when a whole suite of activities may be taking place, for example is it cycle parking that stimulates cycling, or the provision of route maps or discounted cycles, or exceptionally good weather.

4.10.3 It is important therefore to set out 'SMART' targets that relate to the timescales for introduction of the TP and its measures, and to regularly re-evaluate the TP following the analysis of annual monitoring reports. In the context of TP, this means:

- specific - solutions proposed to the identified gaps in provision or problems;

- measurable - linked to a quantifiable indicator that can be repeatedly and cost-effectively monitored, to assess whether or not they are being achieved;
- achievable - take account of likely availability of funding, approval processes, practical constraints, deliverability;
- relevant - support the wider strategic aims of stakeholders, the policies of the local authority, and meet the needs of passengers; and
- time-bound - consider timescales for delivery, timescales of different partners' processes (e.g. annual updates, changes in phases of operation etc.).

4.10.4 Following an initial baseline survey within the first six months of operation, monitoring and updating of the IMB-R TP will be undertaken on an annual basis for a period of five years. The monitoring should seek to establish the mode share for access to the IMB-R by staff and visitors, and also include questions that help identify improvements and interventions that would further encourage sustainable travel.

4.10.5 All targets will be established in consultation with the relevant local authorities once the site-specific travel characteristics are fully appreciated and the initial set of staff survey data has been collected for verification. This will allow the actual mode share information for the IMB-R to be better determined and will provide a sound basis on which to develop and set bespoke targets as appropriate.

4.10.6 The principles for establishing targets must be relevant to the specifics of the IMB-R location, but will generally aim to reduce single occupancy car trips and increase walk, cycle and public transport mode shares.

4.10.7 The TPC for the IMB-R will commission staff and visitor travel surveys within the first six months of operation and annually (for five years) thereafter, to understand where staff and visitors are travelling from, what times they are travelling and typical shift patterns etc.

4.10.8 The requirement for monitoring will include:

- rates of trip-making by staff and visitors;
- mode share and change in mode share over time; and
- the effectiveness of the TP measures in respect of the IMB-R together with the timetable for implementing any revised or enhanced measures.

4.10.9 As a living document, there will be the need to update the TP as required. This requirement should be born out of the monitoring exercises undertaken during the operational phase, with particular importance given to the first survey undertaken, where the targets set prior to opening can be tested and the initial set of mitigation measures put in place to support sustainable travel options be revised.

5 Framework travel plan review and funding

5.1 Review

5.1.1 It is expected that this FTP will become the responsibility of the nominated undertaker, who from their appointment, will ensure the requirements of this framework are delivered by the lead contractors (in the case of CWTP), and by the IMB-R operator, when establishing the site-specific TP.

5.1.2 To facilitate this process and to ensure the site-specific TP is implemented appropriately, the nominated undertaker will identify a route-wide Travel Plan Manager.

5.2 Funding

5.2.1 The responsibility for funding the co-ordination and implementation of full TP is as follows:

- for the FTP – the nominated undertaker;
- for the CWTPs – the lead contractors; and
- for the IMB-R TP – the IMB-R operator.

6 Action plan

6.1.1 Table A1 provides an indicative outline action plan for each TP document. This structure will be followed and expanded upon by the site-specific TP documents that will be produced prior to construction and operation. Further mode or site-specific actions should be detailed in the CWTP and IMB-R TP documents, where reasonably practicable.

Table A1: Example travel plan action plan

Mode	Measure	Action	Responsibility	Potential dates
FTP				
All	FTP	This FTP submitted as part of the hybrid Bill process.	HS2 Ltd	Summer 2017.
All	Route-wide TP manager	Appoint a route-wide TP manager.	Nominated undertaker	Prior to construction.
All	Review group	Set up a FTP steering/review group and arrange first meeting.	TP manager	Prior to construction.
All	FTP monitoring, review and feedback	Monitoring, review and feedback to local authorities, stakeholders and FTP steering/review group.	TP manager	Frequency to be established in consultation with relevant local authorities.
CWTP – expected actions				
All	CWTPs	CWTPs submitted for approval.	Lead contractor(s)	Prior to construction.
All	TPC	Appoint a TPC.	Lead contractor(s)	Prior to compound site being in use.
All	Review group and user forum	Set up TP steering/review group and arrange first meeting. Establish users' forum and establish process for obtaining feedback on the TP from users.	TPC	Within 1 month of compound site being in use.
All	CWTP - monitoring, review and feedback	Monitoring, review and feedback to local authorities, stakeholders and TP steering/review group.	TPC	Frequency to be established in consultation with relevant local authorities.
All	Update workforce TP	Review and update TP following initial monitoring exercise and consultation with planning authorities.	TPC	Following monitoring and feedback process.
IMB-R travel plan – expected actions				
All	IMB-R TP	IMB-R travel plan submitted for approval.	IMB-R operator	Prior to IMB-R being in use.
All	TPC	Appoint a TPC.	IMB-R operator	Prior to IMB-R being in use.

Mode	Measure	Action	Responsibility	Potential dates
All	Review group and user forum	Set up TP steering/review group and arrange first meeting. Establish users' forum and establish process for obtaining feedback on TP measures from users.	TPC	Within one month of IMB-R being in use.
All	IMB-R TP-monitoring, review and feedback	Monitoring, review and feedback to local authorities, stakeholders and TP Review Group.	TPC	Frequency to be established in consultation with relevant local authorities.
All	Update TP	Review and update TP following initial monitoring exercise and approval with planning authorities.	TPC	Following monitoring and feedback process.

7 References

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Cheshire East Council (2011), *Local Transport Plan Final Strategy (2011-2026)*.

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HS2 Ltd (2013), *High Speed Two (HS2) Phase One (London - West Midlands) Environmental Statement, Volume 5, Appendix: Transport Assessment (TR-001-000). Annex A: Framework travel plan.* Available online at: https://www.gov.uk/government/publications/hs2-phase-one-environmental-statement-volume-5-traffic-and-transport/hs2-phase-one-environmental-statement-volume-5-traffic-and-transport.

Annex B

Baseline infrastructure and public transport service provision maps and details

Contents

List of figures

List of tables

B1 - Strategic, primary and local road network maps

Figure B1: Strategic, primary and local road network in the Fradley to Colton community area (CA1)

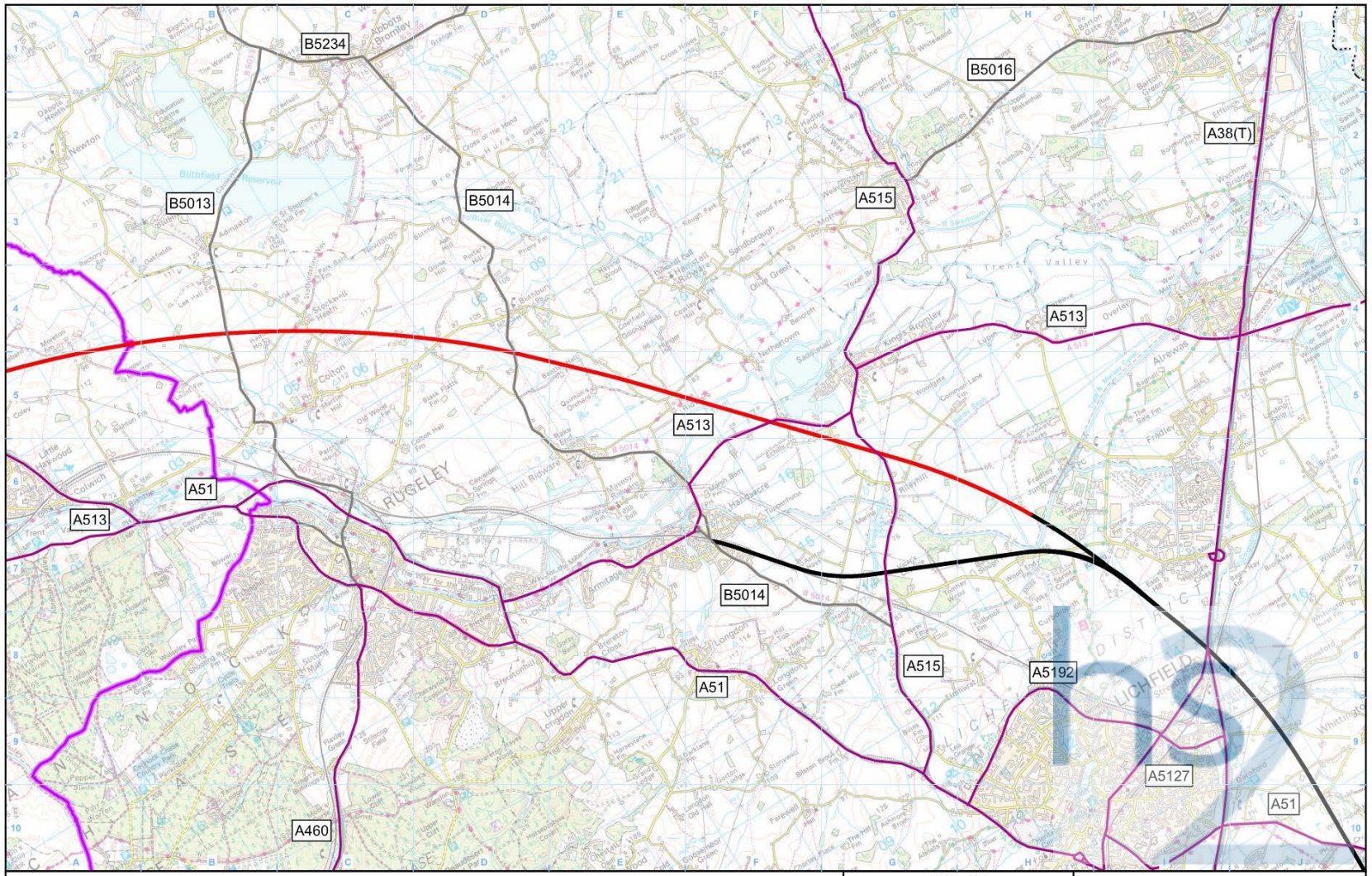


Figure B2: Strategic, primary and local road network in the Colwich to Yarlet community area (CA2)

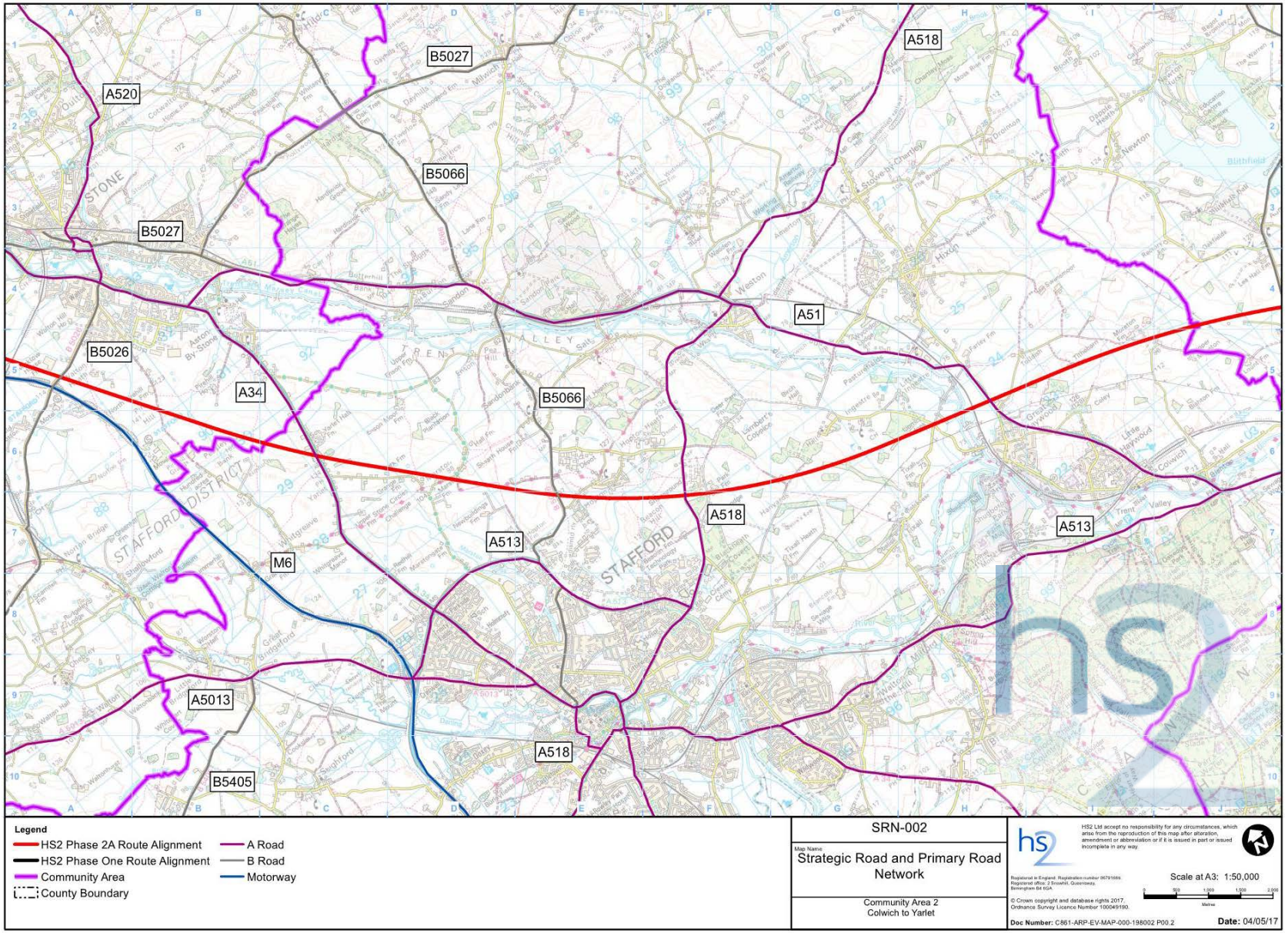


Figure B3: Strategic, primary and local road network in the Stone and Swynnerton community area (CA3)

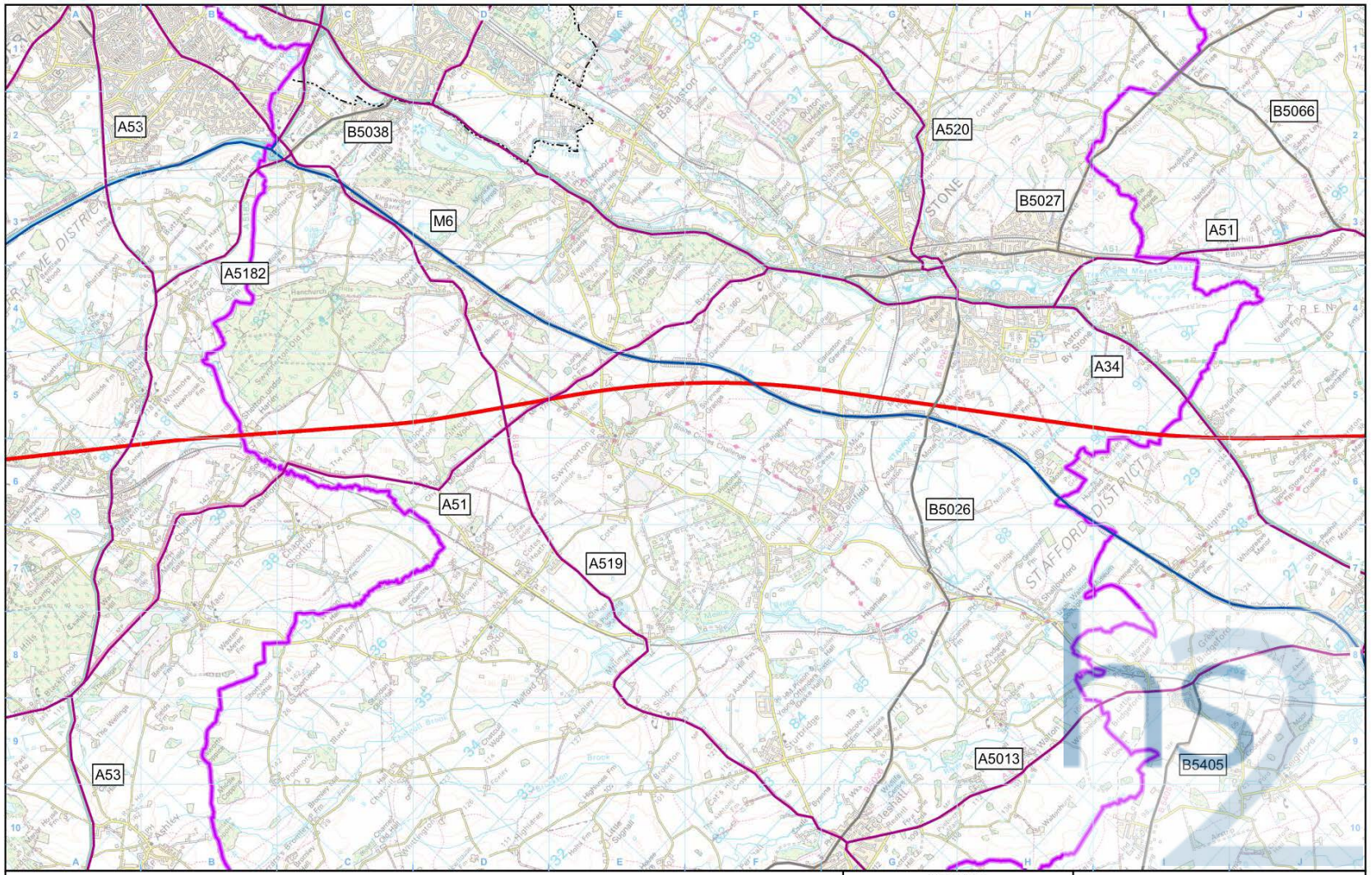


Figure B4: Strategic, primary and local road network in the Whitmore Heath to Madeley community area (CA4)

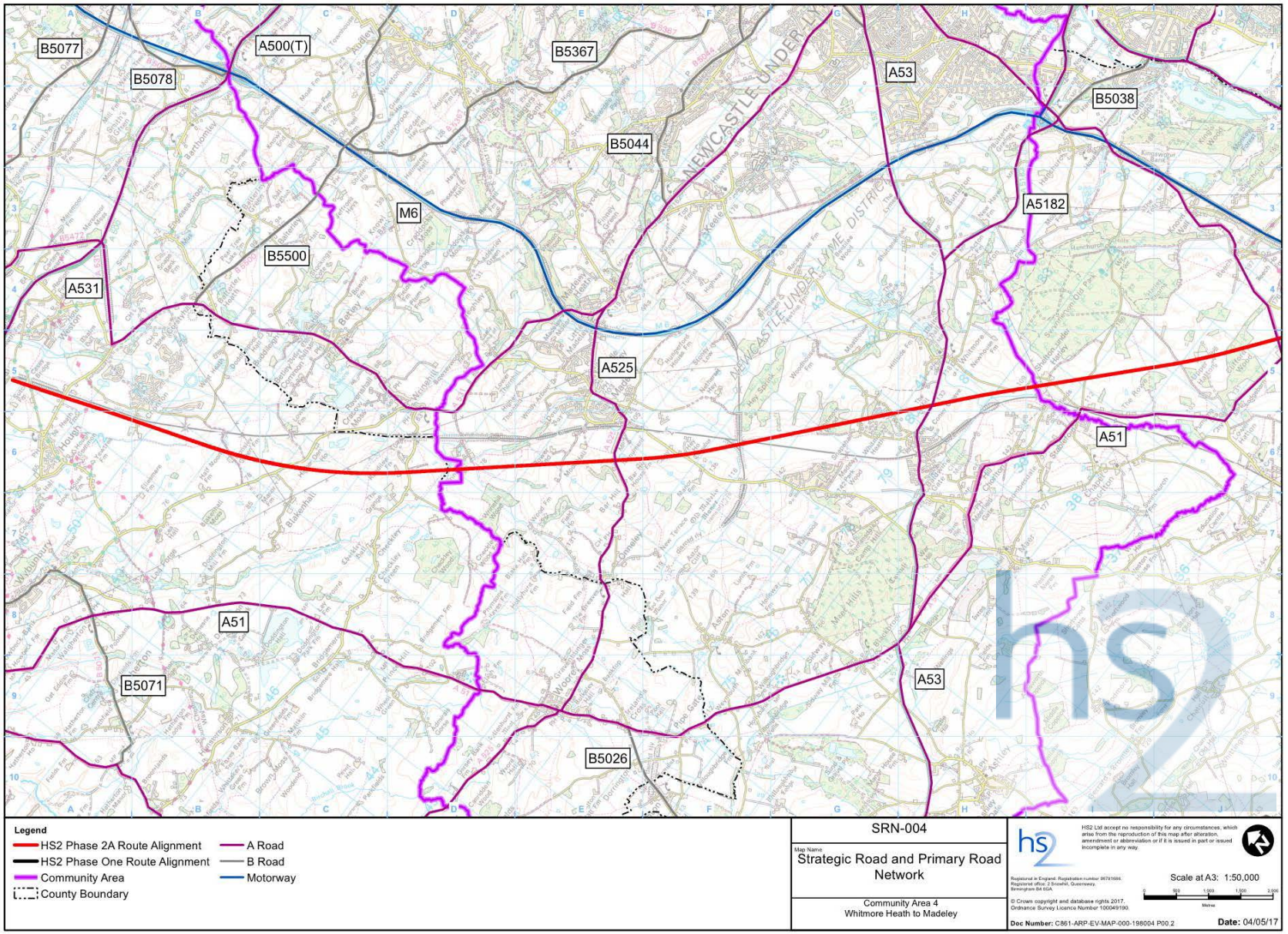
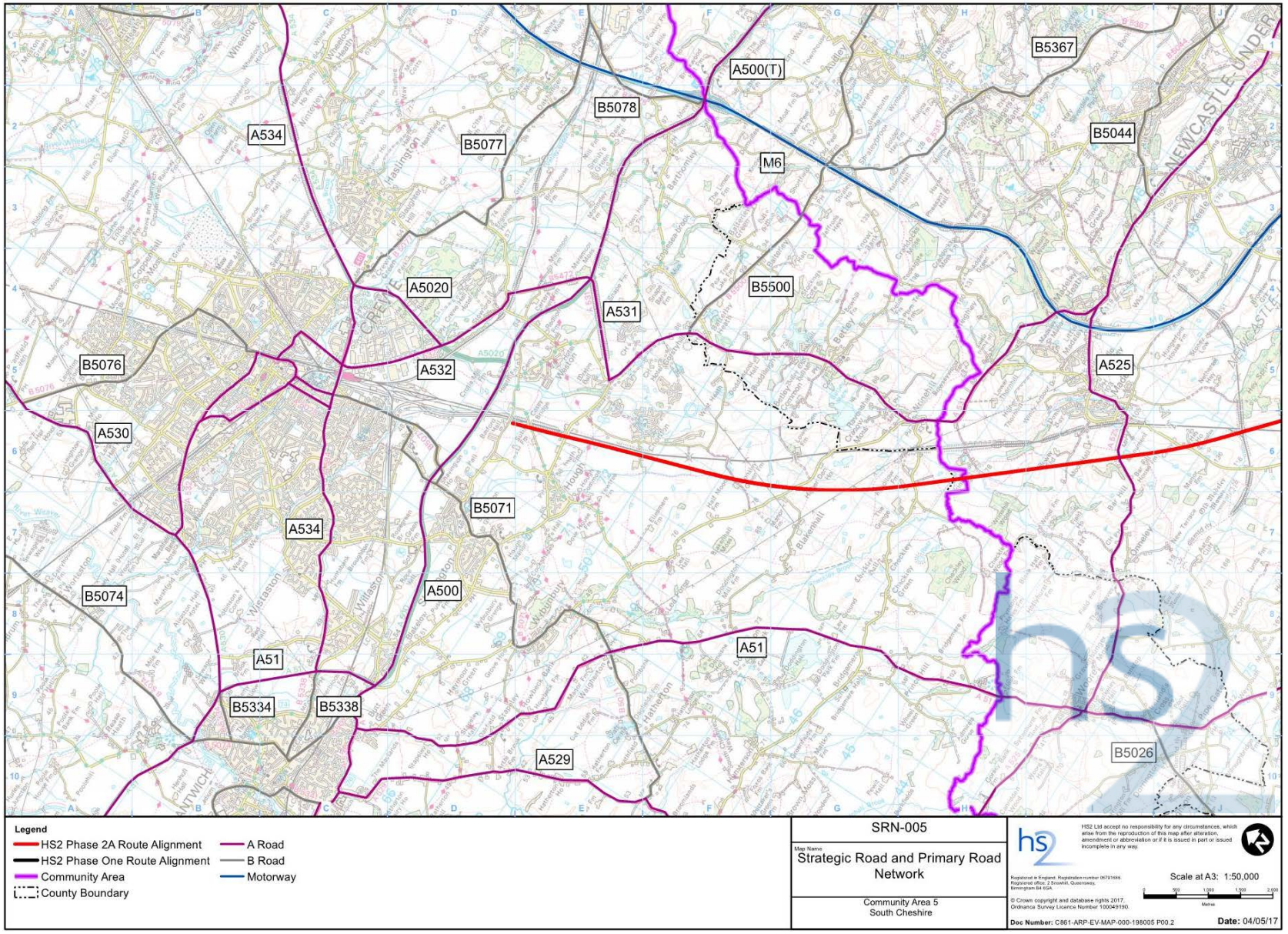


Figure B5: Strategic, primary and local road network in the South Cheshire community area (CA5)



B2 - Public transport infrastructure and provision maps

Figure B6: Public transport infrastructure and provision in the Fradley to Colton area

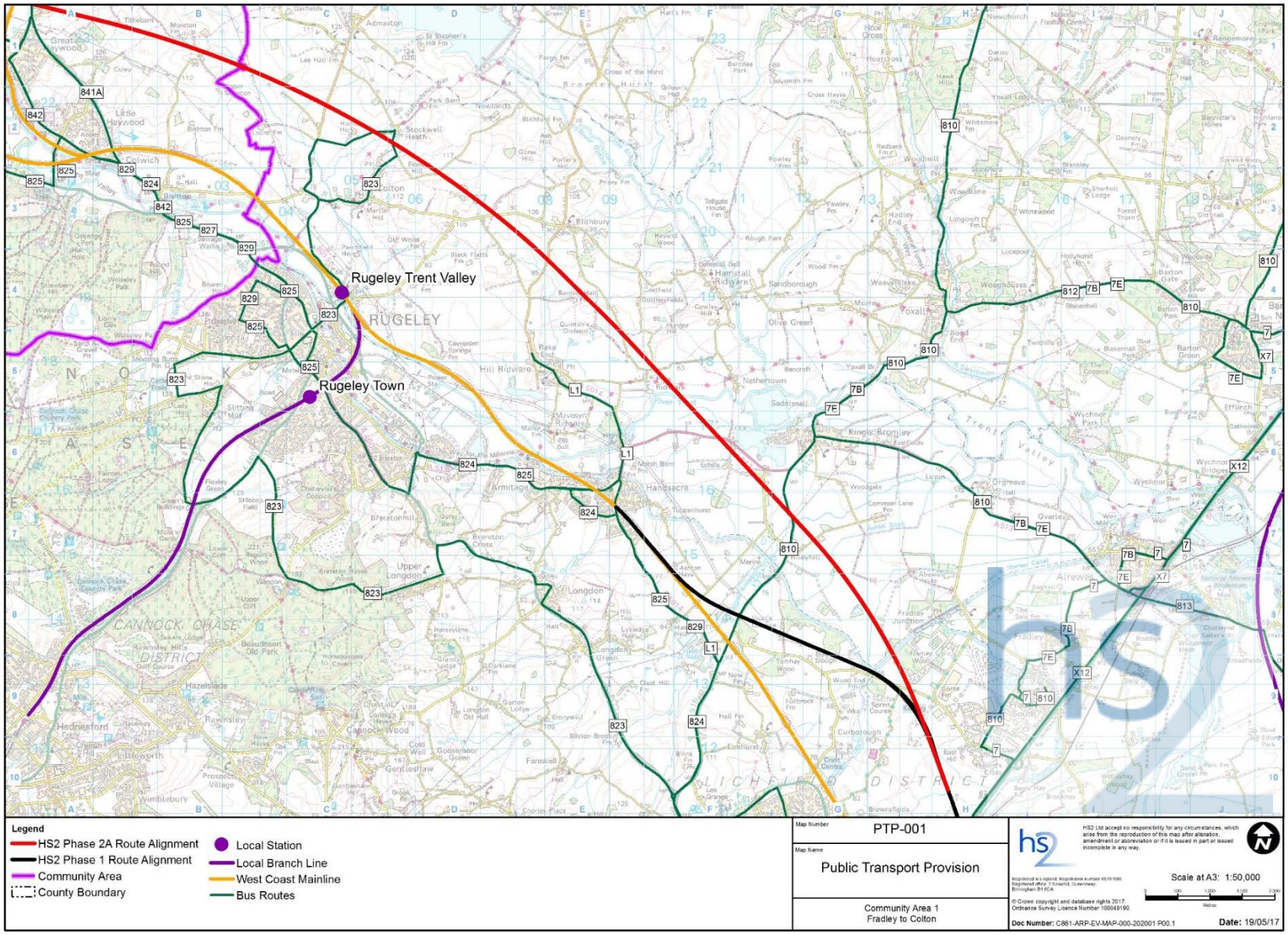


Figure B7: Public transport infrastructure and provision in the Colwich to Yarlet area

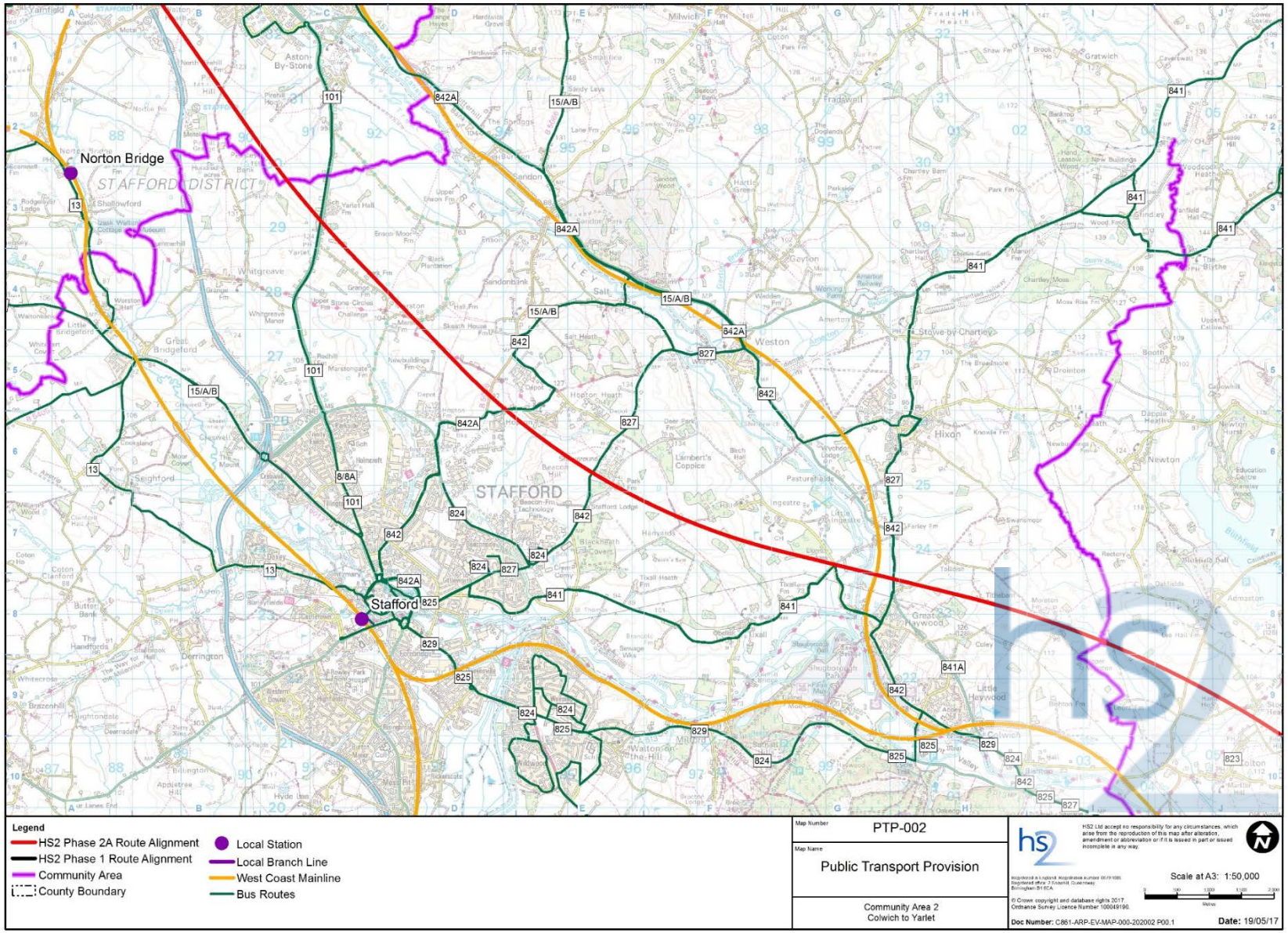


Figure B8: Public transport infrastructure and provision in the Stone and Swynnerton area

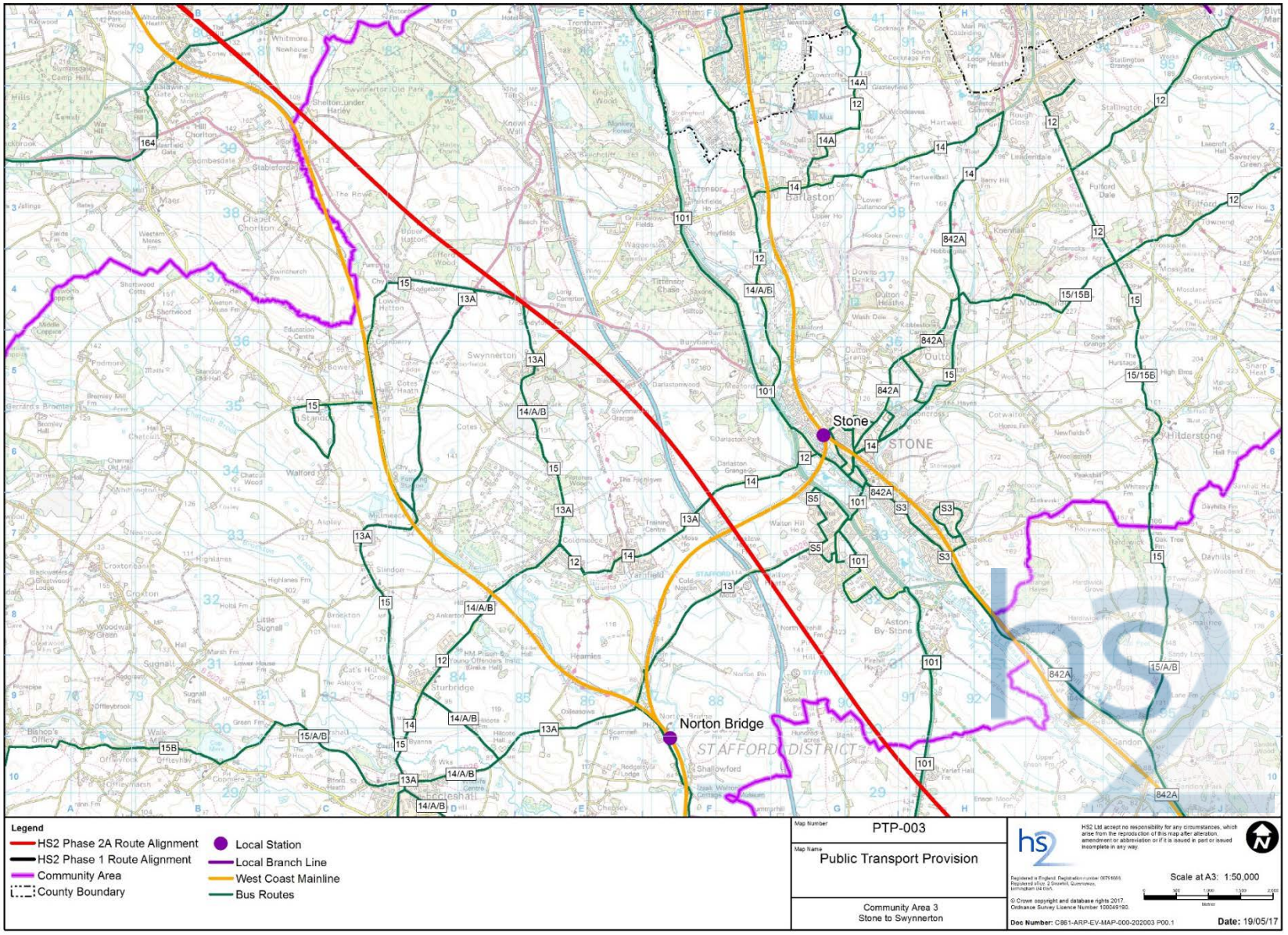


Figure B9: Public transport infrastructure and provision in the Whitmore Heath to Madeley area

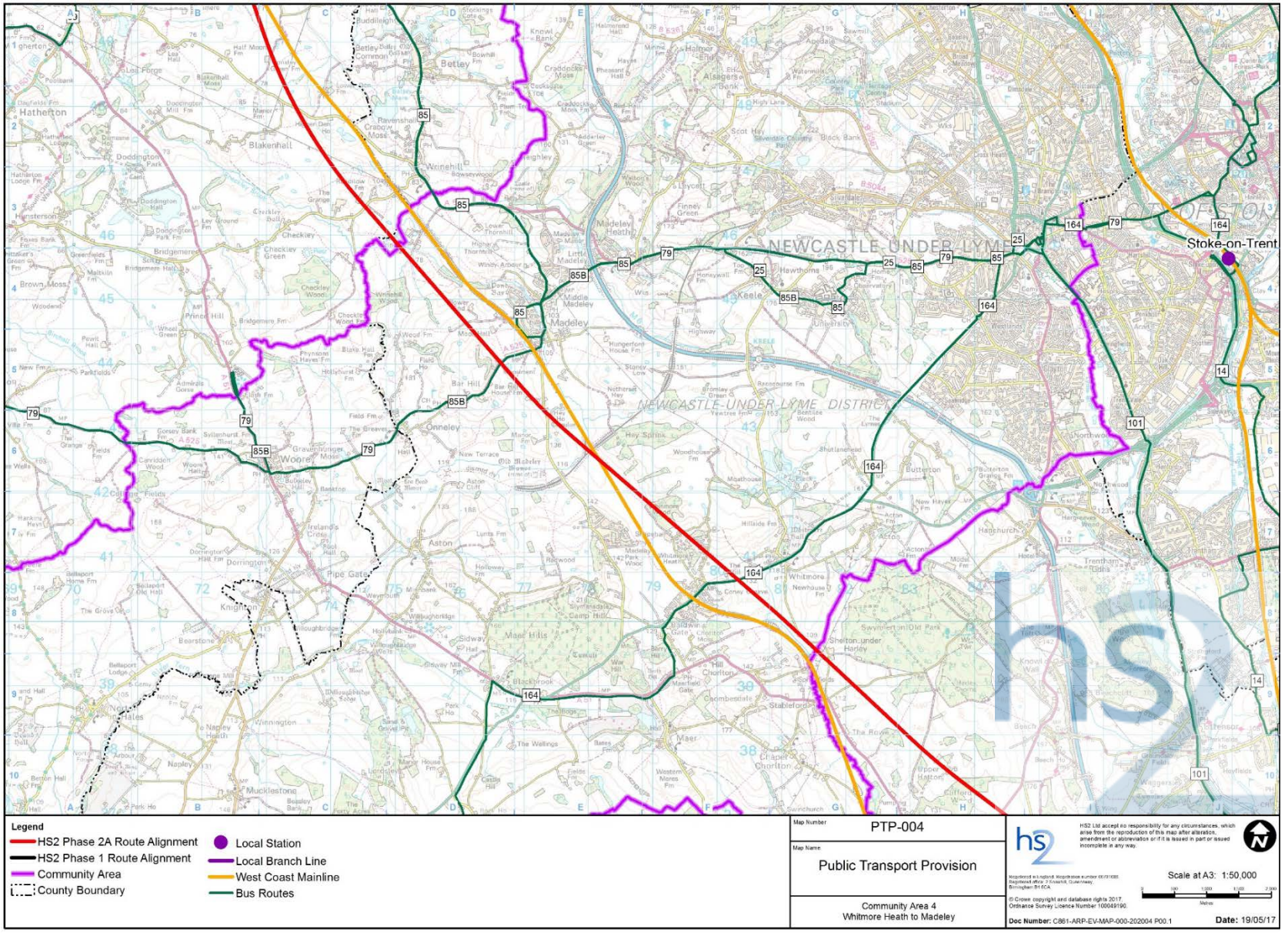
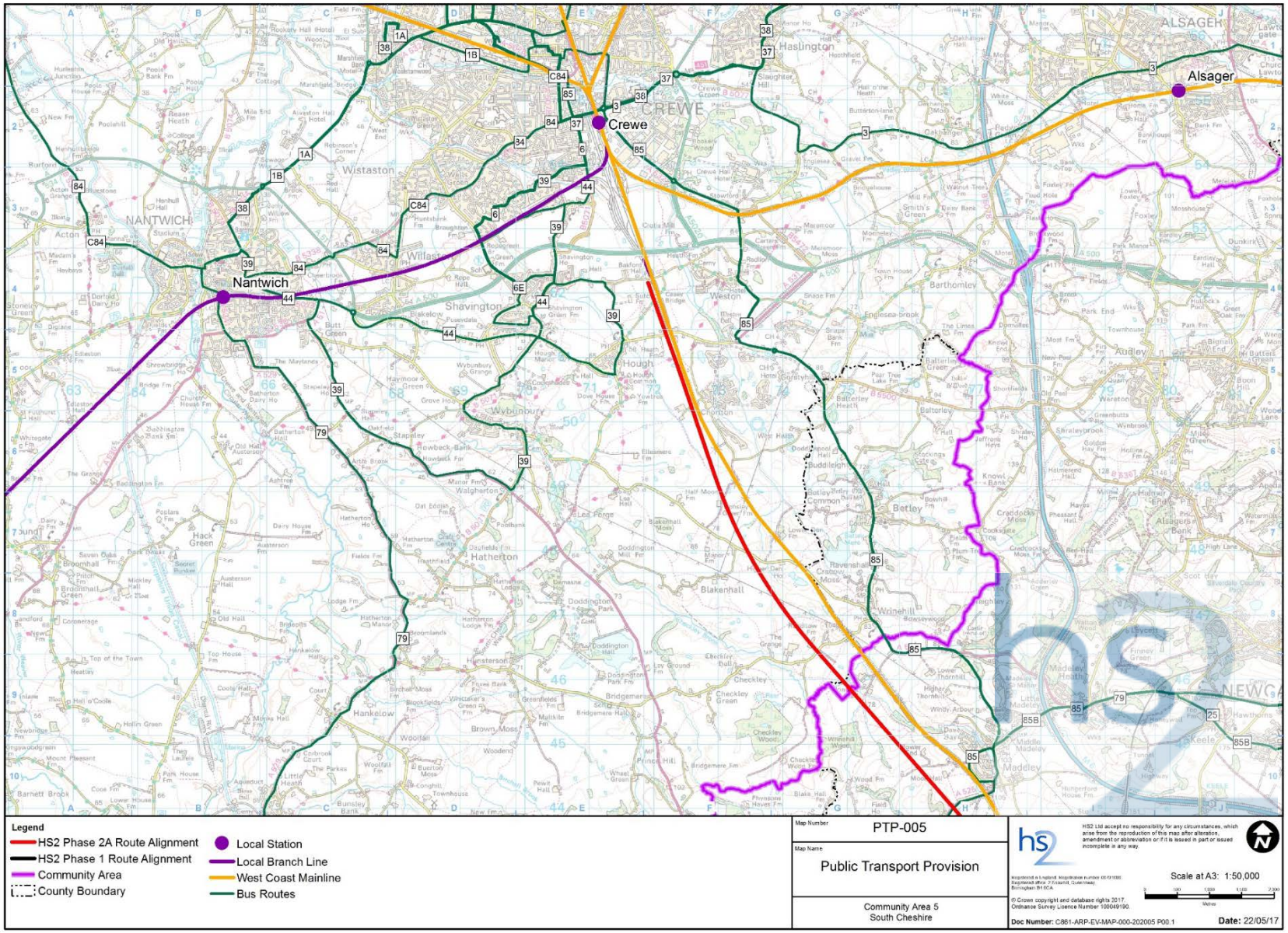


Figure B10: Public transport infrastructure and provision in the South Cheshire area



B3 - Bus service provision (2016)

Fradley to Colton area

Table B1: Bus routes and frequencies – A38 Rykneld Street corridor via Alrewas and Fradley

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
7	Lichfield – Burton-upon-Trent	1	1	11	11	0
	Burton-upon-Trent – Lichfield	1	1	11	11	0
X7	Burton-upon-Trent – Lichfield	1	0	4	3	0
	Lichfield – Burton-upon-Trent	0	0	3	4	0
X12	Sutton Coldfield – Burton-upon-Trent	3	2	23	18	0
	Burton-upon-Trent – Sutton Coldfield	2	2	23	18	0
813	Burton-upon-Trent – Tamworth	0	1	1	0	0
	Tamworth – Burton-upon-Trent	1	0	1	0	0
Total		9	7	77	65	0

Table B2: Bus routes and frequencies – A515 Lichfield Road corridor via Kings Bromley

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
7B	Burton-upon-Trent – Lichfield	0	0	1	0	0
	Lichfield – Burton-upon-Trent	1	0	1	0	0
7E	Burton-upon-Trent – Lichfield	0	0	2	2	4
	Lichfield – Burton-upon-Trent	0	0	1	1	4
810	Lichfield – Burton-upon-Trent	1	1	7	7	0
	Burton-upon-Trent – Christ Church	0	1	7	7	0
Total		2	2	19	17	8

Table B3: Bus routes and frequencies – A513 Rugeley Road/B5014 Uttoxeter Road corridor via Handsacre and Armitage

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
L1	Lichfield – Hill Ridware	0	0	1	0	0
	Hill Ridware – Christ Church	1	0	1	0	0
824	Lichfield – Stafford	0	0	6	7	14
	Stafford – Lichfield	0	0	7	5	14
825	Lichfield – Stafford	2	2	24	20	0
	Stafford – Lichfield	3	3	27	25	0
829	Stowe – Stafford	0	0	1	0	0
	Stafford – Stowe	0	0	1	0	0
Total		6	5	68	57	28

Table B4: Bus routes and frequencies – A51 Stafford Road corridor via Rugeley and Longdon

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total Daily		
				Weekday	Saturday	Sunday
823	Lichfield – Rugeley	0	0	2	0	0
	Stockwell Heath – Lichfield	0	0	2	0	0
824	Stafford – Lichfield	0	0	6	7	14
	Lichfield – Stafford	0	0	7	5	14
825	Lichfield – Stafford	2	2	24	20	0
	Stafford – Lichfield	3	3	27	25	0
827	Stafford – Brereton	0	1	1	0	0
	Brereton –Stafford	1	0	1	0	0
829	Stowe – Stafford	0	0	1	0	0
	Stafford – Stowe	0	0	1	0	0
842	Rugeley – Stafford	0	0	4	3	0
	Stafford – Rugeley	0	0	4	3	0
Total		6	7	80	63	28

Colwich to Yarlet area

Table B5: Bus routes and frequencies – A513 Main Road/A34 Lichfield Road corridor

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
824	Stafford – Lichfield	0	0	6	7	14
	Lichfield – Stafford	0	0	7	5	14
825	Lichfield – Stafford	2	2	24	20	0
	Stafford – Lichfield	3	3	27	25	0
829	Stowe – Stafford	0	0	1	0	0
	Stafford – Stowe	0	0	1	0	0
Total		5	5	66	57	28

Table B6: Bus routes and frequencies – A51 Lichfield Road (Rugeley to Stone) corridor

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
827	Stafford – Brereton	0	1	1	0	0
	Brereton – Stafford	1	0	1	0	0
841 / 841A	Uttoxeter – Stafford	2	1	10	7	0
	Stafford – Uttoxeter	0	0	9	7	0
842	Rugeley – Stafford	0	0	4	4	0
	Stafford – Rugeley	1	1	5	4	0
Total		4	3	30	22	0

Table B7: Bus routes and frequencies – A34 Stone Road corridor

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
101	Stafford – Hanley	2	3	41	37	10
	Hanley – Stafford	2	3	41	37	10
Total		4	6	82	74	20

Table B8: Bus routes and frequencies – A518 Weston Road corridor

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
827	Stafford – Brereton	0	1	1	0	0
	Brereton – Stafford	1	0	1	0	0
842	Stafford – Rugeley	1	0	1	0	0
	Rugeley – Stafford	0	0	1	0	0
Total		2	1	4	0	0

Table B9: Bus routes and frequencies – B5066 Sandon Road corridor

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
15/15A/15B	Newport – Stone	0	0	1	1	0
	Stone – Newport	0	0	1	1	0
842	Stafford – Rugeley	0	0	5	4	0
	Rugeley – Stafford	0	0	3	4	0
842A	Stafford – Longton	0	0	1	0	0
	Longton – Stafford	0	0	1	0	0
Total		0	0	12	10	0

Stone and Swynnerton area

Table B10: Bus routes and frequencies – A51 Lichfield Road corridor via Stone and Sandon

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
842A	Stafford – Longton	0	0	1	0	0
	Longton – Stafford	0	0	1	0	0
Total		0	0	2	0	0

Table B11: Bus routes and frequencies – A34 Stone Road corridor via Walton and Stone

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
S3	Aston Lodge Park – Stone	0	0	6	6	0
S5	Stone – Walton Circular	0	0	8	7	0
12	Stone – Meir Heath	0	2	7	4	0
	Meir Heath – Stone	0	1	6	4	0
14/14A	Hanley – Stafford	2	1	13	9	0
	Stafford – Hanley	2	1	14	11	0
14B	Hanley – Stafford	0	1	1	1	0
101	Hanley – Stafford	2	3	41	37	10
	Stafford – Hanley	2	3	41	37	10
Total		8	12	137	116	20

Table B12: Bus routes and frequencies – A519 Newcastle Road corridor via Eccleshall and Swynnerton

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
13A	Stone – Stafford	0	0	1	1	0
	Stafford – Stone	0	0	2	2	0
14/14A	Hanley – Stafford	2	1	13	9	0
	Stafford – Hanley	2	1	14	11	0
15	Newport – Stone	1	0	1 (M/W/F only)	0	0
	Stone – Newport	0	0	1 (M/W/F only)	0	0
Total		5	2	32	23	0

Table B13: Bus routes and frequencies – B5026 Eccleshall Road corridor via Eccleshall

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
13	Stone – Stafford	0	0	4	4	0
	Stafford – Stone	1	1	5	5	0
Total		1	1	9	9	0

Table B14: Bus routes and frequencies – Yarnfield Lane

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
12	Newport – Longton	0	1	1	0	0
	Longton – Newport	0	0	1	0	0
13A	Stone – Stafford	0	0	1	1	0
	Stafford – Stone	0	0	2	2	0
14/14A/14B	Hanley – Stafford	1	0	13	10	0
	Stafford – Hanley	1	1	12	11	0
Total		2	2	30	24	0

Whitmore Heath to Madeley area

Table B15: Bus routes and frequencies – A53 Newcastle Road corridor via Whitmore and Baldwin's Gate

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
164	Market Drayton – Hanley	1	1	12	11	0
	Hanley – Market Drayton	1	1	12	11	0
Total		2	2	24	22	0

Table B16: Bus routes and frequencies – A525 Bar Hill Road corridor via Madeley

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
25	Keele – Hanley	5	6	77	67	31
	Hanley – Keele	4	5	77	67	31
79	Audlem – Hanley	0	0	1	0	0
	Hanley – Audlem	0	0	1	0	0
85	Newcastle-under-Lyme – Crewe	1	2	18	14	6
	Crewe – Newcastle-under-Lyme	1	1	18	14	6
85B	Newcastle-under-Lyme – Crewe	0	0	2	0	0
	Crewe – Newcastle-under-Lyme	0	0	2	0	0
Total		11	14	196	162	74

South Cheshire area

Table B17: Bus routes and frequencies – A534 Nantwich Road via Willaston and local roads via Shavington

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
6 / 6E	Shavington – Crewe	1	2	23	18	11
	Crewe – Shavington	1	2	23	17	11
39	Nantwich – Crewe	1	0	5	5	0
	Crewe – Nantwich	0	1	6	6	0
44	Nantwich – Crewe	1	1	9	8	0
	Crewe – Nantwich	1	1	9	8	0
84	Crewe – Nantwich	3 (1 continues on to Chester)	2 (1 continues on to Chester)	47 (15 continue to Chester)	44 (17 continue on to Chester)	9 (all run to Chester)
	Nantwich – Crewe	3 (1 continues on to Chester)	3 (1 continues on to Chester)	47 (15 continue to Chester)	47 (17 continue on to Chester)	9 (all run to Chester)
C84	Crewe – Chester via Nantwich	1	1	14 (1 terminates at Nantwich)	12 (1 terminates at Nantwich)	0
	Chester – Crewe via Nantwich	1	1	14 (2 start at Nantwich)	12 (2 start at Nantwich)	0
Total		13	14	197	177	40

Table B18: Bus routes and frequencies – A530 Middlewich Road between Nantwich and Middlewich

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
1A	Nantwich – Crewe	1	1	10	11	0
	Crewe – Nantwich	1	1	12	10	0
1B	Nantwich – Crewe	0	1	10	9	0
	Crewe – Nantwich	0	1	9	9	0
38	Nantwich – Crewe	0	0	0	0	7
	Crewe – Nantwich	0	0	0	0	7
Total		2	4	41	39	14

Table B19: Bus routes and frequencies – A534 Crewe Road/B5077 Slaughter Hill/Crewe Road to Alsager and Sandbach

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 - 09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
3	Hanley – Crewe	3	3	40	36	12
	Crewe – Hanley	3	3	40	36	12
37	Winsford – Crewe	1	1	12	12	0
	Crewe – Winsford	1	1	12	12	0
38	Crewe – Macclesfield	1	1	20	19	10
	Macclesfield – Crewe	1	1	21	19	10
Total		10	10	145	133	44

Table B20: Bus routes and frequencies – A531 Newcastle Road via Weston and Wrinehill

Service no.	Route	No. of buses (one-way)				
		AM peak (08:00 -09:00)	PM peak (17:00 - 18:00)	Total daily		
				Weekday	Saturday	Sunday
85	Crewe – Newcastle	0	1	15	14	6
	Newcastle – Crewe	1	1	16	14	6
Total		1	2	31	28	12

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