

Estimated Journey Times for High Speed Services

Mk1, Mk1A and Mk2

Following the referendum on EU membership and the decision to disengage from the EU, several changes have been made to the plans for HS rail, most importantly, abandoning GC-gauge, and building all new infrastructure to standard UK loading gauge. This has, in most cases, very little impact on the routes proposed, but significant impact on the service plans. In certain cases it is now proposed to include sections of classic route in the HS route, rather than building exclusively new throughout. (Note that this is different from the previous proposals to run classic compatible services on classic lines, **beyond** the HS route; this actually incorporates classic sections, upgraded as appropriate, in the HS route itself.) This is Mk1A.

Because of the significant changes introduced at Mk1A, the latest versions of all the Mk1 (i.e. GC-gauge) plans (v1.11 in the case of the present article) have been preserved, available in an archive section on the website.

As noted above, the Mk1A changes have, in general, little impact on the routes proposed (but great impact on the service plans). Mk1A may thus be viewed as a cut-down version of the original proposals, significantly quicker and less expensive to implement, but nonetheless delivering a large proportion of the advantages of those proposals.

This is expected to satisfy capacity requirements in the short to medium term. But thinking to the longer term, a Mk2 is proposed, (for nearly every route, but not all,) which reinstates some of those parts of the original plans removed for Mk1A, on a piecemeal basis, as and when the build-up of traffic on Mk1A makes extra capacity desirable. If this were done completely, (as is indeed proposed in a few cases, but not for most,) we would end up with the original design, but having enjoyed years of service from the MK1A version in the interim.

This all comes about from abandoning GC-gauge. The original plans required so much new infrastructure, because it all had to be to GC-gauge. Building to UK loading gauge instead allows so much existing, first rate infrastructure to be incorporated.

The reader should refer to the individual Route and Service Plans articles, for details.

In certain cases, estimates are produced for a Mk3. These are very futuristic proposals (e.g. HS2 to Scotland), which have nothing to do with the cancelling of GC gauge.

Background

Route and Service Plans articles have been produced for each of the fourteen HS routes proposed (occasionally dealing simultaneously with two closely related routes). These articles have all been enhanced to include estimates of journey times, following discovery of the method of performing these calculations. The present article collects together the relevant section from each Route and Service Plans article, for convenience of accessibility. Mk1A and Mk2 timings can differ significantly, so the present article now includes both sets of times. New at version 3.0 is the inclusion of the 'Appendix Q' times, recently added to all the Route and Service Plans articles. This assumes a line speed of 225kph, 140mph,

throughout. The point of this is that this speed is just within the maximum turnout speed, so trains can diverge from / converge with the main line at full line speed. This results in significant simplification of operation, and although the journey times are significantly longer than for the true high speed case, they are still very much better than for classic routes, and the line capacities are better than for the high speed lines.

The article ‘Same Speed Railways’ includes, in appendix B, (rather longer by itself than the original article,) a complete account of the calculations of line capacity, and, in appendix C, a full account of the calculation of journey times.

It is interesting to note that these journey time calculations are not estimates, but the precisely accurate figures for Same Speed railways. The same speed paradigm, which allows for these accurate calculations, is of course an ideal. So the results do indeed revert to being estimates when applied to actual high speed railways, whose approximation to the same speed ideal is never exact.

Readers’ attention is drawn in particular to HS2 and HS3, where the results can be compared with the estimates published by HS2 Ltd.

The results are now given for each route or route pair in turn. Refer to the original Route and Service Plans article for full details.

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HS1 Mk1A

*HS Euston Cross – Maidstone / Dover / Eastbourne / Margate / Gillingham
(2/4/9/6/5 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.00	8.00	5.0	5.0	5.0
Stratford HS South - Ebbsfleet	18.69	26.69	7.4	12.4	15.4
Ebbsfleet - Maidstone HS	19.57	46.26	7.6	20.0	26.0
Ebbsfleet - Ashford	54.34	81.03	14.6	27.0	33.0
Ashford - Folkestone Central	22.20	103.23	8.7	35.7	44.7
Folkestone Central - Dover Priory	11.87	115.10	5.9	41.6	53.6
Ashford - Appledore	13.70	94.73	6.4	33.4	42.4
Appledore - Rye	6.86	101.59	4.6	38.0	50.0
Rye - Winchelsea	1.86	103.45	2.9	41.0	56.0
Winchelsea - Ore	8.20	111.65	5.1	46.0	64.0
Ore - Hastings	1.45	113.10	2.1	48.1	69.1
Hastings - St. Leonard's	1.16	114.26	1.9	50.0	74.0
St. Leonard's - Bexhill	5.77	120.03	4.1	54.1	81.1
Bexhill - Eastbourne	16.46	136.49	8.1	62.3	92.3
Ashford - Canterbury West	22.89	103.92	10.6	37.5	46.5
Canterbury West - Minster	18.44	122.36	8.9	46.4	58.4
Minster - Ramsgate	6.50	128.86	4.4	50.9	65.9
Ramsgate - Margate	8.28	137.14	5.1	55.9	73.9
EbbsFleet / Northfleet - Strood	14.74	41.43	7.5	19.9	25.9
Strood - Rochester	1.67	43.10	2.2	22.2	31.2

Rochester - Chatham	0.89	43.99	1.6	23.8	35.8
Chatham - Gillingham	2.61	46.60	3.3	27.1	42.1

Current fastest time (minutes) from London [and the above values] to:

• Ebbsfleet	17	[15]
• Maidstone	56	[26]
• Ashford	36 (Javelin – direct)	[33]
• Folkestone	57 (Javelin – direct)	[45]
• Dover	64 (Javelin – direct)	[54]
• Rye	64 (Javelin – 1 change)	[50]
• Winchelsea	82 (Javelin – 1 change)	[56]
• Hastings	94/96 (direct / Javelin 1 change)	[69]
• Bexhill	107/106 (direct / Javelin 1 change)	[81]
• Eastbourne	81 (Javelin – direct)	[92]
• Canterbury	60 (Javelin – direct)	[47]
• Ramsgate	79 (Javelin – direct)	[66]
• Margate	91 (Javelin – direct)	[74]
• Strood	31 (Javelin – direct)	[26]
• Rochester	35 (Javelin – direct)	[31]
• Chatham	38 (Javelin – direct)	[36]
• Gillingham	42 (Javelin – direct)	[42]

There is no Mk2 nor App Q for HS1 since, obviously, it exists already.

HS2 Mk1A

1. *UHS Services Euston Cross – Birmingham / Manchester / Liverpool / Preston (2/3/4/2 stops)*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - Birmingham Interchange	151.0	159.0	29.6	34.5	37.5
Birmingham Interchange - Birmingham Curzon St.	20.0	179.0	7.7	42.2	48.2
Old Oak Common - Crewe	241.0	249.0	44.6	49.5	52.5
Crewe - Stockport	40.3	289.3	13.5	63.0	69.0
Stockport - Manchester HS	9.4	298.7	5.3	68.3	77.3
Crewe - Runcorn	36.2	285.2	12.4	61.9	67.9
Runcorn - Liverpool South Parkway	12.0	297.2	6.0	67.9	76.9
Liverpool South Parkway - Liverpool Lime St.	9.2	306.4	5.4	73.3	85.3
Crewe - Warrington Bank Quay (pass)	38.8	287.8	12.2	61.7	
Warrington Bank Quay (pass) - Preston	43.2	331.1	16.9	78.6	84.6

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the above values] to:

- London – Birmingham New Street (Curzon) 81 (49) [48]
- London – Crewe 90 [53]
- London – Stockport 115 (59) [69]
- London – Manchester 127 (68) [77]
- London – Runcorn 113 [68]
- London – Liverpool 128 (96) [85]
- London – Preston 128 [85].

I declare that the distances in the above spreadsheet are exactly as originally measured, and that no shading or refinement has been performed subsequently. The fact that I get very nearly exactly the same estimates as HS2 Ltd. for the Birmingham service, (the others are not directly comparable,) is either an extraordinary coincidence, or HS2 Ltd.'s estimating methods are as crude as mine!

2. *HS Metro Services Euston Cross / Birmingham – Manchester (9/6 stops)*
Euston Cross – Blackpool / Windermere (9/10 stops)

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - Calvert	73.0	81.0	16.6	21.5	24.5
Calvert - Birmingham Interchange	78.0	159.0	17.4	38.9	44.9
Birmingham Interchange - Handsacre Junction	33.0	192.0	8.6	47.5	
Handsacre Junction - Rugeley Trent Valley	8.0	200.0	3.3	50.9	59.9
Rugeley Trent Valley - Stafford	14.9	214.9	6.9	57.8	69.8
Stafford - Stone	14.6	229.5	6.8	64.6	79.6
Stone - Stoke-on-Trent	11.3	240.8	5.9	70.5	88.5
Stoke-on-Trent - Macclesfield	31.6	272.4	12.0	82.5	103.5
Macclesfield - Stockport	19.3	291.7	8.3	90.7	114.7
Stockport - Manchester Piccadilly	9.4	301.2	5.3	96.0	123.0
Birmingham Curzon St. - Handsacre Junction	38.0	38.0	9.4	9.4	
Handsacre Junction - Rugeley Trent Valley	8.0	46.0	3.3	12.8	12.8
Rugeley Trent Valley - Stafford	14.9	60.9	6.9	19.7	22.7
Stafford - Stone	14.6	75.5	6.8	26.6	32.6
Stone - Stoke-on-Trent	11.3	86.8	5.9	32.4	41.4
Stoke-on-Trent - Macclesfield	31.6	118.4	12.0	44.4	56.4
Macclesfield - Stockport	19.3	137.7	8.3	52.6	67.6
Stockport - Manchester Piccadilly	9.4	147.2	5.3	57.9	75.9
Birmingham Interchange - Crewe	90.0	249.0	19.4	58.4	67.4
Crewe - Warrington Bank Quay	38.8	287.8	13.1	71.5	83.5
Warrington Bank Quay - Wigan North Western	9.2	297.1	5.4	76.9	91.9

Wigan North Western - Preston	34.0	331.1	14.7	91.7	109.7
Preston - Kirkham	12.4	343.5	6.6	98.3	119.3
Kirkham - Poulton-le-Fylde	10.7	354.2	6.0	104.3	128.3
Poulton-le-Fylde - Blackpool North	5.0	359.2	3.9	108.1	135.1
Preston - Lancaster	33.8	364.8	11.8	103.4	124.4
Lancaster - Oxenholme	30.8	395.6	11.7	115.1	139.1
Oxenholme - Kendal	3.3	398.9	3.2	118.3	145.3
Kendal - Windermere	13.1	412.0	6.9	125.2	155.2

Current fastest time (minutes) from London [and the above values] to:

• Rugeley TV	98	[60]
• Stafford	65	[70]
• Stone	103 (1 change)	[80]
• Stoke-on-Trent	84	[89]
• Macclesfield	101	[103]
• Stockport	115	[115]
• Manchester	127	[123]
• Crewe	90	[67]
• Warrington BQ	104	[84]
• Wigan North Western	115	[92]
• Preston	128	[110]
• Kirkham	153 (1 change)	[119]
• Poulton-le-Fylde	155 (1 change)	[128]
• Blackpool North	165 (1 change)	[135]
• Lancaster	144	[124]
• Oxenholme	154	[139]
• Kendal	176 (1 change)	[145]
• Windermere	193 (1 change)	[154]

Current fastest time (minutes) from Birmingham [and the above values] to:

• Rugeley TV	58	[13]
• Stafford	30	[23]
• Stone	49 (1 change)	[33]
• Stoke-on-Trent	46	[41]
• Macclesfield	64	[56]
• Stockport	76	[68]
• Manchester	88	[76]

The times from London to Stoke-on-Trent and Macclesfield are slightly disappointing, being very similar to the present (albeit with 4 more stops). The fact of the extra stops will, doubtless, not impress the Potters, but they are essential to help fill the trains, as there's likely to be little if any traffic from London to Manchester (which is the bulk of the patronage of the current service). The above London – Manchester service is explicitly designed to ensure that Stoke-on-Trent and Macclesfield do not lose out when HS2 opens, as on HS2 Ltd.'s published plans they most disgracefully do, and it does achieve that aim. (There have been promises from HS2 Ltd. that Stoke will continue to enjoy services at least as good as at present, but, as yet, no delivery on that.) It also serves a very important interconnection role, making connections at Calvert with the East-West line and with Crossrail 4, and at Birmingham Interchange with the HS7 service from Plymouth to Newcastle.

The Birmingham – Manchester is deliberately routed via Stoke, since even a very fast service, with a single intermediate stop at Crewe, is, I feel, unlikely to attract a viable level of patronage. This service makes a favourable comparison with current times.

3. *HS Metro Services Euston / Birmingham – Holyhead (7/6 stops)*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston - Old Oak Common	9.0	9.0	5.2	5.2	5.2
Old Oak Common - Crewe	241.0	250.0	44.6	49.8	52.8
Crewe - Chester	34.0	284.0	12.7	62.4	68.4
Chester - Flint	20.0	304.1	8.5	70.9	79.9
Flint - Rhyl	28.2	332.3	10.9	81.9	93.9
Rhyl - Llandudno Junction	23.1	355.4	10.6	92.5	107.5
Llandudno Junction - Bangor	25.0	380.4	11.4	103.9	121.9
Bangor - Holyhead	39.6	420.0	16.8	120.7	141.7
Birmingham Curzon St. - Crewe	95.0	95.0	20.3	20.3	20.3
Crewe - Chester	34.0	129.0	12.7	32.9	35.9
Chester - Flint	20.0	149.1	8.5	41.4	47.4
Flint - Rhyl	28.2	177.3	10.9	52.4	61.4
Rhyl - Llandudno Junction	23.1	200.4	10.6	63.0	75.0
Llandudno Junction - Bangor	25.0	225.4	11.4	74.4	89.4
Bangor - Holyhead	39.6	265.0	16.8	91.2	109.2

Current fastest time (minutes) from London [and the above values] to:

• Crewe	90	[53]
• Chester	123	[68]
• Flint	146	[80]
• Rhyl	166	[94]
• Llandudno Junction	182	[108]
• Bangor	191	[122]
• Holyhead	229	[142]

Current fastest time (minutes) from Birmingham [and the above values] to:

• Crewe	52	[20]
• Chester	91 (1 change)	[36]
• Flint	114 (2 changes)	[47]
• Rhyl	134 (2 changes)	[61]
• Llandudno Junction	155 (2 changes)	[75]
• Bangor	174 (2 changes)	[89]
• Holyhead	212 (2 changes)	[109]

4. *HS Metro Services Euston / Birmingham / Liverpool – Glasgow / Edinburgh (10/11/10 stops to each)*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston - Old Oak Common	9.0	9.0	5.2	5.2	5.2
Old Oak Common - Calvert	73.0	82.0	16.6	21.8	24.8
Calvert - Birmingham Interchange	78.0	160.0	17.4	39.2	45.2
Birmingham Interchange - Crewe	90.0	250.0	19.4	58.7	67.7
Crewe - Warrington Bank Quay	38.8	288.8	12.2	70.8	
Warrington Bank Quay - Preston	43.2	332.1	16.9	87.8	99.8
Preston - Lancaster	33.8	365.8	11.8	99.6	114.6
Lancaster - Oxenholme	30.8	396.6	11.7	111.3	129.3
Oxenholme - Penrith	50.7	447.3	17.7	128.9	149.9
Penrith - Carlisle	28.7	476.0	11.1	140.0	164.0
Carlisle - Motherwell	144.0	620.0	45.7	185.7	212.7
Motherwell - Glasgow Central	20.5	640.5	9.7	195.4	225.4

Carlisle - Edinburgh Haymarket	161.9	637.9	51.0	191.1	218.1
Edinburgh Haymarket - Edinburgh Waverley	2.0	639.9	2.4	193.5	223.5
Birmingham Curzon St. - Crewe	95.0	95.0	20.3	20.3	20.3
Crewe - Warrington Bank Quay	38.8	133.8	13.1	33.4	36.4
Warrington Bank Quay - Wigan North Western	9.2	143.1	5.4	38.8	44.8
Wigan North Western - Preston	34.0	177.1	14.7	53.6	62.6
Preston - Lancaster	33.8	210.8	11.8	65.3	77.3
Lancaster - Oxenholme	30.8	241.6	11.7	77.1	92.1
Oxenholme - Penrith	50.7	292.3	17.7	94.7	112.7
Penrith - Carlisle	28.7	321.0	11.1	105.8	126.8
Carlisle - Lockerbie	41.6	362.6	14.9	120.8	144.8
Lockerbie - Motherwell	102.4	465.0	33.2	153.9	180.9
Motherwell - Glasgow Central	20.5	485.5	9.7	163.6	193.6
Carlisle - Edinburgh Haymarket	161.9	482.9	51.0	156.9	180.9
Edinburgh Haymarket - Edinburgh Waverley	2.0	484.9	2.4	159.3	186.3
Liverpool Lime St. - St. Helens Central	18.0	18.0	8.7	8.7	8.7
St. Helens Central - Wigan North Western	14.1	32.1	7.3	16.0	19.0
Wigan North Western - Preston	34.0	66.1	14.7	30.7	36.7
Preston - Lancaster	33.8	99.8	11.8	42.5	51.5
Lancaster - Oxenholme	30.8	130.6	11.7	54.2	66.2
Oxenholme - Penrith	50.7	181.3	17.7	71.8	86.8
Penrith - Carlisle	28.7	210.0	11.1	82.9	100.9
Carlisle - Motherwell	144.0	354.0	45.7	128.6	149.6
Motherwell - Glasgow Central	20.5	374.5	9.7	138.3	162.3
Carlisle - Lockerbie	41.6	251.6	14.9	97.9	118.9
Lockerbie - Edinburgh Haymarket	120.4	371.9	38.6	136.5	160.5
Edinburgh Haymarket - Edinburgh Waverley	2.0	373.9	2.4	138.9	165.9

Current fastest time (minutes) from London [and the above values] to:

• Preston	128	[92]
• Lancaster	144	[107]
• Oxenholme	154	[122]
• Penrith	151	[143]
• Carlisle	194	[157]
• Motherwell	253	[205]
• Glasgow Central	271	[218]
• Edinburgh Haymarket	271 (via ECML)	[211]
• Edinburgh Waverly	257 (via ECML)	[216]

Current fastest time (minutes) from Birmingham [and the above values] to:

• Crewe	52	[20]
• Warrington BQ	71	[36]
• Wigan North Western	82	[45]
• Preston	96	[63]
• Lancaster	112	[77]
• Oxenholme	125	[92]
• Penrith	147	[113]
• Carlisle	164	[127]
• Edinburgh Haymarket	237	[181]
• Edinburgh Waverly	247	[186]
• Lockerbie	192 (1 change)	[145]
• Motherwell	268 (1 change)	[181]
• Glasgow Central	242	[194]

Current fastest time (minutes) from Liverpool [and the above values] to:

• St. Helens Central	19	[9]
• Wigan North Western	33	[19]
• Preston	57	[37]
• Lancaster	84 (1 change)	[52]
• Oxenholme	96 (1 change)	[66]
• Penrith	119 (1 change)	[87]
• Carlisle	136 (1 change)	[101]
• Motherwell	195 (1 change)	[150]
• Glasgow Central	211 (1 change)	[162]
• Lockerbie	174 (1 change)	[119]
• Edinburgh Haymarket	219 (1 change)	[161]
• Edinburgh Waverly	229 (1 change)	[166]

HS2 Mk2

1. *UHS Services Euston Cross – Birmingham / Manchester / Liverpool / Preston (2 stops in all cases)*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - Birmingham Interchange	151.0	159.0	29.6	34.5	37.5
Birmingham Interchange - Birmingham Curzon St.	20.0	179.0	7.7	42.2	48.2
Old Oak Common - Manchester Interchange	286.0	294.0	52.7	57.6	60.6
Manchester Interchange - Manchester HS	8.0	302.0	4.9	62.5	68.5
Old Oak Common - Crewe	241.0	249.0	44.6	49.5	52.5
Crewe - Liverpool Lime Street	73.0	322.0	17.4	66.8	72.8
Crewe - Preston	83.0	332.0	18.3	67.8	73.8

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the above values] to:

- London – Birmingham New Street [Curzon Street] 81 (49) [49]
- London – Crewe 90 [53]
- London – Manchester Interchange 115 (59) [61]
- London – Manchester HS 127 (68) [69]
- London – Liverpool 128 (96) [73]
- London – Preston 128 [74].

I declare that the distances in the above spreadsheet are exactly as originally measured, and that no shading or refinement has been performed subsequently. The fact that I get very nearly exactly the same estimates as HS2 Ltd. for the Birmingham and Manchester services, (the others are not directly comparable,) is either an extraordinary coincidence, or HS2 Ltd.'s estimating methods are as crude as mine!

Actually, the above claim is far too modest (though it has taken me literally years to recognise this). The Same Speed Railway (whatever the actual speed) is an ideal, and the journey times calculated for it are not estimates at all, but the exact values that that ideal would deliver. Any inaccuracy is therefore the expression of the extent to which the real world railway diverges from the same speed ideal.

*1a. UHS Services Euston Cross –
Birmingham / Manchester / Liverpool / Preston (2 stops in all cases)
with Line Speed 400kph/250mph*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - Birmingham Interchange	151.0	159.0	27.6	32.5	35.5
Birmingham Interchange - Birmingham Curzon St.	20.0	179.0	7.7	40.2	46.2
Old Oak Common - Manchester Interchange	286.0	294.0	48.8	53.6	56.6
Manchester Interchange - Manchester HS	8.0	302.0	4.9	58.5	64.5
Old Oak Common - Crewe	241.0	249.0	41.1	46.0	49.0
Crewe - Liverpool Lime Street	73.0	322.0	17.0	62.9	68.9
Crewe - Preston	83.0	332.0	17.4	63.3	69.3

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the 360kph values of the previous table] {and the above 400kph values} to:

- London – Birmingham New Street [Curzon Street] 81 (49) [49] {46}
- London – Manchester Interchange 115 (59) [61] {57}
- London – Manchester HS 127 (68) [69] {65}
- London – Crewe 90 [53] {49}
- London – Liverpool 128 (96) [73] {69}
- London – Preston 128 [74]. {69}

Since HS2 Ltd.'s declared ambition is eventually to move to a line speed of 400kph, it is instructive to see what difference to the estimated times this would make.

Not a lot, evidently.

4. *HS Metro Services Euston / Birmingham / Liverpool –
Glasgow / Edinburgh (10/11/10 stops to each)*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston - Old Oak Common	9.0	9.0	5.2	5.2	5.2
Old Oak Common - Calvert	73.0	82.0	16.6	21.8	24.8
Calvert - Birmingham Interchange	78.0	160.0	17.4	39.2	45.2
Birmingham Interchange - Crewe	90.0	250.0	19.4	58.7	67.7
Crewe - Runcorn	36.2	286.2	12.4	71.1	83.1
Runcorn - Liverpool S. Parkway	12.0	298.2	6.0	77.1	92.1
Liverpool S. Parkway - Liverpool Lime St.	9.2	307.4	5.4	82.5	100.5
Crewe - Preston	83.0	333.0	18.3	76.9	88.9
Preston - Lancaster	33.8	366.8	11.8	88.7	103.7
Lancaster - Oxenholme	30.8	397.5	11.7	100.4	118.4
Oxenholme - Penrith	50.7	448.2	17.7	118.1	139.1
Penrith - Carlisle	28.7	477.0	11.1	129.2	153.2
Carlisle - Motherwell	144.0	620.9	45.7	174.8	201.8
Motherwell - Glasgow Central	20.5	641.4	9.7	184.5	214.5
Carlisle - Edinburgh Haymarket	161.9	638.9	51.0	180.2	207.2
Edinburgh Haymarket - Edinburgh Waverley	2.0	640.9	2.4	182.7	212.7
Birmingham Curzon St. - Crewe	95.0	95.0	20.3	20.3	20.3
Crewe - Warrington Bank Quay	38.8	133.8	13.1	33.4	36.4
Warrington Bank Quay - Wigan North Western	9.2	143.1	5.4	38.8	44.8
Wigan North Western - Preston	34.0	177.1	14.7	53.6	62.6
Preston - Lancaster	33.8	210.8	11.8	65.3	77.3
Lancaster - Oxenholme	30.8	241.6	11.7	77.1	92.1
Oxenholme - Penrith	50.7	292.3	17.7	94.7	112.7
Penrith - Carlisle	28.7	321.0	11.1	105.8	126.8

Carlisle - Lockerbie	41.6	362.6	14.9	120.8	144.8
Lockerbie - Motherwell	102.4	465.0	33.2	153.9	180.9
Motherwell - Glasgow Central	20.5	485.5	9.7	163.6	193.6
Carlisle - Edinburgh Haymarket	161.9	482.9	51.0	156.9	180.9
Edinburgh Haymarket - Edinburgh Waverley	2.0	484.9	2.4	159.3	186.3
Liverpool Lime St. - St. Helens Central	18.0	18.0	8.7	8.7	8.7
St. Helens Central - Wigan North Western	14.1	32.1	7.3	16.0	19.0
Wigan North Western - Preston	34.0	66.1	14.7	30.7	36.7
Preston - Lancaster	33.8	99.8	11.8	42.5	51.5
Lancaster - Oxenholme	30.8	130.6	11.7	54.2	66.2
Oxenholme - Penrith	50.7	181.3	17.7	71.8	86.8
Penrith - Carlisle	28.7	210.0	11.1	82.9	100.9
Carlisle - Motherwell	144.0	354.0	45.7	128.6	149.6
Motherwell - Glasgow Central	20.5	374.5	9.7	138.3	162.3
Carlisle - Lockerbie	41.6	251.6	14.9	97.9	118.9
Lockerbie - Edinburgh Haymarket	120.4	371.9	38.6	136.5	160.5
Edinburgh Haymarket - Edinburgh Waverley	2.0	373.9	2.4	138.9	165.9

Current fastest time (minutes) from London [and the above values] to:

• Crewe	90	[68]
• Runcorn	113	[83]
• Liverpool South Parkway	140	[92]
• Liverpool Lime St.	128	[101]
• Preston	128	[89]
• Lancaster	144	[104]
• Oxenholme	154	[118]
• Penrith	151	[139]
• Carlisle	194	[153]
• Motherwell	253	[202]
• Glasgow Central	271	[215]
• Edinburgh Haymarket	271 (via ECML)	[207]
• Edinburgh Waverley	257 (via ECML)	[213]

Current fastest time (minutes) from Birmingham [and the above values] to:

• Crewe	52	[20]
• Warrington Bank Quay	71	[36]
• Wigan North Western	82	[45]
• Preston	96	[63]
• Lancaster	112	[77]
• Oxenholme	125	[92]
• Penrith	147	[113]
• Carlisle	164	[127]
• Edinburgh Haymarket	237	[181]
• Edinburgh Waverley	244	[186]
• Lockerbie	195 (1 change)	[145]
• Motherwell	223	[181]
• Glasgow Central	240	[194]

Current fastest time (minutes) from Liverpool [and the above values] to:

• St. Helens	17	[9]
• Wigan North Western	30	[19]
• Preston	49	[37]
• Lancaster	77 (1 change)	[52]
• Oxenholme	87 (1 change)	[66]
• Penrith	111 (1 change)	[87]
• Carlisle	128 (1 change)	[101]
• Motherwell	193 (1 change)	[149]
• Glasgow Central	202 (1 change)	[162]
• Lockerbie	165 (2 changes)	[119]
• Edinburgh Haymarket	207 (1 change)	[161]
• Edinburgh Waverley	214 (1 change)	[166]

The main interest is in the times from London to Scotland. The times quoted between Preston and Edinburgh/Glasgow are the fastest in the current timetable, but include 3 stops – Lancaster, Oxenholme or Penrith, and Carlisle. (The Edinburgh service also assumes a stop at Haymarket, but **every** service approaching Waverley from the west assumes a stop at Haymarket.) HS2 Ltd. has promised a headline time to Edinburgh and Glasgow of within 3 hours. Referring back to spreadsheets 1/1a, the fastest time London – Preston on my calculations, high speed all the way with just 2 stops, is 74 minutes for a line speed of 225mph, or 69 minutes for the (surely phantastical?) 250mph. This leaves c.110 minutes to get from Preston to Edinburgh or Glasgow (124/126km respectively, so an average speed of 68kph or 42.4mph – non-stop). The fastest timings currently take c.140 minutes. So HS2 Ltd. must therefore find time savings of c.30 minutes on the current schedule to make good that promise. Two of the present stops could be dropped, saving perhaps 10 minutes. There must still be a stop at Carlisle or, alternatively, Carstairs, to split / join the Glasgow and Edinburgh portions. HS2's published service plans allow for two London – Scotland services per hour, so if both Edinburgh and Glasgow are to get two London trains per hour, there must be separate portions. So there needs to be an actual acceleration of the order of 30 minutes north of Preston. I don't say that this **can't** be done, (at least, without some serious infrastructure investment,) but I should certainly be very interested to see **how** it were proposed to be done.

HS2 Mk3.1

This version incorporates the Coventry Variant (q.v. in the Route and Service Plans article).

1. *UHS Services Euston Cross – Birmingham, direct and via Coventry* (2/4 stops)

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - Birmingham Interchange	151.0	159.0	29.6	34.5	37.5
Birmingham Interchange - Birmingham Curzon St.	20.0	179.0	7.7	42.2	48.2
Old Oak Common - Grendon Underwood North Junction	68.9	76.9	14.5	19.3	
Grendon Underwood North Junction - Rugby HS	61.1	138.0	13.7	33.1	36.1
Rugby HS - Coventry HS	18.0	156.0	7.3	40.4	46.4
Coventry HS - Birmingham Interchange	17.0	173.0	7.1	47.5	56.5
Birmingham Interchange - Birmingham Curzon St.	20.0	193.0	7.7	55.2	67.2

Comparative timings (minutes)
London to

Current
Fastest

Via
HS2-CV

Via
HS2-orig

- | | | | |
|-----------------------------------|----|----|----|
| • Rugby HS | 48 | 36 | - |
| • Coventry HS | 59 | 46 | - |
| • Birmingham Intn'l / Interchange | 70 | 57 | 38 |
| • Birmingham New St. / Curzon St. | 81 | 67 | 48 |

These are very respectable times for HS2-CV, though obviously overshadowed by HS2-orig's Birmingham times.

HS2 Mk3.2

This version incorporates the Scottish Extension (q.v. in the Route and Service Plans article).

1. *UHS Services Euston Cross / Birmingham / Liverpool / Carlisle – Edinburgh (4/4/3/4 stops)*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times (minutes)
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - Preston	324.0	332.0	58.4	63.3	66.3
Preston - Carlisle	138.0	470.0	27.4	90.8	96.8
Carlisle - Hawick	67.0	537.0	15.6	106.4	115.4
Hawick - Edinburgh	82.0	619.0	18.1	124.5	136.5
Birmingham Curzon St. - Crewe	95.0	95.0	20.3	20.3	20.3
Crewe - Preston	83.0	178.0	18.3	38.6	41.6
Preston - Carlisle	138.0	316.0	27.4	66.0	72.0
Carlisle - Hawick	67.0	383.0	15.6	81.6	90.6
Hawick - Edinburgh	82.0	465.0	18.1	99.7	111.7
Liverpool - Preston	69.0	69.0	16.7	16.7	16.7
Preston - Carlisle	138.0	207.0	27.4	44.1	47.1
Carlisle - Hawick	67.0	274.0	15.6	59.7	65.7
Hawick - Edinburgh	82.0	356.0	18.1	77.8	86.8
Carlisle - Westlinton (N.) Jn. (pass)	11.8	11.8	4.7	4.7	
Westlinton (N.) Jn. (pass) - Riddings	10.7	22.5	3.8	8.6	8.6
Riddings - Newcastleton	16.9	39.4	7.1	15.7	18.7
Newcastleton - Hawick	27.6	67.0	9.0	24.7	30.7
Hawick - Lauder	37.0	104.0	10.6	35.3	44.3
Lauder - Edinburgh	45.0	149.0	11.9	47.3	59.3
Carlisle - Longtown	15.9	15.9	6.9	6.9	6.9
Longtown - Riddings	7.6	23.5	4.8	11.6	14.6

[Note that Westlinton North Junction is where the Keswick – Langholm service needs to diverge from the main line to stop at Longtown. This is c.4km before the Whitehaven – Glasgow service would need to diverge from the main line to serve Riddings (not having served Longtown). There is no point having two high speed junctions within a short distance of each other (they are expensive!). Instead, there are four tracks between Westlinton and Watleyhirst North junctions, and the Whitehaven – Glasgow service

continues at 230kph beyond Westlinton North Junction until shortly after Longtown station, when it too needs to decelerate to stop at Ridding. It arrives there shortly after the arrival of the Keswick – Langholm service, and they make cross- platform interchange there. This is a distinctly non-standard calculation, hence the need to explain it.]

Current fastest time (minutes) from London [and the above values] to:

- Preston 128 [66]
- Carlisle 194 [97]
- Edinburgh 257 [137]

Current fastest time (minutes) from Birmingham [and the above values] to:

- Preston 96 [42]
- Carlisle 164 [72]
- Edinburgh 247 [112]

Current fastest time (minutes) from Liverpool [and the above values] to:

- Preston 57 [17]
- Carlisle 136 (1 change) [47]
- Edinburgh 229 (1 change) [87]

*1a. UHS Services Euston Cross / Birmingham / Liverpool –
Edinburgh (4/4/3 stops) with Line Speed 400kph/250mph*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times (minutes)
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - Preston	324.0	332.0	53.5	58.4	61.4
Preston - Carlisle	138.0	470.0	25.6	84.0	90.0
Carlisle - Hawick	67.0	537.0	15.0	99.0	108.0
Hawick - Edinburgh	82.0	619.0	17.2	116.3	128.3
Birmingham Curzon St. - Crewe	95.0	95.0	19.2	19.2	19.2
Crewe - Preston	83.0	178.0	17.4	36.6	39.6
Preston - Carlisle	138.0	316.0	25.6	62.2	68.2
Carlisle - Hawick	67.0	383.0	15.0	77.2	86.2
Hawick - Edinburgh	82.0	465.0	17.2	94.4	106.4
Liverpool - Preston	69.0	69.0	16.3	16.3	16.3
Preston - Carlisle	138.0	207.0	25.6	42.0	45.0
Carlisle - Hawick	67.0	274.0	15.0	57.0	63.0

Hawick - Edinburgh	82.0	356.0	17.2	74.2	83.2
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Current fastest time (minutes) from London [and the 360kph values] {and the above 400kph values} to:

- Preston 128 [66] {61}
- Carlisle 194 [97] {90}
- Edinburgh 257 [137] {128}

Current fastest time (minutes) from Birmingham [and the 360kph values] {and the 400kph values} to:

- Preston 96 [42] {40}
- Carlisle 164 [72] {68}
- Edinburgh 247 [112] {106}

Current fastest time (minutes) from Liverpool [and the 360kph values] {and the 400kph values} to:

- Preston 57 [17] {16}
- Carlisle 136 (1 change) [47] {45}
- Edinburgh 229 (1 change) [87] {83}

It really doesn't seem worth the effort.

4. *HS Metro Services Euston / Birmingham / Liverpool –
Glasgow / Edinburgh (11/11 / 10/11 / 9/10 stops in either case)*

These timings have all changed because of the new section of HS route between Preston and Galgate Junction, and the new section of WCML between Kendal and Penrith. The service Euston – Liverpool via Runcorn is omitted (unchanged from Mk2) and the Euston **Cross** – Blackpool / Morecambe (formerly Windermere) is added from spreadsheet 2 (the rest of which – the Manchester services – is unchanged from Mk2). Strictly speaking, this saves 1km as against Euston; a time saving of 18sec is incorporated in the arrival times on the Blackpool and Morecambe branches, and a (cumulated) distance saving of 1km.

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston - Old Oak Common	9.0	9.0	5.2	5.2	5.2
Old Oak Common - Calvert	73.0	82.0	16.6	21.8	24.8
Calvert - Birmingham Interchange	78.0	160.0	17.4	39.2	45.2
Birmingham Interchange - Crewe	90.0	250.0	19.4	58.7	67.7
Crewe - Preston	83.0	333.0	18.3	76.9	88.9
Preston - Galgate Junction (pass)	24.0	357.0	7.0	84.0	
Galgate Junction (pass) - Lancaster	10.0	367.0	3.7	87.7	102.7
Lancaster - Carnforth	9.8	376.8	5.4	93.1	111.1
Carnforth - Kendal	24.3	401.1	9.8	102.8	123.8
Kendal - Penrith	38.0	439.1	12.9	115.8	139.8
Penrith - Carlisle	28.7	467.9	11.1	126.8	153.8
Carlisle - Motherwell	144.0	611.8	45.7	172.5	202.5
Motherwell - Glasgow Central	20.5	632.3	9.7	182.2	215.2
Carlisle - Edinburgh Haymarket	161.9	629.8	51.0	177.9	207.9
Edinburgh Haymarket - Edinburgh Waverley	2.0	631.8	2.4	180.3	213.3
Crewe - Warrington Bank Quay	38.8	288.8	13.1	71.8	83.8
Warrington Bank Quay - Wigan North Western	9.2	298.1	5.4	77.2	92.2
Wigan North Western - Preston	34.0	332.1	14.7	92.0	110.0
Preston - Kirkham	12.4	343.5	6.6	98.3	119.3

Kirkham - Poulton-le-Fylde	10.7	354.2	6.0	104.3	128.3
Poulton-le-Fylde - Blackpool North	5.0	359.2	3.9	108.1	236.4
Preston - Galgate Junction (pass)	24.0	356.1	7.0	99.0	
Galgate Junction (pass) - Lancaster	10.0	366.1	3.7	102.7	123.7
Lancaster - Morecambe	6.5	372.5	4.4	107.1	131.1
Birmingham Curzon St. - Crewe	95.0	95.0	20.3	20.3	20.3
Crewe - Warrington Bank Quay	38.8	133.8	13.1	33.4	36.4
Warrington Bank Quay - Wigan North Western	9.2	143.1	5.4	38.8	44.8
Wigan North Western - Preston	34.0	177.1	14.7	53.6	62.6
Preston - Galgate Junction (pass)	24.0	201.1	7.0	60.6	
Galgate Junction (pass) - Lancaster	10.0	211.1	3.7	64.3	76.3
Lancaster - Carnforth	9.8	220.9	5.4	69.7	84.7
Carnforth - Kendal	24.3	245.2	9.8	79.5	97.5
Kendal - Penrith	38.0	283.2	12.9	92.4	113.4
Penrith - Carlisle	28.7	311.9	11.1	103.5	127.5
Carlisle - Lockerbie	41.6	353.5	14.9	118.4	145.4
Lockerbie - Motherwell	102.4	455.9	33.2	151.6	181.6
Motherwell - Glasgow Central	20.5	476.4	9.7	161.3	194.3
Carlisle - Edinburgh Haymarket	161.9	473.9	51.0	154.5	181.5
Edinburgh Haymarket - Edinburgh Waverley	2.0	475.9	2.4	157.0	187.0
Liverpool Lime St. - St. Helens Central	18.0	18.0	8.7	8.7	8.7
St. Helens Central - Wigan North Western	14.1	32.1	7.3	16.0	19.0
Wigan North Western - Preston	34.0	66.1	14.7	30.7	36.7
Preston - Galgate Junction (pass)	24.0	90.1	7.0	37.7	
Galgate Junction (pass) - Lancaster	10.0	100.1	3.7	41.4	50.4
Lancaster - Carnforth	9.8	109.9	5.4	46.8	58.8

Carnforth - Kendal	24.3	134.2	9.8	56.6	71.6
Kendal - Penrith	38.0	172.2	12.9	69.5	87.5
Penrith - Carlisle	28.7	201.0	11.1	80.6	101.6
Carlisle - Motherwell	144.0	344.9	45.7	126.3	150.3
Motherwell - Glasgow Central	20.5	365.4	9.7	135.9	162.9
Carlisle - Lockerbie	41.6	242.5	14.9	95.6	119.6
Lockerbie - Edinburgh Haymarket	120.4	362.9	38.6	134.1	161.1
Edinburgh Haymarket - Edinburgh Waverley	2.0	364.9	2.4	136.6	166.6

Current fastest time (minutes) from London [with the values at Mk2] {and the above values at Mk3} to:

- Preston 128 [89] {89}
- Lancaster 144 [104] {102}
- Carnforth 160 (1 change) {111}
- Oxenholme 154 [118]
- Kendal 176 (1 change) {124}
- Penrith 151 [139] {140}
- Carlisle 194 [153] {154}
- Motherwell 253 [202] {203}
- Glasgow Central 271 [215] {215}
- Edinburgh Haymarket 271 (via ECML) [207] {208}
- Edinburgh Waverley 257 (via ECML) [213] {213}

Current fastest time (minutes) from Birmingham [with the values at Mk1A] {and as above at Mk3} to:

- Crewe 52 [20] {20}
- Warrington BQ 71 [36] {36}
- Wigan North Western 82 [45] {45}
- Preston 96 [63] {63}
- Lancaster 112 [77] {76}
- Carnforth 135 (1 change) {85}
- Kendal 135 (1 change) {98}
- Penrith 147 [113] {113}
- Carlisle 164 [127] {128}
- Edinburgh Haymarket 237 [181] {182}
- Edinburgh Waverley 247 [186] {187}
- Lockerbie 192 (1 change) [145] {145}
- Motherwell 268 (1 change) [181] {182}
- Glasgow Central 242 [194] {194}

Current fastest time (minutes) from Liverpool [with the values at Mk1A] {and as above at Mk3} to:

• St. Helens Central	19	[9]	{9}
• Wigan North Western	33	[19]	{19}
• Preston	57	[37]	{37}
• Lancaster	84 (1 change)	[52]	{50}
• Carnforth	93 (2 changes)		{59}
• Kendal	117 (2 changes)		{72}
• Penrith	119 (1 change)	[87]	{88}
• Carlisle	136 (1 change)	[101]	{102}
• Motherwell	195 (1 change)	[149]	{150}
• Glasgow Central	211 (1 change)	[162]	{163}
• Lockerbie	174 (1 change)	[119]	{120}
• Edinburgh Haymarket	219 (1 change)	[161]	{161}
• Edinburgh Waverly	229 (1 change)	[166]	{167}

Note that the Mk3 times above Lancaster include a new stop at Carnforth, as compared with those at Mk1A and Mk2 (which both contained the no-longer-relevant stop at Oxenholme instead)..

Note also that the above table includes the service Euston – Morecambe, which replaces the Euston – Windermere service, splitting / joining the Euston – Blackpool service at Preston. This is considered a more equitable arrangement now that Kendal has become, finally, a full WCML station, with 6tph linking London, Birmingham and Liverpool with both Edinburgh and Glasgow.

HS2 App Q

1. UHS Services:

Euston Cross – Birmingham (direct / via Coventry: 2/4 stops)

Euston Cross – Manchester / Liverpool (2 stops each)

Euston Cross / Birmingham / Liverpool – Edinburgh (4/4/3 stops)

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times (minutes)
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - Birmingham Interchange	151.0	159.0	43.0	47.9	50.9
Birmingham Interchange - Birmingham Curzon St.	20.0	179.0	8.1	56.0	62.0
Old Oak Common - Rugby HS	130.0	138.0	37.4	42.3	45.3
Rugby HS - Coventry HS	18.0	156.0	7.6	49.9	55.9
Coventry HS - Birmingham Interchange	17.0	173.0	7.3	57.2	66.2
Birmingham Interchange - Birmingham Curzon St.	20.0	193.0	8.1	65.3	77.3
Old Oak Common - Manchester Interchange	286.0	294.0	79.0	83.9	86.9
Manchester Interchange - Manchester HS	8.0	302.0	4.9	88.8	94.8
Old Oak Common - Crewe	241.0	249.0	67.0	71.9	74.9
Crewe - Liverpool Lime Street	73.0	322.0	22.2	94.2	100.2
Old Oak Common - Preston	324.0	332.0	89.2	94.0	97.0
Preston - Carlisle	138.0	470.0	39.6	133.6	139.6
Carlisle - Hawick	67.0	537.0	20.6	154.3	163.3
Hawick - Edinburgh	82.0	619.0	24.6	178.9	190.9
Birmingham Curzon St. - Crewe	95.0	95.0	28.1	28.1	28.1
Crewe - Preston	83.0	178.0	24.9	53.0	56.0
Preston - Carlisle	138.0	316.0	39.6	92.6	98.6
Carlisle - Hawick	67.0	383.0	20.6	113.2	122.2
Hawick - Edinburgh	82.0	465.0	24.6	137.9	149.9
Liverpool - Preston	69.0	69.0	21.2	21.2	21.2

Preston - Carlisle	138.0	207.0	39.6	60.8	63.8
Carlisle - Hawick	67.0	274.0	20.6	81.4	87.4
Hawick - Edinburgh	82.0	356.0	24.6	106.0	115.0

Current fastest time (minutes) from London [and the 360kph values (300kph for Rugby and Coventry, via the Coventry Variant)] {and the above 225kph values} to:

- Birmingham Interchange 70 [38] {51}
- Birmingham Curzon Street 81 [48] {62}
- Rugby HS 48 [36] {45}
- Coventry HS 59 [46] {56}
- Manchester Interchange 115 [61] {87}
- Manchester HS 127 [69] {95}
- Crewe 90 [53] {75}
- Liverpool Lime Street 128 [73] {100}
- Preston 128 [66] {97}
- Carlisle 194 [97] {140}
- Edinburgh 257 [137] {191}

Current fastest time (minutes) from Birmingham [and the 360kph values] {and the 225kph values} to:

- Preston 96 [42] {56}
- Carlisle 164 [72] {99}
- Edinburgh 247 [112] {150}

Current fastest time (minutes) from Liverpool [and the 360kph values] {and the 225kph values} to:

- Preston 57 [17] {21}
- Carlisle 136 (1 change) [47] {64}
- Edinburgh 229 (1 change) [87] {115}

2. *HS Metro Services Euston Cross / Birmingham – Manchester (9/6 stops)* *Euston Cross – Blackpool / Windermere (9/10 stops)*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - Calvert	73.0	81.0	24.3	29.2	32.2
Calvert - Birmingham Interchange	78.0	159.0	25.7	54.9	60.9

Birmingham Interchange - Handsacre Junction	33.0	192.0	10.5	65.4	
Handsacre Junction - Rugeley Trent Valley	8.0	200.0	3.3	68.7	77.7
Rugeley Trent Valley - Stafford	14.9	214.9	6.9	75.7	87.7
Stafford - Stone	14.6	229.5	6.8	82.5	97.5
Stone - Stoke-on-Trent	11.3	240.8	5.9	88.4	106.4
Stoke-on-Trent - Macclesfield	31.6	272.4	12.0	100.3	121.3
Macclesfield - Stockport	19.3	291.7	8.3	108.6	132.6
Stockport - Manchester Piccadilly	9.4	301.2	5.3	113.9	140.9
Birmingham Curzon St. - Handsacre Junction	38.0	38.0	11.9	11.9	
Handsacre Junction - Rugeley Trent Valley	8.0	46.0	3.3	15.2	15.2
Rugeley Trent Valley - Stafford	14.9	60.9	6.9	22.1	25.1
Stafford - Stone	14.6	75.5	6.8	29.0	35.0
Stone - Stoke-on-Trent	11.3	86.8	5.9	34.9	43.9
Stoke-on-Trent - Macclesfield	31.6	118.4	12.0	46.8	58.8
Macclesfield - Stockport	19.3	137.7	8.3	55.1	70.1
Stockport - Manchester Piccadilly	9.4	147.2	5.3	60.4	78.4
Birmingham Interchange - Crewe	90.0	249.0	28.9	83.7	92.7
Crewe - Warrington Bank Quay	38.8	287.8	13.1	96.9	108.9
Warrington Bank Quay - Wigan North Western	9.2	297.1	5.4	102.3	117.3
Wigan North Western - Preston	34.0	331.1	14.7	117.0	135.0
Preston - Kirkham	12.4	343.5	6.6	123.6	144.6
Kirkham - Poulton-le-Fylde	10.7	354.2	6.0	129.6	153.6
Poulton-le-Fylde - Blackpool North	5.0	359.2	3.9	133.5	160.5
Preston - Lancaster	33.8	364.8	11.8	128.8	149.8
Lancaster - Oxenholme	30.8	395.6	11.7	140.5	164.5
Oxenholme - Kendal	3.3	398.9	3.2	143.6	170.6
Kendal - Windermere	13.1	412.0	6.9	150.5	180.5

Current fastest time (minutes) from London [and the 360kph values] {and the above 225kph values} to:

• Rugeley TV	98	[60]	{78}
• Stafford	65	[70]	{88}
• Stone	103 (1 change)	[80]	{98}
• Stoke-on-Trent	84	[89]	{106}
• Macclesfield	101	[103]	{121}
• Stockport	115	[115]	{133}
• Manchester	127	[123]	{141}
• Crewe	90	[67]	{93}
• Warrington BQ	104	[84]	{109}
• Wigan North Western	115	[92]	{117}
• Preston	128	[110]	{135}
• Kirkham	153 (1 change)	[119]	{145}
• Poulton-le-Fylde	155 (1 change)	[128]	{154}
• Blackpool North	165 (1 change)	[135]	{161}
• Lancaster	144	[124]	{150}
• Oxenholme	154	[139]	{165}
• Kendal	176 (1 change)	[145]	{171}
• Windermere	193 (1 change)	[154]	{181}

Current fastest time (minutes) from Birmingham [and the above values] to:

• Rugeley TV	58	[13]	{15}
• Stafford	30	[23]	{25}
• Stone	49 (1 change)	[33]	{35}
• Stoke-on-Trent	46	[41]	{44}
• Macclesfield	64	[56]	{59}
• Stockport	76	[68]	{70}
• Manchester	88	[76]	{78}

3. *HS Metro Services Euston / Birmingham – Holyhead (7/6 stops)*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston - Old Oak Common	9.0	9.0	5.2	5.2	5.2
Old Oak Common - Crewe	241.0	250.0	67.0	72.2	75.2
Crewe - Chester	34.0	284.0	12.7	84.9	90.9
Chester - Flint	20.0	304.1	8.5	93.4	102.4
Flint - Rhyl	28.2	332.3	10.9	104.3	116.3

Rhyl - Llandudno Junction	23.1	355.4	10.6	114.9	129.9
Llandudno Junction - Bangor	25.0	380.4	11.4	126.3	144.3
Bangor - Holyhead	39.6	420.0	16.8	143.1	164.1
Birmingham Curzon St. - Crewe	95.0	95.0	28.1	28.1	28.1
Crewe - Chester	34.0	129.0	12.7	40.8	43.8
Chester - Flint	20.0	149.1	8.5	49.3	55.3
Flint - Rhyl	28.2	177.3	10.9	60.2	69.2
Rhyl - Llandudno Junction	23.1	200.4	10.6	70.8	82.8
Llandudno Junction - Bangor	25.0	225.4	11.4	82.2	97.2
Bangor - Holyhead	39.6	265.0	16.8	99.0	117.0

Current fastest time (minutes) from London [and the 360kph values] {and the above 225kph values} to:

• Crewe	90	[53]	{75}
• Chester	123	[68]	{91}
• Flint	146	[80]	{102}
• Rhyl	166	[94]	{116}
• Llandudno Junction	182	[108]	{130}
• Bangor	191	[122]	{144}
• Holyhead	229	[142]	{164}

Current fastest time (minutes) from B'ham [and the 360kph values] {and the above 225kph values} to:

• Crewe	52	[20]	{28}
• Chester	91 (1 change)	[36]	{44}
• Flint	114 (2 changes)	[47]	{55}
• Rhyl	134 (2 changes)	[61]	{69}
• Llandudno Junction	155 (2 changes)	[75]	{83}
• Bangor	174 (2 changes)	[89]	{97}
• Holyhead	212 (2 changes)	[109]	{117}

4. *HS Metro Services Euston / Birmingham / Liverpool –
Glasgow / Edinburgh (10/11/10 stops to each)*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston - Old Oak Common	9.0	9.0	5.2	5.2	5.2
Old Oak Common - Calvert	73.0	82.0	22.2	27.4	30.4
Calvert - Birmingham Interchange	78.0	160.0	23.6	51.0	57.0
Birmingham Interchange - Crewe	90.0	250.0	26.8	77.8	86.8
Crewe - Runcorn	36.2	286.2	12.4	90.2	102.2
Runcorn - Liverpool S. Parkway	12.0	298.2	6.0	96.2	111.2
Liverpool S. Parkway - Liverpool Lime St.	9.2	307.4	5.4	101.6	119.6
Crewe - Preston	83.0	333.0	24.9	102.7	114.7
Preston - Lancaster	34.0	367.0	11.8	114.5	129.5
Lancaster - Carnforth	9.8	376.8	5.4	119.9	137.9
Carnforth - Kendal	24.3	401.1	9.8	129.7	150.7
Kendal - Penrith	38.0	439.1	12.9	142.6	166.6
Penrith - Carlisle	28.7	467.9	11.1	153.7	180.7
Carlisle - Motherwell	144.0	611.8	45.7	199.4	229.4
Motherwell - Glasgow Central	20.5	632.3	9.7	209.0	242.0
Carlisle - Edinburgh Haymarket	161.9	629.8	51.0	204.7	234.7
Edinburgh Haymarket - Edinburgh Waverley	2.0	631.8	2.4	207.2	240.2
Crewe - Warrington Bank Quay	38.8	288.8	13.1	90.9	102.9
Warrington Bank Quay - Wigan North Western	9.2	298.1	5.4	96.3	111.3
Wigan North Western - Preston	34.0	332.1	14.7	111.1	129.1
Preston - Kirkham	12.4	343.5	6.6	117.4	138.4
Kirkham - Poulton-le-Fylde	10.7	354.2	6.0	123.4	147.4
Poulton-le-Fylde - Blackpool North	5.0	359.2	3.9	127.2	274.6

Preston - Lancaster	34.0	366.1	8.7	119.7	286.3
Lancaster - Morecambe	6.5	372.5	4.4	124.1	293.7
Birmingham Curzon St. - Crewe	95.0	95.0	28.1	28.1	28.1
Crewe - Warrington Bank Quay	38.8	133.8	13.1	41.2	44.2
Warrington Bank Quay - Wigan North Western	9.2	143.1	5.4	46.7	52.7
Wigan North Western - Preston	34.0	177.1	14.7	61.4	70.4
Preston - Lancaster	34.0	211.1	11.8	73.2	85.2
Lancaster - Carnforth	9.8	220.9	5.4	78.7	93.7
Carnforth - Kendal	24.3	245.2	9.8	88.4	106.4
Kendal - Penrith	38.0	283.2	12.9	101.3	122.3
Penrith - Carlisle	28.7	311.9	11.1	112.4	136.4
Carlisle - Lockerbie	41.6	353.5	14.9	127.4	154.4
Lockerbie - Motherwell	102.4	455.9	33.2	160.6	190.6
Motherwell - Glasgow Central	20.5	476.4	9.7	170.2	203.2
Carlisle - Edinburgh Haymarket	161.9	473.9	51.0	163.5	190.5
Edinburgh Haymarket - Edinburgh Waverley	2.0	475.9	2.4	165.9	195.9
Liverpool Lime St. - St. Helens Central	18.0	18.0	8.7	8.7	8.7
St. Helens Central - Wigan North Western	14.1	32.1	7.3	16.0	19.0
Wigan North Western - Preston	34.0	66.1	14.7	30.7	36.7
Preston - Lancaster	34.0	100.1	11.8	42.6	51.6
Lancaster - Carnforth	9.8	109.9	5.4	48.0	60.0
Carnforth - Kendal	24.3	134.2	9.8	57.7	72.7
Kendal - Penrith	38.0	172.2	12.9	70.6	88.6
Penrith - Carlisle	28.7	201.0	11.1	81.7	102.7
Carlisle - Motherwell	144.0	344.9	45.7	127.4	151.4
Motherwell - Glasgow Central	20.5	365.4	9.7	137.1	164.1
Carlisle - Lockerbie	41.6	242.5	14.9	96.7	120.7
Lockerbie - Edinburgh Haymarket	120.4	362.9	38.6	135.3	162.3
Edinburgh Haymarket - Edinburgh Waverley	2.0	364.9	2.4	137.7	167.7

Current fastest time (minutes) from London [and the 360kph values] {and the above 225kph values} to:

• Crewe	90	[68]	{87}
• Runcorn	113	[83]	{102}
• Liverpool South Parkway	140	[92]	{111}
• Liverpool Lime St.	128	[101]	{120}
• Preston	128	[89]	{115}
• Lancaster	144	[102]	{130}
• Carnforth	160 (1 change)	[111]	{138}
• Kendal	176 (1 change)	[124]	{151}
• Penrith	151	[140]	{167}
• Carlisle	194	[154]	{181}
• Motherwell	253	[203]	{229}
• Glasgow Central	271	[215]	{242}
• Edinburgh Haymarket	271 (via ECML)	[208]	{235}
• Edinburgh Waverly	257 (via ECML)	[213]	{240}

Current fastest time (minutes) from B'ham [and the 360kph values] {and the above 225kph values} to:

• Crewe	52	[20]	{28}
• Warrington Bank Quay	71	[36]	{44}
• Wigan North Western	82	[45]	{53}
• Preston	96	[63]	{70}
• Lancaster	112	[76]	{85}
• Carnforth	135 (1 change)	[85]	{94}
• Kendal	135 (1 change)	[98]	{106}
• Penrith	147	[113]	{122}
• Carlisle	164	[128]	{136}
• Edinburgh Haymarket	237	[182]	{191}
• Edinburgh Waverley	247	[187]	{196}
• Lockerbie	192 (1 change)	[145]	{154}
• Motherwell	268 (1 change)	[182]	{191}
• Glasgow Central	242	[194]	{203}

There are in fact no sections of track on the route from Liverpool with speeds in excess of 225kph, 140mph, so the timings are identical to the Mk3.2 values, listed on p127.

HS3 Mk1A

1. UHS Services London – South Yorkshire (LL) / Barnsley / York / Halifax / Skipton (3/2/3/4/4 stops)

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Huthwaite Jn.	214.0	214.0	38.7	38.7	
Huthwaite Jn.- Stonebroom Jn.	5.0	219.0	1.3	40.0	
Stonebroom Jn. - Chesterfield	10.0	229.0	3.9	43.9	43.9
Chesterfield - Sheffield Midland	19.8	248.8	8.4	52.3	55.3
Sheffield Midland - Rotherham	9.7	258.5	5.6	57.9	63.9
Rotherham - South Yorkshire LL	11.0	269.5	6.1	64.0	73.0
Sheffield Midland - Barnsley	25.8	284.3	11.7	75.7	72.0
Pancras Cross - South Yorkshire HL	256.0	256.0	47.1	47.1	47.1
South Yorkshire HL - Ryhill Junctionn	19.0	275.0	6.1	53.2	
Ryhill Junctionn - Wakefield Westgate	8.0	283.0	3.2	56.4	59.4
Wakefield Westgate - Leeds New Lane	15.0	298.0	7.6	64.0	70.0
Leeds New Lane - Garforth East Junction	10.8	308.8	4.6	68.5	
Garforth East Junction - Ulleskelf Junction	15.0	323.8	3.1	71.7	
Ulleskelf Jn. - York HS	14.0	337.8	4.8	76.5	85.5
South Yorkshire HL - Swillington Common Jn.	36.0	292.0	9.0	56.1	
Swillington Common Jn. - Manston Junction	1.9	293.9	0.5	56.6	
Manston Jn. - Leeds City	8.0	301.9	3.3	60.0	63.0
Leeds City - Shipley	17.3	319.2	8.5	68.4	74.4
Shipley - Bradford City	4.9	324.1	3.8	72.2	81.2
Bradford City - Halifax	12.8	336.9	6.8	79.0	91.0
Leeds City - Shipley	17.3	319.2	8.5	68.4	76.4
Shipley - Keighley	10.0	329.2	5.7	74.1	85.1
Keighley - Skipton	16.4	345.6	8.1	82.3	96.3

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the above values] to:

• Chesterfield	105	[44]
• Sheffield	120 (69/79*)	[55]
• Rotherham	136 (1 change)	[64]
• Barnsley	155 (1 change)	[72]
• Wakefield	115	[59]
• Leeds	131 (83)	[70/63]
• York	110	[86]
• Shipley	152 (1 change)	[74]
• Bradford	168 (2 changes)	[81]
• Halifax	171	[91]
• Keighley	166 (1 change)	[85]
• Skipton	184 (1 change)	[96]

(*) 69 minutes is HS2 Ltd.'s estimate from London to the old South Yorkshire (Meadowhall), and 79 minutes to Sheffield Midland. These values, and that for Leeds, show very clearly the time penalty imposed by the ridiculous routing via Birmingham. Note that the above service to Sheffield is not the fastest – see section 2, following. Likewise the service to York – via Leeds – is very much not the fastest – see sections 2 and 3.

The services to South Yorkshire LL and Barnsley split / join at Sheffield Midland. The Barnsley portion is given a 5 minute station wait at Sheffield, departing 2 minutes after / arriving 2 minutes before the South Yorkshire portion. Likewise the services to Halifax and Skipton split / join at Leeds City, the Skipton portion having a 5 minute wait there.

2. *UHS Services London – Liverpool / York / Middlesborough / Newcastle
(3/2/6/5 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Wales Junction	239.0	239.0	42.8	42.8	
Wales Junction - Waleswood Junction	0.8	239.8	0.2	43.0	
Waleswood Junction - Sheffield HS	10.6	250.3	3.9	46.9	46.9
Sheffield HS - Manchester HS	55.0	305.3	14.7	61.6	64.6
Manchester HS - M/C Victoria LL	0.5	305.8	1.2	62.8	68.8
M/C Victoria LL - Liverpool Lime St.	49.0	354.8	12.6	75.4	84.4
Pancras Cross - South Yorkshire HL	256.0	256.0	47.1	47.1	47.1
South Yorkshire HL - Ulleskelf Jn.	53.0	309.0	11.8	59.0	
Ulleskelf Jn. - York HS	14.0	323.0	4.8	63.7	66.7
York HS - Northallerton	48.2	371.2	15.6	79.4	87.4
Northallerton - Yarm	19.4	390.6	8.0	87.3	98.3
Yarm - Eaglescliffe	4.1	394.7	3.5	90.8	104.8
Eaglescliffe - Thornaby	4.8	399.5	3.8	94.6	111.6
Thornaby - Middlesborough	5.2	404.7	3.9	98.5	118.5
York - Romanby Junction	46.0	369.0	14.0	77.7	
Romanby Junction - Darlington	24.0	393.0	6.1	83.8	89.8
Darlington - Durham Relly Mill	33.0	426.0	10.3	94.1	103.1
Durham Relly Mill - Consett	20.0	446.0	7.7	101.8	113.8
Consett - Newcastle	20.0	466.0	7.7	109.5	124.5

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the above values] to:

• Sheffield	120	[47]
• Manchester	127 (68)	[65]
• Liverpool	128 (96)	[84]
• York	110	[67]
• Northallerton	144	[87]
• Yarm	174 (1 change)	[98]
• Eaglescliffe	163	[105]
• Thornaby	169 (1 change)	[111]
• Middlesbrough	176 (1 change)	[119]
• Darlington	139	[90]
• Durham	173	[103]
• Newcastle	169	[125]

The above time to York is still not the fastest – see section 3, following.

The services to Newcastle and Middlesbrough split / join at York. The Middlesbrough portion is given a 5 minute station wait at York, departing 2 minutes after / arriving 2 minutes before the Newcastle portion.

Pancras Cross – Sheffield HS non-stop takes 47 minutes at an average speed of 200.6mph. Pancras Cross – Manchester HS with 1 stop takes 65 minutes at an average speed of 176mph. This actually takes 3 minutes less than HS2's time from Euston Cross to Manchester, although that journey is 6km shorter, but of course that journey has 2 intermediate stops rather than just 1, and the extra stop, Manchester Interchange, is only 5 miles from Manchester HS, which means in effect that the deceleration for the final station begins 5 miles further out, and the final 5 miles are taken at an average speed of only 60mph, and the overall journey at an average speed of 167mph.

The above time Pancras Cross – Liverpool is 12 minutes longer than HS2 by my plans, new HS infrastructure all the way, but 15 minutes shorter than my value for the HS-C service to Liverpool, along the classic route between Crewe and Liverpool (using current timetable times between Crewe and Liverpool) and 11 minutes shorter than HS2 Ltd.'s time to Liverpool (they've clearly assumed some acceleration on the WCML).

3. *UHS Services London / Newcastle – Edinburgh (6/3 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Ulleskelf Jn.	309.0	309.0	54.5	54.5	
Ulleskelf Jn. - York HS	14.0	323.0	4.8	59.3	59.3
York HS - Romanby Jn.	46.0	369.0	14.0	73.3	
Romanby Jn. - Darlington	24.0	393.0	6.1	79.3	82.3
Darlington - Durham Relly Mill	33.0	426.0	10.3	89.7	95.7
Durham Relly Mill - Consett	20.0	446.0	7.7	97.4	106.4
Consett - Derwent Hill Jn.	2.0	448.0	1.9	99.3	
Derwent Hill Jn. - Hexham	21.0	469.0	7.4	106.7	118.7
Hexham - Riccarton North Jn.	60.0	529.0	14.4	121.1	
Riccarton North Jn. - Hawick	20.0	549.0	5.4	126.5	141.5
Hawick - Edinburgh	82.0	631.0	18.1	144.6	162.6
Newcastle - Hexham	32.0	32.0	12.1	12.1	12.1
Hexham - Riccarton North Jn,	60.0	92.0	14.4	26.5	
Riccarton North Jn. - Hawick	20.0	112.0	5.4	31.9	34.9
Hawick - Lauder	37.0	149.0	10.6	42.5	48.5
Lauder - Edinburgh	45.0	194.0	11.9	54.4	63.4

Current fastest time (minutes) from London [and the above values] to:

- York 110 [59]
- Darlington 139 [82]
- Durham 173 [96]
- Consett [106]
- Hexham 235 (1 change) [119]
- Hawick [142]
- Edinburgh 260 [163]

And from Newcastle:

- Hexham 31 [12]
- Hawick [35]
- Lauder [49]
- Edinburgh 85 (via ECML, of course). [63]

4. UHS Elapsed Times Summary:

Section	Pancras Cross - Liverp'l	Pancras Cross - South Yorks	Pancras Cross - York	Pancras Cross - Middlesbrough	Pancras Cross - N'castle	Pancras Cross - West Yorks.	Pancras Cross - Ed'b'gh	N'castle - Ed'b'gh
Pancras Cross - Sheffield HS	46.8							
Sheffield HS - Manchester HS	64.5							
Manchester HS - Victoria LL	68.8							
Victoria LL - Liverpool Lime St.	84.4							
Pancras Cross - Chesterfield		43.9						
Chesterfield - Sheffield Midland		55.3						
Sheffield Midland - Rotherham		63.9						
Rotherham - South Yorkshire LL		73.0						
Sheffield Midland - Barnsley		72.0						
Pancras Cross - South Yorkshire			47.1	47.1	47.1	47.1		
South Yorkshire - Wakefield Westgate			59.4					
Wakefield Westgate - Leeds New Lane			70.0					

South Yorkshire / Leeds - York HS			85.5	66.7	66.7			
York HS - Northallerton				87.4				
Northallerton - Yarm				98.2				
Yarm - Eaglescliffe				104.7				
Eaglescliffe - Thornaby				111.5				
Thornaby - Middlesborough				118.4				
York HS - Darlington					89.8			
Darlington - Durham Relly Mill					103.1			
Durham Relly Mill - Consett					113.8			
Consett - Newcastle					124.5			
South Yorkshire - Leeds City						63.6		
Leeds City - Shipley						75.1		
Shipley - Bradford City						81.9		
Bradford City - Halifax						91.7		
Shipley - Keighley						85.8		
Keighley - Skipton						96.9		
Pancras Cross - York							59.3	
York - Darlington							82.3	

Darlington - Durham Relly Mill							95.7	
Durham Relly Mill - Consett							106.4	
Consett - Hexham							118.7	
Hexham - Hawick							141.5	
Hawick - Edinburgh							162.6	
Newcastle - Hexham								12.1
Hexham - Hawick								34.9
Hawick - Lauder								48.5
Lauder - Edinburgh								63.4

5. *HS Metro Services London – York / Preston (8/9 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Luton & Dunstable Pkwy	51.0	51.0	12.9	12.9	12.9
Luton & Dunstable Pkwy - Milton Keynes Parkway	18.0	69.0	7.3	20.2	23.2
Milton Keynes Parkway - Northampton Castle	33.0	102.0	9.9	30.2	36.2
Northampton Castle - Langborough Junction	18.0	120.0	6.0	36.2	
Langborough Junction - Leicester	40.0	160.0	8.7	44.9	53.9
Leicester - Stanford Junction	20.0	180.0	6.3	51.2	
Stanford Junction - Nottingham	22.0	202.0	5.7	56.9	68.9
Nottingham - Derby	26.0	228.0	8.8	65.7	80.7
Nottingham - Nuthall South Junction.	7.4	209.4	3.7	60.6	
Nuthall South Junction - Wales Junction	43.0	252.4	7.8	68.4	
Wales Junction - Waleswood Junction	0.8	253.2	0.2	68.6	
Waleswood Jinction - Sheffield HS	10.6	263.7	3.9	72.4	89.4
Sheffield HS - Huddersfield	51.0	314.7	14.1	86.6	106.6
Huddersfield - Leeds New Lane	24.0	338.7	8.5	95.1	118.1
Leeds New Lane - Garforth East Jn.	10.8	349.5	4.6	99.6	
Garforth East Junction - Ulleskelf Junction	15.0	364.5	3.1	102.7	
Ulleskelf Jn. - York HS	14.0	378.5	4.8	107.5	133.5
Sheffield HS - Manchester HS	55.0	318.7	14.7	87.1	107.1
Manchester HS - Victoria LL	0.5	319.2	1.2	88.3	111.3
Victoria LL - Bolton	17.0	336.2	7.1	95.4	121.4
Bolton - Gibb Farm Junction	8.0	344.2	3.9	99.3	

Gibb Farm Junction - Preston	24.0	360.2	6.1	105.4	134.4
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Note that the service to Derby involves one change – a (cross-platform) connection at Nottingham into an HS7 service, either Skegness or Cleethorpes to Birmingham. The HS3 service accordingly is given a 5 minute wait at Nottingham, since the HS7 service has the main line through Strelley and Awsworth junctions, whereas the HS3 service has to slow to diverge at Strelley.

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the above values] to:

• Luton [& Dunstable Pkwy]	21		[13]
• Milton Keynes [Parkway]	30		[23]
• Northampton	51		[36]
• Leicester	62		[54]
• Nottingham	100	(51/68*)	[69]
• Derby	85	(51/71*)	[81]
• Sheffield	120		[89]
• Huddersfield	162 (with 1 change)		[107]
• Leeds	131		[118]
• York	110		[133]
• Manchester HS	127		[107]
• Bolton	164 (with 1 change)		[121]
• Preston	128		[134]

(*) 51 minutes is HS2 Ltd.'s estimate from London to Toton (with 1 stop), 68 minutes to Nottingham Midland and 71 to Derby Midland. HS3's value of 68 minutes to Nottingham is with 3 stops, and 80 minutes to Derby is with 4 stops and 1 change. Purely for illustration, a non-stop London – Nottingham service by HS3 would take 38 minutes, and reach Derby in 49 minutes. I was not actually proposing such a service, initially, but, having seen what would be possible, this will certainly be one of the additional services enabled by HS3 Mk2's capacity enhancements. (See below, following SP6, for illustrative non-stop times.)

Okay, so even a HS Metro train can't, travelling via Huddersfield and with 7 intermediate stops, beat a non-stop service to York, straight up the ECML. But see the corresponding UHS services to York. Remarkably, it still beats the fastest service to Leeds, by a comfortable margin (but, again, see the UHS service to Leeds and on to York).

Moreover, even travelling via the East Midlands, with 6 intermediate stops, the HS Metro service still beats the current best time to Manchester (comfortably) and, with 8 intermediate stops, is just 6 minutes slower to Preston

6. *HS-C St. Pancras West – York / Manchester / Liverpool / Chester*
(12/10/12/13 stops):

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
St. Pancras - Luton & Dunstable Pkwy	51.0	51.0	12.9	12.9	12.9
Luton & Dunstable Pkwy - Milton Keynes Pkwy	18.0	69.0	7.3	20.2	23.2
Milton Keynes Pkwy - Northampton Castle	33.0	102.0	9.9	30.2	36.2
Northampton Castle - Langborough Junction	18.0	120.0	6.0	36.2	
Langborough Junction - Leicester	40.0	142.0	8.7	50.5	53.9
Leicester - Loughborough	20.1	162.1	8.5	59.0	65.4
Loughborough - Derby	26.2	188.3	10.3	69.3	78.7
Leicester - East Midlands Pkwy	30.9	172.9	11.7	62.2	68.6
East Midlands Pkwy - Derby	15.4	188.3	7.1	69.3	78.7
Derby - Chesterfield	38.8	227.1	14.1	83.4	95.8
Chesterfield - Sheffield	19.8	246.9	8.4	91.9	107.2
Sheffield - Rotherham	9.7	256.6	5.6	97.5	115.8
Rotherham - Wakefield Westgate	36.8	293.4	15.8	113.2	134.6
Wakefield Westgate - Leeds City	16.2	309.6	8.1	121.3	145.6
Leeds City - Micklefield	15.7	325.3	7.9	129.2	156.5
Micklefield - York	25.5	350.8	9.6	138.7	169.1
Sheffield - Chinley	32.0	278.9	14.0	105.8	126.2
Chinley - Stockport	18.2	297.1	8.8	114.6	138.0
Stockport - Manchester Piccadilly	9.4	306.5	5.3	119.9	146.3
Northampton Castle - Rugby	30.5	132.5	11.6	41.8	50.8
Rugby - Coventry	18.5	151.0	8.0	49.8	61.8
Coventry - Birmingham International	17.2	168.2	7.6	57.5	72.5
Birmingham International - Birmingham New St.	13.3	181.5	6.5	63.9	81.9

Birmingham New St. = Wolverhampton	20.7	202.2	9.7	73.7	94.7
Wolverhampton - Stafford	26.0	228.2	10.3	83.9	107.9
Stafford - Crewe	39.4	267.6	13.3	97.2	124.2
Crewe - Runcorn	36.2	303.8	12.4	109.6	139.6
Runcorn - Liverpool South Parkway	12.0	315.8	6.1	115.7	148.7
Liverpool South Parkway - Liverpool Lime St.	9.2	325.0	5.2	120.9	156.9
Wolverhampton - Telford	25.2	227.4	9.5	83.2	107.2
Telford - Wellington	6.2	233.6	4.3	87.4	114.4
Wellington - Shrewsbury	16.5	250.1	7.2	94.6	124.6
Shrewsbury - Gobowen	29.0	279.1	10.5	105.1	138.1
Gobowen - Wrexham	19.6	298.7	8.3	113.5	149.5
Wrexham - Chester	19.4	318.1	8.3	121.8	160.8

Current fastest time (minutes) from London [and the above values] to:

• Luton [& Dunstable Parkway]	21	[13]
• Milton Keynes [Parkway]	30	[23]
• Northampton	51	[36]
• Leicester	62	[54]
• Loughborough	73	[65]
• East Midlands Parkway	81	[69]
• Derby	85	[79]
• Chesterfield	105	[96]
• Sheffield	120	[107]
• Rotherham	136 (1 change)	[116]
• Wakefield Westgate	114	[135]
• Leeds	131	[146]
• Micklefield	140 (1 change)	[157]
• York	110	[169]
• Chinley	177 (1 change)	[126]
• Stockport	115	[138]
• Manchester Piccadilly	123	[146]
• Rugby	48	[51]
• Coventry	59	[62]
• Birmingham International	70	[73]
• Birmingham New St.	82	[82]
• Wolverhampton	107	[95]
• Stafford	77	[108]
• Crewe	90	[114]
• Runcorn	113	[140]

• Liverpool South Parkway	140	[149]
• Liverpool Lime St.	132	[157]
• Telford	124	[107]
• Wellington	161	[114]
• Shrewsbury	148	[125]
• Gobowen	163 (1 change)	[138]
• Wrexham	144 (1 change)	[150]
• Chester	121	[161]

Wakefield, Leeds and York (current) times are, of course, via the ECML, likewise Stafford, Crewe, Stockport, Manchester, Runcorn, Liverpool and Chester via the WCML, which isn't really comparing like with like.

The Manchester times are given via Sheffield (reverse) and the Hope Valley, though via the High Peak would be much preferable. The High Peak route should be reopened without delay. Sheffield has plenty of services, and can easily spare a few for Matlock, Bakewell and Buxton (by connection).

Note that only one of either Loughborough or East Midland Parkway is served by a given train – the York trains serve Loughborough and the Manchester trains serve East Midlands Parkway.

The HS-C times to Rugby, Coventry and the Birmingham stations are essentially the same as the current best, but that to Northampton very much better (naturally).

Likewise the HS-C times as far as Leicester are very much better than current times. The times beyond Leicester (until Wakefield!) remain much better than current times, but not quite as good as those up as far as Leicester.

7. *HS Metro and HS-C Elapsed Times Summary:*

Section	HS Metro Pancras Cross - York	HS Metro Pancras Cross - Preston	HS-C St. Pancras - Wolverhampton - Liverpool / Chester	HS-C St. Pancras - York	HS-C St. Pancras - Manchester
Pancras Cross - Luton & Dunstable Parkway	12.9	12.9			
St. Pancras - Luton & Dunstable Parkway			12.9	12.9	12.9
Luton & Dunstable Parkway - Milton Keynes Parkway	23.2	23.2	23.2	23.2	23.2
Milton Keynes Parkway - Northampton Castle	36.2	36.2	36.2	36.2	36.2
Northampton Castle - Leicester	53.9	53.9		53.9	53.9
Leicester - Nottingham	68.9	68.9			
Nottingham - Derby	80.7	80.7			
Nottingham - Sheffield HS	89.4	89.4			
Sheffield HS - Huddersfield	106.5				
Huddersfield - Leeds New Lane	118.0				
Leeds New Lane - York	133.4				
Sheffield HS - Manchester HS		107.1			
Manchester HS - Victoria LL		111.3			
Victoria LL - Bolton		121.4			
Bolton - Preston		134.3			
Northampton Castle - Rugby HS			50.8		
Rugby HS - Coventry HS			61.8		
Coventry HS - Birmingham International			72.5		
Birmingham International - Birmingham New St.			81.9		
Birmingham New St. - Wolverhampton			94.7		
Wolverhampton - Stafford			107.9		
Stafford - Crewe			124.2		
Crewe - Runcorn			139.6		
Runcorn - Liv. S, Parkway			148.7		
Liv. S. Pkwy - Liv. Lime St.			156.9		

Wolverhampton - Telford			107.2		
Telford - Wellington			114.4		
Wellington - Shrewsbury			124.6		
Shrewsbury - Gobowen			138.1		
Gobowen - Wrexham			149.5		
Wrexham - Chester			160.8		
Leicester - Loughborough				65.4	
Loughborough - Derby				78.7	
Leicester - East Midlands Parkway					68.6
East Midlands Parkway - Derby					78.7
Derby - Chesterfield				95.8	95.8
Chesterfield - Sheffield				107.2	107.2
Sheffield - Rotherham				115.8	
Rotherham - Wakefield Westgate				134.6	
Wakefield Westgate - Leeds City				145.6	
Leeds City - Micklefield				156.5	
Micklefield - York				169.1	
Sheffield - Chinley					126.2
Chinley - Stockport					138.0
Stockport - Manchester Piccadilly					146.3

HS3 Mk2

1. UHS Services London – South Yorkshire (LL) / Barnsley / York / Halifax / Skipton (3/2/3/4/4 stops)

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Huthwaite Jn.	214.0	214.0	38.7	38.7	
Huthwaite Jn.- Stonebroom Jn.	5.0	219.0	1.3	40.0	
Stonebroom Jn. - Chesterfield	10.0	229.0	3.9	43.9	43.9
Chesterfield - Sheffield Midland	19.8	248.8	8.4	52.3	55.3
Sheffield Midland - Rotherham	9.7	258.5	5.6	57.9	63.9
Rotherham - South Yorkshire LL	11.0	269.5	6.1	64.0	73.0
Sheffield Midland - Barnsley	25.8	284.3	11.7	75.7	72.0
Pancras Cross - South Yorkshire HL	256.0	256.0	47.1	47.1	47.1
South Yorkshire HL - Ryhill Junctionn	19.0	275.0	6.1	53.2	
Ryhill Junctionn - Wakefield Westgate	8.0	283.0	3.2	56.4	59.4
Wakefield Westgate - Leeds New Lane	15.0	298.0	7.6	64.0	70.0
Leeds New Lane - Garforth East Junction	10.8	308.8	4.6	68.5	
Garforth East Junction - Ulleskelf Junction	15.0	323.8	3.1	71.7	
Ulleskelf Jn. - York HS	14.0	337.8	4.8	76.5	85.5
South Yorkshire HL - Swillington Common Jn.	36.0	292.0	9.0	56.1	
Swillington Common Jn. - Manston Junction	1.9	293.9	0.5	56.6	
Manston Jn. - Leeds City	8.0	301.9	3.3	60.0	63.0
Leeds City - Shipley	17.3	319.2	8.5	68.4	74.4
Shipley - Bradford City	4.9	324.1	3.8	72.2	81.2
Bradford City - Halifax	12.8	336.9	6.8	79.0	91.0
Leeds City - Shipley	17.3	319.2	8.5	68.4	76.4
Shipley - Keighley	10.0	329.2	5.7	74.1	85.1
Keighley - Skipton	16.4	345.6	8.1	82.3	96.3

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the above values] to:

• Chesterfield	105	[44]
• Sheffield	120 (69/79*)	[55]
• Rotherham	136 (1 change)	[64]
• Barnsley	155 (1 change)	[72]
• Wakefield	115	[59]
• Leeds	131 (83)	[70/63]
• York	110	[86]
• Shipley	152 (1 change)	[74]
• Bradford	168 (2 changes)	[81]
• Halifax	171	[91]
• Keighley	166 (1 change)	[85]
• Skipton	184 (1 change)	[96]

(*) 69 minutes is HS2 Ltd.'s estimate from London to the old South Yorkshire (Meadowhall), and 79 minutes to Sheffield Midland. These values, and that for Leeds, show very clearly the time penalty imposed by the ridiculous routing via Birmingham. Note that the above service to Sheffield is not the fastest – see section 2, following. Likewise the service to York – via Leeds – is very much not the fastest – see sections 2 and 3.

The services to South Yorkshire LL and Barnsley split / join at Sheffield Midland. The Barnsley portion is given a 5 minute station wait at Sheffield, departing 2 minutes after / arriving 2 minutes before the South Yorkshire portion. Likewise the services to Halifax and Skipton split / join at Leeds City, the Skipton portion having a 5 minute wait there.

2. *UHS Services London – Liverpool / York / Middlesborough / Newcastle
(3/2/6/5 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Wales Junction	239.0	239.0	42.8	42.8	
Wales Junction - Waleswood Junction	0.8	239.8	0.2	43.0	
Waleswood Junction - Sheffield HS	10.6	250.3	3.9	46.9	46.9
Sheffield HS - Manchester HS	55.0	305.3	14.7	61.6	64.6
Manchester HS - M/C Victoria LL	0.5	305.8	1.2	62.8	68.8
M/C Victoria LL - Liverpool Lime St.	49.0	354.8	12.6	75.4	84.4
Pancras Cross - South Yorkshire HL	256.0	256.0	47.1	47.1	47.1
South Yorkshire HL - Ulleskelf Jn.	53.0	309.0	11.8	59.0	
Ulleskelf Jn. - York HS	14.0	323.0	4.8	63.7	66.7
York HS - Northallerton	48.2	371.2	15.6	79.4	87.4
Northallerton - Yarm	19.4	390.6	8.0	87.3	98.3
Yarm - Eaglescliffe	4.1	394.7	3.5	90.8	104.8
Eaglescliffe - Thornaby	4.8	399.5	3.8	94.6	111.6
Thornaby - Middlesborough	5.2	404.7	3.9	98.5	118.5
York - Romanby Junction	46.0	369.0	14.0	77.7	
Romanby Junction - Darlington	24.0	393.0	6.1	83.8	89.8
Darlington - Durham Relly Mill	33.0	426.0	10.3	94.1	103.1
Durham Relly Mill - Consett	20.0	446.0	7.7	101.8	113.8
Consett - Newcastle	20.0	466.0	7.7	109.5	124.5

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the above values] to:

• Sheffield	120	[47]
• Manchester	127 (68)	[65]
• Liverpool	128 (96)	[84]
• York	110	[67]
• Northallerton	144	[87]
• Yarm	174 (1 change)	[98]
• Eaglescliffe	163	[105]
• Thornaby	169 (1 change)	[111]
• Middlesbrough	176 (1 change)	[119]
• Darlington	139	[90]
• Durham	173	[103]
• Newcastle	169	[125]

The above time to York is still not the fastest – see section 3, following.

The services to Newcastle and Middlesbrough split / join at York. The Middlesbrough portion is given a 5 minute station wait at York, departing 2 minutes after / arriving 2 minutes before the Newcastle portion.

Pancras Cross – Sheffield HS non-stop takes 47 minutes at an average speed of 200.6mph. Pancras Cross – Manchester HS with 1 stop takes 65 minutes at an average speed of 176mph. This actually takes 3 minutes less than HS2's time from Euston Cross to Manchester, although that journey is 6km shorter, but of course that journey has 2 intermediate stops rather than just 1, and the extra stop, Manchester Interchange, is only 5 miles from Manchester HS, which means in effect that the deceleration for the final station begins 5 miles further out, and the final 5 miles are taken at an average speed of only 60mph, and the overall journey at an average speed of 167mph.

The above time Pancras Cross – Liverpool is 12 minutes longer than HS2 by my plans, new HS infrastructure all the way, but 15 minutes shorter than my value for the HS-C service to Liverpool, along the classic route between Crewe and Liverpool (using current timetable times between Crewe and Liverpool) and 11 minutes shorter than HS2 Ltd.'s time to Liverpool (they've clearly assumed some acceleration on the WCML).

3. *UHS Services London / Newcastle – Edinburgh (6/3 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Ulleskelf Jn.	306	306	54.8	54.8	
Ulleskelf Jn. - York HS	14	320	4.8	59.5	59.5
York HS - Romanby Jn.	46	366	18.5	78.0	
Romanby Jn. - Darlington	24	390	7.3	85.3	88.3
Darlington - Durham Relly Mill	33	423	11.6	96.9	102.9
Durham Relly Mill - Consett	20	443	8.1	105.0	114.0
Consett - Hexham	11	454	4.7	109.7	121.7
Hexham - Riccarton North Jn,	60	514	19.2	128.9	
Riccarton North Jn. - Hawick	20	534	6.2	135.1	150.1
Hawick - Edinburgh	82	616	18.1	153.2	171.2
Newcastle - Hexham	32	32	7.8	7.8	7.8
Hexham - Riccarton North Jn,	60	92	19.2	27.0	
Riccarton North Jn. - Hawick	20	112	6.2	33.2	36.2
Hawick - Lauder	37	149	16.0	49.2	55.2
Lauder - Edinburgh	45	194	18.1	67.4	76.4

Current fastest time (minutes) from London [and the above values] to:

- York 110 [60]
- Darlington 139 [88]
- Durham 173 [103]
- Edinburgh 260 [171]

And from Newcastle:

- Edinburgh 85 (via ECML, of course). [60]

4. UHS Elapsed Times Summary:

Section	Pancras Cross - Liverp'l	Pancras Cross - South Yorks	Pancras Cross - York	Pancras Cross - Middlesbrough	Pancras Cross - N'castle	Pancras Cross - West Yorks.	Pancras Cross - Ed'b'gh	N'castle - Ed'b'gh
Pancras Cross - Sheffield HS	46.8							
Sheffield HS - Manchester HS	64.5							
Manchester HS - Victoria LL	68.8							
Victoria LL - Liverpool Lime St.	84.4							
Pancras Cross - Chesterfield		43.9						
Chesterfield - Sheffield Midland		55.3						
Sheffield Midland - Rotherham		63.9						
Rotherham - South Yorkshire LL		73.0						
Sheffield Midland - Barnsley		72.0						
Pancras Cross - South Yorkshire			47.1	47.1	47.1	47.1		
South Yorkshire - Wakefield Westgate			59.4					
Wakefield Westgate - Leeds New Lane			70.0					

South Yorkshire / Leeds - York HS			85.5	66.7	66.7			
York HS - Northallerton				87.4				
Northallerton - Yarm				98.2				
Yarm - Eaglescliffe				104.7				
Eaglescliffe - Thornaby				111.5				
Thornaby - Middlesborough				118.4				
York HS - Darlington					89.8			
Darlington - Durham Relly Mill					103.1			
Durham Relly Mill - Consett					113.8			
Consett - Newcastle					124.5			
South Yorkshire - Leeds City						63.6		
Leeds City - Shipley						75.1		
Shipley - Bradford City						81.9		
Bradford City - Halifax						91.7		
Shipley - Keighley						85.8		
Keighley - Skipton						96.9		
Pancras Cross - York							59.3	
York - Darlington							82.3	

Darlington - Durham Relly Mill							95.7	
Durham Relly Mill - Consett							106.4	
Consett - Hexham							118.7	
Hexham - Hawick							141.5	
Hawick - Edinburgh							162.6	
Newcastle - Hexham								12.1
Hexham - Hawick								34.9
Hawick - Lauder								48.5
Lauder - Edinburgh								63.4

5. *HS Metro Services London – York / Preston (8/9 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Luton & Dunstable Pkwy	51.0	51.0	12.9	12.9	12.9
Luton & Dunstable Pkwy - Milton Keynes Parkway	18.0	69.0	7.3	20.2	23.2
Milton Keynes Parkway - Northampton Castle	33.0	102.0	9.9	30.2	36.2
Northampton Castle - Langborough Junction	18.0	120.0	6.0	36.2	
Langborough Junction - Leicester	40.0	160.0	8.7	44.9	53.9
Leicester - Stanford Junction	20.0	180.0	6.3	51.2	
Stanford Junction - Nottingham	22.0	202.0	5.7	56.9	68.9
Nottingham - Derby	26.0	228.0	8.8	65.7	80.7
Nottingham - Nuthall South Junction.	7.4	209.4	3.7	60.6	
Nuthall South Junction - Wales Junction	43.0	252.4	7.8	68.4	
Wales Junction - Waleswood Junction	0.8	253.2	0.2	68.6	
Waleswood Jinction - Sheffield HS	10.6	263.7	3.9	72.4	89.4
Sheffield HS - Huddersfield	51.0	314.7	14.1	86.6	106.6
Huddersfield - Leeds New Lane	24.0	338.7	8.5	95.1	118.1
Leeds New Lane - Garforth East Jn.	10.8	349.5	4.6	99.6	
Garforth East Junction - Ulleskelf Junction	15.0	364.5	3.1	102.7	
Ulleskelf Jn. - York HS	14.0	378.5	4.8	107.5	133.5
Sheffield HS - Manchester HS	55.0	318.7	14.7	87.1	107.1
Manchester HS - Victoria LL	0.5	319.2	1.2	88.3	111.3
Victoria LL - Bolton	17.0	336.2	7.1	95.4	121.4
Bolton - Gibb Farm Junction	8.0	344.2	3.9	99.3	

Gibb Farm Junction - Preston	24.0	360.2	6.1	105.4	134.4
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Note that the service to Derby involves one change – a (cross-platform) connection at Nottingham into an HS7 service, either Skegness or Cleethorpes to Birmingham. The HS3 service accordingly is given a 5 minute wait at Nottingham, since the HS7 service has the main line through Strelley and Awsworth junctions, whereas the HS3 service has to slow to diverge at Strelley.

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the above values] to:

• Luton [& Dunstable Pkwy]	21		[13]
• Milton Keynes [Parkway]	30		[23]
• Northampton	51		[36]
• Leicester	62		[54]
• Nottingham	100	(51/68*)	[69]
• Derby	85	(51/71*)	[81]
• Sheffield	120		[89]
• Huddersfield	162 (with 1 change)		[107]
• Leeds	131		[118]
• York	110		[133]
• Manchester HS	127		[107]
• Bolton	164 (with 1 change)		[121]
• Preston	128		[134]

(*) 51 minutes is HS2 Ltd.'s estimate from London to Toton (with 1 stop), 68 minutes to Nottingham Midland and 71 to Derby Midland. HS3's value of 68 minutes to Nottingham is with 3 stops, and 80 minutes to Derby is with 4 stops and 1 change. Purely for illustration, a non-stop London – Nottingham service by HS3 would take 38 minutes, and reach Derby in 49 minutes. I was not actually proposing such a service, initially, but, having seen what would be possible, this will certainly be one of the additional services enabled by HS3 Mk2's capacity enhancements. (See below, following SP6, for illustrative non-stop times.)

Okay, so even a HS Metro train can't, travelling via Huddersfield and with 7 intermediate stops, beat a non-stop service to York, straight up the ECML. But see the corresponding UHS services to York. Remarkably, it still beats the fastest service to Leeds, by a comfortable margin (but, again, see the UHS service to Leeds and on to York).

Moreover, even travelling via the East Midlands, with 6 intermediate stops, the HS Metro service still beats the current best time to Manchester (comfortably) and, with 8 intermediate stops, is just 6 minutes slower to Preston

6. *HS-C St. Pancras West – York / Manchester / Liverpool / Chester*
(12/10/12/13 stops):

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
St. Pancras - Luton & Dunstable Pkwy	51.0	51.0	12.9	12.9	12.9
Luton & Dunstable Pkwy - Milton Keynes Pkwy	18.0	69.0	7.3	20.2	23.2
Milton Keynes Pkwy - Northampton Castle	33.0	102.0	9.9	30.2	36.2
Northampton Castle - Langborough Junction	18.0	120.0	6.0	36.2	
Langborough Junction - Leicester	40.0	142.0	8.7	50.5	53.9
Leicester - Loughborough	20.1	162.1	8.5	59.0	65.4
Loughborough - Derby	26.2	188.3	10.3	69.3	78.7
Leicester - East Midlands Pkwy	30.9	172.9	11.7	62.2	68.6
East Midlands Pkwy - Derby	15.4	188.3	7.1	69.3	78.7
Derby - Chesterfield	38.8	227.1	14.1	83.4	95.8
Chesterfield - Sheffield	19.8	246.9	8.4	91.9	107.2
Sheffield - Rotherham	9.7	256.6	5.6	97.5	115.8
Rotherham - Wakefield Westgate	36.8	293.4	15.8	113.2	134.6
Wakefield Westgate - Leeds City	16.2	309.6	8.1	121.3	145.6
Leeds City - Micklefield	15.7	325.3	7.9	129.2	156.5
Micklefield - York	25.5	350.8	9.6	138.7	169.1
Sheffield - Chinley	32.0	278.9	14.0	105.8	126.2
Chinley - Stockport	18.2	297.1	8.8	114.6	138.0
Stockport - Manchester Piccadilly	9.4	306.5	5.3	119.9	146.3
Northampton Castle - Rugby	30.5	132.5	11.6	41.8	50.8
Rugby - Coventry	18.5	151.0	8.0	49.8	61.8
Coventry - Birmingham International	17.2	168.2	7.6	57.5	72.5
Birmingham International - Birmingham New St.	13.3	181.5	6.5	63.9	81.9

Birmingham New St. = Wolverhampton	20.7	202.2	9.7	73.7	94.7
Wolverhampton - Stafford	26.0	228.2	10.3	83.9	107.9
Stafford - Crewe	39.4	267.6	13.3	97.2	124.2
Crewe - Runcorn	36.2	303.8	12.4	109.6	139.6
Runcorn - Liverpool South Parkway	12.0	315.8	6.1	115.7	148.7
Liverpool South Parkway - Liverpool Lime St.	9.2	325.0	5.2	120.9	156.9
Wolverhampton - Telford	25.2	227.4	9.5	83.2	107.2
Telford - Wellington	6.2	233.6	4.3	87.4	114.4
Wellington - Shrewsbury	16.5	250.1	7.2	94.6	124.6
Shrewsbury - Gobowen	29.0	279.1	10.5	105.1	138.1
Gobowen - Wrexham	19.6	298.7	8.3	113.5	149.5
Wrexham - Chester	19.4	318.1	8.3	121.8	160.8

Current fastest time (minutes) from London [and the above values] to:

• Luton [& Dunstable Parkway]	21	[13]
• Milton Keynes [Parkway]	30	[23]
• Northampton	51	[36]
• Leicester	62	[54]
• Loughborough	73	[65]
• East Midlands Parkway	81	[69]
• Derby	85	[79]
• Chesterfield	105	[96]
• Sheffield	120	[107]
• Rotherham	136 (1 change)	[116]
• Wakefield Westgate	114	[135]
• Leeds	131	[146]
• Micklefield	140 (1 change)	[157]
• York	110	[169]
• Chinley	177 (1 change)	[126]
• Stockport	115	[138]
• Manchester Piccadilly	123	[146]
• Rugby	48	[51]
• Coventry	59	[62]
• Birmingham International	70	[73]
• Birmingham New St.	82	[82]
• Wolverhampton	107	[95]
• Stafford	77	[108]
• Crewe	90	[114]
• Runcorn	113	[140]

• Liverpool South Parkway	140	[149]
• Liverpool Lime St.	132	[157]
• Telford	124	[107]
• Wellington	161	[114]
• Shrewsbury	148	[125]
• Gobowen	163 (1 change)	[138]
• Wrexham	144 (1 change)	[150]
• Chester	121	[161]

Wakefield, Leeds and York (current) times are, of course, via the ECML, likewise Stafford, Crewe, Stockport, Manchester, Runcorn, Liverpool and Chester via the WCML, which isn't really comparing like with like.

The Manchester times are given via Sheffield (reverse) and the Hope Valley, though via the High Peak would be much preferable. The High Peak route should be reopened without delay. Sheffield has plenty of services, and can easily spare a few for Matlock, Bakewell and Buxton (by connection).

Note that only one of either Loughborough or East Midland Parkway is served by a given train – the York trains serve Loughborough and the Manchester trains serve East Midlands Parkway.

The HS-C times to Rugby, Coventry and the Birmingham stations are essentially the same as the current best, but that to Northampton very much better (naturally).

Likewise the HS-C times as far as Leicester are very much better than current times. The times beyond Leicester (until Wakefield!) remain much better than current times, but not quite as good as those up as far as Leicester.

7. *HS Metro and HS-C Elapsed Times Summary:*

Section	HS Metro Pancras Cross - York	HS Metro Pancras Cross - Preston	HS-C St. Pancras - Wolverhampton - Liverpool / Chester	HS-C St. Pancras - York	HS-C St. Pancras - Manchester
Pancras Cross - Luton & Dunstable Parkway	12.9	12.9			
St. Pancras - Luton & Dunstable Parkway			12.9	12.9	12.9
Luton & Dunstable Parkway - Milton Keynes Parkway	23.2	23.2	23.2	23.2	23.2
Milton Keynes Parkway - Northampton Castle	36.2	36.2	36.2	36.2	36.2
Northampton Castle - Leicester	53.9	53.9		53.9	53.9
Leicester - Nottingham	68.9	68.9			
Nottingham - Derby	80.7	80.7			
Nottingham - Sheffield HS	89.4	89.4			
Sheffield HS - Huddersfield	106.5				
Huddersfield - Leeds New Lane	118.0				
Leeds New Lane - York	133.4				
Sheffield HS - Manchester HS		107.1			
Manchester HS - Victoria LL		111.3			
Victoria LL - Bolton		121.4			
Bolton - Preston		134.3			
Northampton Castle - Rugby HS			50.8		
Rugby HS - Coventry HS			61.8		
Coventry HS - Birmingham International			72.5		
Birmingham International - Birmingham New St.			81.9		
Birmingham New St. - Wolverhampton			94.7		
Wolverhampton - Stafford			107.9		
Stafford - Crewe			124.2		
Crewe - Runcorn			139.6		
Runcorn - Liv. S, Parkway			148.7		
Liv. S. Pkwy - Liv. Lime St.			156.9		

Wolverhampton - Telford			107.2		
Telford - Wellington			114.4		
Wellington - Shrewsbury			124.6		
Shrewsbury - Gobowen			138.1		
Gobowen - Wrexham			149.5		
Wrexham - Chester			160.8		
Leicester - Loughborough				65.4	
Loughborough - Derby				78.7	
Leicester - East Midlands Parkway					68.6
East Midlands Parkway - Derby					78.7
Derby - Chesterfield				95.8	95.8
Chesterfield - Sheffield				107.2	107.2
Sheffield - Rotherham				115.8	
Rotherham - Wakefield Westgate				134.6	
Wakefield Westgate - Leeds City				145.6	
Leeds City - Micklefield				156.5	
Micklefield - York				169.1	
Sheffield - Chinley					126.2
Chinley - Stockport					138.0
Stockport - Manchester Piccadilly					146.3

HS3 App Q

1. UHS Services London – South Yorkshire (LL) / Barnsley / York / Halifax / Skipton (3/2/3/4/4 stops)

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Stonebroom Jn.	216.0	216.0	59.3	59.3	
Stonebroom Jn. - Chesterfield	10.0	226.0	3.9	63.3	63.3
Chesterfield - Sheffield Midland	19.8	245.8	8.4	71.7	74.7
Sheffield Midland - Barnsley	25.8	271.6	11.7	83.3	91.3
Sheffield Midland - Rotherham	9.7	255.5	5.6	77.3	83.3
Rotherham - South Yorkshire LL	11.0	266.5	6.1	83.4	92.4
South Yorkshire LL - Doncaster	9.6	276.1	5.6	89.0	101.0
Doncaster - Goole	27.3	303.4	10.7	99.6	114.6
Goole - Gilberdyke	10.8	314.2	5.7	105.3	123.3
Gilberdyke - Hull Paragon	27.3	341.5	10.7	116.0	137.0
Pancras Cross - South Yorkshire HL	253.0	253.0	70.2	70.2	70.2
South Yorkshire HL - Wakefield Westgate	27.0	280.0	10.0	80.2	83.2
Wakefield Westgate - Leeds New Lane	15.0	295.0	7.6	87.8	93.8
Leeds New Lane - York HS	39.8	334.8	13.4	101.2	110.2
South Yorkshire HL - Swillington Common Junction	37.9	290.9	11.9	82.1	
Manston Jn. - Leeds City	8.0	298.9	3.3	82.1	88.4
Leeds City - Shipley	17.3	316.2	8.5	90.6	99.9
Shipley - Bradford City	4.9	321.1	3.8	94.4	106.7
Bradford City - Halifax	12.8	333.9	6.8	101.2	116.5
Leeds City - Shipley	17.3	316.2	8.5	90.6	101.9
Shipley - Keighley	10.0	326.2	5.7	96.3	110.6
Keighley - Skipton	16.4	342.6	8.1	104.4	121.7

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the 360kph values] {and the above 225kph values} to:

- Chesterfield 105 [43] {63}
- Sheffield 120 (69/79*) [55] {75}

• Barnsley	155 (1 change)	[72]	{91}
• Rotherham	136 (1 change)	[63]	{83}
• South Yorkshire LL (via Sheffield)		[73]	{92}
• Doncaster		[81]	{101}
• Goole		[95]	{115}
• Gilberdyke		[104]	{123}
• Hull Paragon		[117]	{137}
• South Yorkshire HL (direct)		[47]	{70}
• Wakefield	115	[59]	{83}
• Leeds	131 (83)	[70/63]	{94}
• York	110	[85]	{110}
• Shipley	152 (1 change)	[74]	{100}
• Bradford	168 (2 changes)	[81]	{107}
• Halifax	171	[91]	{117}
• Keighley	166 (1 change)	[85]	{111}
• Skipton	184 (1 change)	[96]	{122}

(*) 69 minutes is HS2 Ltd.’s estimate from London to the old South Yorkshire (Sheffield Meadowhall), and 79 minutes to Sheffield Midland. These values, and that for Leeds, show very clearly the time penalty imposed by the ridiculous routing via Birmingham. Note that the above service to Sheffield is not the fastest – see section 2, following. Likewise the service to York – via Leeds – is very much not the fastest – see sections 2 and 3.

The services to South Yorkshire LL and Barnsley split / join at Sheffield Midland. The Barnsley portion is given a 5 minute station wait at Sheffield, departing 2 minutes after / arriving 2 minutes before the South Yorkshire portion. Likewise the services to Halifax and Skipton split / join at Leeds City, the Skipton portion having a 5 minute wait there.

2. *UHS Services London – Derby/Liverpool /Preston/York/Middlesborough/
Newcastle (1/3/4/1/6/5 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Nottingham	192.0	192.0	54.0	54.0	54.0
Nottingham - Derby	26.0	218.0	9.7	63.7	66.7
Pancras Cross - Sheffield HS	247.4	247.4	68.8	68.8	68.8
Sheffield HS - Manchester HS	55.0	302.4	17.4	86.2	89.2
Manchester HS - M/C Victoria LL	0.5	302.9	1.2	87.4	93.4
M/C Victoria LL - Liverpool Lime St.	49.0	351.9	15.8	103.3	112.3
M/C Victoria LL - Bolton	17.0	319.9	7.3	94.7	103.7
Bolton - Preston	32.0	351.9	11.3	106.0	118.0
Pancras Cross - South Yorkshire HL	253.0	253.0	70.2	70.2	70.2
South Yorkshire HL - York HS	67.0	320.0	20.6	90.9	93.9
York HS - Northallerton	48.2	368.2	15.6	106.5	114.5
Northallerton - Yarm	18.9	387.1	7.8	114.3	125.3
Yarm - Eaglescliffe	4.1	391.2	3.5	117.8	131.8
Eaglescliffe - Thornaby	4.8	396.0	3.8	121.6	138.6
Thornaby - Middlesborough	5.2	401.2	3.9	125.5	145.5
York HS - Darlington	70.0	390.0	21.4	112.3	118.3
Darlington - Durham Relly Mill	33.0	423.0	11.6	123.9	132.9
Durham Relly Mill - Consett	20.0	443.0	8.1	132.0	144.0
Consett - Newcastle	20.0	463.0	8.1	140.1	155.1

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the 360kph values] {and the above 225kph values } to:

• Nottingham	100	(51/68*)	[37]	{54}
• Derby	85	(51/72*)	[49]	{67}
• Sheffield	120		[46]	{69}
• Manchester	127	(68)	[64]	{89}
• Liverpool	128	(96)	[84]	{112}
• Bolton	164 (1 change)		[78]	{104}
• Preston	128		[91]	{118}
• York	110		[66]	{94}
• Northallerton	144		[87]	{115}
• Yarm	174 (1 change)		[98]	{125}
• Eaglescliffe	163		[104]	{132}
• Thornaby	169 (1 change)		[111]	{139}
• Middlesbrough	176 (1 change)		[118]	{146}
• Darlington	139		[89]	{119}
• Durham	173		[103]	{133}
• Newcastle	169		[124]	{155}

The services to Newcastle and Middlesbrough split / join at York. The Middlesbrough portion is given a 5 minute station wait at York, departing 2 minutes after / arriving 2 minutes before the Newcastle portion.

3. *UHS Services London / Newcastle – Edinburgh (6/3 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - York HS	320.0	320.0	88.1	88.1	88.1
York HS - Darlington	70.0	390.0	21.4	109.6	112.6
Darlington - Durham Relly Mill	33.0	423.0	11.6	121.1	127.1
Durham Relly Mill - Consett	20.0	443.0	8.1	129.2	138.2
Consett - Hexham	23.0	466.0	9.4	138.6	150.6
Hexham - Hawick	80.0	546.0	24.1	162.7	177.7
Hawick - Edinburgh	82.0	628.0	24.6	162.7	205.4
Newcastle - Hexham	32.0	32.0	12.1	12.1	12.1
Hexham - Hawick	80.0	112.0	24.1	36.2	39.2
Hawick - Lauder	37.0	149.0	12.6	48.8	54.8
Lauder - Edinburgh	45.0	194.0	14.8	63.6	72.6

Current fastest time (minutes) from London [and the 360kph values] {and the above 225kph values } to:

• York	110	[59]	{88}
• Darlington	139	[82]	{113}
• Durham	173	[95]	{127}
• Hexham	235 (1 change)	[118]	{151}
• Hawick		[141]	{178}
• Edinburgh	260	[162]	{205}

And from Newcastle:

• Hexham	31	[12]	{12}
• Hawick		[35]	{39}
• Lauder		[49]	{55}
• Edinburgh	85 (via ECML, of course).	[63]	{73}

5. *HS Metro Services London – York / Preston (9/10 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - West Hampstead	6.3	6.3	4.5	4.5	4.5
West Hampstead - Luton & Dunstable Pkwy	44.7	51.0	14.7	19.2	22.2
Luton & Dunstable Pkwy - Milton Keynes Parkway	18.0	69.0	7.6	26.8	32.8
Milton Keynes Parkway - Northampton Castle	33.0	102.0	11.6	38.4	47.4
Northampton Castle - Leicester	58.0	160.0	18.2	56.6	68.6
Leicester - Nottingham	42.0	202.0	14.0	70.6	85.6
Nottingham - Derby	26.0	228.0	9.7	80.3	100.3
Leicester - Melton Mowbray (reverse)	24.1	184.1	9.7	66.3	81.3
Melton Mowbray - Nottingham	30.1	214.2	10.8	77.1	97.1
Nottingham - Derby	26.0	240.2	9.7	86.8	109.8
Nottingham - Sheffield HS	61.7	263.7	19.2	89.8	107.8
Sheffield HS - Huddersfield	51.0	314.7	16.4	106.2	127.2
Huddersfield - Leeds New Lane	24.0	338.7	9.2	115.4	139.4

Leeds New Lane - York HS	39.8	378.5	13.4	128.8	155.8
Sheffield HS - Manchester HS	55.0	318.7	17.4	107.3	128.3
Manchester HS - Victoria LL	0.5	319.2	1.2	108.5	132.5
Victoria LL - Bolton	17.0	336.2	7.3	115.8	142.8
Bolton - Preston	32.0	368.2	11.3	127.1	157.1

Current fastest time (minutes) from London (with HS2 Ltd.'s estimates) [and the 360kph values] {and the above 225kph values} to:

• West Hampstead	(no MML service)	[5]	{5}
• Luton [& Dunstable Pkwy]	21	[19]	{22}
• Milton Keynes [Parkway]	30	[30]	{33}
• Northampton	51	[43]	{47}
• Leicester	62	[60]	{69}
• Melton Mowbray	119 (with 1 change)	[73]	{81}
• Nottingham	100 (51/68*)	[74 – 87 via MM]	{86 – 97 MM}
• Derby	85 (51/71*)	[88 – 99 via MM]	{100 – 110 M}
• Sheffield	120	[95]	{108}
• Huddersfield	162 (with 1 change)	[112]	{127}
• Leeds	131	[123]	{139}
• York	110	[139]	{156}
• Manchester HS	127	[113]	{128}
• Bolton	164 (with 1 change)	[127]	{143}
• Preston	128	[140]	{157}

For table 8, HS-C services from St. Pancras West to many places (refer to p.147 et seq.), the 225kph version takes 9 minutes longer to Leicester; thereafter add 9 minutes to every other destination to York and Manchester, and 12 minutes, say to everything via Birmingham.

HS4 Mk1A

1. *HS Euston Cross – Swansea / Plymouth (10/7 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - LHR Interchange	20.0	28.0	8.5	13.3	16.3
LHR Interchange - Foxhall HS Junction	67.5	95.5	14.3	27.6	
Foxhall HS Junction - Swindon	38.4	133.9	11.3	38.9	44.9
Swindon - Bristol Parkway	55.5	189.4	17.6	56.5	65.5
Bristol Parkway - Newport	34.7	224.1	15.0	71.4	83.4
Newport - Cardiff	20.5	244.6	9.7	81.1	96.1
Cardiff - Cardiff Airport	15.0	259.6	6.7	87.8	105.8
Cardiff Airport - Bridgend	26.0	285.6	11.7	99.5	120.5
Bridgend - Port Talbot Parkway	19.6	305.2	9.3	108.8	132.8
Port Talbot Parkway - Neath	10.7	315.9	6.0	114.8	141.8
Neath - Swansea	14.2	330.1	7.3	122.1	152.1
Bristol Parkway - Bristol Temple Meads	9.2	198.6	5.2	61.7	73.7
Bristol temple Meads - Taunton	72.0	270.6	24.1	85.8	100.8
Taunton - Exeter St. David's	49.5	320.1	17.3	103.1	121.1
Exeter St. David's - Plymouth	65.0	385.1	15.3	118.4	139.4

Current fastest time (minutes) from London [and the above values] to:

• Swindon	52	[45]
• Bristol Parkway	79	[66]
• Newport	105	[83]
• Cardiff	121	[96]
• Bridgend	144	[121]
• Port Talbot	157	[133]
• Neath	165	[142]
• Swansea	178	[152]
• Bristol Temple Meads	99	[74]
• Taunton	102	[101]
• Exeter St. David's	120	[121]
• Plymouth	179	[139]

2. *HS Paddington – Plymouth [– Cornwall] (5 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Paddington - Old Oak Common	5.0	5.0	3.9	3.9	3.9
Old Oak Common - LHR Interchange	20.0	25.0	8.5	12.4	15.4
LHR Interchange - Reading Parkway LL	37.0	62.0	10.6	23.0	29.0
Reading Parkway LL - Taunton	169.5	231.5	53.3	76.3	85.3
Taunton - Exeter St. David's	49.5	281.0	17.3	93.6	105.6
Exeter St. David's - Plymouth	65.0	346.0	15.3	108.9	123.9

Current fastest time (minutes) from London [and the above times] to:

- Taunton 102 [85]
- Exeter St. David's 120 [106]
- Plymouth 179 [124]

Current fastest time (minutes) from Reading (General) [and the above times (from Reading Parkway)] to:

- Taunton 74 [53]
- Exeter St. David's 93 [74]
- Plymouth 152 [92]

(remembering to subtract 3 minutes for the Reading wait time.)

4. *HS Paddington – Bristol / Cardiff / Worcester (8/15/11 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Paddington - Old Oak Common	5.0	5.0	3.9	3.9	3.9
Old Oak Common - LHR Interchange	20.0	25.0	8.5	12.3	15.3
LHR Interchange - Reading Parkway LL	37.0	62.0	10.6	22.9	28.9
Reading Parkway LL - Didcot Parkway	30.0	92.0	9.4	32.4	41.4
Didcot Parkway - Swindon	38.9	130.9	13.2	45.5	57.5
Swindon - Royal Wootton Bassett	9.0	139.9	5.2	50.7	65.7
Royal Wootton Bassett - Chippenham	17.8	157.7	7.8	58.5	76.5
Chippenham - Bath Spa	20.8	178.5	8.7	67.2	88.2
Bath Spa - Bristol Temple Meads	18.5	197.0	8.0	75.2	99.2
Swindon - Kemble	22.0	152.9	9.1	54.6	69.6
Kemble - Stroud	18.0	170.9	7.9	62.5	80.5
Stroud - Stonehouse	4.4	175.3	4.6	67.0	88.0
Stonehouse - Gloucester	14.7	190.0	6.9	73.9	97.9
Gloucester - Lydney	31.2	221.2	13.7	87.6	114.6
Lydney - Chepstow	12.8	234.0	6.8	94.4	124.4
Chepstow - Caldicot	10.7	244.7	6.0	100.3	133.3
Caldicot - Severn Tunnel Junction	1.2	245.9	1.8	102.1	138.1
Severn Tunnel Junction - Newport	15.9	261.8	7.9	110.1	149.1
Newport - Cardiff	20.5	282.3	9.7	119.7	161.7
Cardiff - Cardiff Airport	15.0	297.3	6.7	126.4	171.4
Gloucester - Cheltenham Spa	14.0	204.0	6.7	80.6	107.6
Cheltenham Spa - Ashchurch	11.7	215.7	6.0	86.6	116.6
Ashchurch - Worcester Shrub Hill	22.4	238.1	9.2	95.7	128.7

-Current fastest time (minutes) from London [and the above values] to:

• Reading	24	[29]
• Didcot	38	[41]
• Swindon	52	[58]
• Chippenham	70	[77]
• Bath Spa	83	[88]
• Bristol TM	99	[99]
• Kemble	72	[70]
• Stroud	90	[80]
• Stonehouse	93	[88]
• Gloucester	113	[98]
• Lydney	157	[115]
• Chepstow	152	[124]
• Cheltenham Spa	130	[108]
• Ashchurch	139	[117]
• Worcester	123	[129]

Current fastest time (minutes) from Reading (General) [and the above times (from Reading Parkway)] to:

• Didcot	13	[10]
• Swindon	26	[269]
• Chippenham	41	[45]
• Bath Spa	56	[56]
• Bristol TM	72	[67]
• Kemble	47	[38]
• Stroud	62	[49]
• Stonehouse	68	[56]
• Gloucester	86	[66]
• Lydney	136	[83]
• Chepstow	125	[92]
• Cheltenham Spa	102	[76]
• Ashchurch	111	[85]
• Worcester	93	[97]

(remembering to subtract 3 minutes for the Reading wait time.)

5. *HS Euston Cross – Weymouth / Bournemouth West (12/9 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - LHR Interchange	20.0	28.0	8.5	13.3	16.3
LHR Interchange - Reading Parkway HL	37.0	65.0	10.6	23.9	29.9
Reading Parkway HL - Basingstoke HS	17.0	82.0	8.4	32.3	41.3
Basingstoke HS - Winchester	30.1	112.1	11.5	43.8	55.8
Winchester - So'ton Airport Parkway	13.4	125.5	6.5	50.3	65.3
So'ton Airport Parkway - Southampton Central	34.7	160.2	4.6	54.9	72.9
Southampton Central - Brockenhurst	21.9	182.1	10.2	65.0	86.0
Brockenhurst - Bournemouth Central	24.5	206.6	11.2	76.2	100.2
Bournemouth Central - Poole	9.3	215.9	5.5	81.7	108.7
Poole - Wareham	11.1	227.0	6.1	87.8	117.8
Wareham - Dorchester South	24.1	251.1	11.0	98.8	131.8
Dorchester South - Weymouth	11.4	262.5	6.3	105.1	141.1
Bournemouth Central - Bournemouth West	6.0	212.6	4.2	80.4	107.4

Current fastest time (minutes) from London [and the above values] to:

- Basingstoke HS 42 [41]
- Winchester 57 [56]
- So'ton Airport Pkwy 66 [65]
- Southampton Central 74 [73]
- Brockenhurst 89 [86]
- Bournemouth Central 105 [100]
- Poole 121 [109]
- Wareham 133 [118]
- Dorchester South 149 [132]
- Weymouth 160 [141]

6. *HS Euston Cross – Salisbury / Exeter / Plymouth (19 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - LHR Interchange	20.0	28.0	8.5	13.3	16.3
LHR Interchange - Reading Parkway HL	37.0	65.0	10.6	23.9	29.9
Reading Parkway HL - Basingstoke HS	17.0	82.0	8.4	32.3	41.3
Basingstoke HS - Salisbury	30.1	112.1	11.5	43.8	55.8
Salisbury - Tisbury	20.3	132.4	9.6	53.4	68.4
Tisbury - Gillingham	14.7	147.1	7.5	60.9	78.9
Gillingham - Templecombe	12.5	159.6	6.7	67.5	88.5
Templecombe - Sherborne	11.3	170.9	6.2	73.7	97.7
Sherborne - Yeovil Junction	7.3	178.2	4.7	78.5	105.5
Yeovil Junction - Crewkerne	15.8	194.0	7.9	86.4	116.4
Crewkerne - Chard Parkway	12.9	206.9	6.8	93.2	126.2
Chard Parkway - Axminster	8.2	215.1	5.1	98.2	134.2
Axminster - Honiton	16.5	231.6	8.2	106.4	145.4
Honiton - Exeter Central	28.3	259.9	12.6	119.0	161.0
Exeter Central - Exeter St. David's	1.1	261.0	1.8	120.8	165.8
Exeter St. David's - Okehampton	40.5	301.5	17.2	137.9	185.9
Okehampton - Tavistock	24.0	325.5	11.0	148.9	199.9
Tavistock - Bere Alston	9.0	334.5	5.4	154.3	208.3
Bere Alston - Plymouth	18.3	352.8	8.8	163.1	220.1

Current fastest time (minutes) from London [and the above values] to:

- Basingstoke HS 42 [41]
- Salisbury 82 [56]
- Tisbury 106 [68]
- Gillingham 116 [79]
- Templecombe 125 [89]
- Sherborne 132 [98]
- Yeovil Junction 138 [106]
- Crewkerne 148 [116]
- Axminster 162 [134]
- Honiton 175 [145]
- Exeter Central 195 [161]
- Exeter St. David's 203 [166]

Mk1A vs Mk1 Estimated Journey Times

It is worth summarising the journey time estimates at Mk1A, with the original Mk1 results.

London to:	Current	Mk1	Mk1A
Swindon	52.0	38.2	44.9
Bristol Parkway	79.0	48.4	65.5
Cardiff	121.0	63.8	96.1
Cardiff Airport		73.5	105.8
Port Talbot	157.0	88.0	132.8
Swansea	178.0	97.2	152.1
Bristol Temple Meads	99.0	56.3	73.7
Taunton	102.0	76.2	85.3
Exeter St. David's	120.0	92.5	105.6
Plymouth	179.0	112.2	123.9

These are the absolute fastest times now, as predicted at Mk1 and now Mk1A. Clearly the Mk1A values are slower than Mk1, a lot slower in many cases, but good results nonetheless. They all show worthwhile improvement on current timings. Mk1A is, of course, a fraction of the price of Mk1, the original proposal, and could be implemented in a much shorter time. (Note that the Mk1A West Country times are via the Berks and Hants route. The corresponding values via Bristol at Mk1A are 100.8, 121.1 and 139.4.)

Mk1A can be regarded as a 'cut-down' Mk1. The following sections consider what the effects would be of piecemeal inclusion of the Mk1 parts which had been left out. We call this Mk2 because, even if all the excluded sections were re-included, the result would not be identical to the original Mk1, since the original design has been completely reworked around Reading, allowing Reading services to be provided also, which were not originally present, and also enabling the completely new provision of services on the South Western lines to Bournemouth and the West Country, thus providing valuable relief to Waterloo.

There are few changes proposed to the services provided.

HS4 Mk2

Mk2.3/1. HS Euston Cross – Swansea / Plymouth (6/6 stops):

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - LHR Interchange	20.0	28.0	8.5	13.3	16.3
LHR Interchange - Bristol Parkway HS	161.4	189.4	31.3	44.7	50.7
Bristol Parkway HS - Cardiff HS	48.0	237.4	12.4	57.1	66.1
Cardiff HS - Cardiff Airport	15.0	252.4	6.7	63.8	75.8
Cardiff Airport - Port Talbot Parkway	39.0	291.4	10.9	74.7	89.7
Port Talbot Parkway - Swansea HS	13.0	304.4	6.2	80.9	98.9
Bristol Parkway - Bristol Temple Meads	8.0	197.4	4.9	49.5	58.5
Bristol Temple Meads - Taunton	72.0	269.4	16.4	66.0	78.0
Taunton - Exeter St. David's	49.5	318.9	12.7	78.7	93.7
Exeter St. David's - Plymouth	65.0	383.9	15.3	94.0	112.0

Current fastest time (minutes) from London [and the above values] to:

- Bristol Parkway 79 [51]
- Cardiff 121 [66]
- Port Talbot 157 [90]
- Swansea 178 [99]
- Bristol Temple Meads 99 [59]
- Taunton 102 [78]
- Exeter St. David's 120 [94]
- Plymouth 179 [112]

Mk2.2/4. HS Paddington – Bristol / S.Wales / Worcester (8/14/15/11 stops):

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Paddington - Old Oak Common	5.0	5.0	3.9	3.9	3.9
Old Oak Common - LHR Interchange	20.0	25.0	8.5	12.3	15.3
LHR Interchange - Reading Parkway LL	37.0	62.0	10.6	22.9	28.9
Reading Parkway LL - Swindon	68.9	130.9	15.9	38.9	47.9
Swindon - Bristol Parkway	55.5	186.4	13.7	52.6	64.6
Bristol Parkway - Newport	34.7	221.1	15.0	67.5	82.5
Newport - Cardiff	20.5	241.6	9.7	77.2	95.2
Cardiff - Cardiff Airport	15.0	256.6	6.7	83.9	104.9
Cardiff Airport - Bridgend	24.0	280.6	8.4	92.3	116.3
Bridgend - Port Talbot Parkway	19.6	300.2	9.3	101.6	128.6
Port Talbot Parkway - Neath	10.7	310.9	6.0	107.6	137.6
Neath - Swansea (reverse)	14.2	325.1	7.3	114.9	149.9
Swansea - Llanelli	18.1	343.2	8.8	123.7	161.7
Llanelli - Pembrey and Burry Port	6.4	349.6	4.4	128.1	169.1
Pembrey and Burry Port - Carmarthen	26.3	375.9	11.8	139.9	183.9
Reading Parkway LL - Didcot Parkway	30.0	92.0	9.4	32.4	41.4
Didcot Parkway - Swindon	38.9	130.9	13.2	45.5	57.5
Swindon - Royal Wootton Bassett	9.0	139.9	5.2	50.7	65.7
Royal Wootton Bassett - Chippenham	17.8	157.7	7.8	58.5	76.5
Chippenham - Bath Spa	20.8	178.5	8.7	67.2	88.2
Bath Spa - Bristol Temple Meads	18.5	197.0	8.0	75.2	99.2
Swindon - Kemble	22.0	152.9	9.1	54.6	69.6
Kemble - Stroud	18.0	170.9	7.9	62.5	80.5

Stroud - Stonehouse	4.4	175.3	4.6	67.0	88.0
Stonehouse - Gloucester	14.7	190.0	6.9	73.9	97.9
Gloucester - Lydney	31.2	221.2	13.7	87.6	114.6
Lydney - Chepstow	12.8	234.0	6.8	94.4	124.4
Chepstow - Caldicot	10.7	244.7	6.0	100.3	133.3
Caldicot - Severn Tunnel Junction	1.2	245.9	1.8	102.1	138.1
Severn Tunnel Junction - Newport	15.9	261.8	7.9	110.1	149.1
Newport - Cardiff	20.5	282.3	9.7	119.7	161.7
Cardiff - Cardiff Airport	15.0	297.3	6.7	126.4	171.4
Gloucester - Cheltenham Spa	14.0	204.0	6.7	80.6	107.6
Cheltenham Spa - Ashchurch	11.7	215.7	6.0	86.6	116.6
Ashchurch - Worcester Shrub Hill	22.4	238.1	9.2	95.7	128.7

Note that a 5min wait time is assumed for reversal at Swansea.

Current fastest time (minutes) from London [and the above values] to:

- Reading 24 [29]
- Swindon 52 [48]
- Bristol Parkway 79 [65]
- Newport 105 [83]
- Cardiff 121 [95]
- Bridgend 144 [116]
- Port Talbot 157 [129]
- Neath 165 [138]
- Swansea 178 [148]
- Llanelli 215 [162]
- Pembrey and Burry Port 222 [169]
- Carmarthen 245 [184]
- Didcot 38 [41]
- Swindon 52 [58]
- Chippenham 70 [77]
- Bath Spa 83 [88]
- Bristol TM 99 [99]
- Kemble 72 [70]
- Stroud 90 [81]
- Stonehouse 93 [88]
- Gloucester 113 [98]
- Lydney 157 [115]

- Chepstow 152 [124]
- Cheltenham Spa 130 [108]
- Ashchurch 139 [117]
- Worcester 123 [129]

Current fastest time (minutes) from Reading (General) [and the above times (from Reading Parkway)] to:

- Swindon 26 [16]
- Bristol Parkway 52 [33]
- Newport 78 [51]
- Cardiff 94 [63]
- Bridgend 117 [84]
- Port Talbot 130 [97]
- Neath 138 [106]
- Swansea 151 [116]
- Llanelli 188 [130]
- Pembrey and Burry Port 195 [137]
- Carmarthen 218 [152]
- Didcot 13 [9]
- Swindon 26 [26]
- Chippenham 41 [45]
- Bath Spa 56 [57]
- Bristol TM 72 [67]
- Kemble 47 [38]
- Stroud 62 [48]
- Stonehouse 68 [56]
- Gloucester 86 [66]
- Lydney 136 [83]
- Chepstow 125 [92]
- Cheltenham Spa 102 [76]
- Ashchurch 111 [85]
- Worcester 93 [97+]

(remembering to subtract 3 minutes for the Reading wait time.)

Mk2.3/3. HS Euston Cross – Cardiff Airport /Bristol TM (6/5 stops):

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - LHR Interchange	20.0	28.0	8.5	13.3	16.3
LHR Interchange - Reading Parkway LL	37.0	65.0	10.6	23.9	29.9
Reading Parkway LL - Swindon	68.9	133.9	15.9	39.9	48.9
Swindon - Bristol Parkway	55.5	189.4	13.7	53.6	65.6
Bristol Parkway - Cardiff HS	48.0	237.4	12.4	66.0	81.0
Cardiff HS - Cardiff Airport	15.0	252.4	6.7	72.7	90.7
Bristol Parkway - Bristol Temple Meads	8.0	197.4	4.9	58.4	73.4

Current fastest time (minutes) from Reading (General) [and the above times (from Reading Parkway)] to:

- Swindon 26 [16]
- Bristol Parkway 52 [33]
- Cardiff 94 [46]
- Bristol TM 72 [40]

(remembering to subtract 3 minutes for the Reading wait time.)

(The only change from Mk2.2 is the saving of slightly less than half a minute to Bristol Temple Meads – though this now rounds down!)

HS4 App Q

1. UHS Services: Euston Cross – Swansea / Plymouth (6/6 stops):

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - LHR Interchange	20.0	28.0	8.5	13.3	16.3
LHR Interchange - Bristol Parkway HS	161.4	189.4	45.8	59.2	65.2
Bristol Parkway HS - Cardiff HS	48.0	237.4	15.6	74.7	83.7
Cardiff HS - Cardiff Airport	15.0	252.4	6.7	81.4	93.4
Cardiff Airport - Port Talbot Parkway	39.0	291.4	13.2	94.6	109.6
Port Talbot Parkway - Swansea HS	13.0	304.4	6.2	100.8	118.8
Bristol Parkway - Bristol Temple Meads	8.0	197.4	4.9	64.1	73.1
Bristol Temple Meads - Taunton	72.0	269.4	22.0	86.0	98.0
Taunton - Exeter St. David's	49.5	318.9	16.0	102.0	117.0
Exeter St. David's - Plymouth	65.0	383.9	20.1	122.1	140.1

Comparative journey times:

London to:	Current	Mk1	Mk1A	Mk2.0	Mk2.1	Mk2.2	Mk2.3	225 kph
Swindon	52.0	38.2	44.9	41.4	41.4	41.4	41.4	56.1
Bristol Parkway	79.0	48.4	65.5	50.7	50.7	50.7	50.7	65.2
Cardiff	121.0	63.8	96.1	88.8	88.8	66.1	66.1	83.7
Cardiff Airport		73.5	105.8	98.4	98.4	75.8	75.8	93.4
Port Talbot	157.0	88.0	132.8	125.5	122.2	89.7	89.7	109.6
Swansea	178.0	97.2	152.1	144.8	141.5	98.9	98.9	118.8
Bristol Temple Meads	99.0	56.3	73.7	58.9	58.9	58.9	58.5	73.1
Taunton	102.0	76.2	85.3	86.0	86.0	86.0	78.0	98.0
Exeter St. David's	120.0	92.5	105.6	106.3	106.3	106.3	93.7	117.0
Plymouth	179.0	112.2	123.9	124.6	124.6	124.6	112.0	140.1

2. *UHS Services: Euston Cross – Cardiff Airport / Bristol TM (6/5 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Old Oak Common	8.0	8.0	4.9	4.9	4.9
Old Oak Common - LHR Interchange	20.0	28.0	8.5	13.3	16.3
LHR Interchange - Reading Parkway LL	37.0	65.0	12.6	26.0	32.0
Reading Parkway LL - Swindon	68.9	133.9	21.2	47.1	56.1
Swindon - Bristol Parkway	55.5	189.4	17.6	64.7	76.7
Bristol Parkway - Cardiff HS	48.0	237.4	15.6	80.3	95.3
Cardiff HS - Cardiff Airport	15.0	252.4	6.8	87.1	105.1
Bristol Parkway - Bristol Temple Meads	8.0	197.4	4.9	69.6	84.6

HS5 Mk1A

Pancras Cross – Brighton / Newhaven / Eastbourne / Tunbridge Wells / Littlehampton / Bognor / Southampton (3/5/4/4/5/5/10 stops):

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Victoria Low Level	5	5	3.9	3.9	3.9
Victoria Low Level - East Croydon	13	18	6.2	10.1	13.1
East Croydon - Gatwick Airport	30	48	9.7	19.8	25.8
Gatwick Airport - Brighton	39	87	11.5	31.3	40.3
Gatwick Airport - Lewes	42	90	12.1	31.9	40.9
Lewes - Newhaven Town	10	100	5.8	37.7	49.7
Newhaven Town - Newhaven Marine	1	101	1.5	39.2	54.2
Lewes - Eastbourne	25	115	11.5	43.3	55.3
East Croydon - Tonbridge	42	60	12.1	22.2	28.2
Tonbridge - Tunbridge Wells	8	68	4.9	27.0	36.0
Tunbridge Wells - Tunbridge Wells West	1	69	1.7	28.7	40.7
Gatwick Airport - Horsham	18	66	7.3	27.1	36.1
Horsham - Arundel	33	99	14.4	41.4	53.4
Arundel - Littlehampton	6	105	4.2	45.6	60.6
Arundel - Bognor Regis	12	111	6.5	47.9	62.9
Arundel - Chichester	18	117	8.7	50.2	65.2
Chichester - Portsmouth and Southsea	25.7	143	11.6	61.8	79.8
Portsmouth and Southsea - Gosport	3	146	3.0	64.8	85.8
Gosport - Hythe	21	167	7.9	72.7	96.7
Hythe - Southampton	6	173	4.2	76.9	103.9
Gatwick Airport -	40	88	11.7	31.5	40.5

Hove					
Hove - Shoreham-by-Sea	7.1	95	4.6	36.1	48.1
Shoreham-by-Sea - Worthing	7.6	103	4.8	40.9	55.9
Worthing - Chichester	29	132	12.9	53.8	71.8

Current fastest time (minutes) from London [and the above values] to:

- Gatwick Airport 29 [26]
- Brighton 54 [40]
- Lewes 60 [41]
- Newhaven Town 81 (1 change) [50]
- Eastbourne 61 [55]
- Tonbridge 40 [28]
- Tunbridge Wells 54 [36]
- Horsham 49 [36]
- Littlehampton 99 [61]
- Bognor Regis 98 [63]
- Chichester 88 [65]
- Portsmouth & Southsea 88 [80]
- Southampton 74 [104]
- Hove 63 [41]
- Shoreham-by-Sea 70 [48]
- Worthing 78 [56]

HS5 Mk3

[Mk2's effects are included in Mk3. Separate estimates were not produced. Refer to Route and Service Plans article.]

Pancras Cross – Southampton (10 stops):

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Victoria Low Level	5	5	3.9	3.9	3.9
Victoria Low Level - East Croydon	13	18	6.2	10.1	13.1
East Croydon - Gatwick Airport	30	48	9.7	19.8	25.8
Gatwick Airport - Horsham	18	66	7.3	27.1	36.1
Horsham - Arundel HS	33	99	10.3	37.4	49.4
Arundel HS - Littlehampton	6	105	4.2	41.6	56.6
Arundel HS - Bognor Regis	12	111	6.0	43.3	58.3
Arundel HS - Chichester	18	117	7.3	44.7	59.7
Chichester - Hayling Island	15	114	6.7	51.3	69.3
Hayling Island - Portsmouth and Southsea	8	122	4.9	56.2	77.2
Portsmouth and Southsea - Gosport	3	125	3.0	59.2	83.2
Gosport - Hythe	21	146	7.9	67.1	94.1
Hythe - Southampton	6	152	4.2	71.3	101.3

Current fastest time (minutes) from London [and the above values] to:

- Gatwick Airport 29 [26]
- Horsham 49 [36]
- Littlehampton 99 [57]
- Bognor Regis 98 [58]
- Chichester 88 [60]
- Portsmouth & Southsea 88 [77]
- Southampton 74 [101]

HS5 App Q

Pancras Cross – Brighton / Newhaven / Eastbourne / Tunbridge Wells
(3/5/4/4 stops):

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Victoria Low Level	5	5	3.9	3.9	3.9
Victoria Low Level - East Croydon	13	18	6.2	10.1	13.1
East Croydon - Gatwick Airport	30	48	10.8	20.8	26.8
Gatwick Airport - Brighton	39	87	13.2	34.0	43.0
Gatwick Airport - Lewes	42	90	14.0	34.8	43.8
Lewes - Newhaven Town	10	100	5.8	40.6	52.6
Newhaven Town - Newhaven Marine	1	101	1.5	42.1	57.1
Lewes - Eastbourne	25	115	11.5	46.3	58.3
East Croydon - Tonbridge	42	60	14.0	24.0	30.0
Tonbridge - Tunbridge Wells	8	68	4.9	28.9	37.9
Tunbridge Wells - Tunbridge Wells West	1	69	1.7	30.6	42.6

Current fastest time (minutes) from London [and the Mk2 times] {and the above values} to:

- Gatwick Airport 29 [26] {27}
- Brighton 54 [40] {43}
- Lewes 60 [41] {44}
- Newhaven Town 81 (1 change) [50] {53}
- Eastbourne 61 [55] {58}
- Tonbridge 40 [28] {30}
- Tunbridge Wells 54 [36] {38}

Pancras Cross – Littlehampton / Bognor / Southampton (5/5/10 stops):

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Victoria Low Level	5	5	3.9	3.9	3.9
Victoria Low Level - East Croydon	13	18	6.2	10.1	13.1
East Croydon - Gatwick Airport	30	48	10.8	20.8	26.8
Gatwick Airport - Horsham	18	66	7.3	28.1	37.1
Horsham - Arundel HS	33	99	11.6	39.7	51.7
Arundel HS - Littlehampton	6	105	4.2	43.9	58.9
Arundel HS - Bognor Regis	12	111	6.0	45.7	60.7
Arundel HS - Chichester	18	117	7.3	47.0	62.0
Chichester - Hayling Island	15	114	6.7	53.7	71.7
Hayling Island - Portsmouth and Southsea	8	122	4.9	58.5	79.5
Portsmouth and Southsea - Gosport	3	125	3.0	61.5	85.5
Gosport - Hythe	21	146	8.4	69.9	96.9
Hythe - Southampton	6	152	4.2	74.1	104.1
Gatwick Airport - Hove	40	88	13.4	34.3	43.3
Hove - Shoreham-by-Sea	7.1	95	4.6	38.9	50.9
Shoreham-by-Sea - Worthing	7.6	103	4.8	43.7	58.7
Worthing - Chichester	29	132	12.9	56.6	74.6

Current fastest time (minutes) from London [and the Mk2 times] {and the above values} to:

- Gatwick Airport 29 [26] {27}
- Horsham 49 [36] {37}
- Littlehampton 99 [57] {59}
- Bognor Regis 98 [58] {61}
- Chichester 88 [60] {62}
- Portsmouth & Southsea 88 [77] {86}
- Southampton 74 [101] {104}

HS6/HS10 Mk1A

1. *Pancras Cross – Norwich / King's Lynn (4/7 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Stratford HS North	8.0	8.0	4.9	4.9	4.9
Stratford HS North - Stansted Airport	45.0	53.0	12.7	17.6	20.6
Stansted Airport - Cambridge	37.0	90.0	11.1	28.7	34.7
Cambridge - Ely	23.7	113.7	9.1	37.8	46.8
Ely - Brandon Junction	18.0	131.7	6.5	44.3	
Brandon Junction - Roudham Heath Junction	24.0	155.7	5.1	49.4	
Roudham Heath Junction - Norwich	40.0	195.7	12.9	62.4	74.4
Ely - Littleport	9.0	122.7	5.2	43.0	55.0
Littleport - Downham Market	16.3	139.0	7.4	50.3	65.3
Downham Market - Watlington	7.7	146.7	4.8	55.1	73.1
Watlington - King's Lynn	8.1	154.8	4.9	60.0	81.0

Current fastest time (minutes) from London [and the above values] to:

- Stansted Airport 45 [21]
- Cambridge 46 [35]
- Ely 67 [47]
- Norwich 110 [74]
- Littleport 74 [55]
- Downham Market 83 [65]
- Watlington 89 [73]
- King's Lynn 97 [81]

2. *Pancras Cross – Hull Paragon / Skegness / Cleethorpes (9/10/11 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London/Norwich, inc. Station Wait Times
Pancras Cross - Stratford HS North	8.0	8.0	4.9	4.9	4.9
Stratford HS North - Stansted Airport	45.0	53.0	12.7	17.6	20.6
Stansted Airport - Cambridge	37.0	90.0	11.1	28.7	34.7
Cambridge - Ely	23.7	113.7	9.1	37.8	46.8
Ely - Peterborough	72.8	186.5	22.2	60.0	72.0
Peterborough - Sleaford	52.0	238.5	14.1	74.1	89.1
Sleaford - Lincoln	34.1	272.6	12.7	86.8	104.8
Lincoln - Gainsborough Central	26.1	298.7	10.3	97.1	118.1
Gainsborough Central - Brigg	26.5	325.2	9.8	106.9	130.9
Brigg - Hull Paragon	25.0	350.2	8.7	115.6	142.6
Ely - March	48.8	162.5	15.8	53.6	65.6
March - Peterborough	24.0	186.5	9.2	62.7	77.7
Peterborough - Grantham	46.8	233.3	15.3	78.0	96.0
Grantham - Sleaford	24.5	257.8	9.8	87.8	108.8
Sleaford - Boston	27.1	284.9	10.6	98.4	122.4
Boston - Wainfleet	30.6	315.5	11.6	110.0	137.0
Wainfleet - Skegness	8.1	323.6	4.9	114.9	144.9
Grantham - Newark Northgate	23.6	256.9	9.1	87.1	108.1
Newark Northgate - Lincoln	26.6	283.5	10.4	97.5	121.5
Lincoln - Market Rasen	23.8	307.3	9.6	107.1	134.1
Market Rasen - Grimsby Town	46.8	354.1	16.5	123.6	153.6
Grimsby Town - Cleethorpes	5.2	359.3	3.9	127.5	160.5

Current fastest time (minutes) from London [and the above values] to:

• Stansted Airport	45	[21]
• Cambridge	46	[35]
• Ely	67	[47]
• March	85 (1 change)	[66]
• Peterborough	45	[72]
• Sleaford	102 (1 change)	[89]
• Lincoln	120 (1 change)	[105]
• Gainsborough	112 (Lea Rd., 1 change)	[118]
• Hull Paragon	146	[143]
• Grantham	60	[96]
• Sleaford	102 (1 change)	[109 – via Grantham]
• Boston	126 (1 change)	[122]
• Wainfleet	153 (1 change)	[137]
• Skegness	166 (1 change)	[145]
• Newark Northgate	73	[108]
• Lincoln	120 (1 change)	[122 – via Newark]
• Market Rasen	136 (1 change)	[134]
• Grimsby Town	165 (1 change)	[154]
• Cleethorpes	181 (1 change)	[161]

3. *St. Pancras East – Leeds / Newcastle /Edinburgh (10/15/15 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London/Norwich, inc. Station Wait Times
Pancras Cross - Stratford HS North	8.0	8.0	4.9	4.9	4.9
Stratford HS North - Stansted Airport	45.0	53.0	12.7	17.6	20.6
Stansted Airport - Cambridge	37.0	90.0	11.1	28.7	34.7
Cambridge - Ely	23.7	113.7	9.1	37.8	46.8
Ely - Peterborough	72.8	186.5	22.2	60.0	72.0
Peterborough - Grantham	46.8	233.3	15.3	75.2	90.2
Grantham - Newark Northgate	23.6	256.9	9.1	84.3	102.3
Newark Northgate - Retford HL	29.8	286.7	10.7	95.0	116.0
Retford HL - Doncaster	27.9	314.6	10.2	105.2	129.2
Doncaster - Wakefield Westgate	31.9	346.5	12.0	117.3	144.3
Wakefield Westgate - Leeds City	16.2	362.7	8.1	125.3	155.3
Peterborough - Doncaster	127.7	314.2	36.8	96.8	111.8
Doncaster - York	52.4	366.6	16.7	113.5	131.5
York - Thirsk	35.7	402.3	12.3	125.8	146.8
Thirsk - Northallerton	12.5	414.8	6.1	131.9	155.9
Northallerton - Yarm	19.6	434.4	8.0	139.9	166.9
Yarm - Eaglescliffe	4.1	438.5	3.5	143.4	173.4
Eaglescliffe - Stockton	4.9	443.4	4.0	147.4	180.4
Stockton - Hartlepool	18.7	462.1	9.0	156.4	192.4
Hartlepool - Seaham	20.8	482.9	9.8	166.2	205.2
Seaham - Sunderland	8.3	491.2	5.1	171.3	213.3
Sunderland - Newcastle	19.6	510.8	9.3	180.6	225.6
York -	48.2	414.8	14.6	128.1	

Northallerton					
Northallerton - Darlington	22.9	437.7	7.8	135.9	156.9
Darlington - Durham	35.5	473.2	13.1	149.0	173.0
Durham - Newcastle	22.6	495.8	9.2	158.3	185.3
Newcastle - Morpeth	26.7	522.5	10.5	168.8	198.8
Morpeth - Alnmouth	29.3	551.8	11.2	180.0	213.0
Alnmouth - Berwick	51.7	603.5	18.0	198.0	234.0
Berwick - Dunbar	45.7	649.2	16.2	214.1	253.1
Dunbar - Drem	18.2	667.4	7.9	222.1	264.1
Drem - Edinburgh Waverley	28.6	696.0	11.0	233.1	278.1

Current fastest time (minutes) from London [and the above values] to:

• Stansted Airport	45	[21]
• Cambridge	46	[35]
• Ely	67	[47]
• Peterborough	45	[72]
• Grantham	60	[90]
• Newark Northgate	73	[102]
• Retford	81	[116]
• Doncaster (stopping)		[129]
• Wakefield Westgate	115	[144]
• Leeds City	131	[155]
• Doncaster non-stop from Peterborough	94	[112]
• York	110	[132]
• Thirsk	135	[147]
• Northallerton	144	[156]
• Yarm	174 (1 change)	[167]
• Eaglescliffe	162	[173]
• Stockton	181 (2 changes)	[180]
• Hartlepool	182	[192]
• Seaham	218 (1 change)	[205]
• Sunderland	210	[213]
• Darlington (non-stop from York)	139	[157]
• Durham	177	[173]
• Newcastle	169	[185]
• Morpeth	206	[199]
• Alnmouth	219	[213]
• Berwick upon Tweed	217	[234]
• Dunbar	259 (1 change)	[253]
• Drem	307 (1 change)	[264]
• Edinburgh Waverley	257	[278]

HS6/HS10 Mk2

2. *Pancras Cross – Hull Paragon (9 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London/Norwich, inc. Station Wait Times
Pancras Cross - Stratford HS North	8.0	8.0	4.9	4.9	4.9
Stratford HS North - Stansted Airport	45.0	53.0	12.7	17.6	20.6
Stansted Airport - Cambridge	37.0	90.0	11.1	28.7	34.7
Cambridge - Ely	23.7	113.7	9.1	37.8	46.8
Ely - Peterborough	45.0	158.7	12.7	50.5	62.5
Peterborough - Sleaford	52.0	210.7	14.1	64.6	79.6
Sleaford - Lincoln	34.1	244.8	10.5	75.1	93.1
Lincoln - Gainsborough Central	26.1	270.9	8.9	84.0	105.0
Gainsborough Central - Brigg	26.5	297.4	9.0	93.0	117.0
Brigg - Hull Paragon	25.0	322.4	10.6	103.6	130.6

Current fastest time (minutes) from London [and the above values] to:

- Stansted Airport 45 [21]
- Cambridge 46 [35]
- Ely 67 [47]
- Peterborough 45 [63]
- Sleaford 102 (1 change) [80]
- Lincoln 120 (1 change) [93]
- Gainsborough 112 (Lea Rd., 1 change) [105, Central]
- Hull Paragon 146 [131]

3. *St. Pancras East – Leeds / Newcastle /Edinburgh (10/15/15 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London/Norwich, inc. Station Wait Times
Pancras Cross - Stratford HS North	8.0	8.0	4.9	4.9	4.9
Stratford HS North - Stansted Airport	45.0	53.0	12.7	17.6	20.6
Stansted Airport - Cambridge	37.0	90.0	11.1	28.7	34.7
Cambridge - Ely	23.7	113.7	9.1	37.8	46.8
Ely - Peterborough	45.0	158.7	12.7	50.5	62.5
Peterborough - Grantham	46.8	205.5	15.3	65.8	80.8
Grantham - Newark Northgate	23.6	229.1	9.1	74.8	92.8
Newark Northgate - Retford HL	29.8	258.9	10.7	85.5	106.5
Retford HL - Doncaster	27.9	286.8	10.2	95.8	119.8
Doncaster - Wakefield Westgate	31.9	318.7	12.0	107.8	134.8
Wakefield Westgate - Leeds City	16.2	334.9	8.1	115.8	145.8
Peterborough - Doncaster	127.7	286.4	36.8	87.3	102.3
Doncaster - York	52.4	338.8	16.7	104.1	122.1
York - Thirsk	35.7	374.5	12.3	116.4	137.4
Thirsk - Northallerton	12.5	387.0	6.1	122.5	146.5
Northallerton - Yarm	19.6	406.6	8.0	130.5	157.5
Yarm - Eaglescliffe	4.1	410.7	3.5	134.0	164.0
Eaglescliffe - Stockton	4.9	415.6	4.0	138.0	171.0
Stockton - Hartlepool	18.7	434.3	9.0	146.9	182.9
Hartlepool - Seaham	20.8	455.1	9.8	156.7	195.7
Seaham - Sunderland	8.3	463.4	5.1	161.8	203.8
Sunderland - Newcastle	19.6	483.0	9.3	171.1	216.1
York -	48.2	387.0	14.6	118.7	

Northallerton					
Northallerton - Darlington	22.9	409.9	7.8	126.5	147.5
Darlington - Durham	35.5	445.4	13.1	139.6	163.6
Durham - Newcastle	22.6	468.0	9.2	148.8	175.8
Newcastle - Morpeth	26.7	494.7	10.5	159.3	189.3
Morpeth - Alnmouth	29.3	524.0	11.2	170.5	203.5
Alnmouth - Berwick	51.7	575.7	18.0	188.5	224.5
Berwick - Dunbar	45.7	621.4	16.2	204.7	243.7
Dunbar - Drem	18.2	639.6	7.9	212.6	254.6
Drem - Edinburgh Waverley	28.6	668.2	11.0	223.6	268.6

Current fastest time (minutes) from London [and the above values] to:

- Stansted Airport 45 [21]
- Cambridge 46 [35]
- Ely 67 [47]
- Peterborough 45 [63]
- Grantham 60 [81]
- Newark Northgate 73 [93]
- Retford 81 [102]
- Doncaster (stopping) [120]
- Wakefield Westgate 115 [135]
- Leeds City 131 [146]
- Doncaster non-stop 94 [102]
from Peterborough
- York 110 [122]
- Thirsk 135 [137]
- Northallerton 144 [147]
- Yarm 174 (1 change) [158]
- Eaglescliffe 162 [164]
- Stockton 181 (2 changes) [171]
- Hartlepool 182 [183]
- Seaham 218 (1 change) [196]
- Sunderland 210 [204]
- Darlington 139 [148]
(non-stop from York)
- Durham 177 [164]
- Newcastle 169 [176]

• Morpeth	206	[189]
• Alnmouth	219	[204]
• Berwick upon Tweed	217	[225]
• Dunbar	259 (1 change)	[244]
• Drem	307 (1 change)	[255]
• Edinburgh Waverley	257	[269]

HS6/HS10 App Q

1. *Pancras Cross – Norwich / King's Lynn (4/7 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Pancras Cross - Stratford HS North	8.0	8.0	4.9	4.9	4.9
Stratford HS North - Stansted Airport	45.0	53.0	14.8	19.6	22.6
Stansted Airport - Cambridge	37.0	90.0	12.6	32.3	38.3
Cambridge - Ely	23.7	113.7	9.1	41.4	50.4
Ely - Brandon Junction	18.0	131.7	6.5	47.9	
Brandon Junction - Roudham Heath Junction	24.0	155.7	6.6	54.6	
Roudham Heath Junction - Norwich	40.0	195.7	12.9	67.5	79.5
Ely - Littleport	9.0	122.7	5.2	46.6	58.6
Littleport - Downham Market	16.3	139.0	7.4	53.9	68.9
Downham Market - Watlington	7.7	146.7	4.8	58.7	76.7
Watlington - King's Lynn	8.1	154.8	4.9	63.6	84.6

Current fastest time (minutes) from London [and the Mk2 times] [and the above values] to:

• Stansted Airport	45	[21]	{23}
• Cambridge	46	[35]	{38}
• Ely	67	[47]	{50}
• Norwich	110	[74]	{80}
• Littleport	74	[55]	{59}
• Downham Market	83	[65]	{69}
• Watlington	89	[73]	{77}
• King's Lynn	97	[81]	{85}

2. *Pancras Cross – Hull Paragon / Skegness / Cleethorpes (9/10/11 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London/Norwich, inc. Station Wait Times
Pancras Cross - Stratford HS North	8.0	8.0	4.9	4.9	4.9
Stratford HS North - Stansted Airport	45.0	53.0	14.8	19.6	22.6
Stansted Airport - Cambridge	37.0	90.0	12.6	32.3	38.3
Cambridge - Ely	23.7	113.7	9.1	41.4	50.4
Ely - Peterborough	45.0	158.7	14.8	56.2	68.2
Peterborough - Sleaford	52.0	210.7	16.6	72.8	87.8
Sleaford - Lincoln	34.1	244.8	11.9	84.7	102.7
Lincoln - Gainsborough Central	26.1	270.9	9.7	94.4	115.4
Gainsborough Central - Brigg	26.5	297.4	9.8	104.3	128.3
Brigg - Hull Paragon	25.0	322.4	9.4	113.7	140.7
Ely - March	48.8	162.5	15.8	57.2	69.2
March - Peterborough	24.0	186.5	9.2	66.4	81.4
Peterborough - Grantham	46.8	233.3	15.3	81.6	99.6
Grantham - Sleaford	24.5	257.8	9.8	91.4	112.4
Sleaford - Boston	27.1	284.9	10.6	102.0	126.0
Boston - Wainfleet	30.6	315.5	11.6	113.7	140.7
Wainfleet - Skegness	8.1	323.6	4.9	118.6	148.6
Grantham - Newark Northgate	23.6	256.9	9.1	90.7	111.7
Newark Northgate - Lincoln	26.6	283.5	10.4	101.1	125.1
Lincoln - Market Rasen	23.8	307.3	9.6	110.7	137.7
Market Rasen - Grimsby Town	46.8	354.1	16.5	127.3	157.3
Grimsby Town - Cleethorpes	5.2	359.3	3.9	131.2	164.2

Current fastest time (minutes) from London [and the Mk2 times] {and the above values} to:

• Stansted Airport	45	[21]	{23}
• Cambridge	46	[35]	{38}
• Ely	67	[47]	{50}
• Peterborough	45	[63]	{68}
• Sleaford	102 (1 change)	[80]	{88}
• Lincoln	120 (1 change)	[93]	{103}
• Gainsborough	112 (Lea Rd., 1 change)	[105, Central]	{115}
• Hull Paragon	146	[131]	{141}

HS7 Mk1A

1. Plymouth – Newcastle / Middlesborough (15/16 stops):

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Plymouth, inc. Station Wait Times
Plymouth - Exeter St. David's	65.0	65.0	15.3	15.3	15.3
Exeter St. David's - Taunton	49.5	114.5	17.3	32.6	35.6
Taunton - Bristol Temple Meads	72.0	186.5	24.1	56.7	62.7
Bristol Temple Meads - Bristol Parkway	9.2	195.7	5.2	61.9	70.9
Bristol Parkway - Westerleigh Junction	7.4	203.1	4.3	66.2	
Westerleigh Junction - Cheltenham Spa	54.7	257.8	18.6	84.8	96.8
Cheltenham Spa - Worcester Shrub Hill	35.3	293.1	13.1	97.9	112.9
Worcester Shrub Hill - Cofton Hall Junction	26.9	342.0	9.6	107.5	
Cofton Hall Junction - Birmingham Interchange	22.0	315.1	6.1	113.6	131.6
Birmingham Interchange - Derby	59.0	401.0	15.5	129.1	150.1
Derby - Nuthall North Junction	20.2	421.2	6.6	135.7	
Nuthall North Junction - Wales Junction	38.5	459.7	7.0	142.7	
Wales Junction - Waleswood Junction	0.8	460.5	0.2	142.9	
Waleswood Junction - Sheffield HS	10.6	471.1	3.9	146.8	170.8
Sheffield HS - Huddersfield	51.0	522.1	14.1	160.9	187.9
Huddersfield - Leeds HS	24.0	546.1	8.5	169.4	199.4
Leeds HS - Garforth East Junction	10.8	556.9	4.6	173.9	
Garforth East Junction - Ulleskelf Junction	15.0	571.9	3.1	177.1	
Ulleskelf Junction - York HS	14.0	585.9	4.8	181.9	214.9

York HS - Romanby Junction	46.0	631.9	14.0	195.9	
Romanby Junction - Darlington Bank Top	24.0	655.9	6.1	201.9	241.9
Darlington Bank Top - Durham Relly Mill	33.0	688.9	10.3	212.2	255.2
Durham Relly Mill - Consett	20.0	708.9	7.7	219.9	265.9
Consett - Newcastle	20.0	728.9	7.7	227.6	276.6
York HS - Northallerton	48.2	634.1	15.6	197.5	238.5
Northallerton - Yarm	19.4	653.5	8.0	205.4	249.4
Yarm - Eaglescliffe	4.1	657.6	3.5	208.9	255.9
Eaglescliffe - Thornaby	4.8	662.5	3.8	212.7	262.7
Thornaby - Middlesborough	5.2	667.7	3.9	216.6	269.6

Current fastest time (minutes) from Plymouth [and the above values] to:

- Exeter St. David's 53 [15]
- Taunton 84 [36]
- Bristol TM 118 [63]
- Bristol Parkway 134 [71]
- Cheltenham Spa 164 [97]
- Worcester Shrub Hill 210 (1 change) [113]
- Birmingham 206 [132] (current time New St., new time I/chge)
- Derby 254 [150]
- Sheffield 292 [171]
- Huddersfield 355 (1 change) [188]
- Leeds 336 [199] (current time City new time New Lane)
- York 348 (2 ch., London) [215]
- Darlington 382 (2 ch., London) [242]
- Durham 400 (2 ch., London) [255] (current time ECML, new time Relly Mill)
- Consett [266] (there is no current time for Consett!)
- Newcastle 416 (2 ch., London) [277]
- Northallerton 370 (2 ch., London) [238]
- Yarm 430 (4 ch., London) [249]
- Eaglescliffe 419 (2 changes) [256]
- Thornaby 425 (2 ch., London) [263]
- Middlesborough 432 (2 ch., London) [270]

2. Swansea – Norwich (15 stops):

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Swansea, inc. Station Wait Times
Swansea - Neath	14.2	14.2	7.3	7.3	7.3
Neath - Port Talbot	10.7	24.9	6.0	13.3	16.3
Port Talbot - Bridgend	19.6	44.5	9.3	22.6	28.6
Bridgend - Cardiff Airport	26.0	70.5	11.7	34.3	43.3
Cardiff Airport - Cardiff Central	15.0	85.5	6.7	41.0	53.0
Cardiff Central - Newport	20.5	106.0	9.7	50.7	65.7
Newport - Bristol Parkway	34.7	140.7	15.0	65.7	83.7
Bristol Parkway - Westerleigh Junction	7.4	148.1	4.3	70.0	
Westerleigh Junction - Cheltenham Spa	54.7	202.8	18.6	88.6	109.6
Cheltenham Spa - Worcester Shrub Hill	35.3	238.1	13.1	101.6	125.6
Worcester Shrub Hill - Cofton Hall Junction	26.9	265.0	9.6	111.2	
Cofton Hall Junction - Birmingham Interchange	22.0	287.0	6.1	117.3	144.3
Birmingham Interchange - Derby	59.0	346.0	15.5	132.8	162.8
Derby - Nottingham	26.0	372.0	8.8	141.6	174.6
Nottingham - Melton Mowbray	30.1	402.1	10.8	152.4	188.4
Melton Mowbray - Wymondham East Jn.	8.0	410.1	4.2	156.6	
Wymondham East Jn. - Pellett Hall Junction	39.0	449.1	8.6	165.3	
Pellett Hall Junction - Peterborough	6.3	455.4	2.7	168.0	207.0
Peterborough - March	23.9	479.3	9.2	177.1	219.1
March - Ely (reverse)	25.1	504.4	9.5	186.6	231.6
Ely - Brandon Junction	18.0	522.4	6.5	193.2	
Brandon Junction - Roudham Heath Junction	24.0	546.4	5.1	198.3	
Roudham Heath Junction - Norwich	40.0	586.4	12.9	211.2	261.2

Current fastest time (minutes) from Swansea [and the above values] to:

• Neath	10	[7]	
• Port Talbot	17	[16]	
• Bridgend	30	[29]	
• Cardiff Airport		[43]	(there is no current time for Cardiff Airport!)
• Cardiff	53	[53]	
• Newport	67	[66]	
• Bristol Parkway	91	[84]	
• Cheltenham Spa	130 (1 change)	[110]	
• Worcester Shrub Hill	166 (2 changes)	[126]	
• Birmingham	174 (1 change)	[144]	(current fastest to New St., new time to I'chg)
• Derby	224 (2 changes)	[163]	
• Nottingham	270 (3 changes)	[175]	
• Melton Mowbray		[188]	
• Peterborough	257 (2 ch., London)	[207]	
• March	337 (4 ch., London)	[219]	
• Ely	319 (4 ch., London)	[232]	
• Norwich	357 (3 ch., London)	[261]	

3. *Birmingham Curzon St. – Cardiff Airport / Bristol (6/4 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Birmingham, inc. Station Wait Times
Birmingham Curzon St. - Birmingham Interchange	20.0	20.0	7.7	7.7	7.7
Birmingham Interchange - Cofton Hall Junction	22.0	42.0	6.9	14.6	
Cofton Hall Junction - Worcester Shrub Hill	26.9	68.9	9.0	23.6	26.6
Worcester Shrub Hill - Cheltenham Spa	35.3	104.2	13.1	36.6	42.6
Cheltenham Spa - Westerleigh Junction	54.7	158.9	18.5	55.1	
Westerleigh Junction - Bristol Parkway	7.4	166.3	4.4	59.5	68.5
Bristol Parkway - Newport	14.7	181.0	7.5	67.0	79.0
Newport - Cardiff Central	20.5	201.5	9.7	76.7	91.7
Cardiff Central - Cardiff Airport	15.0	216.5	6.7	83.3	101.3
Bristol Parkway - Bristol Temple Meads	9.2	175.5	5.2	64.7	71.5

Current fastest time (minutes) from Birmingham (New St.) [and the above values (Curzon St.)] to:

- Birmingham I'chge [8] (there is no current time for B'ham Interchange!)
- Worcester 49 (1 change) [27]
- Cheltenham 40 [43]
- Bristol Parkway 72 [69]
- Newport 99 [79]
- Cardiff 116 [92]
- Cardiff Airport [101] (there is no current time for Cardiff Airport!)
- Bristol Temple Meads 83 [72]

Note that the current fastest times south of Worcester do **not** include a Worcester stop.

4. *Birmingham Curzon St. – York / Halifax / Skipton (4/8/8 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Birmingham, inc. Station Wait Times
Birmingham Curzon St. - Derby	63.0	63.0	16.3	16.3	16.3
Derby - Nuthall North Junction	20.2	83.2	6.6	22.9	
Nuthall North Junction - Wales Junction	38.5	121.7	7.0	30.0	
Wales Junction - Waleswood Junction	0.8	122.5	0.2	30.2	
Waleswood Junction - Sheffield HS	10.6	133.1	3.9	34.0	37.0
Sheffield HS - Huddersfield	51.0	184.1	14.1	48.2	54.2
Huddersfield - Leeds HS	24.0	208.1	8.5	56.7	65.7
Leeds HS - Garforth East Junction	10.8	218.9	4.6	61.2	
Garforth East Junction - Ulleskelf Junction	15.0	233.9	3.1	64.3	
Ulleskelf Junction - York HS	14.0	247.9	4.8	69.1	81.1
Derby - Nuthall North Junction	20.2	268.1	6.6	22.9	
Nuthall North Junction - Huthwaite Junction	13.5	281.6	2.9	25.8	
Huthwaite Junction - Stonebroom Junction	5.0	286.6	1.3	27.1	
Stonebroom Junction - Chesterfield	10.0	296.6	3.9	31.0	34.0
Chesterfield - Sheffield Midland	19.8	316.4	8.4	39.4	45.4
Sheffield Midland - South Yorkshire HL	19.4	335.8	9.3	48.7	57.7
South Yorkshire HL - Swillington Common Jn.	36.0	371.8	9.0	57.7	
Swillington Common Jn. - Manston Junction	1.9	373.7	0.5	58.2	
Manston Junction - Leeds City	8.0	381.7	3.3	61.5	73.5
Leeds City - Shipley	17.3	399.0	8.5	70.0	89.0
Shipley - Bradford Central	4.9	403.9	3.8	73.8	95.8
Bradford Central - Halifax	12.8	416.7	6.8	80.6	105.6

Leeds City - Shipley	17.3	399.0	8.5	70.0	90.0
Shipley - Keighley	10.0	409.0	5.7	75.7	98.7
Keighley - Skipton	16.4	425.4	8.1	83.9	109.9

Current fastest time (minutes) from Birmingham (New St.) [and the above values (Curzon St.)] to:

- Derby 35 [16]
- Sheffield HS [37]
- Huddersfield 134 (1 change) [54]
- Leeds HS [66]
- York 129 [81]
- Chesterfield 59 [34]
- Sheffield Midland 74 [45]
- South Yorkshire HL [58]
- Leeds City 118 [74]
- Shipley 146 (1 change) [89]
- Bradford 156 (1 change) [96]
- Halifax 163 (2 changes) [106]
- Keighley 157 (1 change) [99]
- Skipton 172 (1 change) [110]

5. *Birmingham – Cleethorpes / Skegness (6/7 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Birmingham, inc. Station Wait Times
Birmingham Curzon St. - Derby	63.0	63.0	16.3	16.3	16.3
Derby - Nottingham	26.0	89.0	8.8	25.1	28.1
Nottingham - Newark	27.6	116.6	10.7	35.8	41.8
Newark - Lincoln	26.9	143.5	10.5	46.4	55.4
Lincoln - Market Rasen	23.8	167.3	10.9	57.3	73.3
Market Rasen - Grimsby Town	46.8	214.1	19.5	76.8	95.8
Grimsby Town - Cleethorpes	5.2	219.3	3.9	80.7	102.7
Lincoln - Sleaford	10.8	154.3	6.0	52.4	69.4
Sleaford - Boston	27.1	181.4	12.1	64.5	84.5
Boston - Wainfleet	30.1	211.5	13.3	77.8	100.8
Wainfleet - Skegness	8.0	219.5	5.0	82.8	108.8

Current fastest time (minutes) from Birmingham (New St.) [and the above values (Curzon St.)] to:

- Derby 35 [16]
- Nottingham 69 [28]
- Newark Castle 107 (1 change) [42]
- Lincoln 148 (1 change) [55]
- Market Rasen 170 (2 changes) [73]
- Grimsby Town 187 (1 change) [96]
- Cleethorpes 199 (1 change) [103]
- Sleaford 151 (1 change) [69]
- Boston 175 (1 change) [85]
- Wainfleet 200 (1 change) [101]
- Skegness 215 (1 change) [109]

HS7 Mk2

1. *Plymouth – Swansea / Liverpool / Newcastle / Middlesborough (6/10/15/16 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Plymouth, inc. Station Wait Times
Plymouth - Exeter St. David's	65.0	65.0	15.3	15.3	15.3
Exeter St. David's - Taunton	48.0	113.0	12.4	27.7	30.7
Taunton - Bristol Temple Meads	71.0	184.0	16.3	44.0	50.0
Bristol Temple Meads - Brentry Junction	9.0	193.0	4.1	48.1	
Brentry Junction - Cardiff HS	44.0	237.0	11.8	59.9	68.9
Cardiff HS - Cardiff Airport	15.0	252.0	6.7	66.6	78.6
Cardiff Airport - Port Talbot Parkway	39.0	291.0	10.9	73.2	88.2
Port Talbot Parkway - Swansea HS	13.0	304.0	6.2	79.4	97.4
Bristol Temple Meads - Bristol Parkway HS	8.0	192.0	4.9	48.9	57.9
Bristol Parkway HS - Cheltenham Spa	61.0	253.0	15.9	64.8	76.8
Cheltenham Spa - Worcester Shrub Hill	35.0	288.0	10.7	75.5	90.5
Worcester Shrub Hill - Birmingham Interchange	49.0	337.0	13.5	89.0	107.0
Birmingham Interchange - Crewe	90.0	427.0	19.4	108.4	129.4
Crewe - Runcorn	36.2	463.2	12.4	120.9	144.9
Runcorn - Liverpool South Parkway	12.0	475.2	6.0	126.8	153.8
Liverpool South Parkway - Liverpool Lime St,	9.2	484.4	5.4	132.3	162.3
Birmingham Interchange - Derby	59.0	396.0	15.5	104.5	125.5
Derby - Nuthall North Junction	20.2	416.2	6.6	111.1	

Nuthall North Junction - Wales Junction	38.5	454.7	7.0	118.1	
Wales Junction - Waleswood Junction	0.8	455.5	0.2	118.3	
Waleswood Junction - Sheffield HS	10.6	466.1	3.9	122.2	146.2
Sheffield HS - Huddersfield	51.0	517.1	14.1	136.3	163.3
Huddersfield - Leeds HS	24.0	541.1	8.5	144.8	174.8
Leeds HS - Garforth East Junction	10.8	551.9	4.6	149.4	
Garforth East Junction - Ulleskelf Junction	15.0	566.9	3.1	152.5	
Ulleskelf Junction - York HS	14.0	580.9	4.8	157.3	190.3
York HS - Romanby Junction	46.0	626.9	14.0	171.3	
Romanby Junction - Darlington Bank Top	24.0	650.9	6.1	177.3	217.3
Darlington Bank Top - Durham Relly Mill	33.0	683.9	10.3	187.6	230.6
Durham Relly Mill - Consett	20.0	703.9	7.7	195.3	241.3
Consett - Newcastle	20.0	723.9	7.7	203.0	252.0
York HS - Northallerton	48.2	629.1	15.6	172.9	213.9
Northallerton - Yarm	19.4	648.5	8.0	180.9	224.9
Yarm - Eaglescliffe	4.1	652.6	3.5	184.3	231.3
Eaglescliffe - Thornaby	4.9	657.5	3.8	188.1	238.1
Thornaby - Middlesborough	5.2	662.7	3.9	192.0	245.0

Current fastest time (minutes) from Plymouth [and the above values] to:

- Exeter St. David's 53 [15]
- Taunton 84 [31]
- Bristol TM 118 [50]
- Cardiff HS 198 (1 change) [69]
- Cardiff Airport [79] (there is no current time for Cardiff Airport)
- Port Talbot Parkway 216 (1 change) [88]
- Swansea HS 257 (1 change) [97]
- Bristol Parkway 134 [58]
- Cheltenham Spa 164 [77]
- Worcester Shrub Hill 210 (1 change) [91]
- Birmingham 206 [107] (current time New St., new time I/chge)

• Crewe	281 (1 change)	[129]	
• Runcorn	301 (1 change)	[145]	
• Liverpool S. Pkwy	310 (1 change)	[154]	
• Liverpool Lime St.	320 (1 change)	[162]	
• Sheffield	292	[146]	
• Huddersfield	355 (1 change)	[163]	
• Leeds	336	[175]	(current time City new time New Lane)
• York	348 (2 ch., London)	[190]	
• Darlington	382 (2 ch., London)	[217]	
• Durham	400 (2 ch., London)	[231]	(current time ECML, new time Relly Mill)
• Consett		[241]	(there is no current time for Consett!)
• Newcastle	416 (2 ch., London)	[252]	
• Northallerton	370 (2 ch., London)	[214]	
• Yarm	430 (4 ch., London)	[225]	
• Eaglescliffe	419 (2 changes)	[231]	
• Thornaby	425 (2 ch., London)	[238]	
• Middlesbrough	432 (2 ch., London)	[245]	

2. *Swansea – Plymouth / Holyhead / Norwich (6/13/14 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Swansea, inc. Station Wait Times
Swansea HS - Port Talbot Parkway	13.0	13.0	6.2	6.2	6.2
Port Talbot Parkway - Cardiff Airport	39.0	52.0	10.9	17.1	20.1
Cardiff Airport - Cardiff HS	15.0	67.0	6.7	23.8	29.8
Cardiff HS - Brentry Junction	44.0	111.0	10.3	34.1	
Brentry Junction - Bristol Temple Meads HS	9.0	120.0	3.4	37.6	46.6
Bristol Temple Meads HS - Taunton	71.0	191.0	16.3	53.8	65.8
Taunton - Exeter St. David's	48.0	239.0	12.4	66.3	81.3
Exeter St. David's - Plymouth	65.0	304.0	15.3	81.6	99.6
Cardiff HS - Bristol Parkway HS	34.7	101.7	10.2	34.0	43.0
Bristol Temple Meads HS - Cheltenham Spa	61.0	162.7	15.9	49.9	61.9
Cheltenham Spa - Worcester Shrub Hill	35.0	197.7	10.7	60.6	75.6
Worcester Shrub Hill - Birmingham Interchange	49.0	246.7	13.5	74.2	92.2
Birmingham Interchange - Crewe	90.0	336.7	19.4	93.6	114.6
Crewe - Chester	34.0	370.7	12.7	106.3	130.3
Chester - Flint	20.0	390.7	8.5	114.7	141.7
Flint - Rhyl	28.2	418.9	10.9	125.7	155.7
Rhyl - Llandudno Junction	23.1	442.0	10.6	136.3	169.3
Llandudno Junction - Bangor	25.0	467.0	11.4	147.6	183.6
Bango - Holyhead	39.6	506.6	16.8	164.5	203.5
Birmingham Interchange - Derby	59.0	305.7	15.5	89.7	110.7
Derby - Nottingham	26.0	331.7	8.8	98.4	122.4
Nottingham - Peterborough	83.8	415.5	20.5	118.9	145.9
Peterborough - Ely (reverse)	25.1	440.6	8.7	127.6	157.6
Ely - Brandon Junction	18.0	458.6	6.5	134.2	

Brandon Junction - Roudham Heath Junction	24.0	482.6	5.1	139.3	
Roudham Heath Junction - Norwich	40.0	522.6	12.9	152.2	187.2

Current fastest time (minutes) from Swansea [and the above values] to:

- Port Talbot 17 [6]
- Cardiff Airport [17] (there is no current time for Cardiff Airport!)
- Cardiff 53 [27]
- Bristol TM 109 (1 change) [47]
- Taunton 109 (1 change) [66]
- Exeter St. David's 109 (1 change) [81]
- Plymouth 109 (1 change) [100]
- Bristol Parkway 91 [37]
- Cheltenham Spa 130 (1 change) [56]
- Worcester Shrub Hill 166 (2 changes) [69]
- Birmingham 174 (1 change) [82] (current fastest to New St., new time to I'chg)
- Crewe 212 [115]
- Chester 240 [130]
- Flint 263 (1 change) [142]
- Rhyl 284 (1 change) [156]
- Llandudno Junction 298 (1 change) [169]
- Bangor 314 (1 change) [184]
- Holyhead 348 (1 change) [204]
- Derby 224 (2 changes) [111]
- Nottingham 270 (3 changes) [122]
- Peterborough 257 (2 ch., London) [146]
- Ely 319 (4 ch., London) [158]
- Norwich 357 (3 ch., London) [187]

3. *Birmingham Curzon St. – Cardiff Airport / Bristol (5/4 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Birmingham, inc. Station Wait Times
Birmingham Curzon St. - Birmingham Interchange	20.0	20.0	7.7	7.7	7.7
Birmingham Interchange - Worcester Shrub Hill	40.0	60.0	11.7	19.4	22.4
Worcester Shrub Hill - Cheltenham Spa	35.0	95.0	10.7	30.1	36.1
Cheltenham Spa - Coalpit Heath Junction	53.6	148.6	13.0	43.1	
Coalpit Heath Junction - Bristol Parkway HS	7.4	156.0	2.9	46.0	55.0
Bristol Parkway HS - Cardiff HS	48.0	204.0	12.4	58.5	70.5
Cardiff HS - Cardiff Airport	15.0	219.0	6.7	65.1	80.1
Bristol Parkway HS - Bristol Temple Meads BT	8.0	164.0	4.9	50.9	62.9

Current fastest time (minutes) from Birmingham (New St.) [and the above values (Curzon St.)] to:

- Birmingham I'chge [8] (there is no current time for B'ham Interchange!)
- Worcester 49 (1 change) [22]
- Cheltenham 40 [36]
- Bristol Parkway HS 72 [55]
- Cardiff 116 [71]
- Cardiff Airport [80] (there is no current time for Cardiff Airport!)
- Bristol Temple Meads 83 [63]

Note that the current fastest times south of Worcester do **not** include a Worcester stop.

On this section, there are no intermediate passing times of interest, at Mk2.

There are no changes to the timings of northbound services from Birmingham Curzon St.

Mk2 vs Mk1A and Mk1 Estimated Journey Times

It is worth summarising the journey time estimates at Mk2 with Mk1A and the original Mk1 results.

Plymouth to:	Current	Mk1	Mk1A	Mk2
Exeter St. David's	53.0	16.8	15.3	15.3
Taunton	84.0	33.1	35.6	30.7
Bristol Temple Meads	118.0	54.0	62.7	50.0
Bristol Parkway	134.0	61.9	70.9	57.9
Cheltenham Spa	164.0	80.8	96.8	76.8
Worcester Shrub Hill	210.0	94.5	112.9	90.5
Birmingham Interchange	206.0	111.0	131.6	107.0
Derby	254.0	129.5	150.1	125.5
Sheffield HS	292.0	149.4	170.8	146.2
Huddersfield	155.0	167.6	187.9	163.3
Leeds HS	336.0	179.1	199.4	174.8
York HS	348.0	193.6	214.9	100.3
Darlington Bank Top	382.0	212.7	241.9	217.3
Durham Relly Mill	400.0	226.0	265.9	230.6
Consett		236.7	265.9	241.3
Newcastle	416.0	247.8	276.6	252.0
Northallerton	370.0		238.5	213.9
Yarm	430.0		249.4	224.9
Eaglescliffe	419.0		255.9	231.3
Thornaby	425.0		262.7	238.1
Middlesborough	432.0		269.6	245.0
Swansea to:	Current	Mk1	Mk1A	Mk2.0
Neath	10.0		7.3	
Port Talbot	17.0	6.2	16.3	6.2
Bridgend	30.0		28.3	
Cardiff Airport		20.7	43.3	20.1
Cardiff Central / HS	53.0	30.4	53.0	29.8
Newport	67.0		65.7	
Bristol Parkway	91.0	45.8	83.7	43.0
Cheltenham Spa	130.0	64.7	109.6	61.9
Worcester Shrub Hill	166.0	78.4	125.6	75.6
Birmingham Interchange	174.0	94.9	144.3	92.2
Derby	224.0	113.5	162.8	110.7
Nottingham	270.0	125.4	174.6	122.4
Peterborough	257.0	149.1	207.0	145.9
March	337.0		219.1	
Ely	317.0		231.6	157.6
Norwich	357.0	180.0	261.2	187.2
Birmingham HS to:	Current	Mk1	Mk1A	Mk2.0
Birmingham Interchange		7.7	7.7	7.7
Worcester Shrub Hill	49.0	24.2	26.6	22.4

Cheltenham Spa	40.0	37.9	42.6	36.1
Bristol Parkway	72.0	56.9	68.5	55.0
Bristol Temple Meads	83.0	64.8	71.5	62.9
Newport	99.0		79.0	
Cardiff Central / HS	93.0	73.2	91.7	70.5
Cardiff Airport			101.3	80.1
Birmingham HS to:	Current	Mk1	Mk1A	Mk2.0
Derby	35.0	16.3	16.3	16.3
Sheffield HS		37.8	37.0	37.0
Huddersfield	134.0	56.0	54.2	54.2
Leeds HS		67.5	65.7	65.7
York HS	129.0	81.9	81.1	81.1
Chesterfield	59.0		34.0	34.0
Sheffield Midland	74.0		45.4	45.4
South Yorkshire HL			57.7	57.7
Leeds City	118.0		73.5	73.5
Shipley	146.0		89.0	89.0
Bradford Central	156.0		95.8	95.8
Halifax	163.0		105.6	105.6
Keighley	157.0		98.7	98.7
Skipton	172.0		109.5	109.5

As noted earlier, fastest Mk2 times northbound from Birmingham are unchanged from Mk1A.

HS7 App Q

1. *Plymouth – Swansea / Liverpool / Newcastle / Middlesbrough* (6/10/15/16 stops):

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Plymouth, inc. Station Wait Times
Plymouth - Exeter St. David's	65.0	65.0	20.1	20.1	20.1
Exeter St. David's - Taunton	48.0	113.0	15.6	35.7	38.7
Taunton - Bristol Temple Meads	71.0	184.0	21.7	57.4	63.4
Bristol Temple Meads - Cardiff HS	53.0	237.0	16.9	74.3	83.3
Cardiff HS - Cardiff Airport	15.0	252.0	6.7	81.0	93.0
Cardiff Airport - Port Talbot Parkway	39.0	291.0	13.2	94.2	102.6
Port Talbot Parkway - Swansea HS	13.0	304.0	6.2	100.4	111.9
Bristol Temple Meads - Bristol Parkway HS	8.0	192.0	4.9	62.3	71.3
Bristol Parkway HS - Cheltenham Spa	61.0	253.0	19.0	81.3	93.3
Cheltenham Spa - Worcester Shrub Hill	35.0	288.0	12.1	93.4	108.4
Worcester Shrub Hill - Birmingham Interchange	49.0	337.0	15.8	109.3	127.3
Birmingham Interchange - Crewe	90.0	427.0	26.8	136.0	157.0
Crewe - Runcorn	36.2	463.2	12.4	148.5	172.5
Runcorn - Liverpool South Parkway	12.0	475.2	6.0	154.5	181.5
Liverpool South Parkway - Liverpool Lime St,	9.2	484.4	5.4	159.9	189.9
Birmingham Interchange - Derby	59.0	396.0	18.5	127.8	148.8
Derby - Sheffield HS	70.1	466.1	21.5	149.2	173.2
Sheffield HS - Huddersfield	51.0	517.1	16.4	165.6	192.6
Huddersfield - Leeds HS	24.0	541.1	9.2	174.8	204.8

Leeds HS - York HS	39.8	580.9	13.4	188.2	221.2
York HS - Darlington Bank Top	70.0	650.9	21.4	209.6	245.6
Darlington Bank Top - Durham Relly Mill	33.0	683.9	11.6	221.2	260.2
Durham Relly Mill - Consett	20.0	703.9	8.1	229.3	271.3
Consett - Newcastle	20.0	723.9	8.1	237.4	282.4
York HS - Northallerton	48.2	629.1	15.6	203.8	239.8
Northallerton - Yarm	19.4	648.5	8.0	211.8	250.8
Yarm - Eaglescliffe	4.1	652.6	3.5	215.3	257.3
Eaglescliffe - Thornaby	4.9	657.5	3.8	219.0	264.0
Thornaby - Middlesborough	5.2	662.7	3.9	222.9	270.9

Current fastest time (minutes) from Plymouth [and the Mk2 times] {and the above values} to:

• Exeter St. David's	53	[15]	{20}
• Taunton	84	[31]	{39}
• Bristol TM	118	[50]	{62}
• Cardiff HS	198 (1 change)	[69]	{83}
• Cardiff Airport		[79]	{93}
• Port Talbot Parkway	216 (1 change)	[88]	{103}
• Swansea HS	257 (1 change)	[97]	{112}
• Bristol Parkway	134	[58]	{71}
• Cheltenham Spa	164	[77]	{93}
• Worcester Shrub Hill	210 (1 change)	[91]	{108}
• Birmingham	206 (New St.)	[107] (Ichg)	{127}
• Crewe	281 (1 change)	[129]	{157}
• Runcorn	301 (1 change)	[145]	{173}
• Liverpool S. Pkwy	310 (1 change)	[154]	{181}
• Liverpool Lime St.	320 (1 change)	[162]	{190}
• Sheffield	292	[146]	{149}
• Huddersfield	355 (1 change)	[163]	{193}
• Leeds	336 (City)	[175]	{205}
• York	348 (2 ch., London)	[190]	{221}
• Darlington	382 (2 ch., London)	[217]	{246}
• Durham	400 (2 ch., London)	[231]	{260}
• Consett		[241]	{271}
• Newcastle	416 (2 ch., London)	[252]	{282}
• Northallerton	370 (2 ch., London)	[214]	{239}
• Yarm	430 (4 ch., London)	[225]	{251}
• Eaglescliffe	419 (2 changes)	[231]	{257}
• Thornaby	425 (2 ch., London)	[238]	{264}
• Middlesbrough	432 (2 ch., London)	[245]	{271}

2. *Swansea – Plymouth / Holyhead / Norwich (6/13/14 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Swansea, inc. Station Wait Times
Swansea HS - Port Talbot Parkway	13.0	13.0	6.2	6.2	6.2
Port Talbot Parkway - Cardiff Airport	39.0	52.0	13.2	19.4	22.4
Cardiff Airport - Cardiff HS	15.0	67.0	6.7	26.0	32.0
Cardiff HS - Bristol Temple Meads	53.0	120.0	16.9	43.0	52.0
Bristol Temple Meads HS - Taunton	71.0	191.0	21.7	64.7	76.7
Taunton - Exeter St. David's	48.0	239.0	15.6	80.2	95.2
Exeter St. David's - Plymouth	65.0	304.0	20.1	100.4	118.4
Cardiff HS - Bristol Parkway HS	34.7	101.7	12.0	38.1	47.1
Bristol Parkway HS - Cheltenham Spa	61.0	162.7	19.0	57.1	69.1
Cheltenham Spa - Worcester Shrub Hill	35.0	197.7	12.1	69.2	84.2
Worcester Shrub Hill - Birmingham Interchange	49.0	246.7	15.8	85.1	103.1
Birmingham Interchange - Crewe	90.0	336.7	26.8	111.9	132.9
Crewe - Chester	34.0	370.7	11.8	123.7	147.7
Chester - Flint	20.0	390.7	8.1	131.8	158.8
Flint - Rhyl	28.2	418.9	10.3	142.1	172.1
Rhyl - Llandudno Junction	23.1	442.0	8.9	151.0	184.0
Llandudno Junction - Bangor	25.0	467.0	9.4	160.5	196.5
Bango - Holyhead	39.6	506.6	13.3	173.8	212.8
Birmingham Interchange - Derby	59.0	305.7	18.5	103.6	124.6
Derby - Nottingham	26.0	331.7	9.7	113.3	137.3
Nottingham - Peterborough	83.8	415.5	25.1	138.4	165.4
Peterborough - Ely (reverse)	25.1	440.6	9.5	147.9	177.9
Ely - Brandon Junction	18.0	458.6	6.5	154.4	
Brandon Junction - Roudham Heath Junction	24.0	482.6	9.2	163.6	

Roudham Heath Junction - Norwich	40.0	522.6	12.9	176.5	211.5
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Current fastest time (minutes) from Swansea [and the Mk2 times] [and the above values] to:

• Port Talbot	17	[6]	[6]
• Cardiff Airport		[17]	{20}
• Cardiff	53	[27]	{30}
• Bristol TM	109 (1 change)	[47]	{47}
• Taunton	109 (1 change)	[66]	{77}
• Exeter St. David's	109 (1 change)	[81]	{95}
• Plymouth	109 (1 change)	[100]	{118}
• Bristol Parkway	91	[37]	{47}
• Cheltenham Spa	130 (1 change)	[56]	{69}
• Worcester Shrub Hill	166 (2 changes)	[69]	{84}
• Birmingham	174 (1 change) (New	[82]	(1'chg) {103}
• Crewe	212 St.)	[115]	{133}
• Chester	240	[130]	{148}
• Flint	263 (1 change)	[142]	{159}
• Rhyl	284 (1 change)	[156]	{172}
• Llandudno Junction	298 (1 change)	[169]	{184}
• Bangor	314 (1 change)	[184]	{197}
• Holyhead	348 (1 change)	[204]	{213}
• Derby	224 (2 change)	[111]	{125}
• Nottingham	270 (3 changes)	[122]	{137}
• Peterborough	257 (2 ch., London)	[146]	{165}
• Ely	319 (4 ch., London)	[158]	{178}
• Norwich	357 (3 ch., London)	[187]	{212}

3. *Birmingham Curzon St. – Cardiff Airport / Bristol (5/4 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Birmingham, inc. Station Wait Times
Birmingham Curzon St. - Birmingham Interchange	20.0	20.0	7.7	7.7	7.7
Birmingham Interchange - Worcester Shrub Hill	40.0	60.0	11.7	19.4	22.4
Worcester Shrub Hill - Cheltenham Spa	35.0	95.0	10.7	30.1	36.1
Cheltenham Spa - Bristol Parkway HS	61.0	156.0	15.9	46.0	55.0
Bristol Parkway HS - Cardiff HS	48.0	204.0	13.3	59.3	71.3
Cardiff HS - Cardiff Airport	15.0	219.0	6.7	66.0	81.0
Bristol Parkway HS - Bristol Temple Meads BT	8.0	164.0	4.9	50.9	62.9

Current fastest time (minutes) from Birmingham (New St.) [and the Mk2 times (Curzon St.)] {and the above values} to:

- Birmingham I'chge [8] {8}
- Worcester 49 (1 change) [22] {25}
- Cheltenham 40 [36] {40}
- Bristol Parkway HS 72 [55] {62}
- Cardiff 116 [71] {80}
- Cardiff Airport [80] {90}
- Bristol Temple Meads 83 [63] {70}

Note that the current fastest times south of Worcester do **not** include a Worcester stop.

On this section, there are no intermediate passing times of interest, at Mk2.

There are no changes to the timings of northbound services from Birmingham Curzon St.

HS8/HS9 Mk1A

1. Northern Transpennine: Liverpool Lime St. – Newcastle / Middlesborough / Newcastle via Hartlepool (8/9/14 stops):

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Liverpool, inc. Station Wait Times
Liverpool Lime St. - Victoria LL	49.0	49.0	12.6	12.6	12.6
Victoria LL - Manchester HS	0.5	49.5	1.2	13.8	16.8
Manchester HS - Guide Bridge HS Junction	8.0	57.5	3.9	17.7	
Guide Bridge HS Junction - Huddersfield	31.0	88.5	7.7	25.4	31.4
Huddersfield - Leeds HS	24.0	112.5	8.5	33.9	42.9
Leeds HS - Garfield East Jn.	10.8	123.3	4.5	38.5	
Garfield East Jn. - Ulleskelf Jn.	15.0	138.3	3.1	41.6	
Ulleskelf Junction - York HS	14.0	152.3	4.8	46.4	58.4
York HS - Romanby Junction	46.0	198.3	14.0	60.4	
Romanby Junction - Darlington Bank Top	24.0	222.3	6.1	66.5	85.5
Darlington Bank Top - Durham Relly Mill	33.0	255.3	10.3	76.8	98.8
Durham Relly Mill - Consett	20.0	275.3	7.7	84.5	109.5
Consett - Newcastle	20.0	295.3	7.7	92.2	120.2
York HS - Northallerton	48.2	200.5	15.6	62.0	82.0
Northallerton - Yarm	19.5	220.0	8.0	70.0	93.0
Yarm - Eaglescliffe	4.1	224.1	3.5	73.5	99.5
Eaglescliffe - Thornaby	4.9	229.0	3.8	77.2	106.2
Thornaby - Middlesborough	5.2	234.2	3.9	81.1	113.1
Leeds HS - Garforth West Jn.	10.0	122.5	4.3	38.3	
Garforth West Jn. - Micklefield	6.0	128.5	2.6	40.9	52.9
Micklefield - York (ECML)	25.5	154.0	9.6	50.5	65.5
York (ECML) - Thirsk	35.7	189.7	12.3	62.8	80.8
Thirsk - Northallerton	12.5	202.2	6.1	68.9	89.9

Northallerton - Yarm	19.4	221.6	8.0	76.8	100.8
Yarm - Eaglescliffe	4.1	225.7	3.5	80.3	107.3
Eaglescliffe - Stockton	4.9	230.6	3.8	84.1	114.1
Stockton - Hartlepool	18.8	249.4	9.0	93.1	126.1
Hartlepool - Seaham	20.7	270.1	9.7	102.9	138.9
Seaham - Sunderland	8.3	278.4	5.1	108.0	147.0
Sunderland - Newcastle	19.6	298.0	9.3	117.3	159.3

Current fastest time (minutes) from Liverpool [and the above values] to:

- Manchester (Vic.) 32 [13]
- Manchester (Pic/HS) 45 [17]
- Huddersfield 68 [31]
- Leeds 88 [43]
- Micklefield 118 (1 change) [53]
- York 114 [58/66]
- Darlington 148 [86]
- Durham 165 [99]
- Consett [110] (there is no current time for Consett!)
- Newcastle 180 [120/159]
- Thirsk 139 (1 change) [81]
- Northallerton 136 [82/90]
- Yarm 162 (1 change) [93/101]
- Eaglescliffe 172 (1 change) [100/107]
- Thornaby 170 (1 change) [106]
- Middlesbrough 180 (1 change) [113]
- Stockton 188 (2 changes) [114]
- Hartlepool 192 (1 change) [126]
- Seaham 225 (1 change) [139]
- Sunderland 217 (1 change) [147]

2. Northern Transpennine: Preston – Hull / Scarborough (8/10 stops):

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Liverpool, inc. Station Wait Times
Preston - Gibb Farm Junction	24.0	24.0	7.0	7.0	7.0
Gibb Farm Junction - Bolton	8.0	32.0	3.1	10.1	10.1
Bolton - Victoria LL	17.0	49.0	7.1	17.2	20.2
Victoria LL - Manchester HS	0.5	49.5	1.2	18.4	24.4
Manchester HS - Guide Bridge HS Junction	8.0	57.5	3.9	22.2	
Guide Bridge HS Junction - Huddersfield	31.0	88.5	7.7	30.0	39.0
Huddersfield - Leeds HS	24.0	112.5	8.5	38.5	50.5
Leeds HS - Garforth West Jn.	10.0	122.5	4.3	42.8	
Garforth West Jn. - Micklefield	6.0	128.5	2.6	45.4	60.4
Micklefield - Selby	18.2	146.7	7.9	53.4	71.4
Selby - Gilberdyke	22.6	169.3	9.2	62.6	83.6
Gilberdyke - Hull Paragon	27.3	196.6	10.7	73.3	97.3
Micklefield - York (ECML)	25.5	154.0	9.6	55.0	73.0
York (ECML) - Barton Hill	18.7	172.7	7.4	62.4	
Barton Hill - Malton	15.3	188.0	4.7	67.1	88.1
Malton - Rillington Junction	7.1	195.1	4.6	71.7	95.7
Rillington Junction - Seamer	21.9	217.0	9.0	80.7	107.7
Seamer - Scarborough	4.7	221.7	3.7	84.5	114.5

Current fastest time (minutes) from Preston [and the above values] to:

- Bolton 26 [10]
- Manchester (Vic.) 49 [20]
- Manchester (Pic/HS) 41 [24]
- Huddersfield 75 (1 change) [39]
- Leeds 74 [51]
- Micklefield 124 [60]
- Selby 130 (1 change) [71]
- Gilberdyke 161 (2 changes) [84]
- Hull Paragon 168 (1 change) [97]

- York 139 (2 changes) [73]
- Malton 157 (1 change) [88]
- Seamer 174 (1 change) [108]
- Scarborough 182 (1 change) [115]

3. *Southern Transpennine: Preston – Norwich (9 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Preston, inc. Station Wait Times
Preston - Gibb Farm Junction	24.0	24.0	7.0	7.0	
Gibb Farm Junction - Bolton	8.0	32.0	3.1	10.1	10.1
Bolton - Victoria LL	17.0	49.0	7.1	17.2	20.2
Victoria LL - Manchester HS	0.5	49.5	1.2	18.4	24.4
Manchester HS - Sheffield HS	54.0	103.5	14.5	32.9	41.9
Sheffield HS - Wales Junction	11.3	114.8	4.7	37.6	
Wales Junction - Nuthall South Junction	43.0	157.8	7.8	45.5	
Nuthall South Junction - Nottingham	7.4	165.2	2.9	48.4	60.4
Nottingham - Melton Mowbray	30.1	195.3	10.8	59.2	74.2
Melton Mowbray - Wymondham East Jn.	8.0	203.3	4.2	63.4	
Wymondham East Jn. - Pellett Hall Junction	39.0	242.3	8.4	71.8	
Pellett Hall Junction - Peterborough	6.3	248.6	2.7	74.5	92.5
Peterborough - March	23.9	272.5	9.2	83.7	104.7
March - Ely (reverse)	25.1	297.6	9.5	93.2	117.2
Ely - Brandon Junction	18.0	315.6	6.5	99.7	
Brandon Junction - Roudham Heath Junction	24.0	339.6	5.1	104.8	
Roudham Heath Junction - Norwich	40.0	379.6	12.9	117.7	146.7

Current fastest time (minutes) from Preston [and the above values] to:

• Bolton	26	[10]
• Manchester (Vic)	49	[20]
• Manchester (Pic/HS)	41	[24]
• Sheffield	107 (1 change)	[42]
• Nottingham	160 (1 change)	[61]
• Melton Mowbray	197 (1 change)	[74]
• Peterborough	201 (3 changes)	[93]
• March	236 (1 change)	[105]
• Ely	266 (2 changes)	[117]
• Norwich	290 (2 changes)	[147]

HS8/HS9 Mk2

Mk2 affects only the Preston – Norwich service.

3. *Southern Transpennine: Preston – Norwich (7 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Preston, inc. Station Wait Times
Preston - Gibb Farm Junction	24.0	24.0	7.0	7.0	
Gibb Farm Junction - Bolton	8.0	32.0	3.1	10.1	10.1
Bolton - Victoria LL	17.0	49.0	7.1	17.2	20.2
Victoria LL - Manchester HS	0.5	49.5	1.2	18.4	24.4
Manchester HS - Sheffield HS	54.0	103.5	14.5	32.9	41.9
Sheffield HS - Wales Junction	11.3	114.8	4.7	37.6	
Wales Junction - Nuthall South Junction	43.0	157.8	7.8	45.4	
Nuthall South Junction - Nottingham	7.4	165.2	2.9	48.4	60.4
Nottingham - Edwalton Junction	6.8	172.0	3.6	51.9	
Edwalton Junction - Peterborough	77.0	249.0	16.9	68.8	83.8
Peterborough - Ely (reverse)	46.0	295.0	12.9	81.7	99.7
Ely - Brandon Junction	18.0	313.0	6.5	88.3	
Brandon Junction - Roudham Heath Junction	24.0	337.0	5.1	93.4	
Roudham Heath Junction - Norwich	40.0	377.0	12.9	106.3	129.3

Current fastest time (minutes) from Preston [plus Mk2 times] to:

- Bolton 26 [10]
- Manchester (Vic) 49 [20]
- Manchester (Pic/HS) 41 [24]
- Sheffield 107 (1 change) [42]
- Nottingham 160 (1 change) [60]
- Peterborough 201 (3 changes) [84]
- Ely 266 (2 changes) [100]

HS8/HS9 App Q

1. Northern Transpennine: Liverpool Lime St. – Newcastle / Middlesborough / Newcastle via Hartlepool (8/9/14 stops):

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Liverpool, inc. Station Wait Times
Liverpool Lime St. - Victoria LL	49.0	49.0	15.8	15.8	15.8
Victoria LL - Manchester HS	0.5	49.5	1.2	17.1	20.1
Manchester HS - Huddersfield	39.0	88.5	13.2	30.2	36.2
Huddersfield - Leeds HS	24.0	112.5	9.2	39.4	48.4
Leeds HS - York HS	39.8	152.3	13.4	52.8	64.8
York HS - Darlington Bank Top	70.0	222.3	21.4	74.3	89.3
Darlington Bank Top - Durham Relly Mill	33.0	255.3	11.6	85.8	103.8
Durham Relly Mill - Consett	20.0	275.3	8.1	93.9	114.9
Consett - Newcastle	20.0	295.3	8.1	102.1	126.1
York HS - Northallerton	48.2	200.5	15.6	68.4	88.4
Northallerton - Yarm	19.5	220.0	8.0	76.4	99.4
Yarm - Eaglescliffe	4.1	224.1	3.5	79.9	105.9
Eaglescliffe - Thornaby	4.9	229.0	3.8	83.7	112.7
Thornaby - Middlesborough	5.2	234.2	3.9	87.6	119.6
Leeds HS - Micklefield.	16.0	128.5	7.0	46.5	129.6
Micklefield - York (ECML)	25.5	154.0	9.6	56.0	142.2
York (ECML) - Thirsk	35.7	189.7	12.3	68.3	157.5
Thirsk - Northallerton	12.5	202.2	6.1	74.4	166.6
Northallerton - Yarm	19.4	221.6	8.0	82.4	177.6
Yarm - Eaglescliffe	4.1	225.7	3.5	85.9	184.1

Eaglescliffe - Stockton	4.9	230.6	3.8	89.7	190.9
Stockton - Hartlepool	18.8	249.4	9.0	98.7	202.9
Hartlepool - Seaham	20.7	270.1	9.7	108.5	215.6
Seaham - Sunderland	8.3	278.4	5.1	113.5	223.7
Sunderland - Newcastle	19.6	298.0	9.3	122.9	236.0

Current fastest time (minutes) from Liverpool [and the Mk2 times] {and the above values} to:

• Manchester (Vic.)	32	[13]	{16}
• Manchester (Pic/HS)	45	[17]	{20}
• Huddersfield	68	[31]	{36}
• Leeds	88	[43]	{48}
• Micklefield	118 (1 change)	[53]	{59}
• York	114	[58/66]	{65}
• Darlington	148	[86]	{89}
• Durham	165	[99]	{104}
• Consett		[110]	{115}
• Newcastle	180	[120/159]	{126/165} (HS9 / via Hartlepool)
• Thirsk	139 (1 change)	[81]	{95}
• Northallerton	136	[82/90]	{88/95} (non-stop/ / stop Thirsk)
• Yarm	162 (1 change)	[93/101]	{99/106}
• Eaglescliffe	172 (1 change)	[100/107]	{106/113}
• Thornaby	170 (1 change)	[106]	{113}
• Middlesbrough	180 (1 change)	[113]	{120}
• Stockton	188 (2 changes)	[114]	{120}
• Hartlepool	192 (1 change)	[126]	{132}
• Seaham	225 (1 change)	[139]	{145}
• Sunderland	217 (1 change)	[147]	{153}

2. Northern Transpennine: Preston – Hull / Scarborough (8/10 stops):

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Liverpool, inc. Station Wait Times
Preston -Bolton	32.0	32.0	11.3	11.3	11.3
Bolton - Victoria LL	17.0	49.0	7.3	18.6	21.6
Victoria LL - Manchester HS	0.5	49.5	1.2	19.8	25.8
Manchester HS - Huddersfield	39.0	88.5	13.2	33.0	42.0
Huddersfield - Leeds HS	24.0	112.5	9.2	42.2	54.2
Leeds HS - Micklefield	22.0	134.5	8.6	50.8	
Micklefield - Selby	18.2	152.7	7.9	58.8	73.8
Selby - Gilberdyke	22.6	175.3	9.2	68.0	86.0
Gilberdyke - Hull Paragon	27.3	202.6	10.7	78.7	99.7
Micklefield - York (ECML)	25.5	160.0	9.6	60.4	83.3
York (ECML) - Barton Hill	18.7	178.7	7.4	67.8	
Barton Hill - Malton	15.3	194.0	4.7	72.5	98.5
Malton - Rillington Junction	7.1	201.1	4.6	77.1	106.0
Rillington Junction - Seamer	21.9	223.0	9.0	86.1	118.1
Seamer - Scarborough	4.7	227.7	3.7	89.9	124.8

Current fastest time (minutes) from Preston [and the Mk2 times] {and the above values} to:

• Bolton	26	[10]	{11}
• Manchester (Vic.)	49	[20]	{22}
• Manchester (Pic/HS)	41	[24]	{26}
• Huddersfield	75 (1 change)	[39]	{42}
• Leeds	74	[51]	{54}
• Micklefield	124	[60]	{66}
• Selby	130 (1 change)	[71]	{77}
• Gilberdyke	161 (2 changes)	[84]	{89}
• Hull Paragon	168 (1 change)	[97]	{103}
• York	139 (2 changes)	[73]	{86}
• Malton	157 (1 change)	[88]	{102}
• Seamer	174 (1 change)	[108]	{114}
• Scarborough	182 (1 change)	[115]	{120}

3. *Southern Transpennine: Preston – Norwich (9 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Preston, inc. Station Wait Times
Preston - Bolton	32.0	32.0	11.3	11.3	11.3
Bolton - Victoria LL	17.0	49.0	7.3	18.6	21.6
Victoria LL - Manchester HS	0.5	49.5	1.2	19.8	25.8
Manchester HS - Sheffield HS	54.0	103.5	17.2	37.0	46.0
Sheffield HS - Nottingham	61.7	165.2	19.2	56.2	65.9
Nottingham - Edwalton Junction	6.8	172.0	3.6	59.8	
Edwalton Junction - Peterborough	77.0	249.0	21.6	81.4	94.0
Peterborough - Ely (reverse)	46.0	295.0	15.0	96.4	112.0
Ely - Brandon Junction	18.0	313.0	8.3	104.7	
Brandon Junction - Roudham Heath Junction	24.0	337.0	6.6	111.3	
Roudham Heath Junction - Norwich	40.0	377.0	12.9	124.2	144.9

Current fastest time (minutes) from Preston [and the Mk2 times] {and the above values} to:

- Bolton 26 [10] {11}
- Manchester (Vic) 49 [20] {22}
- Manchester (Pic/HS) 41 [24] {26}
- Sheffield 107 (1 change) [42] {46}
- Nottingham 160 (1 change) [60] {66}
- Peterborough 201 (3 changes) [84] {94}
- Ely 266 (2 changes) [100] {112}
- Norwich 290 (2 changes) [129] {145}

4. *Southern Transpennine: Preston – Cleethorpes (9 stops)*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Preston, inc. Station Wait Times
Preston - Bolton	32.0	32.0	11.3	11.3	11.3
Bolton - Victoria LL	17.0	49.0	7.1	18.4	21.4

Victoria LL - Manchester HS	0.5	49.5	1.2	19.6	25.6
Manchester HS - Sheffield HS	54.0	103.5	14.5	34.1	43.1
Sheffield HS - Waleswood Junction	10.6	114.1	4.6	38.7	
Waleswood Junction - Worksop	15.0	129.0	5.4	44.1	56.1
Worksop - Retford LL	12.3	141.3	6.2	50.3	65.3
Retford LL- Gainsborough Central	16.1	157.4	7.3	57.6	75.6
Gainsborough Central - Brigg	16.7	174.1	7.2	64.8	85.8
Brigg - Grimsby Town	29.3	203.4	11.3	76.1	100.1
Grimsby Town - Cleethorpes	5.6	209.0	4.1	80.1	107.1

Current fastest time (minutes) from Preston [and the Mk2 times] {and the above times} to:

• Bolton	26	[10]	{11}
• Manchester (Vic)	57	[21]	{22}
• Manchester (Pic/HS)	41	[24]	{26}
• Sheffield	107 (1 change)	[42]	{46}
• Worksop	147 (2 changes)	[55]	{59}
• Retford LL	182 (2 changes)	[64]	{68}
• Gainsborough Central	232 (3 changes)	[74]	{79}
• Brigg (Lea Rd.)		[84]	{89}
• Grimsby Town	210 (1 change)	[99]	{103}
• Cleethorpes	226 (1` change)	[106]	{110}

5. *Southern Transpennine: Liverpool – Hull / Skegness (7/10 stops)*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Liverpool, inc. Station Wait Times
Liverpool Lime St. - Victoria LL	49.0	49.0	15.8	15.8	15.8
Victoria LL - Manchester HS	0.5	49.5	1.2	17.1	20.1
Manchester HS - Sheffield HS	54.0	103.5	17.2	34.2	40.2
Sheffield HS - Waleswood Junction	10.6	114.1	4.6	38.8	

Waleswood Junction - Worksop	15.0	129.0	5.4	44.2	53.2
Worksop - Retford LL	12.3	141.3	6.2	50.4	62.4
Retford LL- Gainsborough Central	16.1	157.4	7.3	57.7	72.7
Gainsborough Central - Brigg	16.7	174.1	7.2	64.9	82.9
Brigg - Hull Paragon	25.0	199.1	9.4	74.3	95.3
Retford LL - Gainsborough Lea Road	15.2	156.5	7.0	57.4	72.4
Gainsborough Lea Road - Lincoln	25.1	181.6	10.0	67.4	85.4
Lincoln - Sleaford	35.2	216.8	13.0	80.4	101.4
Sleaford - Boston	27.1	243.9	10.6	91.0	115.0
Boston - Wainfleet	30.3	274.2	11.6	102.6	129.6
Wainfleet - Skegness	8.0	282.2	4.9	107.5	137.5

Current fastest time (minutes) from Liverpool [and the Mk2 times] {and the above times} to:

• Manchester (Vic.)	32	[13]	{16}
• Manchester (Pic/HS)	45	[17]	{20}
• Sheffield	102	[34]	{40}
• Worksop	142 (1 change)	[47]	{53}
• Retford LL	153 (1 change)	[56]	{62}
• Gainsborough Central	199 (2 changes)	[66]	{73}
• Brigg (Lea Rd.)		[77]	{83}
• Hull	185 (1 change)	[90]	{95}
• Gainsborough Lea Road	168 (1 change)	[67]	{72}
• Lincoln	192 (1 change)	[80]	{85}
• Sleaford	232 (2 changes)	[96]	{101}
• Boston	264 (1 change)	[109]	{115}
• Wainfleet	289 (1 change)	[124]	{130}
• Skegness	306 (1 change)	[132]	{138}

HS11/HS12 Mk1A

1. Euston Cross – Dover (8 stops):

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.0	8.0	4.9	4.9	4.9
Stratford HS South - Shenfield HS	26.0	34.0	8.9	13.8	16.8
Shenfield HS - Southend Airport	27.0	61.0	9.1	22.9	28.9
Southend Airport - Southend HS	4.0	65.0	3.5	26.3	35.3
Southend HS - Grain	10.0	75.0	5.5	31.8	43.8
Grain - Sheerness HS	6.0	81.0	4.2	36.0	51.0
Sheerness HS - Faversham	16.0	97.0	6.9	42.9	60.9
Faversham - Canterbury East	15.8	112.8	7.9	50.8	71.8
Canterbury East - Dover Priory	26.6	139.4	12.0	62.8	86.8

Current fastest time (minutes) from London [and the above values] to:

- Shenfield 22 [17]
- Southend Airport 52 [29]
- Southend 51 [35]
- Faversham 63 (Javelin) [61]
- Canterbury East 77 (56 to Canterbury West by Javelin) [72]
- Dover 83 (Javelin – 1 change) [87]

2. *Euston Cross – Norwich / Lowestoft / Yarmouth (6/7/8 stops)*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.0	8.0	4.9	4.9	4.9
Stratford HS South - Shenfield HS	26.0	34.0	8.9	13.8	16.8
Shenfield HS - Chelmsford	15.4	49.4	6.9	20.7	26.7
Chelmsford - Colchester	34.9	84.3	12.1	32.7	41.7
Colchester - Ipswich HS	26.0	110.3	9.7	42.4	54.4
Ipswich HS - Beccles	64.0	174.3	16.5	59.0	74.0
Beccles - Norwich	30.0	204.3	9.7	68.7	86.7
Beccles - Oulton Broad South	10.3	214.6	5.8	64.8	79.8
Oulton Broad South - Lowestoft	3.4	218.0	3.2	68.0	84.0
Beccles - Reedham South	11.0	185.3	5.7	64.7	80.7
Reedham South - Berney Arms	5.3	190.6	4.0	68.6	85.6
Berney Arms - Yarmouth	7.5	198.1	4.8	73.4	91.4
Ipswich HS - Woodbridge	15.0	125.3	6.7	49.1	64.1
Woodbridge - Melton	2.1	127.4	2.5	51.6	68.6
Melton - Wickham Market	6.8	134.2	4.5	56.1	74.1
Wickham Market - Saxmundham	10.6	144.8	6.0	62.1	81.1
Saxmundham - Darsham	7.0	151.8	4.6	66.7	87.7
Darsham - Halesworth	8.4	160.2	5.1	71.8	93.8
Halesworth - Brampton	6.3	166.5	4.3	76.2	100.2
Brampton - Beccles	7.3	173.8	4.6	80.7	105.7
Beccles - Oulton Broad South	10.3	184.1	5.8	86.6	116.6

Oulton Broad South - Lowestoft	3.4	187.5	3.2	89.7	120.7
Beccles - Reedham South	11.0	184.8	5.7	86.5	117.5
Reedham South - Berney Arms	5.3	190.1	4.0	90.4	122.4
Berney Arms - Yarmouth	7.5	197.6	4.8	95.2	128.2

The first entries for (stations to) Lowestoft and Yarmouth are by cross-platform connection at Beccles with the Norwich service. Both the Norwich and Lowestoft trains can depart Beccles simultaneously, and the Yarmouth portion immediately afterwards. Weymouth – Lowestoft/Yarmouth, serving the East Suffolk Line stations and splitting/joining at Beccles. The Yarmouth portion travels along HS12 until Reedham South Junction, then switches to the classic route to reach Yarmouth via Berney Arms. The second entries for Lowestoft and Yarmouth reflect the timings of the through train from Weymouth. These are unlikely to be much used as the Norwich train with changing at Beccles offers a significant time saving to Beccles and stations to Lowestoft and Yarmouth, as compared with the through service (which is of course intended to serve the East Suffolk Line stations). As originally calculate, with the standard wait time of 3 minutes at each station, the time taken to travel between Ipswich and Beccles via the East Suffolk line took c.43 minutes longer than the Norwich service via the new HS12 infrastructure. Given that most of the stations serve small locations, this has been respecified to provide a 1 minute wait time at Melton, Wickham Market, Darsham, Brampton, Oulton Broad South, Reedham South and Berney Arms, and a 2 minute wait time at Woodbridge, Saxmundham and Halesworth. As a consequence, 11 minutes are saved in station wait times between Ipswich and Beccles via the East Suffolk Line, so the journey now takes only 32 minutes longer than the Norwich service.

Current fastest time (minutes) from London [and the above values] to:

- Shenfield 22 [17]
- Chelmsford 32 [27]
- Colchester 46 [42]
- Ipswich 67 [54]
- Beccles 145 (1 change) [74]
- Norwich 108 [87]
- Lowestoft 155 (1 change at Norwich) [84]
- Yarmouth 159 (1 change at Norwich) [91]
- Woodbridge 92 (1 change) [64]
- Melton 96 (1 change) [69]
- Wickham Mkt 103 (1 change) [74]
- Saxmundham 113 (1 change) [81]
- Darsham 120 (1 change) [88]
- Halesworth 129 (1 change) [94]
- Brampton 136 (1 change) [100]
- Beccles 145 (1 change) [106]

3. *Euston Cross – Norwich (via Diss) / Harwich (7/9 stops)*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.0	8.0	4.9	4.9	4.9
Stratford HS South - Shenfield HS	26.0	34.0	8.9	13.8	16.8
Shenfield HS - Chelmsford	15.4	49.4	6.9	20.7	26.7
Chelmsford - Colchester	34.9	84.3	12.1	32.7	41.7
Colchester - Manningtree	12.8	97.1	6.2	38.9	50.9
Manningtree - Ipswich GEML	15.0	112.1	6.8	45.7	60.7
Ipswich GEML - Diss	42.2	154.3	14.0	59.7	77.7
Diss - Norwich Thorpe	33.2	187.5	11.6	71.3	92.3
Manningtree - Mistley	2.8	99.9	2.9	41.8	56.8
Mistley - Wrabness	6.3	106.2	4.3	46.1	64.1
Wrabness - Harwich Parkeston Quay	6.2	112.4	4.3	50.4	71.4
Harwich Parkeston Quay - Dovercourt	2.1	114.5	2.5	52.9	76.9
Dovercourt - Harwich Town	0.9	115.4	1.6	54.6	81.6

Current fastest time (minutes) from London [and the above values] to:

- Shenfield 22 [17]
- Chelmsford 32 [27]
- Colchester 46 [42]
- Manningtree 55 [51]
- Ipswich 67 [61]
- Diss 88 [78]
- Norwich 108 [92]
- Mistley 64(1 change) [57]
- Wrabness 69 (1 change) [64]
- Harwich P.Q. 77 (1 change) [71]
- Dovercourt 80 (1 change) [77]
- Harwich Town 82 (1 change) [82]

4. *Euston Cross – Braintree / Clacton / Walton (9/9/10 stops)*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.0	8.0	4.9	4.9	4.9
Stratford HS South - Shenfield HS	26.0	34.0	8.9	13.8	16.8
Shenfield HS - Chelmsford	15.4	49.4	6.9	20.7	26.7
Chelmsford - Witham	14.2	63.6	6.6	27.2	36.2
Witham - White Notley	4.9	68.5	3.8	31.0	41.0
White Norley - Cressing	1.8	70.3	2.3	33.3	44.3
Cressing - Braintree Freeport	2.1	72.4	2.5	35.8	47.8
Braintree Freeport - Braintree	1.9	74.3	2.4	38.2	51.2
Witham - Kelvedon	5.9	69.5	4.2	31.4	41.4
Kelvedon - Marks Tey	7.0	76.5	4.6	36.0	47.0
Marks Tey - Colchester	7.8	84.3	4.8	40.8	52.8
Colchester - Wivenhoe	7.3	91.6	4.7	45.5	60.5
Wivenhoe - Thorpe-le-Soken	14.6	106.2	7.5	53.0	69.0
Thorpe-le-Soken - Clacton-on-Sea	7.4	113.6	4.8	57.7	76.7
Thorpe-le-Soken - Frinton-on-Sea	6.0	112.2	4.2	57.2	76.2
Frinton-on-Sea - Walton-on-the-Naze	2.3	114.5	2.6	59.8	79.8

Current fastest time (minutes) from London [and the above values] to:

• Shenfield	22	[17]
• Chelmsford	32	[27]
• Witham	44	[36]
• White Notley	53	[41]
• Cressing	55	[44]
• Braintree Freeport	58	[48]
• Braintree	62	[51]
• Kelvedon	49	[41]
• Marks Tey	55	[47]
• Colchester	46	[53]
• Wivenhoe	65	[61]
• Thorpe-le-Soken	77	[69]
• Clacton	86	[77]
• Frinton	87 (1 change)	[76]
• Walton	91 (1 Change)	[80]

Note that the wait times at the various smaller stations –Witham, Kelvedon, Marks Tey, White Notley, Cressing, Braintree Freeport, Wivenhoe and Frinton have all been taken as 1 minute, rather than the usual 3, but 3 minutes at Thorpe-le-Soken because the Clacton and Walton portions split / join there.

HS11/HS12 Mk2

1. *Euston Cross – Dover (8 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.0	8.0	4.9	4.9	4.9
Stratford HS South - Shenfield HS	26.0	34.0	8.9	13.8	16.8
Shenfield HS - Southend Airport	27.0	61.0	9.1	22.9	28.9
Southend Airport - Southend HS	4.0	65.0	3.5	26.3	35.3
Southend HS - Grain	10.0	75.0	5.5	31.8	43.8
Grain - Sheerness HS	6.0	81.0	4.2	36.0	51.0
Sheerness HS - Faversham	16.0	97.0	6.9	42.9	60.9
Faversham - Canterbury East	14.0	111.0	6.4	49.3	70.3
Canterbury East - Dover Priory	26.6	137.6	12.0	61.3	85.3

Current fastest time (minutes) from London [and the above values] to:

- Shenfield 22 [17]
- Southend Airport 52 [29]
- Southend 51 [35]
- Faversham 63 (Javelin) [61]
- Canterbury East 77 (56 to Canterbury West by Javelin) [70]
- Dover 83 (Javelin – 1 change) [85]

2. *Euston Cross – Norwich / Lowestoft / Yarmouth (6/7/8 stops)*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.0	8.0	4.9	4.9	4.9
Stratford HS South - Shenfield HS	26.0	34.0	8.9	13.8	16.8
Shenfield HS - Chelmsford	15.4	49.4	6.8	20.5	26.5
Chelmsford - Colchester	34.9	84.3	10.7	31.2	40.2
Colchester - Ipswich HS	26.0	110.3	9.7	40.9	52.9
Ipswich HS - Beccles	64.0	174.3	16.5	57.5	72.5
Beccles - Norwich	30.0	204.3	9.7	67.2	85.2
Beccles - Oulton Broad South	10.3	214.6	5.8	63.3	78.3
Oulton Broad South - Lowestoft	3.4	218.0	3.2	66.5	82.5
Beccles - Reedham South	11.0	185.3	5.7	63.2	84.2
Reedham South - Berney Arms	5.3	190.6	4.0	67.1	89.1
Berney Arms - Yarmouth	7.5	198.1	4.8	71.9	94.9
Ipswich HS - Woodbridge	15.0	125.3	6.7	47.6	62.6
Woodbridge - Melton	2.1	127.4	2.5	50.1	67.1
Melton - Wickham Market	6.8	134.2	4.5	54.6	72.6
Wickham Market - Saxmundham	10.6	144.8	6.0	60.6	79.6
Saxmundham - Darsham	7.0	151.8	4.6	65.2	86.2
Darsham - Halesworth	8.4	160.2	5.1	70.3	92.3
Halesworth - Brampton	6.3	166.5	4.3	74.7	98.7
Brampton - Beccles	7.3	173.8	4.6	79.2	104.2
Beccles - Oulton Broad South	10.3	184.1	5.8	85.1	115.1

Oulton Broad South - Lowestoft	3.4	187.5	3.2	88.2	119.2
Beccles - Reedham South	11.0	184.8	5.7	85.0	116.0
Reedham South - Berney Arms	5.3	190.1	4.0	88.9	120.9
Berney Arms - Yarmouth	7.5	197.6	4.8	93.7	126.7

The first entries for (stations to) Lowestoft and Yarmouth are by cross-platform connection at Beccles with the Norwich service. Both the Norwich and Lowestoft trains can depart Beccles simultaneously, and the Yarmouth portion immediately afterwards. 18 minutes is the current time Beccles – Lowestoft; with HS12 this would presumably be reduced as the connection would be with the HS service Weymouth – Lowestoft/Yarmouth, serving the East Suffolk Line stations and splitting/joining at Beccles. The Yarmouth portion travels along HS12 until Reedham South Junction, then switches to the classic route to reach Yarmouth via Berney Arms. The second entries for Lowestoft and Yarmouth reflect the timings of the through train from Weymouth. These are unlikely to be much used as the Norwich train with changing at Beccles offers a time saving of 43 minutes to Beccles and stations to Lowestoft and Yarmouth, as compared with the through service (which is of course intended to serve the East Suffolk Line stations).

Current fastest time (minutes) from London [and the above values] to:

- Shenfield 22 [17]
- Chelmsford 32 [25]
- Colchester 46 [39]
- Ipswich 67 [51]
- Beccles 145 (1 change) [71]
- Norwich 108 [84]
- Lowestoft 155 (1 change at Norwich) [88]
- Yarmouth 159 (1 change at Norwich) [97]

3. *Euston Cross – Norwich (via Diss) / Harwich (7/9 stops)*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.0	8.0	4.9	4.9	4.9
Stratford HS South - Shenfield HS	26.0	34.0	8.9	13.8	16.8
Shenfield HS - Chelmsford	15.4	49.4	6.8	20.5	26.5
Chelmsford -	34.9	84.3	10.7	31.2	40.2

Colchester					
Colchester - Manningtree	12.8	97.1	6.2	37.4	49.4
Manningtree - Ipswich GEML	15.0	112.1	6.8	44.2	59.2
Ipswich GEML - Diss	42.2	154.3	14.0	58.2	76.2
Diss - Norwich Thorpe	33.2	187.5	11.6	69.9	90.9
Manningtree - Mistley	2.8	99.9	2.9	40.3	55.3
Mistley - Wrabness	6.3	106.2	4.3	44.6	62.6
Wrabness - Harwich Parkeston Quay	6.2	112.4	4.3	48.9	69.9
Harwich Parkeston Quay - Dovercourt	2.1	114.5	2.5	51.4	75.4
Dovercourt - Harwich Town	0.9	115.4	1.6	53.1	80.1

Current fastest time (minutes) from London [and the above values] to:

- Shenfield 22 [17]
- Chelmsford 32 [27]
- Colchester 46 [40]
- Manningtree 55 [49]
- Ipswich 67 [59]
- Diss 88 [76]
- Norwich 108 [91]
- Mistley 64 (1 change) [55]
- Wrabness 69 (1 change) [63]
- Harwich P.Q. 77 (1 change) [70]
- Dovercourt 80 (1 change) [75]
- Harwich Town 82 (1 change) [80]

There are no changes at Mk2 in the timings to Braintree, Clacton and Walton.

HS11/HS12 App Q

1. Euston Cross – Dover (8 stops):

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.0	8.0	4.9	4.9	4.9
Stratford HS South - Shenfield HS	26.0	34.0	9.7	14.6	17.6
Shenfield HS - Southend Airport	27.0	61.0	10.0	24.6	30.6
Southend Airport - Southend HS	4.0	65.0	3.5	28.0	37.0
Southend HS - Grain	10.0	75.0	5.5	33.5	45.5
Grain - Sheerness HS	6.0	81.0	4.2	37.7	52.7
Sheerness HS - Faversham	16.0	97.0	6.9	44.6	62.6
Faversham - Canterbury East	14.0	111.0	6.4	51.0	72.0
Canterbury East - Dover Priory	26.6	137.6	12.0	62.9	86.9

Current fastest time (minutes) from London [and the Mk2 times values] {and the above values} to:

• Shenfield	22		[17]	{18}
• Southend Airport	52		[29]	{31}
• Southend	51		[35]	{37}
• Grain			[44]	{46}
• Sheerness HS			[53]	{53}
• Faversham	63	(Javelin)	[61]	{63}
• Canterbury East	77	(56 to Canterbury West by Javelin)	[70]	{72}
• Dover	83	(Javelin – 1 change)	[85]	{87}

2. *Euston Cross – Norwich / Lowestoft / Yarmouth (6/7/8 stops)*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.0	8.0	4.9	4.9	4.9
Stratford HS South - Shenfield HS	26.0	34.0	9.7	14.6	17.6
Shenfield HS - Chelmsford	15.4	49.4	6.8	21.3	27.3
Chelmsford - Colchester	34.9	84.3	12.1	33.4	42.4
Colchester - Ipswich HS	26.0	110.3	9.7	43.1	55.1
Ipswich HS - Beccles	64.0	174.3	19.8	63.0	78.0
Beccles - Norwich	30.0	204.3	10.8	73.8	91.8
Beccles - Oulton Broad South	10.3	214.6	5.8	68.8	83.8
Oulton Broad South - Lowestoft	3.4	218.0	3.2	72.0	88.0
Beccles - Reedham South	11.0	185.3	5.7	68.7	89.7
Reedham South - Berney Arms	5.3	190.6	4.0	72.7	94.7
Berney Arms - Yarmouth	7.5	198.1	4.8	77.5	100.5
Ipswich HS - Woodbridge	15.0	125.3	6.7	49.8	64.8
Woodbridge - Melton	2.1	127.4	2.5	52.3	69.3
Melton - Wickham Market	6.8	134.2	4.5	56.8	74.8
Wickham Market - Saxmundham	10.6	144.8	6.0	62.8	81.8
Saxmundham - Darsham	7.0	151.8	4.6	67.4	88.4
Darsham - Halesworth	8.4	160.2	5.1	72.5	94.5
Halesworth - Brampton	6.3	166.5	4.3	76.8	100.8
Brampton - Beccles	7.3	173.8	4.6	81.4	106.4
Beccles - Oulton Broad South	10.3	184.1	5.8	87.3	117.3

Oulton Broad South - Lowestoft	3.4	187.5	3.2	90.4	121.4
Beccles - Reedham South	11.0	184.8	5.7	87.1	118.1
Reedham South - Berney Arms	5.3	190.1	4.0	91.1	123.1
Berney Arms - Yarmouth	7.5	197.6	4.8	95.9	128.9

Current fastest time (minutes) from London [and the Mk2 times values] {and the above values} to:

- Shenfield 22 [17] {18}
- Chelmsford 32 [25] {27}
- Colchester 46 [39] {42}
- Ipswich 67 [51] {55}
- Beccles 145 (1 change) [71] {78}
- Norwich 108 [84] {92}
- Lowestoft 155 (1 change at Norwich) [88] {88}
- Yarmouth 159 (1 change at Norwich) [97] {101}

3. *Euston Cross – Norwich (via Diss) / Harwich (7/9 stops)*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from London, inc. Station Wait Times
Euston Cross - Stratford HS South	8.0	8.0	4.9	4.9	4.9
Stratford HS South - Shenfield HS	26.0	34.0	9.7	14.6	17.6
Shenfield HS - Chelmsford	15.4	49.4	6.9	21.5	27.5
Chelmsford - Colchester	34.9	84.3	12.1	33.5	42.5
Colchester - Manningtree	12.8	97.1	6.2	39.7	51.7
Manningtree - Ipswich GEML	15.0	112.1	6.8	46.5	61.5
Ipswich GEML - Diss	42.2	154.3	14.0	60.5	78.5
Diss - Norwich Thorpe	33.2	187.5	11.6	72.2	93.2
Manningtree - Mistley	2.8	99.9	2.9	42.6	57.6
Mistley - Wrabness	6.3	106.2	4.3	47.0	65.0
Wrabness - Harwich Parkeston Quay	6.2	112.4	4.3	51.3	72.3
Harwich Parkeston Quay - Dovercourt	2.1	114.5	2.5	53.8	77.8
Dovercourt - Harwich Town	0.9	115.4	1.6	55.4	82.4

Current fastest time (minutes) from London [and the Mk2 times] {and the above values} to:

• Shenfield	22	[17]	{18}
• Chelmsford	32	[27]	{28}
• Colchester	46	[40]	{43}
• Manningtree	55	[49]	{52}
• Ipswich	67	[59]	{62}
• Diss	88	[76]	{79}
• Norwich	108	[91]	{91}
• Mistley	64 (1 change)	[55]	{58}
• Wrabness	69 (1 change)	[63]	{65}
• Harwich P.Q.	77 (1 change)	[70]	{72}
• Dovercourt	80 (1 change)	[75]	{78}
• Harwich Town	82 (1 change)	[80]	{52}

HS13/HS14 Mk1A

1. *Glasgow - Edinburgh / Kilmarnock / Dalmuir (3/2/4 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Glasgow St. Enoch - Glasgow Bellgrove	1.8	1.8	2.3	2.3	2.3
Glasgow Bellgrove - Edinburgh Airport	68.0	69.8	17.3	19.6	22.6
Edinburgh Airport - Haymarket HS	9.0	78.8	5.2	24.8	30.8
Haymarket HS - Edinburgh Wav. HS	2.1	80.9	2.5	27.3	36.3
Glasgow St. Enoch - Glasgow Airport	12.0	12.0	4.9	4.9	4.9
Glasgow Airport - Dalry	26.0	38.0	8.9	13.8	16.8
Dalry - Kilmarnock	17.5	55.5	7.2	21.0	27.0
Glasgow Airport - Glasgow Airport Pkwy	2.0	14.0	2.4	10.4	10.4
Glasgow Airport Pkwy - Erskine Pkwy South	5.0	19.0	3.9	14.2	15.2
Erskine Pkwy South - Erskine Pkwy North	2.0	21.0	2.4	16.7	18.7
Erskine Pkwy North - Dalmuir	3.0	24.0	3.0	19.6	22.6

Current fastest time (minutes) from Glasgow [and the above values] to:

- Edinburgh Airport [23]
- Edinburgh Waverley 65 [36]
- Glasgow Airport [5]
- Dalry 74 [17]
- Kilmarnock 67 [27]

2. *Edinburgh - Glasgow / Dalmuir (3/7 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Edinburgh, inc. Station Wait Times
Edinburgh Waverley - Haymarket HS	2.1	2.1	2.5	2.5	2.5
Haymarket HS - Edinburgh Airport	9.0	11.1	5.2	7.7	10.7
Edinburgh Airport - Glasgow Bellgrove	68.0	79.1	17.3	25.0	31.0
Glasgow Bellgrove - Glasgow St. Enoch	1.8	80.9	2.3	27.3	36.3
Glasgow Bellgrove - Glasgow Airport	15.0	94.1	6.7	31.6	40.6
Glasgow Airport - Glasgow Airport Pkwy	2.0	96.1	2.4	34.1	46.1
Glasgow Airport Pkwy - Erskine Pkwy South	5.0	101.1	3.9	37.9	50.9
Erskine Pkwy South - Erskine Pkwy North	2.0	103.1	2.4	40.4	54.4
Erskine Pkwy North - Dalmuir	3.0	106.1	3.0	43.3	58.3

Current fastest time (minutes) from Edinburgh [and the above values] to:

- Glasgow Bellgrove [31]
- Glasgow St. Enoch 41 (Queen St.) [36]
- Glasgow Airport [41]
- Glasgow Airport Parkway [46]
- Erskine Parkway South [51]
- Erskine Parkway North [54]
- Dalmuir [58]

3. *Glasgow – Aberdeen fast / stopping / via Dundee (3/9/8 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Glasgow St. Enoch - Glasgow Bellgrove	1.8	1.8	2.3	2.3	2.3
Glasgow Bellgrove - Bannockburn Junction	38.0	39.8	10.2	12.5	
Bannockburn Junction - Stirling	4.0	43.8	2.1	14.6	17.6
Stirling - Perth	53.1	96.9	16.9	31.6	37.6
Perth - Stanley Junction	11.5	108.4	4.8	36.4	
Stanley Junction - Craig Junction	74.0	182.4	15.0	51.4	
Craig Junction - Aberdeen	57.7	240.1	16.4	67.8	76.8
Stirling - Gleneagles	27.9	71.7	10.2	24.9	30.9
Gleneagles - Perth	25.2	96.9	9.5	34.4	43.4
Perth - Stanley Junction	11.5	108.4	4.8	39.2	
Stanley Junction - Coupar Angus	14.0	122.4	4.3	43.5	57.5
Coupar Angus - Forfar	26.0	148.4	8.9	52.4	69.4
Forfar - Bridge of Dun	26.0	174.4	8.9	61.3	81.3
Bridge of Dun - Craig Junction	8.0	182.4	4.0	65.3	
Craig Junction - Laurencekirk	8.6	191.0	3.3	68.6	91.6
Laurencekirk - Stonehaven	23.1	214.1	8.9	77.6	103.6
Stonehaven - Aberdeen	26.0	240.1	9.7	87.3	116.3
Glasgow Queen St. - Bannockburn Junction	40.0	40.0	10.6	10.6	
Bannockburn Junction - Stirling	4.0	44.0	2.1	12.7	12.7
Stirling - Perth	53.1	97.1	16.9	29.7	32.7
Perth - Dundee	33.6	130.7	11.7	41.4	47.4
Dundee - Arbroath	27.5	158.2	10.1	51.5	60.5
Arbroath - Montrose	22.7	180.9	8.8	60.4	72.4
Montrose - Laurencekirk	16.2	197.1	7.1	67.5	82.5
Laurencekirk - Stonehaven	23.1	220.2	8.9	76.4	94.4
Stonehaven - Aberdeen	26.0	246.2	9.7	86.1	107.1

Note: The stopping service to Aberdeen calls` at Gleneagles; the other services to Aberdeen do not.

Current fastest time (minutes) from Glasgow (Queen St.) [and the above values, from St. Enoch] to:

• Stirling	26	[18]
• Gleneagles	41	[31]
• Perth	53	[38]
• Aberdeen [fast]	152	[77]
• Coupar Angus		[58]
• Forfar		[69]
• Bridge of Dun		[81]
• Laurencekirk	121	[92]
• Stonehaven	132	[104]
• Aberdeen [stopping]	152	[116]
•		[The following times are from Glasgow Queen St.]
• Stirling	26	[13]
• Perth	53	[33]
• Dundee	76	[47]
• Arbroath	96	[61]
• Montrose	110	[72]
• Laurencekirk	121	[83]
• Stonehaven	132	[94]
• Aberdeen via Dundee	140	[107]

The careful reader may be surprised to notice that Glasgow – Aberdeen (stopping) takes 10 minutes longer than Glasgow – Aberdeen via Dundee, even though the distance is 6km less and both services have the same number of stops between Perth and Aberdeen. This is accounted for by the extra two stops between Glasgow and Perth (Bellgrove and Gleneagles) for the Aberdeen (stopping) service.

Remember that the Aberdeen stopping services have a 5 minute wait at Perth.

4. *Edinburgh – Aberdeen fast / stopping / via Dundee and Edinburgh – Perth via Ladybank (3/9/8/5 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Edinburgh, inc. Station Wait Times
Edinburgh Waverley HS - Haymarket HS	2.1	2.1	2.5	2.5	2.5
Haymarket HS - Edinburgh Airport	9.0	11.1	5.2	7.7	10.7
Edinburgh Airport - Kinnaird Junction	33.0	44.1	9.0	16.7	
Kinnaird Junction - Stirling	10.0	54.1	3.6	20.3	26.3
Stirling - Perth	50.0	104.1	16.1	36.4	45.4
Perth - Craigro Junction	85.5	189.6	19.5	55.9	
Craigro Junction - Aberdeen	52.6	242.2	15.1	71.0	83.0
Stirling - Gleneagles	28.0	82.1	10.2	30.5	39.5
Gleneagles - Perth	22.0	104.1	8.6	39.2	51.2
Perth - Coupar Angus	25.5	129.6	8.8	48.0	65.0
Coupar Angus - Forfar	26.0	155.6	8.9	56.9	76.9
Forfar - Bridge of Dun	26.0	181.6	8.9	65.8	88.8
Bridge of Dun - Craigro Junction	8.0	189.6	4.0	69.8	
Craigro Junction - Laurencekirk	8.6	198.2	3.3	73.1	99.1
Laurencekirk - Stonehaven (classic route)	23.1	221.3	8.9	82.0	111.0
Stonehaven - Aberdeen	23.0	244.3	8.9	91.0	123.0
Edinburgh Airport - Forth Bridge South	10.0	21.1	4.8	12.5	
Forth Bridge South - Forth Bridge North	5.3	26.4	4.0	16.5	
Forth Bridge North - Kirkcaldy	7.9	34.3	4.2	20.7	26.7
Kirkcaldy - Leuchars Junction	55.9	90.2	19.2	40.0	49.0
Leuchars Junction - Tay Bridge South	9.0	99.2	4.7	44.7	
Tay Bridge South - Dundee	4.4	103.6	5.0	49.7	61.7
Dundee - Arbroath	27.5	131.1	10.1	59.8	74.8
Arbroath - Montrose	22.7	153.8	8.8	68.6	86.6

Montrose - Laurencekirk	16.2	170.0	7.1	75.7	96.7
Laurencekirk - Stonehaven (classic route)	23.1	193.1	8.9	84.6	108.6
Stonehaven - Aberdeen	23.0	216.1	8.9	93.5	120.5
Kirkcaldy - Ladybank	36.9	71.2	13.5	34.3	43.3
Ladybank - Newburgh	12.0	83.2	6.5	40.7	52.7
Newburgh - Perth	17.0	100.2	8.4	49.1	64.1

Note: The stopping service to Aberdeen calls` at Gleneagles; the other services to Aberdeen do not.

Current fastest time (minutes) from Edinburgh Waverley [and the above values] to:

- Edinburgh Airport [11]
- Stirling 51 [27]
- [The following times are for the Aberdeen (fast) service]
- Perth 76 [46]
- Aberdeen 137 [83]
- [The following times are for the Aberdeen (stopping) service]
- Gleneagles 66 [40]
- Perth 76 [52]
- Coupar Angus [65]
- Forfar [77]
- Bridge of Dun [89]
- Laurencekirk 110 [99]
- Stonehaven 117 [111]
- Aberdeen 137 [123]
- [The following times are direct to Dundee or Perth, via The Bridges]
- Kirkcaldy 36 [27]
- Leuchars Junction 53 [49]
- Dundee 76 [62]
- Arbroath 96 [75]
- Montrose 110 [87]
- Laurencekirk 121 [97]
- Stonehaven 132 [109]
- Aberdeen 152 [121]
- Ladybank 52 [40]
- Newburgh [50]
- Perth 76 [64]

5. *Glasgow - Inverness (11 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Glasgow Queen St. - Bannockburn Junction	40.0	40.0	10.6	10.6	
Bannockburn Junction - Stirling	4.0	44.0	2.1	12.7	12.7
Stirling - Gleneagles	27.9	71.9	10.2	23.0	26.0
Gleneagles - Perth	25.2	97.1	9.5	32.5	38.5
Perth - Stanley Junction	11.5	108.6	4.9	37.3	
Stanley Junction - Dunkeld & Birnam	13.5	122.1	5.8	43.2	52.2
Dunkeld & Birnam - Pitlochry	20.7	142.8	9.7	52.9	62.9
Pitlochry - Blair Atholl	11.1	153.9	6.1	59.0	70.0
Blair Atholl - Dalwhinnie	36.1	190.0	15.5	74.5	86.5
Dalwhinnie - Newtonmore	6.4	196.4	4.4	78.9	91.9
Newtonmore - Kingussie	6.1	202.5	4.3	83.2	97.2
Kingussie - Aviemore	19.0	221.5	9.1	92.3	107.3
Aviemore - Carrbridge	10.8	232.3	6.0	98.3	114.3
Carrbridge - Inverness	45.0	277.3	18.9	117.2	134.2

Current fastest time (minutes) from Glasgow (Queen St.) [and the above values, also from Queen St.] to:

- Stirling 26 [13]
- Gleneagles 41 [26]
- Perth 53 [39]
- Dunkeld & Birnam 77 [52]
- Pitlochry 92 [63]
- Blair Atholl 102 [70]
- Dalwhinnie 126 [87]
- Newtonmore 137 [92]
- Kingussie 138 [97]
- Aviemore 150 [107]
- Carrbridge 165 [114]
- Inverness 193 [134]

6. *Edinburgh - Inverness (13 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Edinburgh Waverley HS - Haymarket HS	2.1	2.1	2.5	2.5	2.5
Haymarket HS - Edinburgh Airport	9.0	11.1	5.2	7.7	10.7
Edinburgh Airport - Kinnaird Junction	33.0	44.1	9.0	16.7	
Kinnaird Junction - Alloa Junction	1.0	45.1	0.3	16.9	
Alloa Junction - Stirling	9.0	54.1	3.4	20.4	26.4
Stirling - Gleneagles	27.9	82.0	10.2	30.6	39.6
Gleneagles - Perth	25.2	107.2	9.5	40.1	52.1
Perth - Stanley Junction	11.5	118.7	4.9	45.0	
Stanley Junction (pass) - Dunkeld & Birnam	13.5	132.2	5.8	50.8	65.8
Dunkeld & Birnam - Pitlochry	20.7	152.9	9.7	60.5	76.5
Pitlochry - Blair Atholl	11.1	164.0	6.1	66.6	83.6
Blair Atholl - Dalwhinnie	36.1	200.1	15.5	82.2	100.2
Dalwhinnie - Newtonmore	6.4	206.5	4.4	86.5	105.5
Newtonmore - Kingussie	6.1	212.6	4.3	90.8	110.8
Kingussie - Aviemore	19.0	231.6	9.1	99.9	120.9
Aviemore - Carrbridge	10.8	242.4	6.0	105.9	127.9
Carrbridge - Inverness	45.0	287.4	18.9	124.8	147.8

Current fastest time (minutes) from Glasgow (Queen St.) [and the above values, also from Queen St.] to:

- Stirling 51 [26]
- Gleneagles 66 [40]
- Perth 76 [52]
- Dunkeld & Birnam 93 [66]
- Pitlochry 106 [77]
- Blair Atholl 116 [84]
- Dalwhinnie 140 [100]
- Newtonmore 153 [106]
- Kingussie 153 [111]
- Aviemore 164 [121]
- Carrbridge 185 [128]
- Inverness 200 [148]

HS13/HS14 Mk2

1. *Glasgow - Edinburgh / Ayr / Dalmuir (3/3/4 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Glasgow St. Enoch - Glasgow Bellgrove	1.8	1.8	2.3	2.3	2.3
Glasgow Bellgrove - Edinburgh Airport	68.0	69.8	17.3	19.6	22.6
Edinburgh Airport - Haymarket HS	9.0	78.8	5.2	24.8	30.8
Haymarket HS - Edinburgh Wav. HS	2.1	80.9	2.5	27.3	36.3
Glasgow St. Enoch - Glasgow Airport	12.0	12.0	4.9	4.9	4.9
Glasgow Airport - Dalry	26.0	38.0	8.9	13.8	16.8
Dalry - Kilmarnock	17.5	55.5	7.2	21.0	27.0
Kilmarnock - Ayr	29.0	84.5	9.5	30.5	39.5
Glasgow Airport - Glasgow Airport Pkwy	2.0	14.0	2.4	7.4	10.4
Glasgow Airport Pkwy - Erskine Pkwy South	5.0	19.0	3.9	11.2	15.2
Erskine Pkwy South - Erskine Pkwy North	2.0	21.0	2.4	13.7	18.7
Erskine Pkwy North - Dalmuir	3.0	24.0	3.0	16.6	22.6

Current fastest time (minutes) from Glasgow [and the above values] to:

- Edinburgh Airport [23]
- Edinburgh Waverley 65 [36]
- Glasgow Airport [5]
- Dalry 74 [17]
- Kilmarnock 67 [27]
- Ayr [40]

There are no changes in passing times.

Note that table 2, Edinburgh – Glasgow / Dalmuir is unchanged from Mk1A.

3. *Glasgow – Aberdeen fast / stopping / via Dundee (3/9/8 stops):*

Section	Distance (km)	Cumulative Distance (km)	Start - Stop Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Glasgow St. Enoch - Glasgow Bellgrove	1.8	1.8	2.3	2.3	2.3
Glasgow Bellgrove - Stirling	42.0	43.8	12.3	14.6	17.6
Stirling - Perth	50.0	93.8	16.1	30.7	36.7
Perth - Craigo Junction	85.5	179.3	19.5	50.2	
Craigo Junction - Aberdeen	52.6	231.9	15.1	65.3	74.3
Stirling - Gleneagles	28.0	71.8	10.2	75.6	30.9
Gleneagles - Perth	22.0	93.8	8.6	84.2	42.5
Perth - Coupar Angus	25.5	119.3	8.8	93.0	56.3
Coupar Angus - Forfar	26.0	145.3	8.9	101.9	68.2
Forfar - Bridge of Dun	26.0	171.3	8.9	110.8	80.1
Bridge of Dun - Craigo Junction	8.0	179.3	4.0	114.8	
Craigo Junstion - Laurencekirk	8.6	187.9	3.3	118.2	90.5
Laurencekirk - Stonehaven (classic route)	23.1	211.0	8.9	127.1	102.4
Stonehaven - Aberdeen	23.0	234.0	8.9	136.0	114.3
Glasgow Queen St. - Stirling	44.0	44.0	12.7	12.7	12.7
Stirling - Perth	50.0	94.0	16.1	28.8	31.8
Perth - Dundee	33.6	127.6	11.7	40.6	46.6
Dundee - Arbroath	27.5	155.1	10.1	50.7	59.7
Arbroath - Montrose	22.7	177.8	8.8	59.5	71.5
Montrose - Laurencekirk	16.2	194.0	7.1	66.6	81.6
Laurencekirk - Stonehaven	23.1	217.1	8.9	75.6	93.6
Stonehaven - Aberdeen	23.0	240.1	8.9	84.5	105.5

Note: The stopping service to Aberdeen calls` at Gleneagles; the other services to Aberdeen do not.

Current fastest time (minutes) from Glasgow (Queen St.) [and the above values, from St. Enoch] to:

- Stirling 26 [18]
- Perth [fast] 53 [37]
- Aberdeen [fast] 152 [74]
- [The following times are for the Aberdeen (stopping) service]

- Gleneagles 41 [31]
- Perth 53 [43]
- Coupar Angus [56]
- Forfar [68]
- Bridge of Dun [80]
- Laurencekirk 121 [90]
- Stonehaven 132 [102]
- Aberdeen 152 [114]
- [The following times are from Glasgow Queen St.]
- Stirling 26 [13]
- Perth 53 [32]
- Dundee 76 [47]
- Arbroath 96 [60]
- Montrose 110 [72]
- Laurencekirk 121 [82]
- Stonehaven 132 [94]
- Aberdeen via Dundee 140 [106]

4. *Edinburgh – Aberdeen fast / stopping / via Dundee and Edinburgh – Perth via Ladybank (3/9/8/5 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Edinburgh, inc. Station Wait Times
Edinburgh Waverley HS - Haymarket HS	2.1	2.1	2.5	2.5	2.5
Haymarket HS - Edinburgh Airport	9.0	11.1	5.2	7.7	10.7
Edinburgh Airport - Kinnaird Junction	33.0	44.1	9.0	16.7	
Kimmaird Junction - Stirling	10.0	54.1	3.6	20.3	26.3
Stirling - Perth	50.0	104.1	16.1	36.4	45.4
Perth - Craigo Junction	85.5	189.6	19.5	55.9	
Craigo Junction - Aberdeen	52.6	242.2	15.1	71.0	83.0
Stirling - Gleneagles	28.0	82.1	10.2	30.5	39.5
Gleneagles - Perth	22.0	104.1	8.6	39.2	51.2
Perth - Coupar Angus	25.5	129.6	8.8	48.0	65.0
Coupar Angus - Forfar	26.0	155.6	8.9	56.9	76.9
Forfar - Bridge of Dun	26.0	181.6	8.9	65.8	88.8
Bridge of Dun - Craigo Junction	8.0	189.6	4.0	69.8	

Craigoun Junction - Laurencekirk	8.6	198.2	3.3	73.1	99.1
Laurencekirk - Stonehaven (classic route)	23.1	221.3	8.9	82.0	111.0
Stonehaven - Aberdeen	23.0	244.3	8.9	91.0	123.0
Edinburgh Airport - Forth Bridge South	10.0	21.1	4.8	12.5	
Forth Bridge South - Forth Bridge North	5.3	26.4	4.0	16.5	
Forth Bridge North - Kirkcaldy	7.9	34.3	4.2	20.7	26.7
Kirkcaldy - Leuchars Junction	55.9	90.2	19.2	40.0	49.0
Leuchars Junction - Tay Bridge South	9.0	99.2	4.7	44.7	
Tay Bridge South - Dundee	4.4	103.6	5.0	49.7	61.7
Dundee - Arbroath	27.5	131.1	10.1	59.8	74.8
Arbroath - Montrose	22.7	153.8	8.8	68.6	86.6
Montrose - Laurencekirk	16.2	170.0	7.1	75.7	96.7
Laurencekirk - Stonehaven (classic route)	23.1	193.1	8.9	84.6	108.6
Stonehaven - Aberdeen	23.0	216.1	8.9	93.5	120.5
Kirkcaldy - Ladybank	36.9	71.2	13.5	34.3	43.3
Ladybank - Newburgh	12.0	83.2	6.5	40.7	52.7
Newburgh - Perth	17.0	100.2	8.4	49.1	64.1

Note: The stopping service to Aberdeen calls` at Gleneagles; the other services to Aberdeen do not.

Current fastest time (minutes) from Edinburgh Waverley [and the above values] to:

- Edinburgh Airport [11]
- Stirling 51 [27]
- [The following times are for the Aberdeen (fast) service]
- Perth 76 [46]
- Aberdeen 137 [83]
- [The following times are for the Aberdeen (stopping) service]
- Gleneagles 66 [40]
- Perth 76 [52]
- Coupar Angus [65]
- Forfar [77]
- Bridge of Dun [89]
- Laurencekirk 110 [99]
- Stonehaven 117 [111]

- Aberdeen 137 [123]
- [The following times are direct to Dundee or Perth, via The Bridges]
- Kirkcaldy 36 [27]
- Leuchars Junction 53 [49]
- Dundee 76 [62]
- Arbroath 96 [75]
- Montrose 110 [87]
- Laurencekirk 121 [97]
- Stonehaven 132 [109]
- Aberdeen 152 [121]
- Ladybank 52 [40]
- Newburgh [50]
- Perth 76 [64]

5. *Glasgow - Inverness (11 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Glasgow Queen St. - Stirling	44.0	44.0	12.7	12.7	12.7
Stirling - Gleneagles	28.0	72.0	10.2	23.0	26.0
Gleneagles - Perth	22.0	94.0	8.6	31.6	37.6
Perth - Stanley Junction	11.5	105.5	4.7	36.3	
Stanley Junction - Dunkeld & Birnam	13.5	119.0	4.6	40.9	49.9
Dunkeld & Birnam - Pitlochry	20.7	139.7	9.7	50.7	60.7
Pitlochry - Blair Atholl	11.1	150.8	6.1	56.8	67.8
Blair Atholl - Dalwhinnie	36.1	186.9	15.5	72.3	84.3
Dalwhinnie - Newtonmore	6.4	193.3	4.4	76.7	89.7
Newtonmore - Kingussie	6.1	199.4	4.3	81.0	95.0
Kingussie - Aviemore	19.0	218.4	9.1	90.1	105.1
Aviemore - Carrbridge	10.8	229.2	6.0	96.1	112.1
Carrbridge - Inverness	45.0	274.2	18.9	114.9	131.9

Current fastest time (minutes) from Glasgow (Queen St.) [and the above values, also from Queen St.] to:

- Stirling 26 [13]
- Gleneagles 41 [26]
- Perth 53 [38]
- Dunkeld & Birnam 77 [50]
- Pitlochrie 92 [61]
- Blair Atholl 102 [68]
- Dalwhinnie 126 [84]
- Newtonmore 137 [90]
- Kingussie 138 [95]
- Aviemore 150 [105]
- Carrbridge 165 [112]
- Inverness 193 [132]

6. *Edinburgh - Inverness (13 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Edinburgh Waverley HS - Haymarket HS	2.1	2.1	2.5	2.5	2.5
Haymarket HS - Edinburgh Airport	9.0	11.1	5.2	7.7	10.7
Edinburgh Airport - Kinnaird Junction	33.0	44.1	9.0	16.7	
Kinnaird Junction - Stirling	10.0	54.1	3.6	20.3	26.3
Stirling - Gleneagles	28.0	82.1	10.2	30.5	39.5
Gleneagles - Perth	22.0	104.1	8.6	39.2	51.2
Perth - Stanley Junction	11.5	115.6	4.7	43.8	
Stanley Junction - Dunkeld & Birnam	13.5	129.1	4.6	48.4	63.4
Dunkeld & Birnam - Pitlochry	20.7	149.8	9.7	58.2	74.2
Pitlochry - Blair Atholl	11.1	160.9	6.1	64.3	81.3
Blar Atholl - Dalwhinnie	36.1	197.0	15.5	79.8	97.8
Dalwhinnie - Newtonmore	6.4	203.4	4.4	84.2	103.2
Newtonmore - Kingussie	6.1	209.5	4.3	88.4	108.4

Kingussie - Aviemore	19.0	228.5	9.1	97.5	118.5
Aviemore - Carrbridge	10.8	239.3	6.0	103.6	125.6
Carrbridge - Inverness	45.0	284.3	18.9	122.4	145.4

Current fastest time (minutes) from Edinburgh [and the above values] to:

- Stirling 51 [26]
- Gleneagles 66 [40]
- Perth 76 [51]
- Dunkeld & Birnam 93 [63]
- Pitlochrie 106 [74]
- Blair Atholl 116 [81]
- Dalwhinnie 140 [98]
- Newtonmore 153 [103]
- Kingussie 153 [108]
- Aviemore 164 [119]
- Carrbridge 185 [126]
- Inverness 200 [145]

HS13/HS14 App Q

1. Glasgow - Edinburgh / Ayr / Dalmuir (3/3/4 stops):

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Glasgow St. Enoch - Glasgow Bellgrove	1.8	1.8	2.3	2.3	2.3
Glasgow Bellgrove - Edinburgh Airport	68.0	69.8	20.9	23.2	26.2
Edinburgh Airport - Haymarket HS	9.0	78.8	5.2	28.4	34.4
Haymarket HS - Edinburgh Wav. HS	2.1	80.9	2.5	30.9	39.9
Glasgow St. Enoch - Glasgow Airport	12.0	12.0	6.0	6.0	6.0
Glasgow Airport - Dalry	26.0	38.0	9.7	15.7	18.7
Dalry - Kilmarnock	17.5	55.5	7.4	23.1	29.1
Kilmarnock - Ayr	29.0	84.5	10.5	33.6	42.6
Glasgow Airport - Glasgow Airport Pkwy	2.0	14.0	2.4	8.4	11.4
Glasgow Airport Pkwy - Erskine Pkwy South	5.0	19.0	3.9	12.3	16.3
Erskine Pkwy South - Erskine Pkwy North	2.0	21.0	2.4	14.7	19.7
Erskine Pkwy North - Dalmuir	3.0	24.0	3.0	17.7	23.7

Current fastest time (minutes) from Glasgow [and the 300kph values] {and the above 225kph values} to:

- Edinburgh Airport [23] {26}
- Edinburgh Waverley 65 [36] {40}
- Glasgow Airport [5] {6}
- Dalry 74 [17] {19}
- Kilmarnock 67 [27] {29}
- Ayr [40] {43}

There are no changes in passing times.

2. *Edinburgh - Glasgow / Dalmuir (3/7 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Edinburgh, inc. Station Wait Times
Edinburgh Waverley - Haymarket HS	2.1	2.1	2.5	2.5	2.5
Haymarket HS - Edinburgh Airport	9.0	11.1	5.2	7.7	10.7
Edinburgh Airport - Glasgow Bellgrove	68.0	79.1	20.9	28.6	34.6
Glasgow Bellgrove - Glasgow St. Enoch	1.8	80.9	2.3	30.9	39.9
Glasgow Bellgrove - Glasgow Airport	15.0	94.1	6.8	35.4	44.4
Glasgow Airport - Glasgow Airport Pkwy	2.0	96.1	2.4	37.8	49.8
Glasgow Airport Pkwy - Erskine Pkwy South	5.0	101.1	3.9	41.6	54.6
Erskine Pkwy South - Erskine Pkwy North	2.0	103.1	2.4	44.1	58.1
Erskine Pkwy North - Dalmuir	3.0	106.1	3.0	47.1	62.1

Current fastest time (minutes) from Edinburgh [and the 300kph values] {and the above 225kph values} to:

- Glasgow Bellgrove [31] {35}
- Glasgow St. Enoch 41 (Queen St.) [36] {40}
- Glasgow Airport [41] {44}
- Glasgow Airport Parkway [46] {50}
- Erskine Parkway South [51] {55}
- Erskine Parkway North [54] {58}
- Dalmuir [58] {62}

3. *Glasgow – Aberdeen fast / stopping / via Dundee (3/9/8 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Glasgow St. Enoch - Glasgow Bellgrove	1.8	1.8	2.3	2.3	2.3
Glasgow Bellgrove - Stirling	42.0	43.8	14.0	16.3	19.3
Stirling - Perth	50.0	93.8	16.1	32.4	38.4
Perth - Craigo Junction	85.5	179.3	24.5	56.9	
Craigo Junction - Aberdeen	52.6	231.9	15.1	72.0	81.0
Stirling - Gleneagles	28.0	71.8	10.2	82.2	32.5
Gleneagles - Perth	22.0	93.8	8.6	90.9	44.2
Perth - Coupar Angus	25.5	119.3	9.6	100.5	58.7
Coupar Angus - Forfar	26.0	145.3	9.7	110.2	71.5
Forfar - Bridge of Dun	26.0	171.3	9.7	119.9	84.2
Bridge of Dun - Craigo Junction	8.0	179.3	3.9	123.8	
Craigo Junstion - Laurencekirk	8.6	187.9	3.3	127.1	94.4
Laurencekirk - Stonehaven (classic route)	23.1	211.0	8.9	136.0	106.3
Stonehaven - Aberdeen	23.0	234.0	8.9	144.9	118.2
Glasgow Queen St. - Stirling	44.0	44.0	14.5	14.5	14.5
Stirling - Perth	50.0	94.0	16.1	30.6	33.6
Perth - Dundee	33.6	127.6	11.7	42.4	48.4
Dundee - Arbroath	27.5	155.1	10.1	52.5	61.5
Arbroath - Montrose	22.7	177.8	8.8	61.3	73.3
Montrose - Laurencekirk	16.2	194.0	7.1	68.4	83.4
Laurencekirk - Stonehaven	23.1	217.1	8.9	77.3	95.3
Stonehaven - Aberdeen	23.0	240.1	8.9	86.2	107.2

Note: The stopping service to Aberdeen calls` at Gleneagles; the other services to Aberdeen do not.

Current fastest time (minutes) from Glasgow (Queen St.) [and the 300kph values, from St. Enoch or Queen St. as appropriate] {and the above,225kph values} to:

- Stirling 26 [18] {19}
- Perth [fast] 53 [37] {38}
- Aberdeen [fast] 152 [74] {81}

- [The following times are for the Aberdeen (stopping) service]
- Gleneagles 41 [31] {33}
- Perth 53 [43] {44}
- Coupar Angus [56] {59}
- Forfar [68] {72}
- Bridge of Dun [80] {84}
- Laurencekirk 121 [90] {94}
- Stonehaven 132 [102] {106}
- Aberdeen 152 [114] {118}
- [The following times are from Glasgow Queen St.]
- Stirling 26 [13] {15}
- Perth 53 [32] {34}
- Dundee 76 [47] {48}
- Arbroath 96 [60] {62}
- Montrose 110 [72] {73}
- Laurencekirk 121 [82] {83}
- Stonehaven 132 [94] {95}
- Aberdeen via Dundee 140 [106] {107}

4. *Edinburgh – Aberdeen fast / stopping / via Dundee and Edinburgh – Perth via Ladybank (3/9/8/5 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Edinburgh, inc. Station Wait Times
Edinburgh Waverley HS - Haymarket HS	2.1	2.1	2.5	2.5	2.5
Haymarket HS - Edinburgh Airport	9.0	11.1	5.2	7.7	10.7
Edinburgh Airport - Kinnaird Junction	33.0	44.1	11.6	19.2	
Kinnaird Junction - Stirling	10.0	54.1	3.6	22.9	28.9
Stirling - Perth	50.0	104.1	16.1	39.0	48.0
Perth - Craigo Junction	85.5	189.6	24.5	63.5	
Craigo Junction - Aberdeen	52.6	242.2	15.1	78.6	90.6
Stirling - Gleneagles	28.0	82.1	10.2	33.1	42.1
Gleneagles - Perth	22.0	104.1	8.6	41.8	53.8
Perth - Coupar Angus	25.5	129.6	9.6	51.3	68.3
Coupar Angus - Forfar	26.0	155.6	9.7	61.0	81.0

Forfar - Bridge of Dun	26.0	181.6	9.7	70.8	93.8
Bridge of Dun - Craig Junction	8.0	189.6	3.9	74.6	
Craig Junction - Laurencekirk	8.6	198.2	3.3	78.0	104.0
Laurencekirk - Stonehaven (classic route)	23.1	221.3	8.9	86.9	115.9
Stonehaven - Aberdeen	23.0	244.3	8.9	95.8	127.8
Edinburgh Airport - Forth Bridge South	10.0	21.1	4.8	12.5	
Forth Bridge South - Forth Bridge North	5.3	26.4	4.0	16.5	
Forth Bridge North - Kirkcaldy	7.9	34.3	4.2	20.7	26.7
Kirkcaldy - Leuchars Junction	55.9	90.2	19.2	40.0	49.0
Leuchars Junction - Tay Bridge South	9.0	99.2	4.7	44.7	
Tay Bridge South - Dundee	4.4	103.6	5.0	49.7	61.7
Dundee - Arbroath	27.5	131.1	10.1	59.8	74.8
Arbroath - Montrose	22.7	153.8	8.8	68.6	86.6
Montrose - Laurencekirk	16.2	170.0	7.1	75.7	96.7
Laurencekirk - Stonehaven (classic route)	23.1	193.1	8.9	84.6	108.6
Stonehaven - Aberdeen	23.0	216.1	8.9	93.5	120.5
Kirkcaldy - Ladybank	36.9	71.2	13.5	34.3	43.3
Ladybank - Newburgh	12.0	83.2	6.5	40.7	52.7
Newburgh - Perth	17.0	100.2	8.4	49.1	64.1

Note: The stopping service to Aberdeen calls` at Gleneagles; the other services to Aberdeen do not.

Current fastest time (minutes) from Edinburgh Waverley [and the 300kph values] {and the above 225kph values} to:

- Edinburgh Airport [11] {11}
- Stirling 51 [27] {29}
- [The following times are for the Aberdeen (fast) service]
- Perth 76 [46] {48}
- Aberdeen 137 [83] {91}
- [The following times are for the Aberdeen (stopping) service]
- Gleneagles 66 [40] {42}
- Perth 76 [52] {54}
- Coupar Angus [65] {68}

- Forfar [77] {81}
- Bridge of Dun [89] {94}
- Laurencekirk 110 [99] {104}
- Stonehaven 117 [111] {116}
- Aberdeen 137 [123] {128}
- [The following times are direct to Dundee or Perth, via The Bridges]
- Kirkcaldy 36 [27] {27}
- Leuchars Junction 53 [49] {49}
- Dundee 76 [62] {62}
- Arbroath 96 [75] {75}
- Montrose 110 [87] {87}
- Laurencekirk 121 [97] {97}
- Stonehaven 132 [109] {109}
- Aberdeen 152 [121] {121}
- Ladybank 52 [43] {43}
- Newburgh [53] {53}
- Perth 76 [64] {64}

The times via Dundee are unchanged, since there are no 300kph sections on that route.

5. *Glasgow - Inverness (11 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Glasgow Queen St. - Stirling	44.0	44.0	14.5	14.5	14.5
Stirling - Gleneagles	28.0	72.0	10.2	24.8	27.8
Gleneagles - Perth	22.0	94.0	8.6	33.4	39.4
Perth - Stanley Junction	11.5	105.5	4.8	38.2	
Stanley Junction - Dunkeld & Birnam	13.5	119.0	4.6	42.8	51.8
Dunkeld & Birnam - Pitlochry	20.7	139.7	9.7	52.6	62.6
Pitlochry - Blair Atholl	11.1	150.8	6.1	58.7	69.7
Blar Atholl - Dalwhinnie	36.1	186.9	15.5	74.2	86.2
Dalwhinnie - Newtonmore	6.4	193.3	4.4	78.6	91.6

Newtonmore - Kingussie	6.1	199.4	4.3	82.9	96.9
Kingussie - Aviemore	19.0	218.4	9.1	92.0	107.0
Aviemore - Carrbridge	10.8	229.2	6.0	98.0	114.0
Carrbridge - Inverness	45.0	274.2	18.9	116.8	133.8

Current fastest time (minutes) from Glasgow (Queen St.) [and the 300kph values, also from Queen St.] {and the above 225kph values, still from Queen St.] to:

- Stirling 26 [13] {15}
- Gleneagles 41 [26] {28}
- Perth 53 [38] {39}
- Dunkeld & Birnam 77 [50] {52}
- Pitlochrie 92 [61] {63}
- Blair Atholl 102 [68] {70}
- Dalwhinnie 126 [84] {86}
- Newtonmore 137 [90] {92}
- Kingussie 138 [95] {97}
- Aviemore 150 [105] {107}
- Carrbridge 165 [112] {114}
- Inverness 193 [132] {134}

6. *Edinburgh - Inverness (13 stops):*

Section	Distance (km)	Cumulative Distance (km)	Section Time (minutes)	Cumulative Journey Time (minutes)	Elapsed Time from Glasgow, inc. Station Wait Times
Edinburgh Waverley HS - Haymarket HS	2.1	2.1	2.5	2.5	2.5
Haymarket HS - Edinburgh Airport	9.0	11.1	5.2	7.7	10.7
Edinburgh Airport - Kinnaird Junction	33.0	44.1	10.5	18.2	
Kimmaird Junction - Stirling	10.0	54.1	3.7	21.9	27.9
Stirling - Gleneagles	28.0	82.1	10.2	32.2	41.2
Gleneagles - Perth	22.0	104.1	8.6	40.8	52.8
Perth - Stanley Junction	11.5	115.6	4.8	45.6	
Stanley Junction - Dunkeld & Birnam	13.5	129.1	4.6	50.2	65.2
Dunkeld & Birnam - Pitlochry	20.7	149.8	9.7	60.0	76.0

Pitlochry - Blair Atholl	11.1	160.9	6.1	66.1	83.1
Blar Atholl - Dalwhinnie	36.1	197.0	15.5	81.6	99.6
Dalwhinnie - Newtonmore	6.4	203.4	4.4	86.0	105.0
Newtonmore - Kingussie	6.1	209.5	4.3	90.3	110.3
Kingussie - Aviemore	19.0	228.5	9.1	99.4	120.4
Aviemore - Carrbridge	10.8	239.3	6.0	105.4	127.4
Carrbridge - Inverness	45.0	284.3	18.9	124.2	147.2

Current fastest time (minutes) from Edinburgh [and the above values] to:

- Stirling 51 [26] {28}
- Gleneagles 66 [40] {41}
- Perth 76 [51] {53}
- Dunkeld & Birnam 93 [63] {66}
- Pitlochrie 106 [74] {76}
- Blair Atholl 116 [81] {83}
- Dalwhinnie 140 [98] {100}
- Newtonmore 153 [103] {105}
- Kingussie 153 [108] {110}
- Aviemore 164 [119] {120}
- Carrbridge 185 [126] {127}
- Inverness 200 [145] {147}











