

# HS2 and Classic Service Plans

## *The Initial Service Plans for HS2 and Classic Routes*

HS2 Ltd. has published tentative initial service plans, ('service patterns', it calls them,) to illustrate the sort of services which could be provided once HS2 has opened to Birmingham and Handsacre Junction, at phase 1, and to Manchester and Leeds at phase 2. You can find them at:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/244033/Updated\\_economic\\_case\\_for\\_HS2\\_August\\_2012\\_-\\_Explanation\\_of\\_the\\_service\\_patterns\\_January\\_2013\\_.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244033/Updated_economic_case_for_HS2_August_2012_-_Explanation_of_the_service_patterns_January_2013_.pdf)

The document was originally issued in August 2012, with revision in January 2013. It is still (February 2016) on HS2's website, so presumably still represents their latest thinking. It very reasonably stresses that these plans are '... purely indicative. We are not writing a timetable now for 2032/33.'

The services to be provided on the associated classic routes are also described, in tabular form, in an appendix, curiously titled 'Released Capacity'.

## *HS2 Phase 1 Service Plan*

Ignoring the precise stopping patterns, the service plan essentially consists of:

- 3tphG Euston – Birmingham
- 1tphG Euston – Birmingham (peak hours only)
- 3tphC Euston – Manchester
- 2tphC Euston – Liverpool
- 1tphC Euston – Preston
- 1tphC Euston – Glasgow

As usual, G is GC-gauge and C Classic Compatible.

Every train stops at Old Oak Common. All the Birmingham trains (and no others) stop at Birmingham Interchange. All the Manchester trains stop at Stockport, and one additionally at Wilmslow.

The following loadings are thus imposed on HS2:

- |                              |                              |                    |
|------------------------------|------------------------------|--------------------|
| • Euston                     | – Water Orton South Junction | 10tph (11tph peak) |
| • Water Orton South Junction | – Birmingham Curzon St.      | 3tph (4tph peak)   |
| • Water Orton South Junction | – Handsacre Junction         | 7tph               |

These proposals are uncontroversial and perfectly acceptable

## *HS2 Phase 2 Service Plan*

Ignoring the precise stopping patterns, the service plan essentially consists of:

- 2tphG Euston – Birmingham
- 1tphC? Euston – Birmingham (see note immediately following)

- 3tphG Euston – Manchester
- 3tphG Euston – Leeds
- 2tphC Euston – Liverpool
- 2tphC Euston – Glasgow / Edinburgh alternatively
- 1tphC Euston – Preston
- 2tphC Euston – Newcastle
- 1tphC Euston – York
- 1tphG Heathrow – Manchester
- 1tphG Heathrow – Leeds
- 2tphG Birmingham – Manchester
- 2tphG Birmingham – Leeds
- 1tphC Birmingham – Glasgow / Edinburgh (splits/joins at Preston)
- 1tphC Birmingham – Newcastle

There is a very weird provision in that one of the Euston – Liverpool and Euston – Birmingham trains are the same, splitting/joining at Birmingham Interchange. The Liverpool portion is clearly (on the current plans) classic compatible, so what is the Birmingham portion? Is it proposed to run GC and CC stock in tandem, and has the practicality of this been fully proven? If not (and the Birmingham portion is thus also CC), what is the platform provision at Curzon Street? Is one or more platforms at Curzon Street UK gauge or variable? (See appendix B of my article ‘Towards a High Speed **Network**’ for variable platforms.) This proposal has the disturbing air of being an off-the-cuff wheeze to squeeze an extra service onto the worryingly full core section, without fully working through the implications.

The Heathrow services are also incredible, and presumably are a survivor of earlier thinking (but they’re still there in the plan). Actually, the document itself admits that the service to Heathrow ‘does not now form part of Phase 2’, so why, you may well ask, is it still there?

The following loadings are thus imposed on HS2 (omitting the Heathrow phantoms):

- |                              |                              |             |
|------------------------------|------------------------------|-------------|
| • Euston                     | – Birmingham Interchange     | 16tph       |
| • Birmingham Interchange     | – Water Orton South Junction | 17tph       |
| • Water Orton South Junction | – Water Orton West Junction  | 3tph        |
| • Water Orton West Junction  | – Birmingham Curzon St.      | 9tph        |
| • Water Orton South Junction | – Water Orton North Junction | 14tph       |
| • Water Orton West Junction  | – Water Orton North Junction | 6tph        |
| • Water Orton North Junction | – Marston Junction           | 20(14/6)tph |
| • Marston Junction           | – Streethay Junction         | 11(8/3)tph  |
| • Marston Junction           | – Woodlesford Junction       | 9(6/3)tph   |
| • Streethay Junction         | – Handsacre Junction         | 0tph        |
| • Streethay Junction         | – Crewe HS South Junction    | 11(8/3)tph  |
| • Crewe HS South Junction    | – Rostherne South Junction   | 9(6/3)tph   |
| • Rostherne South Junction   | – Manchester                 | 5(3/2)tph   |
| • Rostherne South Junction   | – Bamfurlong Junction        | 4(3/1)tph   |
| • Woodlesford Junction       | – Leeds                      | 5(3/2)tph   |
| • Woodlesford Junction       | – Church Fenton Junction     | 4(3/1)tph   |

The pair of values in brackets, for all sections above Water Orton North Junction, is the split between Euston and Birmingham origins. The sudden appearance of an extra train at Birmingham Interchange is explained above. The section from Streethay Junction to Handsacre Junction (where services joined the WCML at phase 1) is evidently no longer in use. The core section, from Euston to Water Orton South Junction, has a loading of 16tph (17tph for the last bit from Birmingham International) or even 18tph for most of the way if the hypothetical Heathrow services were included. This is a very high value for such a line, higher, I believe, than for any existing HS line, and would make service reliability very sensitive to minor perturbations. At all events, there's (already, ab initio,) no room for further expansion. (I imagine the short section between Water Orton North Junction and Marston Junction, where the east and west arms of the 'Y' diverge, is intended to be 4-track, since it carries every service except Euston – Birmingham.)

It is an unfortunate but unavoidable consequence of the (I say political) decision to include the eastern arm of the HS2 'Y' configuration, that the service offered on the western arm is not as good as it could and should be, since slightly under half (6 out of 16, ignoring the Heathrow phantoms,) of the available slots on the core section are taken up by eastern-arm trains. Were the eastern arm not present, this would allow 6 more trains from Euston to the western arm. There are many locations in the North West, some distance off the HS route, which could greatly benefit from these extra 6 (CC of course) trains, but which on these plans will never get them. The raw loadings of the sections above Water Orton North Junction give the impression that the routes are better loaded than in fact they are, which is why I'm careful to stress the Euston- / Birmingham-origin split. The Birmingham services are certainly worthwhile, but very unlikely to attract passenger loadings comparable with those from London.

Services on the eastern arm itself are even worse.

And of course the service levels described for the two arms of the 'Y' are absolute maxima since, although the North East, say, might well justify extra services, there is no way that these could be provided, since the core section (even if not the arms) is already fully loaded. (I seem to remember, years ago, when the first serious proposals for HS lines were being discussed, that the idea was to have a 4-track trunk to Birmingham. That would indeed have provided the necessary capacity, but the idea somehow got lost along the way.)

## *HS2 Phase 2 Service Plan in the Corrected Design*

Thus, as I argue in the article 'Towards a High Speed Network', HS2, on the existing plans, tries to do too much, and ends up not doing enough. The way forward is to scrap the 'Y' configuration, and reconfigure HS2 as the route to the West Midlands and North West exclusively. (The eastern arm does not disappear, but becomes part of other HS routes.) This solution suggests itself naturally when considering the overall network, rather than HS2 in isolation.

The article 'HS2 Route and Service Plans' describes the revised HS2, as a member of the overall HS network, and contains a sequence of service plans illustrating how HS2's services could develop, as the various sections (of HS2 itself and of other routes) open. Initially, all services would be CC (making available the benefits at the earliest possible date), GC-gauge services being introduced only when the cross-London section via Euston Cross opens. The final service plan, (refer to the article for full details,) is:

- 4tphG [HS1 Maidstone →] Euston Cross – Old Oak Common – Calvert – Birmingham Interchange – Birmingham HS
- 4tphG [HS1 Dover →] Euston Cross – Old Oak Common – Manchester Interchange – Manchester HS
- 2tphG [HS1 Hastings →] Euston Cross – Old Oak Common – Crewe – Liverpool Lime St.
- 2tphG [HS1 Hastings →] Euston Cross – Old Oak Common – Crewe – Preston
- 2tphC Euston – Old Oak Common – Calvert – Birmingham Interchange – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly
- 2tphC Euston – Old Oak Common – Calvert – Birmingham Interchange – Crewe – Warrington Bank Quay – Wigan North Western – Preston (splits/joins) –:  
– Kirkham – Poulton le Fylde – Blackpool  
– Lancaster – Oxenholme – Kendal – Windermere
- 1tphC Euston – Old Oak Common – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 2tphG Birmingham HS – Crewe – Manchester Interchange – Manchester HS
- 1tphC Birmingham HS – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 1tphC Birmingham HS – Crewe – Wigan North Western – Preston (splits/joins) – :  
– Oxenholme – Carlisle – Lockerbie – Haymarket – Edinburgh Waverley  
– Lancaster – Penrith – Carlisle – Lockerbie – Glasgow Central
- 1tphC Liverpool Lime St. – Wigan North Western – Preston (splits/joins) – :  
– Oxenholme – Carlisle – Lockerbie – Haymarket – Edinburgh Waverley  
– Lancaster – Penrith – Carlisle – Lockerbie – Glasgow Central

The following loadings are imposed on HS2 (necessarily divided into many more sections to be able to reflect the above service plan accurately):

- |                                    |                                 |       |
|------------------------------------|---------------------------------|-------|
| • Euston Cross                     | – Old Oak Common East Junction  | 18tph |
| • Old Oak Common East Junction     | – Old Oak Common North Junction | 12tph |
| • [Euston – ] Queens Park Junction | – Old Oak Common North Junction | 5tph  |
| • Old Oak Common North Junction    | – Water Orton South Junction    | 17tph |
| • Water Orton South Junction       | – Water Orton West Junction     | 4tph  |
| • Water Orton West Junction        | – Birmingham HS                 | 8tph  |
| • Water Orton West Junction        | – Water Orton North Junction    | 4tph  |
| • Water Orton South Junction       | – Water Orton North Junction    | 13tph |
| • Water Orton North Junction       | – Streethay Junction            | 17tph |
| • Streethay Junction               | – Handsacre Junction            | 2tph  |
| • Streethay Junction               | – Crewe HS South Junction       | 15tph |
| • Crewe HS South Junction          | – Crewe HS North Junction       | 4tph  |
| • Crewe HS South Junction          | – Crewe station                 | 11tph |
| • Crewe station                    | – Crewe HS North Junction       | 7tph  |
| • Crewe HS North Junction          | – Rostherne South Junction      | 11tph |
| • Rostherne South Junction         | – Rostherne East Junction       | 6tph  |
| • Rostherne East Junction          | – Manchester HS                 | 6tph  |
| • Rostherne East Junction          | – Rostherne North Junction      | 0tph  |
| • Rostherne South Junction         | – Rostherne North Junction      | 5tph  |

|                            |                              |       |
|----------------------------|------------------------------|-------|
| • Rostherne North Junction | – Kenyon South Junction      | 5tph  |
| • Kenyon South Junction    | – Kenyon West Junction       | 2tph  |
| • Kenyon West Junction     | – Liverpool Lime St. station | 13tph |
| • Kenyon South Junction    | – Kenyon North Junction      | 3tph  |
| • Kenyon North Junction    | – Bamfurlong Junction        | 2tph  |
| • Bamfurlong Junction      | – Gibb Farm Junction         | 2tph  |
| • Gibb Farm Junction       | – Preston station            | 10tph |

(The loadings of sections Euston Cross – Old Oak Common East Junction, Kenyon West Junction – Liverpool Lime St. station and Gibb Farm Junction – Preston station include services of other HS routes.)

## *Analysis of Classic Services in the Initial Service Plan Document*

The HS2 Ltd. document contains an Appendix A: Released Capacity, which is almost as long as the main body of the document itself, and contains a **lot** more text. Despite purporting to describe released capacity, it does nothing of the sort, at least not directly; instead it lists all the (surviving) services on the classic network, under two assumptions, 'Do Minimum' and 'Do Something'. These may be standard concepts in certain very, very specialist parts of the railway industry, but I'd never heard of them, and the document gives almost no elucidation; there are four short footnotes at the end of the appendix, but the average intelligent but non-specialist reader will probably, like me, be more confused after reading them than before. The services are defined by calling pattern and number of trains per day (a slightly disorientating statistic to someone who thinks of capacity in terms of the number of trains per hour, peak and off-peak, but manageable). By deciding precisely which assumptions one will apply, and adding up all the relevant services, one eventually arrives at the total of how many trains per day a particular route is carrying. By comparing that with today's services, one can see what, if any, capacity changes are proposed. But the overall totals will probably be not very different; what really matters is the make-up of the service population, i.e. the changes in the number of trains of a particular service, between now and then. This is all dreadfully boring stuff, but the results, having performed the analysis, are very far from boring, and are profoundly worrying.

I do not propose to analyse all the services, but to try to make sense just of those services from Manchester and Birmingham to Euston. I will take only values from the 'Do Something' column, as these seem to be more definitive, and I will consider those pertaining to phase 1 only [1], to phase 2 only [2], or to both phases 1 and 2 [1/2]. The services are listed by West Coast (WC) and London Midland (LM) franchises.

|    |  |       |
|----|--|-------|
| WC | Wolverhampton and Birmingham New Street – Euston<br>None. Replaced by Liverpool service (q.v.)   | [1/2] |
| WC | Crewe – Euston<br>19/day. Crewe – Lichfield TV – Tamworth – Nuneaton – Rugby – Milton Keynes – Euston.   | [1/2] |
| WC | Chester / N. Wales – Euston<br>13/day. Chester – Crewe – Nuneaton OR Milton Keynes – Euston  | [1/2] |
| WC | Liverpool – Euston<br>16/day. Liverpool Lime Street – Liverpool South Parkway – Runcorn – Crewe – Stafford –<br>Wolverhampton – Sandwell & Dudley – Birmingham New Street – Birmingham International –<br>Coventry – Rugby – Milton Keynes – Watford Junction – Euston | [1/2] |
| WC | Manchester – Euston<br>3/day, peak only. Manchester Piccadilly – Stockport – Macclesfield – Stoke-on-Trent – Milton<br>Keynes – Euston   | [1/2] |
| WC | Manchester – Euston<br>16/day. Manchester Piccadilly – Stockport – Macclesfield – Stoke-on-Trent – Milton Keynes –<br>Euston   | [1]   |
| WC | Lancaster – Euston<br>None.  | [1/2] |

- WC Glasgow – Euston [1]  
14or15/day. Glasgow Central – Carlisle – Penrith – Oxenholme – Lancaster – Preston – Wigan  
North Western – Crewe – Milton Keynes – Euston
- WC Glasgow – Euston [2]  
8/day. Glasgow Central – Motherwell – Carlisle – Penrith – Lancaster – Preston – Wigan NW –  
Manchester Oxford Rd. – Manchester Piccadilly – Stockport – Macclesfield – Stoke-on-  
Trent – Milton Keynes – Euston
- WC Edinburgh – Euston [2]  
8/day. Edinburgh Waverley – Haymarket – Carlisle – Oxenholme – Preston – Wigan NW –  
Manchester Oxford Road – Manchester Piccadilly – Stockport – Macclesfield – Stoke-on-  
Trent – Milton Keynes – Euston
- LM Wolverhampton and Birmingham New Street – Euston [1/2]  
16/day. Birmingham New Street – Birmingham International – Coventry – Rugby – Long Buckby  
– Northampton – Wolverton – Milton Keynes – Bletchley – Leighton Buzzard – Watford  
Junction – Euston  
16/day. Birmingham New Street – Birmingham International – Hampton in Arden – Berkswell –  
Tile Hill – Canley – Coventry – Rugby – Milton Keynes – Euston  
16/day. Birmingham New Street – Birmingham International – Coventry – Rugby – Milton  
Keynes – Watford Junction – Euston  
16/day. Wolverhampton – Coseley – Sandwell & Dudley – Smethwick Galton Bridge –  
Birmingham New Street – Marston Green – Birmingham International – Coventry – Milton  
Keynes – Bletchley – Leighton Buzzard – Watford Junction – Euston
- LM Rugby – Euston [1/2]  
5/day. Rugby – Northampton – Milton Keynes – Watford Junction – Euston
- LM Crewe – Euston [1/2]  
8/day. Crewe – Alsager – Kidsgrove – Stoke-on-Trent – Stone – Stafford – Rugeley TV –  
Lichfield TV – Tamworth – Polesworth – Atherstone – Nuneaton – Rugby – Northampton –  
Milton Keynes – Watford Junction – Euston

‘The Devil is in the detail’ – isn’t he just!

Considering just the services I’m most interested in:

Manchester Piccadilly – Stockport – Macclesfield – Stoke-on-Trent – [Milton Keynes] – Euston. There are just 16 trains/day (+3 more spread across the rush hours). This amounts to 1tph throughout the day. At phase 1 the trains start from Manchester and maintain their current stopping pattern and (presumably) speed. But at phase 2 the trains come from Glasgow and Edinburgh (8 each) and stop at 3 or 4 intermediate stations then Preston, Wigan NW and Manchester Oxford Road. (The 3 rush hour extras start from Piccadilly.) At phase 1 there is still an hourly direct service from Glasgow to Euston, but at phase 2 this is diverted via Manchester and merged with the Manchester – Euston via Stoke service.

In other words, the Manchester – Euston via Stoke service has been halved in frequency, and at phase 2 is combined with the Scottish service. Given that these trains have come from Scotland, and also that they’ve traversed the very busy 2-track section via Oxford Road, their reliability is likely to be patchy, at best. They call at the through platforms at Piccadilly, the least convenient in the station (true, but there

aren't likely to be many takers there, rather than for HS2). They are also likely to be full with Scottish traffic. Compared with what Stockport, Macclesfield and Stoke-on-Trent have been used to, this is an appalling service.

We make severe (and, in this context, well justified) criticism of the French, that although their HS services are superb, the services on their classic network are rotten. With these proposals, we look to be about to go down the same path.

I doubt if HS2 Ltd. even realise the magnitude of the disaster they are preparing for themselves with these proposals, or perhaps they think they can tough it out, and that the righteous indignation of a city as important as Stoke-on-Trent can safely be ignored. But whether or not HS2 Ltd. can tough it out, their political masters certainly can't, and, when the scandal goes nuclear, they will be looking for scapegoats, and finding them, without difficulty.

But 'scapegoats' is not the right word at all; the right word is 'culprits'.

The damage this is likely to do to the HS cause is frightening. To spend £50bn+ and end up with a worse service! It's futile to talk of intangible benefits; perception is all. The worthy citizens of Stoke-on-Trent pay their taxes like everybody else, and suddenly find they've lost half their trains, and the ones left are unreliable and overcrowded (so much for capacity improvements!).

The only way to avoid this debacle is to claim that the service plan document was only indicative, a suggestion of a possible future rather than a specification of a definite one, that public responses have led to reconsideration and improved proposals, and later to issue a suitably amended version.

This then leads back to the suggested solution of scrapping the eastern arm of HS2, and instead making it part of HS3/HS7 from the beginning. (Keeping the 'Y' makes this solution absolutely impossible as there is, of course, no further capacity available on the trunk.) So, on the revised HS2 service plan as listed previously, Stockport, Macclesfield and Stoke-on-Trent get an even better service than before, and Stone, Stafford and Rugeley are delighted with their new service, and everybody is happy. HS2 Ltd. can then claim that this was the intention all along, and those of us who know better keep diplomatically quiet and go along with the pretence.

Essentially similar remarks apply to Wolverhampton and Coventry, though perhaps not so starkly.

Interested readers are urged to download the document and follow my analysis of it (or find some unpleasant surprises of their own).