

HS2 Mk2/Mk3 Route Loadings

Introduction

Deriving the route loadings for a given service plan can be a difficult and tedious matter, and very prone to error. Furthermore, understanding what a given loading consists of can be problematic at a later time, requiring effectively as much effort to interpret as it originally took to produce (the only way reliably to work it out is effectively to regenerate it).

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 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.)

Because of the significant changes introduced at Mk1A, the latest versions of all the Mk2 plans (v1.1 in the case of HS2) have been preserved, available in an archive section on the website. In fact, what was formerly known as HS2 Mk2 is now known as HS2 Mk3, and the title of this article changed accordingly. (For the avoidance of confusion, note that the Mk2, now Mk3, plans for HS2 were actually written before Mk1A, but of course describe much later developments. They thus appear in v1.1!) All this is unquestionably confusing, but this article is really only of interest to me, and I know what it means!

HS2 Mk1A is effectively a cut-down version of the original, Mk1 proposals, omitting the new infrastructure above Crewe HS South Junction, and incorporating classic tracks instead. This has the advantage of getting (almost all) the proposed services operational earlier. As extra capacity becomes desirable, the remainder of the new infrastructure is implemented, as Mk2, together with slight service changes; it is thus essentially the original Mk1.

HS2 Mk3 is expected to be implemented (very) much later. It has 2 phases. HS2 Mk3.1 is the Coventry Variant (HS2-CV). This assumes that HS3 Mk2 has already been, or is simultaneously being, implemented, since several of HS2-CV's services pass to and from HS3 and assume the (HS3) Mk2 developments are present. HS2 Mk3.2 is the Scottish extension.

For my own convenience as much as anything else, the present article elucidates the route loadings corresponding to service plans 3, 4, 5 and 6. Service Plan 3 is the service plan for HS2 Mk1A. SP4 is for HS2 Mk2, thus at its initial, full extent (plus minor changes). SP5 covers the Coventry Variant, and SP6 adds the Scottish services. (The loadings corresponding to earlier service plans are significantly simpler, and easily understood by a process of working back from SP3.)

The present article, though really of no interest to anyone but myself, will nonetheless be published on the website, just in case anyone feels moved to challenge my figures, in which case they will be able to see how I derived them, without having to involve me personally.

The service plans are given in full, since otherwise the information would not be self-contained, and would require consulting the original Route and Service Plans article also.

Service Plan 3

This service plan comes into effect when:

- HS2 opens from Euston Cross to Old Oak Common North Junction
- HS2 opens from Euston Cross to Woodgrange Road Junction, where it merges with HS1
- HS1's Maidstone, Dover, Margate and Eastbourne branches open
- Manchester HS station opens, reached from classic tracks approaching Piccadilly

– in other words, when the cross-London inter-regional connection via Euston Cross opens, together with Manchester HS.

The 3tph Euston – Manchester via Crewe service adds a fourth tph, and switches to the new route, now originating from Dover Priory. The 3tph Euston – Birmingham service likewise adds a fourth tph, and switches to the new route, now originating from Maidstone HS. The 2tph Euston – Liverpool service switches to the new route, now originating from Eastbourne. The 2tph Euston – Manchester via Stoke service switches to the new route, now originating from Margate. A new service from London to Blackpool North / Windermere, (see below,) splitting / joining at Preston, also uses the new route, likewise originating from Margate. The other changes do not involve the new route.

The full service on HS2 is thus (including the HS1 origins of the cross-London inter-regional services):

HS2 UHS:

- 4tphH Maidstone – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Birmingham Interchange – Birmingham HS
- 4tphH Dover – Folkestone Central – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Stockport – Manchester HS
- 2tphH Eastbourne – Bexhill – St. Leonards Warrior Square – Hastings – Ore – Winchelsea – Rye – Appledore – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.

HS2 Metro:

- 2tphH Margate – Ramsgate – Minster – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Calvert – Birmingham Interchange – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly
- 2tphH Margate – Ramsgate – Minster – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – 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
- 1tphH Euston – Old Oak Common – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 2tphH Euston – Old Oak Common – Crewe – Preston – Lancaster – Oxenholme – Penrith – Carlisle – (splits / joins) – :
 - Motherwell – Glasgow Central
 - Haymarket – Edinburgh Waverley

- 2tphH Birmingham HS – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly
- 1tphH Birmingham HS – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 1tphH Birmingham HS – Crewe – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Oxenholme – Penrith – Carlisle (splits / joins) – :
– Haymarket – Edinburgh Waverley
– Lockerbie – Motherwell – Glasgow Central
- 1tphH Liverpool Lime St. – St. Helens – Wigan North Western – Preston – Lancaster
– Oxenholme – Penrith – Carlisle (splits / joins) – :
– Motherwell – Glasgow Central
– Lockerbie – Haymarket – Edinburgh Waverley

Associated HS3 Metro service:

- 2tphH St. Pancras – Luton & Dunstable Parkway – Milton Keynes Parkway – Northampton – Rugby – Coventry – Birmingham New St. – Wolverhampton (splits/joins) – :
– Stafford – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.
– Telford – Wellington – Shrewsbury – Wrexham – Chester

Representative Hourly Cross-Platform Interchange Pattern at Birmingham HS:

00H Maidstone – Birmingham HS
H Birmingham HS – Manchester Piccadilly

15H Maidstone – Birmingham HS
H Birmingham HS – Edinburgh / Glasgow

30H Maidstone – Birmingham HS
H Birmingham HS – Manchester Piccadilly

45H Maidstone – Birmingham HS
H Birmingham HS – Holyhead

Representative Hourly Cross-Platform Interchange Pattern at Crewe:

00H Euston – Holyhead (not cross-platform)
H Birmingham HS – Glasgow / Edinburgh
H HS3 St. Pancras – Liverpool

10H Dover – Manchester HS
R Euston – Crewe via Stafford

15H Eastbourne – Liverpool
H Margate – Preston – Blackpool / Windermere

20H Euston – Glasgow / Edinburgh
R Euston – Crewe via Stoke and Kidsgrove

25H Dover – Manchester HS
(no connection)

30H Birmingham HS – Holyhead
H HS3 St. Pancras – Liverpool

40H Dover – Manchester HS
R Euston – Crewe via Stafford

45H Eastbourne – Liverpool
H Margate – Preston – Blackpool / Windermere

50H Euston – Glasgow / Edinburgh
R Euston – Crewe via Stoke and Kidsgrove

55H Dover – Manchester HS
(no connection)

Representative Hourly Pattern at Wigan North Western:

00H Birmingham HS – Scotland

15H Margate – Preston – Blackpool / Windermere

30H Liverpool – Scotland

45H Margate – Preston – Blackpool / Windermere

Representative Hourly Cross-Platform Interchange Pattern at Preston:

00H Euston – Glasgow / Edinburgh
H Margate – Preston – Blackpool / Windermere

15H Birmingham HS – Glasgow / Edinburgh
R Manchester Airport – Preston – Blackpool / Windermere

30H Euston – Glasgow / Edinburgh
H Margate – Preston – Blackpool / Windermere

45H Liverpool – Glasgow / Edinburgh
R Manchester Airport – Preston – Blackpool / Windermere

The following loadings are imposed on HS2:

- Euston Cross – Old Oak Common East Junction 14tph
- Old Oak Common East Junction – Old Oak Common North Junction 14tph
- [Euston –] Queens Park Junction – Old Oak Common North Junction 3tph
- 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	4tph
• Handsacre Junction	– Cheadle Hulme	4tph
• Streethay Junction	– Crewe HS South Junction	13tph
• Crewe HS South Junction	– Crewe station	13tph
• Crewe station	– Cheadle Hulme	4tph
• Cheadle Hulme	– Manchester HS	8tph
• Crewe station	– Weaver Junction	9tph
• Weaver Junction	– Liverpool Lime St.	4tph
• Weaver Junction	– Springs Branch Junction	5tph
• Liverpool Lime St.	– Springs Branch Junction	1tph
• Springs Branch Junction	– Preston	6tph

That is the complete set of services at Mk1A.

Elucidation of the loadings:

1. Euston Cross – Old Oak Common North Junction (HS2 only; there are also HS4 services)
4tphH Maidstone – Birmingham HS
4tphH Dover – Manchester HS
2tphH Eastbourne – Liverpool Lime St.
2tphH Margate – Manchester Piccadilly
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
= 14tph
2. (Euston –) Queens Park Junction – Old Oak Common North Junction
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Euston – Holyhead
= 3tph
3. Old Oak Common North Junction – Water Orton South Junction
4tphH Maidstone – Birmingham HS
4tphH Dover – Manchester HS
2tphH Eastbourne – Liverpool Lime St.
2tphH Margate – Manchester Piccadilly
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Euston – Holyhead
= 17tph
4. Water Orton South Junction – Water Orton West Junction
4tphH Maidstone – Birmingham HS
= 4tph

5. Water Orton West Junction – Birmingham HS
 - 4tphH Maidstone – Birmingham HS
 - 2tphH Birmingham HS – Manchester Piccadilly
 - 1tphH Birmingham HS – Holyhead
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - = 8tph
6. Water Orton West Junction – Water Orton North Junction
 - 2tphH Birmingham HS – Manchester Piccadilly
 - 1tphH Birmingham HS – Holyhead
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - = 4tph
7. Water Orton South Junction – Water Orton North Junction
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Margate – Manchester Piccadilly
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 1tphH Euston – Holyhead
 - = 13tph
8. Water Orton North Junction – Streethay Junction
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Margate – Manchester Piccadilly
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 1tphH Euston – Holyhead
 - 2tphH Birmingham HS – Manchester Piccadilly
 - 1tphH Birmingham HS – Holyhead
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - = 17tph
9. Streethay Junction – Handsacre Junction – Cheadle Hulme
 - 2tphH Margate – Manchester Piccadilly
 - 2tphH Birmingham HS – Manchester Piccadilly
 - = 4tph
10. Streethay Junction – Crewe HS South Junction
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 1tphH Euston – Holyhead
 - 1tphH Birmingham HS – Holyhead

1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
= 13tph

11. Crewe HS South Junction – Crewe station
4tphH Dover – Manchester HS
2tphH Eastbourne – Liverpool Lime St.
2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Euston – Holyhead
1tphH Birmingham HS – Holyhead
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
= 15tph
12. Crewe station – Cheadle Hulme
4tphH Dover – Manchester HS
= 4tph
13. Cheadle Hulme – Manchester HS / Piccadilly
4tphH Dover – Manchester HS
2tphH Margate – Manchester Piccadilly
2tphH Birmingham HS – Manchester Piccadilly
= 8tph
14. Crewe Station – Weaver Junction
2tphH Eastbourne – Liverpool Lime St.
2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
= 9tph
15. Weaver Junction – Liverpool Lime St.
2tphH Eastbourne – Liverpool Lime St.
2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
= 4tph
16. Weaver Junction – Springs Branch Junction
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
= 5tph
17. Liverpool Lime St. – Springs Branch Junction
1tphH Liverpool – Carlisle (splits/joins) – Glasgow / Edinburgh
= 2tph

18. Springs Branch Junction – Preston

2tphH Margate – Preston (splits / joins) – Blackpool / Windermere

2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh

1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh

1tphH Liverpool – Carlisle (splits/joins) – Glasgow / Edinburgh

= 6tph

Service Plan 4

This service plan comes into effect when the Mk2 sections open, specifically:

- HS2 phase 2B opens from Crewe HS South to North Junction, via the tunnel under Crewe station, from Crewe HS North Junction to Manchester HS via Rostherne South Junction, and from Rostherne South Junction to Bamfurlong Junction
- HS8 opens from Liverpool Lime St. to Kenyon South and North junctions. (This is HS8/9 SP0.) Note that the connection from Kenyon West to North Junction is not used in normal service until (very much) later, but provides a useful diversion for Liverpool – Scotland trains during engineering work, in the interim.

The HS2 service from Eastbourne to Liverpool now travels via Kenyon South and West junctions and HS8 (thus new, high speed infrastructure the whole way from Euston Cross). A new service is introduced between Euston and Liverpool, following the former route (with a few extra stops) so that Runcorn and Liverpool South Parkway supporters don't feel aggrieved. The service from Dover to Manchester travels via the tunnel under Crewe, Rostherne South and East junctions, and the new Manchester Interchange station (thus, likewise, new, high speed infrastructure the whole way from Euston Cross).

Service Plan 4A

This service plan comes into effect only when the Transpennine routes HS8 and HS9 open fully between Manchester HS and Liverpool / Bolton and Preston. (This is HS8/9 SP1.) The connections between HS2 and HS8 at Kenyon Junctions were made in service plan 4. Now a connection is likewise made between HS2 at Bamfurlong Junction and HS8 at Gibb Farm Junction making available new, high speed infrastructure throughout between Euston Cross and Preston. A new service is introduced between Eastbourne and Preston:

- 2tphH Eastbourne – Bexhill – St. Leonards Warrior Square – Hastings – Ore – Winchelsea – Rye – Appledore – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Preston

SP4A comes into effect possibly some time after SP4. Its effects on HS2 are minor but important: it completes the works for Mk2.

When HS7 opens, it has no effect on HS2's service plan, but does give rise to interchange arrangements at Birmingham Interchange; HS7 occupies the outer and HS2 the inner platform faces, giving cross-platform interchange. In addition to that, HS7's own services have cross-platform interchange at Birmingham HS, and also non-cross-platform interchange with those of HS2. Note that several service plans of HS7 come into effect during the currency of HS2 SP4 (which is HS2's final SP unless and until the Mk3 developments. Thus HS7 SP1 introduces services between Birmingham HS and Bristol Temple Meads (two services), Cardiff Airport and Swansea. SP2 extends one of the Bristol services to Plymouth. SP3 introduces services north from Birmingham HS to York, Halifax / Skipton, Cleethorpes and Skegness. The service from Plymouth is extended from Birmingham Interchange (no longer calling at Birmingham HS) to Newcastle / Middlesborough, and likewise that from Swansea to Nottingham (and on to Norwich at SP4). HS7 SP5, which is HS7 Mk2, introduces new services between Plymouth and

Liverpool, and between Swansea and Holyhead. **All** of these services begin during the currency of HS2 SP4. The service plan below thus includes all the associated HS7 services, as do the interchange patterns.

In the original Mk1 plans, when HS3 opened to Scotland, HS2's service from Euston to Scotland was cancelled as redundant (but the Scottish services from Birmingham and Liverpool were maintained). After reconsideration (particularly given the relaxed capacity restrictions) HS2's London – Scotland service is retained; it now has important connections at Crewe from and to Staffordshire. Also, at Mk2, it switches to the new route between Crewe and Preston, and adds calls at Calvert and Birmingham Interchange.

The complete service for both parts of SP4, thus for HS2 Mk2, is:

HS2 UHS:

- 4tphH Maidstone – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Birmingham Interchange – Birmingham HS
- 4tphH Dover – Folkestone Central – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Stockport – Manchester HS
- 2tphH Eastbourne – Bexhill – St. Leonards Warrior Square – Hastings – Ore – Winchelsea – Rye – Appledore – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Liverpool Lime St.
- 2tphH Eastbourne – Bexhill – St. Leonards Warrior Square – Hastings – Ore – Winchelsea – Rye – Appledore – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Preston.

HS2 Metro:

- 2tphH Margate – Ramsgate – Minster – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Calvert – Birmingham Interchange – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly
- 2tphH Margate – Ramsgate – Minster – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – 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
- 2tphH Euston – Old Oak Common – Calvert – Birmingham Interchange – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.
- 1tphH Euston – Old Oak Common – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 2tphH Euston – Old Oak Common – Calvert – Birmingham Interchange – Crewe – Preston – Lancaster – Oxenholme – Penrith – Carlisle – (splits / joins) –:
 - Motherwell – Glasgow Central
 - Haymarket – Edinburgh Waverley
- 2tphH Birmingham HS – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly
- 1tphH Birmingham HS – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead

- 1tphH Birmingham HS – Crewe –Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Oxenholme – Penrith – Carlisle (splits / joins) – :
– Haymarket – Edinburgh Waverley
– Lockerbie – Motherwell – Glasgow Central
- 1tphH Liverpool Lime St. – St. Helens – Wigan North Western – Preston – Lancaster
– Oxenholme – Penrith – Carlisle (splits / joins) – :
– Motherwell – Glasgow Central
– Lockerbie – Haymarket – Edinburgh Waverley

Associated HS3 Metro service:

- 2tphH St. Pancras – Luton Airport Parkway – Milton Keynes Parkway - Northampton – Rugby – Coventry – Birmingham New St. – Wolverhampton (splits/joins) – :
– Stafford – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.
– Telford – Wellington – Shrewsbury – Wrexham – Chester

Associated HS7 services (all HS-Metro):

- 2tphH Plymouth – Exeter St. David’s – Taunton – Bristol Temple Meads HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Derby – Sheffield HS – Huddersfield – Leeds HS – York HS (splits / joins) – :
– Darlington – Durham (Rely Mill) – Consett – Newcastle
– Northallerton – Yarm – Eaglescliffe – thornaby – Middlesbrough
- 2tphH Swansea – Port Talbot – Cardiff (Rhoose) Airport – Cardiff HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Derby – Nottingham – Peterborough – Norwich
- 2tphH Plymouth – Exeter St. David’s – Taunton – Bristol Temple Meads HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.
- 2tphH Swansea – Port Talbot – Cardiff (Rhoose) Airport – Cardiff HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 2tphH Bristol Temple Meads BT – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Birmingham HS
- 2tphH Cardiff Airport – Cardiff HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Birmingham HS
- 2tphH Birmingham HS – Derby – Sheffield HS – Huddersfield – Leeds HS – York
- 2tphH Birmingham HS – Derby – Chesterfield – Sheffield Midland – South Yorkshire HL – Leeds City (splits / joins) – :
– Shipley – Bradford City – Halifax
– Shipley – Keighley – Skipton
- 2tphH Birmingham HS – Derby – Nottingham – Newark Castle – Lincoln Central – Market Rasen – Grimsby Town – Cleethorpes
- 2tphH Birmingham HS – Derby – Nottingham – Newark Castle – Lincoln Central – Sleaford – Boston – Wainfleet – Skegness

Representative Hourly Cross-Platform Interchange Pattern at Birmingham HS:

00H	Maidstone – Birmingham HS
H	Birmingham HS – Manchester Piccadilly
H	HS7 Bristol Temple Meads (BT) – Birmingham HS
H	HS7 Birmingham HS – Cleethorpes
07H	HS7 Birmingham HS – York HS (no connection)
15H	Maidstone – Birmingham HS
H	Birmingham HS – Edinburgh / Glasgow
H	HS7 Cardiff Airport – Birmingham HS
H	HS7 Birmingham HS – Skegness
23H	HS7 Birmingham HS – Halifax / Skipton (no connection)
30H	Maidstone – Birmingham HS
H	Birmingham HS – Manchester Piccadilly
H	HS7 Bristol Temple Meads (BT) – Birmingham HS
H	HS7 Birmingham HS – Cleethorpes
37H	HS7 Birmingham HS – York HS (no connection)
45H	Maidstone – Birmingham HS
H	Birmingham HS – Holyhead
H	HS7 Cardiff Airport – Birmingham HS
H	HS7 Birmingham HS – Skegness
53H	HS7 Birmingham HS – Halifax / Skipton (no connection)

Representative Hourly Cross-Platform Interchange Birmingham Interchange:

00H	Margate – Manchester Piccadilly
H	HS7 Swansea – Norwich
H	HS7 Bristol Temple Meads (BT) – Birmingham HS
07H	Euston – Edinburgh / Glasgow
H	HS7 Plymouth – Liverpool Lime St.
15H	Margate – Blackpool / Windermere
H	HS7 Plymouth – Newcastle / Middlesbrough
H	HS7 Cardiff Airport – Birmingham HS
23H	Euston – Liverpool
H	HS7 Swansea – Holyhead

– repeating at 30, 37, 45 and 53 minutes past

Representative Hourly Cross-Platform Interchange Pattern at Crewe:

- 00H Euston – Holyhead (not cross-platform)
 - H HS3 St. Pancras – Liverpool
 - H Birmingham HS – Edinburgh / Glasgow
- 07H Euston – Edinburgh / Glasgow
 - H HS7 Plymouth – Liverpool
- 15H Eastbourne – Liverpool
 - H Margate – Preston – Blackpool / Windermere
 - R Euston – Crewe via Stafford (not cross-platform)
- 23H Eastbourne – Preston
 - H HS7 Swansea – Holyhead
 - H Euston – Liverpool (not cross-platform)
 - R Euston – Crewe via Stoke and Kidsgrove (not cross-platform)
- 30H Birmingham HS – Holyhead
 - H HS3 St. Pancras – Liverpool
 - [Slot reserved for Liverpool – Edinburgh / Glasgow]
- 37H Euston – Edinburgh / Glasgow
 - H HS7 Plymouth – Liverpool
- 45H Eastbourne – Liverpool
 - H Margate – Preston – Blackpool / Windermere
 - R Euston – Crewe via Stafford (not cross-platform)
- 53H Eastbourne – Preston
 - H HS7 Swansea – Holyhead
 - H Euston – Liverpool (not cross-platform)
 - R Euston – Crewe via Stoke and Kidsgrove (not cross-platform)

Representative Hourly Pattern at Warrington Bank Quay:

- 00H Birmingham HS – Edinburgh / Glasgow
- 15H Margate – Preston – Blackpool / Windermere
- 30H [Slot reserved for Liverpool – Edinburgh / Glasgow]
- 45H Margate – Preston – Blackpool / Windermere

Representative Hourly Pattern at Wigan North Western:

- 00H Birmingham HS – Edinburgh / Glasgow
- 15H Margate – Preston – Blackpool / Windermere
- 30H Liverpool – Edinburgh / Glasgow

45H Margate – Preston – Blackpool / Windermere

Representative Hourly Cross-Platform Interchange Pattern at Preston:

00H Birmingham HS – Edinburgh / Glasgow

R Manchester Airport – Preston – Blackpool / Windermere

07H Euston – Glasgow / Edinburgh

15H Margate – Preston – Blackpool / Windermere

30H Liverpool – Edinburgh / Glasgow

R Manchester Airport – Preston – Blackpool / Windermere

37H Euston – Glasgow / Edinburgh

45H Margate – Preston – Blackpool / Windermere

The following loadings are imposed on HS2:

• Euston Cross	– Old Oak Common East Junction	16tph
• Old Oak Common East Junction	– Old Oak Common North Junction	16tph
• [Euston –] Queens Park Junction	– Old Oak Common North Junction	5tph
• Old Oak Common North Junction	– Water Orton South Junction	21tph
• 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	17tph
• Water Orton North Junction	– Streethay Junction	21tph
• Streethay Junction	– Handsacre Junction	4tph
• Handsacre Junction	– Manchester Piccadilly	4tph
• Streethay Junction	– Crewe HS South Junction	17tph
• Crewe HS South Junction	– Crewe HS North Junction	4tph
• Crewe HS South Junction	– Crewe station	15tph
• Crewe station	– Crewe HS North Junction	13tph
• Crewe HS North Junction	– Rostherne South Junction	10tph
• Rostherne South Junction	– Manchester HS	4tph
• Rostherne South Junction	– Kenyon South Junction	6tph
• Kenyon South Junction	– Liverpool Lime St.	2tph
• Kenyon South Junction	– Preston	4tph
• Crewe HS North Junction	– Weaver Junction	7tph
• Weaver Junction	– Liverpool Lime St.	4tph
• Weaver Junction	– Springs Branch Junction	3tph
• Liverpool Lime St.	– Springs Branch Junction	1tph
• Springs Branch Junction	– Preston	4tph

That is the complete set of services at Mk2.

Elucidation of the loadings:

1. Euston Cross – Old Oak Common North Junction (HS2 only; there are also HS4 services)
 - 4tphH Maidstone – Birmingham HS
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Margate – Manchester Piccadilly
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - = 16tph
2. (Euston –) Queens Park Junction – Old Oak Common North Junction
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH Euston – Liverpool Lime St.
 - 1tphH Euston – Holyhead
 - = 5tph
3. Old Oak Common North Junction – Water Orton South Junction
 - 4tphH Maidstone – Birmingham HS
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Margate – Manchester Piccadilly
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH Euston – Liverpool Lime St.
 - 1tphH Euston – Holyhead
 - = 21tph
4. Water Orton South Junction – Water Orton West Junction
 - 4tphH Maidstone – Birmingham HS
 - = 4tph
5. Water Orton West Junction – Birmingham HS
 - 4tphH Maidstone – Birmingham HS
 - 2tphH Birmingham HS – Manchester Piccadilly
 - 1tphH Birmingham HS – Holyhead
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - = 8tph
6. Water Orton West Junction – Water Orton North Junction
 - 2tphH Birmingham HS – Manchester Piccadilly
 - 1tphH Birmingham HS – Holyhead
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - = 4tph

7. Water Orton South Junction – Water Orton North Junction
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Margate – Manchester Piccadilly
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH Euston – Liverpool Lime St.
 - 1tphH Euston – Holyhead
 - = 17tph
8. Water Orton North Junction – Streethay Junction
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Margate – Manchester Piccadilly
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH Euston – Liverpool Lime St.
 - 1tphH Euston – Holyhead
 - 2tphH Birmingham HS – Manchester Piccadilly
 - 1tphH Birmingham HS – Holyhead
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - = 21tph
9. Streethay Junction – Handsacre Junction – Manchester Piccadilly
 - 2tphH Margate – Manchester Piccadilly
 - 2tphH Birmingham HS – Manchester Piccadilly
 - = 4tph
10. Streethay Junction – Crewe HS South Junction
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH Euston – Liverpool Lime St.
 - 1tphH Euston – Holyhead
 - 1tphH Birmingham HS – Holyhead
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - = 17tph
11. Crewe HS South Junction – Crewe HS North Junction
 - 4tphH Dover – Manchester HS
 - = 4tph

12. Crewe HS South Junction – Crewe station
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH Euston – Liverpool Lime St.
 - 1tphH Euston – Holyhead
 - 1tphH Birmingham HS – Holyhead
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)

= 15tph
13. Crewe HS North Junction – Crewe HS North Junction
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH Euston – Liverpool Lime St.
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)

= 13tph
14. Crewe HS North Junction – Rostherne South Junction
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh

= 10tph
15. Rostherne South Junction – Manchester HS
 - 4tphH Dover – Manchester HS

= 4tph
16. Rostherne South Junction – Kenyon South Junction
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh

= 6tph
17. Kenyon South Junction – Liverpool Lime St.
 - 2tphH Eastbourne – Liverpool Lime St.

= 2tph
18. Kenyon South Junction – Preston
 - 2tphH Eastbourne – Preston
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh

= 4tph

19. Crewe HS North Junction – Weaver Junction
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
2tphH Euston – Liverpool Lime St.
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
= 7tph
20. Weaver Junction – Liverpool Lime St.
2tphH Euston – Liverpool Lime St.
2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
= 4tph
21. Weaver Junction – Springs Branch Junction
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
= 3tph
22. Liverpool Lime St. – Springs Branch Junction
1tphH Liverpool – Carlisle (splits/joins) – Glasgow / Edinburgh
= 1tph
23. Springs Branch Junction – Preston
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Liverpool – Carlisle (splits/joins) – Glasgow / Edinburgh
= 4tph

Service Plan 5

This service plan comes into effect probably quite a long time after service plan 4, when HS2-CV opens. There are very few changes from service plan 4, and these are now listed and explained: This is Mk3.1. It corresponds to SP6 of HS3, which introduces several new services which assume the availability of HS2-CV, and will be implemented at the same time. Note also new services on HS7, Plymouth – Liverpool and Swansea – Holyhead (this is HS7 SP5).

A new service of 4tph Rainham (*) – Gillingham → Birmingham HS is introduced, travelling via Coventry. (* There is provision for reversal at Rainham.) The existing Maidstone – Birmingham, Dover – Manchester and Eastbourne – Liverpool / Preston services are unaffected. The full service at SP5 is thus:

HS2 UHS:

- 4tphH Maidstone – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Birmingham Interchange – Birmingham HS
- 4tphH Rainham – Gillingham – Chatham – Rochester – Strood – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Rugby HS – Coventry HS – Birmingham Interchange – Birmingham HS
- 4tphH Dover – Folkestone Central – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Stockport – Manchester HS
- 2tphH Eastbourne – Bexhill – St. Leonards Warrior Square – Hastings – Ore – Winchelsea – Rye – Appledore – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Liverpool Lime St.
- 2tphH Eastbourne – Bexhill – St. Leonards Warrior Square – Hastings – Ore – Winchelsea – Rye – Appledore – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Preston.

HS2 Metro:

- 2tphH Margate – Ramsgate – Minster – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Calvert – Birmingham Interchange – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly
- 2tphH Margate – Ramsgate – Minster – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – 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
- 2tphH Euston – Old Oak Common – Calvert – Birmingham Interchange – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.
- 1tphH Euston – Old Oak Common – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 2tphH Euston – Old Oak Common – Calvert – Birmingham Interchange – Crewe – Preston – Lancaster – Oxenholme – Penrith – Carlisle – (splits / joins) –:
 - Motherwell – Glasgow Central
 - Haymarket – Edinburgh Waverley

- 2tphH Birmingham HS – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly
- 1tphH Birmingham HS – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 1tphH Birmingham HS – Crewe – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Oxenholme – Penrith – Carlisle (splits / joins) – :
– Haymarket – Edinburgh Waverley
– Lockerbie – Motherwell – Glasgow Central
- 1tphH Liverpool Lime St. – St. Helens – Wigan North Western – Preston – Lancaster – Oxenholme – Penrith – Carlisle (splits / joins) – :
– Motherwell – Glasgow Central
– Lockerbie – Haymarket – Edinburgh Waverley

Associated HS3 Metro services:

- 2tphH St. Pancras West – West Hampstead – Luton & Dunstable Parkway – Milton Keynes Parkway – Northampton Castle – Rugby HS – Coventry HS – Birmingham International – Birmingham New St. – Wolverhampton (splits/joins) – :
– Stafford – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.
– Telford – Wellington – Shrewsbury – Wrexham – Chester
- 2tphH St. Pancras West – West Hampstead – Luton & Dunstable Parkway – Milton Keynes Parkway – Northampton Castle – Rugby HS – Coventry HS – Birmingham International – Birmingham New St. – University – Bromsgrove – Droitwich Spa – Worcester Shrub Hill (NB this was formerly a RM service)
- 2tphH Bournemouth West – Bournemouth Central – Brockenhurst – Southampton – Southampton Airport Parkway – Winchester – Basingstoke – Reading (reverse) – Oxford – Banbury – Rugby (GC) – Leicester – Nottingham – South Yorkshire HS – York HS (splits / joins) – :
– Darlington – Durham Relly Mill – Consett – Newcastle
– Northallerton – Yarm – Eaglescliffe – Thornaby – Middlesborough
(NB this is in addition to the RM Bournemouth West – York service)
- 2tphH Paddington – Old Oak Common – LHR Interchange – Slough – Maidenhead – Bourne End (to/from Marlow) – High Wycombe – Princes Risborough – Calvert – Rugby (GC) – Leicester – Melton Mowbray (reverse) – Nottingham – Derby

Associated HS7 services (all HS-Metro):

- 2tphH Plymouth – Exeter St. David's – Taunton – Bristol Temple Meads HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Derby – Sheffield HS – Huddersfield – Leeds HS – York HS (splits / joins) – :
– Darlington – Durham (Relly Mill) – Consett – Newcastle
– Northallerton – Yarm – Eaglescliffe – thornaby – Middlesborough
- 2tphH Swansea – Port Talbot – Cardiff (Rhoose) Airport – Cardiff HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Derby – Nottingham – Peterborough – Norwich

- 2tphH Plymouth – Exeter St. David’s – Taunton – Bristol Temple Meads HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.
- 2tphH Swansea – Port Talbot – Cardiff (Rhoose) Airport – Cardiff HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 2tphH Bristol Temple Meads BT – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Birmingham HS
- 2tphH Cardiff Airport – Cardiff HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Birmingham HS
- 2tphH Birmingham HS – Derby – Sheffield HS – Huddersfield – Leeds HS – York
- 2tphH Birmingham HS – Derby – Chesterfield – Sheffield Midland – South Yorkshire HL – Leeds City (splits / joins) – :
– Shipley – Bradford City – Halifax
– Shipley – Keighley – Skipton
- 2tphH Birmingham HS – Derby – Nottingham – Newark Castle – Lincoln Central – Market Rasen – Grimsby Town – Cleethorpes
- 2tphH Birmingham HS – Derby – Nottingham – Newark Castle – Lincoln Central – Sleaford – Boston – Wainfleet – Skegness

Representative Hourly Cross-Platform Interchange Pattern at Birmingham HS:

- 00H Rainham – Birmingham HS
H Birmingham HS – Manchester Piccadilly
H HS7 Bristol Temple Meads (BT) – Birmingham HS
H HS7 Birmingham HS – Cleethorpes
- 07H Maidstone – Birmingham HS
HS7 Birmingham HS – York HS
(not cross-platform)
- 15H Rainham – Birmingham HS
H Birmingham HS – Edinburgh / Glasgow
H HS7 Cardiff Airport – Birmingham HS
H HS7 Birmingham HS – Skegness
- 23H Maidstone – Birmingham HS
HS7 Birmingham HS – Halifax / Skipton
(not cross-platform)
- 30H Rainham – Birmingham HS
H Birmingham HS – Manchester Piccadilly
H HS7 Bristol Temple Meads (BT) – Birmingham HS
H HS7 Birmingham HS – Cleethorpes
- 37H Rainham – Birmingham HS
HS7 Birmingham HS – York HS
(not cross-platform)

- 45H Maidstone – Birmingham HS
- H Birmingham HS – Holyhead
- H HS7 Cardiff Airport – Birmingham HS
- H HS7 Birmingham HS – Skegness
- 23H Rainham – Birmingham HS
- HS7 Birmingham HS – Halifax / Skipton1
(not cross-platform)

Representative Hourly Cross-Platform Interchange Birmingham Interchange:

- 00H Margate – Manchester Piccadilly
- H HS7 Swansea – Norwich
- 05H Rainham – Birmingham HS
- H HS7 Bristol Temple Meads (BT) – Birmingham HS
- 10H Euston – Liverpool Lime St.
- H HS7 Swansea – Holyhead
- 13H Maidstone – Birmingham HS
(no connection)
- 15H Margate – Blackpool / Windermere
- H HS7 Plymouth – Newcastle / Middlesbrough
- 20H Rainham – Birmingham HS
- H HS7 Cardiff Airport – Birmingham HS
- 25H Euston – Edinburgh / Glasgow
- H Plymouth – Liverpool Lime St.
- 28H Maidstone – Birmingham HS
(no connection)

– repeating at 30, 35, 40, 43, 45, 50, 55 and 58 minutes past. Note that the HS7 services are in exactly the same sequence as their northbound departures from Bristol Parkway HS; naturally, since they all take exactly the same time to Birmingham. Note also that the Plymouth – Liverpool service departs from Birmingham Interchange precisely 107 seconds after the Euston – Edinburgh / Glasgow service, likewise the Swansea – Holyhead 107 secs after the Euston – Liverpool. This ensures that, once they have reached full line speed they are exactly the Extended Train Separation Distance apart. They travel with this separation until the approach to Crewe, where the HS7 service arrives precisely 107 seconds behind the HS2 service. (See Same Speed Railways, Appendix C, the Capacity-Slot Model section, for the full explanation of this stuff.) Note finally that interchange between the services is intended to be at Birmingham Interchange rather than at Crewe, since arrival (northbound) and departure (southbound) of the two service is scheduled to be simultaneous there – they have separate tracks south of the station.

Representative Hourly Cross-Platform Interchange Pattern at Crewe:

- 00H Euston – Holyhead (not cross-platform)
- H HS3 St. Pancras – Liverpool
- H Birmingham HS – Edinburgh / Glasgow
- 10H Euston – Edinburgh / Glasgow
- H HS7 Plymouth – Liverpool
- 15H Eastbourne – Liverpool
- H Margate – Preston – Blackpool / Windermere
- R Euston – Crewe via Stafford (not cross-platform)
- 25H Eastbourne – Preston
- H HS7 Swansea – Holyhead
- H Euston – Liverpool (not cross-platform)
- R Euston – Crewe via Stoke and Kidsgrove (not cross-platform)
- 30H Birmingham HS – Holyhead
- H HS3 St. Pancras – Liverpool
- [Slot reserved for Liverpool – Edinburgh / Glasgow]
- 40H Euston – Edinburgh / Glasgow
- H HS7 Plymouth – Liverpool
- 45H Eastbourne – Liverpool
- H Margate – Preston – Blackpool / Windermere
- R Euston – Crewe via Stafford (not cross-platform)
- 55H Eastbourne – Preston
- H HS7 Swansea – Holyhead
- H Euston – Liverpool (not cross-platform)
- R Euston – Crewe via Stoke and Kidsgrove (not cross-platform)

Note that the slightly irregular departures from Crewe (every 5 minutes except for 05 and 35) are determined by the departure times of the relevant services from Birmingham Interchange

Representative Hourly Pattern at Warrington Bank Quay:

- 00H Birmingham HS – Edinburgh / Glasgow
- 15H Margate – Preston – Blackpool / Windermere
- 30H [Slot reserved for Liverpool – Edinburgh / Glasgow]
- 45H Margate – Preston – Blackpool / Windermere

(Note that the Euston – Edinburgh / Glasgow service travels non-stop via HS2/HS8 between Crewe and Preston.)

Representative Hourly Pattern at Wigan North Western:

- 00H Birmingham HS – Edinburgh / Glasgow

15H Margate – Preston – Blackpool / Windermere

30H Liverpool – Edinburgh / Glasgow

45H Margate – Preston – Blackpool / Windermere

Representative Hourly Cross-Platform Interchange Pattern at Preston:

00H Birmingham HS – Edinburgh / Glasgow

R Manchester Airport – Preston – Blackpool / Windermere

07H Euston – Glasgow / Edinburgh

15H Margate – Preston – Blackpool / Windermere

30H Liverpool – Edinburgh / Glasgow

R Manchester Airport – Preston – Blackpool / Windermere

37H Euston – Glasgow / Edinburgh

45H Margate – Preston – Blackpool / Windermere

(The Euston – Edinburgh / Glasgow service travels non-stop via HS2/HS8 between Crewe and Preston, as already noted; their times are therefore different.)

Route loadings are given separately for the main lines (Euston Cross / Euston to Ashenden Junction, and above Streethay Junction, and the HS2-orig tracks between those locations) and for the relief lines (HS2-CV between Ashenden Junction and Streethay / Handsacre Junctions via Rugby, also for the HS7 tracks, where separate, around Birmingham). Understanding these loadings will certainly require reference to the track diagrams for the sections between Grandon Underwood and Brackley junctions and between Mount Pleasant and Streethay junctions, and around Coventry station; these are contained in appendix A.

The following loadings are imposed on the main lines of HS2:

- | | | |
|------------------------------------|---------------------------------|-------|
| • Euston Cross | – Old Oak Common East Junction | 20tph |
| • Old Oak Common East Junction | – Old Oak Common North Junction | 20tph |
| • [Euston –] Queens Park Junction | – Old Oak Common North Junction | 5tph |
| • Old Oak Common North Junction | – Grendon Underwood Junctions | 25tph |
| • Grendon Underwood Junctions | – Chetwode Junctions | 13tph |
| • Chetwode Junctions | – Mount Pleasant Junctions | 21tph |
| • Mount Pleasant Junctions | – Streethay Junction | 9tph |
| • Streethay Junction | – Crewe HS South Junction | 21tph |
| • Crewe HS South Junction | – Crewe HS North Junction | 4tph |
| • Crewe HS South Junction | – Crewe station | 19tph |
| • Crewe station | – Crewe HS North Junction | 15tph |
| • Crewe HS North Junction | – Rostherne South Junction | 12tph |
| • Rostherne South Junction | – Manchester HS | 4tph |
| • Rostherne South Junction | – Kenyon South Junction | 8tph |
| • Kenyon South Junction | – Liverpool Lime St. | 4tph |
| • Kenyon South Junction | – Preston | 4tph |

• Crewe HS North Junction	– Weaver Junction	7tph
• Weaver Junction	– Liverpool Lime St.	4tph
• Weaver Junction	– Springs Branch Junction	3tph
• Liverpool Lime St.	– Springs Branch Junction	1tph
• Springs Branch Junction	– Preston	4tph
• Preston	– Blackpool North	2tph
• Preston	– Oxenholme	6tph
• Oxenholme	– Windermere	2tph
• Oxenholme	– Carlisle	4tph
• Carlisle	– Carstairs South Junction	8tph
• Carstairs South Junction	– Glasgow Central	4tph
• Carstairs South Junction	– Edinburgh Waverley	4tph

The following loadings are imposed on the relief lines of HS2, and the distinct tracks of HS7:

• Ashendon Junction	– Grendon Underwood Junctions	2tph
• Grendon Underwood Junctions	– Chetwode Junctions direct	6tph
• Grendon Underwood Junctions	– Chetwode Junctions via Calvert	8tph
• Chetwode Junctions	– Culworth Junction	6tph
• Banbury Junction	– Culworth Junction	2tph
• Culworth Junction	– Onley Junction	8tph
• Watford Gap Junction (HS3)	– Onley Junction	4tph
• Onley Junction	– Rugby HS Junction	12tph
• Rugby HS Junction	– Cotesbach Junction (HS3)	4tph
• Rugby HS Junction	– Warwick Road Junction	8tph
• Warwick Road Junction	– Mount Pleasant Junctions	4tph
• Mount Pleasant Junctions	– Birmingham Interchange station	16tph
• Birmingham Interchange station	– Water Orton South Junction (inner)	16tph
• Birmingham Interchange station	– Water Orton South Junction (outer)	12tph
• Water Orton South Junction (outer)	– Water Orton West Junction (HS2)	8tph
• Water Orton South Junction (outer)	– Water Orton West Junction (HS7)	4tph
• Birmingham HS	– Water Orton West Junction (HS2)	12tph
• Birmingham HS	– Water Orton West Junction (HS7)	12tph
• Water Orton West Junction (HS7)	– Marston Junction (HS7)	8tph
• Water Orton South Junction (inner)	– Marston Junction (HS7)	4tph
• Marston Junction (HS7)	– Derby	12tph
• Water Orton South Junction (relief)	– Water Orton North Junction	12tph
• Water Orton West Junction (HS2)	– Water Orton North Junction	4tph
• Water Orton North Junction	– Streethay Junction (relief lines)	16tph
• Streethay Junction (relief lines)	– Handsacre Junction	4tph
• Streethay Junction (relief lines)	– Streethay Junction (main lines)	12tph

Note that the ‘inner’ lines between Birmingham Interchange station and Water Orton South Junction, so called to distinguish them from the ‘outer’ lines between those points, (which diverge at the latter point and proceed to Water Orton West Junction,) revert to their proper name, the relief lines, north of Water

Orton (distinguishing them from the main lines, which pass between Mount Pleasant and Streethay junctions entirely independently of everyone else).

Elucidation of the Main Line loadings:

1. Euston Cross – Old Oak Common North Junction (HS2 only; there are also HS4 services)
 - 4tphH Maidstone – Birmingham HS
 - 4tphH Rainham – Birmingham HS via Coventry
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Margate – Manchester Piccadilly
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - = 20tph
2. (Euston –) Queens Park Junction – Old Oak Common North Junction
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH Euston – Liverpool Lime St.
 - 1tphH Euston – Holyhead
 - = 5tph
3. Old Oak Common North Junction – Grendon Underwood Junctions(*)
 - 4tphH Maidstone – Birmingham HS
 - 4tphH Rainham – Birmingham HS via Coventry
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Margate – Manchester Piccadilly
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH Euston – Liverpool Lime St.
 - 1tphH Euston – Holyhead
 - = 25tph
4. Grendon Underwood Junctions(*) – Chetwode Junctions(*)
 - 4tphH Maidstone – Birmingham HS
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 1tphH Euston – Holyhead
 - = 13tph
5. Chetwode Junctions(*) – Mount Pleasant Junctions(*)
 - 4tphH Maidstone – Birmingham HS
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.

2tphH Eastbourne – Preston
 2tphH Margate – Manchester Piccadilly
 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 2tphH Euston – Liverpool Lime St.
 1tphH Euston – Holyhead
 = 21tph

6. Mount Pleasant Junctions(*) – Streethay Junction

4tphH Dover – Manchester HS
 2tphH Eastbourne – Liverpool Lime St.
 2tphH Eastbourne – Preston
 1tphH Euston – Holyhead
 = 9tph

10. Streethay Junction – Crewe HS South Junction

4tphH Dover – Manchester HS
 2tphH Eastbourne – Liverpool Lime St.
 2tphH Eastbourne – Preston
 1tphH Euston – Holyhead
 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 2tphH Euston – Liverpool Lime St.
 1tphH Birmingham HS – Holyhead
 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 2tphH HS7 Plymouth – Liverpool
 2tphH HS7 Swansea – Holyhead
 = 21tph

11. Crewe HS South Junction – Crewe HS North Junction

4tphH Dover – Manchester HS
 = 4tph

12. Crewe HS South Junction – Crewe station

2tphH Eastbourne – Liverpool Lime St.
 2tphH Eastbourne – Preston
 1tphH Euston – Holyhead
 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 2tphH Euston – Liverpool Lime St.
 1tphH Birmingham HS – Holyhead
 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
 2tphH HS7 Plymouth – Liverpool
 2tphH HS7 Swansea – Holyhead
 = 19tph

13. Crewe station – Crewe HS North Junction
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH Euston – Liverpool Lime St.
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
 - 2tphH HS7 Plymouth – Liverpool
 - = 15tph
14. Crewe HS North Junction – Rostherne South Junction
 - 4tphH Dover – Manchester HS
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH HS7 Plymouth – Liverpool
 - = 12tph
15. Rostherne South Junction – Manchester HS
 - 4tphH Dover – Manchester HS
 - = 4tph
16. Rostherne South Junction – Kenyon South Junction
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH Eastbourne – Preston
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphH HS7 Plymouth – Liverpool
 - = 8tph
17. Kenyon South Junction – Kenyon West Junction (– Liverpool)
 - 2tphH Eastbourne – Liverpool Lime St.
 - 2tphH HS7 Plymouth – Liverpool
 - = 4tph
18. Kenyon South Junction – Gibb Farm Junction (– Preston)
 - 2tphH Eastbourne – Preston
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 - = 4tph
19. Crewe HS North Junction – Weaver Junction
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 - 2tphH Euston – Liverpool Lime St.
 - 2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - = 7tph

20. Weaver Junction – Liverpool Lime St.
2tphH Euston – Liverpool Lime St.
2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
= 4tph
21. Weaver Junction – Springs Branch Junction
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
= 3tph
22. Liverpool Lime St. – Springs Branch Junction
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
= 1tph
23. Springs Branch Junction – Preston
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
= 4tph
24. Preston – Blackpool North
2tphH Margate – Preston (splits / joins) – Blackpool portion
= 2tph
25. Preston – Oxenholme
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
2tphH Margate – Preston (splits / joins) – Windermere portion
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
= 6tph
26. Oxenholme – Carlisle
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
= 4tph
27. Carlisle – Carstairs South Junction
2tphH Euston – Carlisle (splits/joins) – Glasgow portion
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow portion
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow portion
2tphH Euston – Carlisle (splits/joins) – Edinburgh portion
1tphH Birmingham HS – Carlisle (splits/joins) – Edinburgh portion
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Edinburgh portion
= 8tph
28. Carstairs South Junction – Glasgow Central
2tphH Euston – Carlisle (splits/joins) – Glasgow portion
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow portion

1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow portion
= 4tph

29 Carstairs South Junction – Edinburgh Waverley

2tphH Euston – Carlisle (splits/joins) – Edinburgh portion

1tphH Birmingham HS – Carlisle (splits/joins) – Edinburgh portion

1tphH Liverpool Lime St. – Carlisle (splits/joins) – Edinburgh portion
= 4tph

(*) The junctions at the ends of a station loop are in different locations, depending on direction of travel, hence the plural, since XX North/South (or East/West) junctions are geographically separate locations.

Elucidation of the Relief Line loadings:

1. Ashenden Junction – Grendon Underwood Junctions

2tphH Paddington – Melton Mowbray
= 2tph

2. Grendon Underwood Junctions – Chetwode Junctions direct

4tphH Rainham – Birmingham HS via Coventry
2tphH Paddington – Melton Mowbray
= 6tph

3. Grendon Underwood Junctions – Chetwode Junctions via Calvert Station

2tphH Margate – Manchester Piccadilly
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
2tphH Euston – Liverpool Lime St.
= 8tph

4. Chetwode Junctions – Culworth Junction

4tphH Rainham – Birmingham HS via Coventry
2tphH Paddington – Melton Mowbray
= 6tph

5. Banbury Junction – Culworth Junction

2tphH Bournemouth West – York HS (splits / joins) – Newcastle / Middlesborough
= 2tph

6. Culworth Junction – Onley Junction

4tphH Rainham – Birmingham HS via Coventry
2tphH Bournemouth West – York HS (splits / joins) – Newcastle / Middlesborough
2tphH Paddington – Melton Mowbray
= 8tph

7. Watford Gap Junction (HS3) – Onley Junction

2tphH HS3 St. Pancras West – Wolverhampton (splits/joins) – Liverpool / Chester

2tphH HS3 St. Pancras West – Worcester Shrub Hill
= 4tph

8. Onley Junction – Rugby HS Junction

4tphH Rainham – Birmingham HS via Coventry
2tphH Bournemouth West – York HS (splits / joins) – Newcastle / Middlesborough
2tphH Paddington – Melton Mowbray
2tphH HS3 St. Pancras West – Wolverhampton (splits/joins) – Liverpool / Chester
2tphH HS3 St. Pancras West – Worcester Shrub Hill
= 12tph

9. Rugby HS Junction – Cotesbach Junction (HS3)

2tphH Bournemouth West – York HS (splits / joins) – Newcastle / Middlesborough
2tphH Paddington – Melton Mowbray
= 4tph

10. Rugby HS Junction – Warwick Rd. Junction

4tphH Rainham – Birmingham HS via Coventry
2tphH HS3 St. Pancras West – Wolverhampton (splits/joins) – Liverpool / Chester
2tphH HS3 St. Pancras West – Worcester Shrub Hill
= 8tph

11. Warwick Rd. Junction – Mount Pleasant Junctions

4tphH Rainham – Birmingham HS via Coventry
= 4tph

12. Mount Pleasant Junctions – Birmingham Interchange Station

4tphH Maidstone – Birmingham HS
4tphH Rainham – Birmingham HS via Coventry
2tphH Margate – Manchester Piccadilly
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
2tphH Euston – Liverpool Lime St.
= 16tph

13. Birmingham Interchange Station – Water Orton South Junction (inner tracks)

2tphH HS7 Plymouth – York HS (splits / joins) – Newcastle / Middlesborough
2tphH HS7 Swansea – Norwich
2tphH Margate – Manchester Piccadilly
2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
2tphH Euston – Liverpool Lime St.
2tphH HS7 Plymouth – Liverpool
2tphH HS7 Swansea – Holyhead
= 16tph

14. 4tphH Maidstone – Birmingham HS

4tphH Maidstone – Birmingham HS

- 4tphH Rainham – Birmingham HS via Coventry
 2tphH HS7 Bristol Temple Meads (BT) – Birmingham HS
 2tphH HS7 Cardiff HS – Birmingham HS
 = 12tph
15. Water Orton South Junction (outer tracks) – Water Orton West Junction (HS2 tracks)
 4tphH Maidstone – Birmingham HS
 4tphH Rainham – Birmingham HS via Coventry
 = 8tph
16. Water Orton South Junction (outer tracks) – Water Orton West Junction (HS7 tracks)
 2tphH HS7 Bristol Temple Meads (BT) – Birmingham HS
 2tphH HS7 Cardiff HS – Birmingham HS
 = 4tph
17. Birmingham HS – Water Orton West Junction (HS2 tracks)
 4tphH Birmingham HS – Maidstone
 4tphH Birmingham HS – Rainham via Coventry
 2tphH Birmingham HS – Manchester Piccadilly
 1tphH Birmingham HS – Holyhead
 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 12tph
18. Birmingham HS – Water Orton West Junction (HS7 tracks)
 2tphH HS7 Birmingham HS – Bristol Temple Meads (BT)
 2tphH HS7 Birmingham HS – Cardiff Airport
 2tphH HS7 Birmingham HS – York HS
 2tphH HS7 Birmingham HS – Leeds City (splits / joins) – Halifax / Skipton
 2tphH HS7 Birmingham HS – Cleethorpes
 2tphH HS7 Birmingham HS – Skegness
 = 12tph
19. Water Orton West Junction (HS7 tracks) – Marston Junction (HS7)
 2tphH HS7 Birmingham HS – York HS
 2tphH HS7 Birmingham HS – Leeds City (splits / joins) – Halifax / Skipton
 2tphH HS7 Birmingham HS – Cleethorpes
 2tphH HS7 Birmingham HS – Skegness
 = 8tph
20. Water Orton South Junction (relief tracks) – Marston Junction (HS7)
 2tphH HS7 Plymouth – York HS (splits / joins) – Newcastle / Middlesbrough
 2tphH HS7 Swansea – Norwich
 = 4tph
21. Marston Junction (HS7) – Derby
 2tphH HS7 Plymouth – York HS (splits / joins) – Newcastle / Middlesbrough
 2tphH HS7 Swansea – Norwich
 2tphH HS7 Birmingham HS – York HS

2tphH HS7 Birmingham HS – Leeds City (splits / joins) – Halifax / Skipton
 2tphH HS7 Birmingham HS – Cleethorpes
 2tphH HS7 Birmingham HS – Skegness
 = 12tph

22. Water Orton West Junction (HS2 tracks) – Water Orton North Junction
 2tphH Birmingham HS – Manchester Piccadilly
 1tphH Birmingham HS – Holyhead
 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 = 4tph

23. Water Orton South Junction – Water Orton North Junction (relief lines)
 2tphH Margate – Manchester Piccadilly
 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 2tphH Euston – Liverpool Lime St.
 2tphH HS7 Plymouth – Liverpool
 2tphH HS7 Swansea – Holyhead
 = 12tph

24. Water Orton North Junction – Streethay Junction (relief lines)
 2tphH Margate – Manchester Piccadilly
 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 2tphH Euston – Liverpool Lime St.
 2tphH Birmingham HS – Manchester Piccadilly
 1tphH Birmingham HS – Holyhead
 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 2tphH HS7 Plymouth – Liverpool
 2tphH HS7 Swansea – Holyhead
 = 16tph

25. Streethay Junction (relief lines) – Handsacre Junction
 2tphH Margate – Manchester Piccadilly
 2tphH Birmingham HS – Manchester Piccadilly
 = 4tph

26. Streethay Junction (relief lines) – Streethay Junction (main lines)
 2tphH Margate – Preston (splits / joins) – Blackpool / Windermere
 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
 2tphH Euston – Liverpool Lime St.
 1tphH Birmingham HS – Holyhead
 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 2tphH HS7 Plymouth – Liverpool
 2tphH HS7 Swansea – Holyhead
 = 12tph

Service Plan 6

This service plan comes into effect probably a long time after service plan 5, and **certainly** a long time after service plan 4, when HS2 to Scotland opens. The section between Carlisle and Edinburgh opened much earlier – the section from Riccarton North Junction to Ravenswood Junction opened as part of HS3, and the connections from Tweedbank to Ravenswood Junction, and from Riccarton North Junction to Carlisle opened shortly after, as completion of the restored Waverley route. From Carlisle to Ravenswood Junction, (and on to Edinburgh via Lauder,) it is built as a HS line, but is not restricted to HS2 traffic. The new HS2 services from Whitehaven and Keswick to Glasgow, idescribed below, were actually introduced as soon as the Waverley route re-opened.

The connection from Kenyon West Junction on HS8 to Kenyon North Junction (SJ634968) on HS2 allows a UHS service from Liverpool to Scotland. (This junction was built at the same time as the rest of the initial section of HS8, between Kenyon West Junction and Liverpool, but had not seen regular service use previously.) No similar service is provided from Manchester as it already has 8tph to Scotland, via a cross-platform interchange at Preston.

Birmingham also gains a new UHS service to Scotland.

The Euston Cross – Preston service omits the Crewe stop, and is extended to Scotland.

The Euston – Blackpool / Windermere service is switched to Blackpool / Morecambe, since Kendal is now on the (new) classic WCML between Oxenholme and Penrith. The Scottish services on the WCML from Euston, Birmingham and Liverpool all omit the Oxenholme stop, and add new stops at Carnforth and Kendal. In addition, they now serve the HS platforms at Preston, which were previously served only by HS2, HS3, HS8 and HS9 services terminating there. (The Euston – Edinburgh / Glasgow service previously regained the classic tracks immediately before Preston, having travelled directly between Crewe and Preston via HS8.) Above Preston, they, and the Morecambe portion of the Euston – Blackpool / Morecambe service, travel on the new HS2 tracks as far as Galgate Junction, south of Lancaster, where they rejoin the WCML (and the HS2 tracks diverge and follow the M6).

The following services are introduced / amended (note the Regional Metro services):

- 2tphH Eastbourne – Bexhill – St. Leonards Warrior Square – Hastings – Ore – Winchelsea – Rye – Appledare – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Preston – Carlisle – Hawick – Edinburgh Waverley – Edinburgh Airport – Glasgow Bellgrove – Glasgow St. Enoch
- 2tphH Margate – Ramsgate – Minster – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Calvert – Birmingham Interchange – Crewe – Warrington Bank Quay – Wigan North Western – Preston (splits/joins) –:
 - Kirkham – Poulton le Fylde – Blackpool
 - Lancaster – Morecambe
- 2tphH Birmingham HS – Crewe – Preston – Carlisle – Hawick – Edinburgh Waverley – Edinburgh Airport – Glasgow Bellgrove – Glasgow St. Enoch
- 2tphH Liverpool Lime St. – Preston – Carlisle – Hawick – Edinburgh Waverley – Edinburgh Airport – Glasgow Bellgrove – Glasgow St. Enoch
- 2tphH Euston – Old Oak Common – Calvert – Birmingham Interchange – Crewe – Preston – Lancaster – Carnforth – Kendal – Penrith – Carlisle (splits / Joins) – :

- Motherwell – Glasgow Central
- Edinburgh Haymarket – Edinburgh Waverley
- 1tphH Birmingham HS – Crewe – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Carnforth – Kendal – Penrith – Carlisle (splits/joins) – :
 - Edinburgh Haymarket – Edinburgh Waverley
 - Lockerbie – Motherwell – Glasgow Central
- 1tphH Liverpool Lime St. – St. Helens Central – Wigan North Western – Preston – Lancaster – Carnforth – Kendal – Penrith – Carlisle (splits/joins) – :
 - Lockerbie – Edinburgh Haymarket – Edinburgh Waverley
 - Motherwell – Glasgow Central
- 2tphH Whitehaven – Workington – Maryport – Carlisle – Riddings – Newcastleton – Hawick – Lauder – Edinburgh Waverley – Edinburgh Haymarket – Edinburgh Airport – Glasgow Bellgrove – Glasgow St. Enoch
- 2tphH Keswick – Troutbeck for Ullswater – Penrith – Carlisle – Longtown – Riddings – Canonbie – Gilnockie - Langholm
- 2tphR Euston – Watford Junction – Bletchley – Milton Keynes Central – Wolverton – Northampton – Long Buckby – Rugby – Nuneaton – Atherstone – Polesworth – Tamworth – Lichfield Trent Valley – Rugeley Trent Valley – Stafford – Crewe
- 2tphR Euston – Watford Junction – Milton Keynes Central – Northampton – Rugby – Nuneaton – Atherstone – Polesworth – Tamworth – Lichfield TV – Rugeley TV – Stone – Stoke-on-Trent – Longport – Kids Grove – Alsager – Crewe
- 2tphR Manchester Airport – Manchester Piccadilly – Manchester Oxford Rd. – Bolton – Horwich Parkway – Chorley – Preston – Lancaster – Carnforth – Silverdale – Arnsdale – Grange-over-Sands – Cark and Cartmel – Ulverston – Dalton – Roose – Barrow in Furness
- 2tphR Leeds City – Bradford Central – Shipley – Keighley – Skipton – Gargrave – Hellifield – Long Preston – Giggleswick – Clapham – Benthall – Wetherby – Carnforth (reverse) – Silverdale – Arnsdale – Grange-over-Sands – Cark and Cartmel – Ulverston – Dalton – Roose – Barrow in Furness

The complete service plan is thus:

HS2 UHS:

- 4tphH Maidstone – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Birmingham Interchange – Birmingham HS
- 4tphH Rainham – Gillingham – Chatham – Rochester – Strood – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Rugby HS – Coventry HS – Birmingham Interchange – Birmingham HS
- 4tphH Dover – Folkestone Central – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Stockport – Manchester HS
- 2tphH Eastbourne – Bexhill – St. Leonards Warrior Square – Hastings – Ore – Winchelsea – Rye – Appledore – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Crewe – Liverpool Lime St.
- 2tphH Eastbourne – Bexhill – St. Leonards Warrior Square – Hastings – Ore – Winchelsea – Rye – Appledore – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak

Common – Preston – Carlisle – Hawick – Edinburgh Waverley – Edinburgh Haymarket –
Edinburgh Airport – Glasgow Birchgrove – Glasgow St. Enoch

HS2 Metro:

- 2tphH Margate – Ramsgate – Minster – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Calvert – Birmingham Interchange – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly
- 2tphH Margate – Ramsgate – Minster – Ashford – Ebbsfleet – Stratford HS South – Euston Cross – Old Oak Common – Calvert – Birmingham Interchange – Crewe – Warrington Bank Quay – Wigan North Western – Preston (splits/joins) – :
– Kirkham – Poulton le Fylde – Blackpool
– Lancaster – Morecambe
- 2tphH Euston – Old Oak Common – Calvert – Birmingham Interchange – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.
- 1tphH Euston – Old Oak Common – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 2tphH Euston – Old Oak Common – Calvert – Birmingham Interchange – Crewe – Preston – Lancaster – Carnforth – Kendal – Penrith – Carlisle – (splits / joins) – :
– Motherwell – Glasgow Central
– Haymarket – Edinburgh Waverley
- 2tphH Birmingham HS – Crewe – Preston – Carlisle – Hawick – Edinburgh Waverley – Edinburgh Haymarket – Edinburgh Airport – Glasgow Bellgrove – Glasgow St. Enoch
- 2tphH Birmingham HS – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly
- 1tphH Birmingham HS – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 1tphH Birmingham HS – Crewe – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Carnforth – Kendal – Penrith – Carlisle (splits / joins) – :
– Haymarket – Edinburgh Waverley
– Lockerbie – Motherwell – Glasgow Central
- 2tphH Liverpool Lime St. – Preston – Carlisle – Hawick – Edinburgh Waverley – Edinburgh Haymarket – Edinburgh Airport – Glasgow Bellgrove – Glasgow St. Enoch
- 1tphH Liverpool Lime St. – St. Helens – Wigan North Western – Preston – Lancaster – Carnforth – Kendal – Penrith – Carlisle (splits / joins) – :
– Motherwell – Glasgow Central
– Lockerbie – Haymarket – Edinburgh Waverley
- 2tphH Whitehaven – Workington – Maryport – Carlisle – Riddings – Newcastleton – Hawick – Lauder – Edinburgh Waverley – Edinburgh Haymarket – Edinburgh Airport – Glasgow Bellgrove – Glasgow St. Enoch
- 2tphH Keswick – Troutbridge for Ullswater – Penrith – Carlisle – Longtown – Riddings – Canonbie – Gilnockie – Langholme

Associated HS3 Metro services:

- 2tphH St. Pancras West – West Hampstead – Luton & Dunstable Parkway – Milton Keynes Parkway – Northampton Castle – Rugby HS – Coventry HS – Birmingham International – Birmingham New St. – Wolverhampton (splits/joins) – :
– Stafford – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.
– Telford – Wellington – Shrewsbury – Wrexham – Chester
- 2tphH St. Pancras West – West Hampstead – Luton & Dunstable Parkway – Milton Keynes Parkway – Northampton Castle – Rugby HS – Coventry HS – Birmingham International – Birmingham New St. – University – Bromsgrove – Droitwich Spa – Worcester Shrub Hill (NB this was formerly a RM service)
- 2tphH Bournemouth West – Bournemouth Central – Brockenhurst – Southampton – Southampton Airport Parkway – Winchester – Basingstoke – Reading (reverse) – Oxford – Banbury – Rugby (GC) – Leicester – Nottingham – South Yorkshire HS – York HS (splits / joins) – :
– Darlington – Durham Relly Mill – Consett – Newcastle
– Northallerton – Yarm – Eaglescliffe – Thornaby – Middlesborough
(NB this is in addition to the RM Bournemouth West – York service)
- 2tphH Paddington – Old Oak Common – LHR Interchange – Slough – Maidenhead – Bourne End (to/from Marlow) – High Wycombe – Princes Risborough – Calvert – Rugby (GC) – Leicester – Melton Mowbray (reverse) – Nottingham – Derby

Associated HS7 services (all HS-Metro):

- 2tphH Plymouth – Exeter St. David’s – Taunton – Bristol Temple Meads HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Derby – Sheffield HS – Huddersfield – Leeds HS – York HS (splits / joins) – :
– Darlington – Durham (Relly Mill) – Consett – Newcastle
– Northallerton – Yarm – Eaglescliffe – thornaby – Middlesborough
- 2tphH Swansea – Port Talbot – Cardiff (Rhoose) Airport – Cardiff HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Derby – Nottingham – Peterborough – Norwich
- 2tphH Plymouth – Exeter St. David’s – Taunton – Bristol Temple Meads HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime St.
- 2tphH Swansea – Port Talbot – Cardiff (Rhoose) Airport – Cardiff HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 2tphH Bristol Temple Meads BT – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Birmingham HS
- 2tphH Cardiff Airport – Cardiff HS – Bristol Parkway HS – Cheltenham Spa – Worcester Shrub Hill – Birmingham Interchange – Birmingham HS
- 2tphH Birmingham HS – Derby – Sheffield HS – Huddersfield – Leeds HS – York
- 2tphH Birmingham HS – Derby – Chesterfield – Sheffield Midland – South Yorkshire HL – Leeds City (splits / joins) – :
– Shipley – Bradford City – Halifax
– Shipley – Keighley – Skipton

- 2tphH Birmingham HS – Derby – Nottingham – Newark Castle – Lincoln Central – Market Rasen – Grimsby Town – Cleethorpes
- 2tphH Birmingham HS – Derby – Nottingham – Newark Castle – Lincoln Central – Sleaford – Boston – Wainfleet – Skegness
- 2tphH HS3 Pancras Cross – Luton Airport Parkway – Northampton – Rugby HS – Coventry HS – Birmingham International – Birmingham New St. – Wolverhampton (splits/joins) – :
– Stafford – Crewe – Runcorn – Liverpool South Parkway – Liverpool Lime Street
– Telford – Wellington – Shrewsbury – Wrexham – Chester

Associated Regional Metro Services:

- 2tphR (XC) Bournemouth West – Bournemouth Central – Brockenhurst – Southampton Cantral – Southampton Aitport Parkway - Winchester – Basingstoke – Reading (reverse) – Oxford – Banbury – Leamington Spa – Coventry – Birmingham International – Birmingham New St. (reverse) – Tamworth – Burton-on-Trent – Derby – Chesterfield – Sheffield Midland – Rotherham – South Yorkshire HL – Wakefield Westgate – Leeds City – Micklefield – York
- 2tphR (XC) Bournemouth West – Bournemouth Central – Brockenhurst – Southampton Cantral – Southampton Aitport Parkway - Winchester – Basingstoke – Reading (reverse) – Oxford – Banbury – Leamington Spa – Coventry – Birmingham International – Birmingham New St. – Wolverhampton – Stafford – Crewe – Stockport – Manchester Piccadilly
- 2tphR Euston – Watford Junction – Bletchley – Milton Keynes – Wolverton – Northampton – Long Buckby – Rugby – Nuneaton – Atherstone – Polesworth – Tamworth (LL) – Lichfield Trent Valley (LL) – Rugeley Trent Valley – Stafford – Crewe
- 2tphR Euston – Watford Junction – Milton Keynes Central – Northampton – Rugby – Nuneaton – Atherstone – Polesworth – Tamworth – Lichfield TV – Rugeley TV – Stone – Stoke-on-Trent – Longport – Kids Grove – Alsager – Crewe
- 2tphR Manchester Airport – Manchester Piccadilly – Manchester Oxford Rd. – Bolton – Horwich Parkway – Chorley – Preston (splits / joins) – :
– Kirkham – Poulton-le-Fylde – Blackpool North
– Lancaster – Carnforth – Oxenholme – Kendal – Burnside – Staveley – Windermere
- 2tphR Manchester Airport – Manchester Piccadilly – Manchester Oxford Rd. – Bolton – Horwich Parkway – Chorley – Preston – Lancaster – Carnforth – Silverdale – Arnside – Grange-over-Sands – Cark and Cartmel – Ulverston – Dalton – Roose – Barrow in Furness
- 2tphR Leeds City – Bradford City – Shipley – Keighley – Skipton – Gargrave – Hellifield – Long Preston – Giggleswick – Clapham – Bentham – Wennington – Carnforth (reverse) – Silverdale – Arnside – Grange-over-Sands – Cark and Cartmel – Ulverston – Dalton – Roose – Barrow in Furness

Representative Hourly Cross-Platform Interchange Pattern at Birmingham HS:

- 00H Rainham – Birmingham HS
- H Birmingham HS – Manchester Piccadilly
- H HS7 Bristol Temple Meads (BT) – Birmingham HS
- H HS7 Birmingham HS – Cleethorpes

- 07H Maidstone – Birmingham HS
 HS7 Birmingham HS – York HS
 (not cross-platform)
- 15H Rainham – Birmingham HS
 H Birmingham HS – Edinburgh / Glasgow
 H HS7 Cardiff Airport – Birmingham HS
 H HS7 Birmingham HS – Skegness
- 23H Maidstone – Birmingham HS
 HS7 Birmingham HS – Halifax / Skipton
 (not cross-platform)
- 30H Rainham – Birmingham HS
 H Birmingham HS – Manchester Piccadilly
 H HS7 Bristol Temple Meads (BT) – Birmingham HS
 H HS7 Birmingham HS – Cleethorpes
- 37H Rainham – Birmingham HS
 HS7 Birmingham HS – York HS
 (not cross-platform)
- 45H Maidstone – Birmingham HS
 H Birmingham HS – Holyhead
 H HS7 Cardiff Airport – Birmingham HS
 H HS7 Birmingham HS – Skegness
- 23H Rainham – Birmingham HS
 HS7 Birmingham HS – Halifax / Skipton1
 (not cross-platform)

Representative Hourly Cross-Platform Interchange Birmingham Interchange:

- 00H Margate – Manchester Piccadilly
 H HS7 Swansea – Norwich
- 05H Rainham – Birmingham HS
 H HS7 Bristol Temple Meads (BT) – Birmingham HS
- 10H Euston – Liverpool Lime St.
 H HS7 Swansea – Holyhead
- 13H Maidstone – Birmingham HS
 (no connection)
- 15H Margate – Blackpool / Morecambe
 H HS7 Plymouth – Newcastle / Middlesborough
- 20H Rainham – Birmingham HS
 H HS7 Cardiff Airport – Birmingham HS

25H Euston – Edinburgh / Glasgow
H Plymouth – Liverpool Lime St.

28H Maidstone – Birmingham HS
(no connection)

– repeating at 30, 35, 40, 43, 45, 50, 55 and 58 minutes past.

Representative Hourly Cross-Platform Interchange Pattern at Crewe:

00H Euston – Holyhead (not cross-platform)
H HS3 St. Pancras – Liverpool
H Birmingham HS – Edinburgh / Glasgow

10H Euston – Edinburgh / Glasgow
H HS7 Plymouth – Liverpool

15H Eastbourne – Liverpool
H Margate – Preston – Blackpool / Windermere
R Euston – Crewe via Stafford (not cross-platform)

25H Birmingham HS – Glasgow
H HS7 Swansea – Holyhead
H Euston – Liverpool (not cross-platform)
R Euston – Crewe via Stoke and Kidsgrove (not cross-platform)

30H Birmingham HS – Holyhead
H HS3 St. Pancras – Liverpool
[Slot reserved for Liverpool – Edinburgh / Glasgow]

40H Euston – Edinburgh / Glasgow
H HS7 Plymouth – Liverpool

45H Eastbourne – Liverpool
H Margate – Preston – Blackpool / Windermere
R Euston – Crewe via Stafford (not cross-platform)

55H Birmingham HS – Glasgow
H HS7 Swansea – Holyhead
H Euston – Liverpool (not cross-platform)
R Euston – Crewe via Stoke and Kidsgrove (not cross-platform)

Note that the slightly irregular departures from Crewe (every 5 minutes except for 05 and 35) are determined by the departure times of the relevant services from Birmingham Interchange

Representative Hourly Pattern at Warrington Bank Quay:

00H Birmingham HS – Edinburgh / Glasgow

15H Margate – Preston – Blackpool / Morecambe

HS2 Mk2/Mk3 Route Loadings v2.1

30H [Slot reserved for Liverpool – Edinburgh / Glasgow]

45H Margate – Preston – Blackpool / Morecambe

(Note that the Euston – Edinburgh / Glasgow service travels non-stop via HS2/HS8 between Crewe and Preston.)

Representative Hourly Pattern at Wigan North Western:

00H Birmingham HS – Edinburgh / Glasgow
15H Margate – Preston – Blackpool / Morecambe
30H Liverpool – Edinburgh / Glasgow
45H Margate – Preston – Blackpool / Morecambe

Representative Hourly Cross-Platform Interchange Pattern at Preston Classic:

00H Birmingham HS – Edinburgh / Glasgow
 R Manchester Airport – Preston – Blackpool / Windermere
07H Euston – Glasgow / Edinburgh
15H Margate – Preston – Blackpool / Morecambe
30H Liverpool – Edinburgh / Glasgow
 R Manchester Airport – Preston – Blackpool / Windermere
37H Euston – Glasgow / Edinburgh
45H Margate – Preston – Blackpool / Morecambe

(The Euston – Edinburgh / Glasgow service travels non-stop via HS2/HS8 between Crewe and Preston, as already noted; their times are therefore different.)

Representative Hourly Same-Platform Interchange Pattern at Preston HS:

00H Eastbourne – Glasgow
05H HS8 Norwich – Preston
 H HS9 Hull – Preston
10H Birmingham HS – Glasgow
15H HS8 Cleethorpes – Preston
 H HS9 Scarborough – Preston
20H Liverpool Lime St. – Glasgow
25H HS3 UHS Tunbridge Wells West – Preston
 H HS3 Metro Brighton - Preston

Until this service plan, all the services using the HS platforms at Preston terminated there. Those services are unchanged in themselves, but they now **feed into** (and accept traffic from) HS2's Scottish services. (Note that these trains will all be sharing the same track between Gibb Farm Junction and Preston, so the earlier-arriving trans-pennine train of the pair needs to get out of the way pretty sharpish to make way for the Scottish service, 5 minutes later.)

Representative Hourly Non-Cross-Platform Interchange Pattern at Carnforth:

- 00H Euston – Carlisle – Glasgow / Edinburgh
R Manchester Airport – Barrow in Furness
- 15H Birmingham HS – Carlisle – Edinburgh / Glasgow
R Leeds City – Barrow in Furness
- 30H Euston – Carlisle – Glasgow / Edinburgh
R Manchester Airport – Barrow in Furness
- 45H Liverpool Lime St. – Carlisle – Edinburgh / Glasgow
R Leeds City – Barrow in Furness

Representative Hourly Cross-Platform Interchange Pattern at Carlisle:

- 00H Eastbourne – Glasgow
H Euston – Carlisle – Edinburgh / Glasgow
- 10H Birmingham – Glasgow
H Keswick – Langholm
- 15H Birmingham – Carlisle – Edinburgh / Glasgow
H HS3 Newcastle – Carlisle
- 20H Liverpool – Glasgow
H Whitehaven – Glasgow
- 30H Eastbourne – Glasgow
H Euston – Carlisle – Edinburgh / Glasgow
- 40H Birmingham – Glasgow
H Keswick – Langholm
- 45H Liverpool Lime St. – Carlisle – Edinburgh / Glasgow
H HS3 Newcastle – Carlisle
- 50H Liverpool – Glasgow
H Whitehaven – Glasgow

Representative Hourly Cross-Platform Interchange Pattern at Hawick:

- 00H Eastbourne – Glasgow
R Hawick – Dundee via the bridges (not cross-platform)
- 05H HS14 Hawick – Inverness
H Whitehaven - Glasgow
- 10H Birmingham – Glasgow
(no connection)

15H HS3 Eastbourne – Glasgow
H HS14 Hawick – Inverness
R Hawick – Aberdeen via the bridges (not cross-platform)

20H Liverpool – Glasgow
H HS3 Newcastle – Glasgow

– repeating at 30, 35, 40, 45 and 50 minutes past.

A little elucidation is worthwhile describing the connections between Carlisle and Edinburgh.

Note first of all that the departure times from Hawick quoted above **are to the same (relative) time base as those from Carlisle** (this is certainly not usually the case!). A non-stop Scottish service reaches Hawick in c.15 minutes from Carlisle whereas the 2-stop Whitehaven – Glasgow service takes c.30 minutes. So the Whitehaven – Glasgow service departing Carlisle at 00:20 arrives Hawick at 00:50 whereas the Eastbourne – Glasgow service departing Carlisle at 00:30 arrives Hawick 00:45. Thus the Whitehaven – Glasgow service departing Carlisle 10 minutes before an Eastbourne – Glasgow service arrives in Hawick 5 minutes after it.

The Keswich – Langholm service departing Carlisle at 00:10 calls at Longtown, and then Riddings, where it has cross-platform interchange with the Whitehaven – Glasgow service, departing Carlisle at 00:20 but not stopping at Longtown. This latter service rejoins the main line for a short distance (c.4km) before diverging again for its Newcastleton stop, where it is overtaken by the Eastbourne – Glasgow service, departing Carlisle at 00:30. (It may well be considered preferable to keep the line quadruple throughout the entire distance between Westlinton North Junction, before Longtown, and Leahaugh North Junction, after Newcastleton, saving two sets of high speed points in each direction at the cost of an extra 4km of track. It would also of course improve operational flexibility.) Finally, the Whitehaven – Glasgow service serves Lauder, and is overtaken on that station loop by the Birmingham – Glasgow service, departing Carlisle at 00:40.

The loadings imposed on the relief lines below Birmingham (specifically below Water Orton West Junction (HS2 lines), likewise on the specifically HS7 lines, are unchanged from SP5, so are not repeated here. The section Between Birmingham HS (HS2 lines) and Streethay (main lines) Junction does have new services, so this section is included in the (otherwise main line) table below.

The loadings imposed on the relief lines below Birmingham (specifically below Water Orton West Junction (HS2 lines), likewise on the specifically HS7 lines, are unchanged from SP5, so are not repeated here. The section Between Birmingham HS (HS2 lines) and Streethay (main lines) Junction does have new services, so this section is included in the (otherwise main line) table below.

The following loadings are imposed on HS2:

- | | | |
|------------------------------------|-----------------------------------|-------|
| • Euston Cross | – Old Oak Common North Junction | 20tph |
| • [Euston –] Queens Park Junction | – Old Oak Common North Junction | 5ph |
| • Old Oak Common North Junction | – Grendon Underwood Junction | 25tph |
| • Grendon Underwood Junction | – Chetwode Junction | 13tph |
| • Chetwode Junction | – Mount Pleasant South Junction | 21tph |
| • Mount Pleasant Junction | – Streethay (main lines) Junction | 9tph |
| • Birmingham HS | – Water Orton West Junction (HS2) | 14tph |

• Water Orton West Junction (HS2)	– Water Orton North Junction	6tph
• Water Orton North Junction	– Streethay (relief lines) Junction	19tph
• Streethay (relief lines) Junction	– Handsacre Junction	4tph
• Streethay (relief lines) Junction	– Streethay (main lines) Junction	16tph
• Streethay (main lines) Junction	– Crewe HS South Junction	23tph
• Crewe HS South Junction	– Crewe HS North Junction	6tph
• Crewe HS South Junction	– Crewe station	19tph (*)
• Crewe station	– Crewe HS North Junction	15tph (*)
• Crewe HS North Junction	– Rostherne South Junction	14tph
• Rostherne South Junction	– Manchester HS	4tph
• Rostherne South Junction	– Kenyon South Junction	10tph
• Kenyon South Junction	– Kenyon West Junction (– Livpl)	4tph
• (Livpl –) Kenyon West Junction	– Kenyon North Junction	2tph
• Kenyon South Junction	– Kenyon North Junction	6tph
• Kenyon North Junction	– Gibb Farm Junction	8tph
• Gibb Farm Junction	– Preston station	8tph (*)
• Crewe HS North Junction	– Weaver Junction	7tph (*)
• Weaver Junction	– Liverpool Lime St.	4tph (*)
• Weaver Junction	– Springs Branch Junction	3tph (*)
• Liverpool Lime St.	– Springs Branch Junction	1tph (*)
• Springs Branch Junction	– Preston station	4tph (*)
• Preston station	– Blackpool North	4tph (*)
• Preston station	– Galgate Junction (HS2)	12tph
• Preston station	– Galgate Junction (WCML)	4tph (*)
• Galgate Junction	– Oxenholms (HS2)	6tph
• Oxenholme	– Penrith (HS2)	6tph
• Penrith	– Carlisle (HS2)	6tph
• Galgate Junction	– Morcambe S. Junction (WCML)	10tph (*)
• Morecambe South Junction	– Morecambe	2tph (*)
• Morecambe South Junction	– Carnforth	8tph (*)
• Carnforth	– Kendal	6tph (*)
• Kendal	– Penrith (WCML new section)	4tph (*)
• Penrith	– Carlisle (WCML)	6tph (*)
• Carlisle	– Riddings	10tph
• Riddings	– Riccarton North Junction	8tph
• Riccarton North Junction	– Hawick	12tph (**)
• Hawick	– Edinburgh Waverley	14tph (**)
• Carlisle	– Carstairs South Junction	8tph (*)
• Carstairs South Junction	– Glasgow Central	4tph (*)
• Carstairs South Junction	– Edinburgh Waverley	4tph (*)

- (*) HS2 loadings only; these sections are all used by classic services also or, in the case of Gibb Farm Junction – Preston, by other HS routes (HS3, HS8, HS9).

(**) Includes the services of other HS routes (HS3 and HS14)

Elucidation of Main Line Loadings:

1. Euston Cross – Old Oak Common North Junction
 - 4tphH Gillingham – Birmingham HS (HS Metro)
 - 4tphH Maidstone – Birmingham HS (UHS)
 - 4tphH Dover – Manchester HS (UHS)
 - 2tphH Eastbourne – Liverpool (UHS)
 - 2tphH Eastbourne – Glasgow (UHS)
 - 2tphH Margate – Manchester Piccadilly (HS Metro)
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe (HS Metro)
 - = 20tph
2. {Euston – } Queens Park Junction – Old Oak Common North Junction
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Euston – Liverpool (HS Metro)
 - 1tphH Euston – Holyhead
 - = 5tph
3. Old Oak Common North Junction – Grendon Underwood Junctions
 - 4tphH Gillingham – Birmingham HS (HS Metro)
 - 4tphH Maidstone – Birmingham HS (UHS)
 - 4tphH Dover – Manchester HS (UHS)
 - 2tphH Eastbourne – Liverpool (UHS)
 - 2tphH Eastbourne – Glasgow (UHS)
 - 2tphH Margate – Manchester Piccadilly (HS Metro)
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe (HS Metro)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Euston – Liverpool (HS Metro)
 - 1tphH Euston – Holyhead
 - = 25tph
4. Grendon Underwood Junctions – Chetwode Junctions
 - 4tphH Maidstone – Birmingham HS (UHS)
 - 4tphH Dover – Manchester HS (UHS)
 - 2tphH Eastbourne – Liverpool (UHS)
 - 2tphH Eastbourne – Glasgow (UHS)
 - 1tphH Euston – Holyhead
 - = 13tph
5. Chetwode Junctions – Mount Pleasant Junctions
 - 4tphH Maidstone – Birmingham HS (UHS)
 - 4tphH Dover – Manchester HS (UHS)
 - 2tphH Eastbourne – Liverpool (UHS)
 - 2tphH Eastbourne – Glasgow (UHS)
 - 2tphH Margate – Manchester Piccadilly (HS Metro)
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe (HS Metro)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)

2tphH Euston – Liverpool (HS Metro)

1tphH Euston – Holyhead

= 21tph

6. Mount Pleasant Junctions – Streethay Junction (main lines)

4tphH Dover – Manchester HS (UHS)

2tphH Eastbourne – Liverpool (UHS)

2tphH Eastbourne – Glasgow (UHS)

1tphH Euston – Holyhead

= 9tph

7a. Birmingham HS – Water Orton West Junction (HS2 tracks)

4tphH Birmingham HS – Maidstone (UHS)

4tphH Birmingham HS – Gillingham (HS Metro)

2tphH Birmingham HS – Manchester Piccadilly (HS Metro)

2tphH Birmingham HS – Glasgow (UHS)

1tphH Birmingham HS – Holyhead

1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)

= 14tph

7b. Water Orton West Junction (HS2 tracks) – Water Orton North Junction

2tphH Birmingham HS – Manchester Piccadilly (HS Metro)

2tphH Birmingham HS – Glasgow (UHS)

1tphH Birmingham HS – Holyhead

1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)

= 6tph

7c. Water Orton North Junction – Streethay Junction (relief lines)

2tphH Birmingham HS – Manchester Piccadilly (HS Metro)

2tphH Birmingham HS – Glasgow (UHS)

1tphH Birmingham HS – Holyhead

1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)

2tphH Margate – Manchester Piccadilly (HS Metro)

2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe (HS Metro)

2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)

2tphH Euston – Liverpool (HS Metro)

1tphH Euston – Holyhead

2tphH HS7 Plymouth – Liverpool

2tphH HS7 Swansea – Holyhead

= 19tph

7d. Streethay Junction (relief lines) – Handsacre Junction

2tphH Birmingham HS – Manchester Piccadilly (HS Metro)

2tphH Margate – Manchester Piccadilly (HS Metro)

= 4tph

- 7e. Streethay Junction (relief lines) – Streethay Junction (main lines)
- 2tphH Birmingham HS – Glasgow (UHS)
 - 1tphH Birmingham HS – Holyhead
 - 2tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe (HS Metro)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Euston – Liverpool (HS Metro)
 - 1tphH Euston – Holyhead
 - 2tphH HS7 Plymouth – Liverpool
 - 2tphH HS7 Swansea – Holyhead
- = 16tph
8. Streethay Junction (main lines) – Crewe HS South Junction
- 4tphH Dover – Manchester HS (UHS)
 - 2tphH Eastbourne – Liverpool (UHS)
 - 2tphH Eastbourne – Glasgow (UHS)
 - 2tphH Birmingham HS – Glasgow (UHS)
 - 1tphH Birmingham HS – Holyhead
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe (HS Metro)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Euston – Liverpool (HS Metro)
 - 1tphH Euston – Holyhead
 - 2tphH HS7 Plymouth – Liverpool
 - 2tphH HS7 Swansea – Holyhead
- = 23tph
9. Crewe HS South Junction – Crewe HS North Junction
- 4tphH Dover – Manchester HS (UHS)
 - 2tphH Eastbourne – Glasgow (UHS)
- = 6tph
10. Crewe HS South Junction – Crewe Station
- 2tphH Eastbourne – Liverpool (UHS)
 - 2tphH Birmingham HS – Glasgow (UHS)
 - 1tphH Birmingham HS – Holyhead
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe (HS Metro)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Euston – Liverpool (HS Metro)
 - 1tphH Euston – Holyhead
 - 2tphH HS3 St. Pancras West – Wolverhampton (split / join) – Liverpool portion
 - 2tphH HS7 Plymouth – Liverpool
 - 2tphH HS7 Swansea – Holyhead
- = 19tph

11. Crewe Station – Crewe HS North Junction
 - 2tphH Eastbourne – Liverpool (UHS)
 - 2tphH Birmingham HS – Glasgow (UHS)
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe (HS Metro)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Euston – Liverpool (HS Metro)
 - 2tphH HS3 St. Pancras West – Wolverhampton (split / join) – Liverpool portion
 - 2tphH HS7 Plymouth – Liverpool

= 15tph
12. Crewe HS North Junction – Rostherne South Junction
 - 4tphH Dover – Manchester HS (UHS)
 - 2tphH Eastbourne – Liverpool (UHS)
 - 2tphH Eastbourne – Glasgow (UHS)
 - 2tphH Birmingham HS – Glasgow (UHS)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH HS7 Plymouth – Liverpool

= 14tph
13. Rostherne South Junction – Manchester HS
 - 4tphH Dover – Manchester HS (UHS)

= 4tph
14. Rostherne South Junction – Kenyon South Junction
 - 2tphH Eastbourne – Liverpool (UHS)
 - 2tphH Eastbourne – Glasgow (UHS)
 - 2tphH Birmingham HS – Glasgow (UHS)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH HS7 Plymouth – Liverpool

= 10tph
15. Kenyon South Junction – Kenyon West Junction [– Liverpool]
 - 2tphH Eastbourne – Liverpool (UHS)
 - 2tphH HS7 Plymouth – Liverpool

= 4tph
16. [Liverpool –] Kenyon West Junction – Kenyon North Junction
 - 2tphH Liverpool Lime St. – Glasgow (UHS)

= 2tph
17. Kenyon South Junction – Kenyon North Junction
 - 2tphH Eastbourne – Glasgow (UHS)
 - 2tphH Birmingham HS – Glasgow (UHS)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)

= 6tph

18. Kenyon North Junction – Gibb Farm Junction
2tphH Eastbourne – Glasgow (UHS)
2tphH Birmingham HS – Glasgow (UHS)
2tphH Liverpool Lime St. – Glasgow (UHS)
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
= 8tph
19. Gibb Farm Junction – Preston Station (HS2 services only)
2tphH Eastbourne – Glasgow (UHS)
2tphH Birmingham HS – Glasgow (UHS)
2tphH Liverpool Lime St. – Glasgow (UHS)
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
= 8tph
20. Crewe HS North Junction – Weaver Junction
2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe
2tphH Euston – Liverpool Lime St.
2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
= 7tph
21. Weaver Junction – Liverpool Lime St.
2tphH Euston – Liverpool Lime St.
2tphH HS3 St. Pancras – Liverpool Lime St. (portion of Chester / Liverpool service)
= 4tph
22. Weaver Junction – Springs Branch Junction
2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
= 3tph
23. Liverpool Lime St. – Springs Branch Junction
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
= 1tph
24. Springs Branch Junction – Preston
2tphH Margate – Preston (splits / joins) – Blackpool / Morecambe
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
= 4tph
25. Preston – Blackpool North
2tphH Margate – Preston (splits / joins) – Blackpool portion
2tphR Manchester Airport – Preston (splits / joins) – Blackpool portion
= 4tph

26. Preston Station – Galgate Junction (HS2)
 - 2tphH Eastbourne – Glasgow (UHS)
 - 2tphH Birmingham HS – Glasgow (UHS)
 - 2tphH Liverpool Lime St. – Glasgow (UHS)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Margate – Preston (splits / joins) – Morecambe portion
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
 - = 12tph
27. Preston Station – Galgate Junction (WCML)
 - 2tphR Manchester Airport – Barrow in Furness
 - 2tphR Manchester Airport – Preston (splits / joins) – Windermere portion
 - = 4tph
28. Galgate Junction – Oxenholme (HS2)
 - 2tphH Eastbourne – Glasgow (UHS)
 - 2tphH Birmingham HS – Glasgow (UHS)
 - 2tphH Liverpool Lime St. – Glasgow (UHS)
 - = 6tph
29. Galgate Junction – Morecambe South Junction (WCML)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 2tphH Margate – Preston (splits / joins) – Morecambe portion
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphR Manchester Airport – Barrow in Furness
 - 2tphR Manchester Airport – Preston (splits / joins) – Windermere portion
 - = 10tph
30. Morecambe South Junction – Morecambe
 - 2tphH Margate – Preston (splits / joins) – Morecambe portion
 - = 2tph
31. Morecambe South Junction – Carnforth (WCML)
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 2tphR Manchester Airport – Barrow in Furness
 - 2tphR Manchester Airport – Preston (splits / joins) – Windermere portion
 - = 8tph
32. Carnforth – Oxenholme (WCML) – Kendal
 - 2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh (HS Metro)
 - 1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
 - 1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh

- 2tphR Manchester Airport – Preston (splits / joins) – Windermere portion
= 6tph
33. Oxenholme WCML Junction – Penrith WCML Junction (HS2)
2tphH Eastbourne – Glasgow (UHS)
2tphH Birmingham HS – Glasgow (UHS)
2tphH Liverpool Lime St. – Glasgow (UHS)
= 6tph
34. Kendal – Penrith (WCML – new section)
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
= 4tph
35. Penrith – Carlisle (HS2)
2tphH Eastbourne – Glasgow (UHS)
2tphH Birmingham HS – Glasgow (UHS)
2tphH Liverpool Lime St. – Glasgow (UHS)
= 6tph
36. Penrith – Carlisle (WCML)
2tphH Euston – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow / Edinburgh
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow / Edinburgh
2tphH Keswick – Langholm
= 4tph
37. Carlisle – Riddings
2tphH Eastbourne – Glasgow (UHS)
2tphH Birmingham HS – Glasgow (UHS)
2tphH Liverpool Lime St. – Glasgow (UHS)
2tphH Whitehaven – Glasgow
2tphH Keswick – Langholm
= 10tph
38. Riddings – Riccarton North Junction (HS2)
2tphH Eastbourne – Glasgow (UHS)
2tphH Birmingham HS – Glasgow (UHS)
2tphH Liverpool Lime St. – Glasgow (UHS)
2tphH Whitehaven – Glasgow
= 8tph
39. Riccarton North Junction – Hawick
2tphH Eastbourne – Glasgow (UHS)
2tphH Birmingham HS – Glasgow (UHS)
2tphH Liverpool Lime St. – Glasgow (UHS)
2tphH Whitehaven – Glasgow

2tphH HS3 Eastbourne – Glasgow
2tphH HS3 Newcastle – Glasgow
= 12tph

39. Hawick – Edinburgh

2tphH Eastbourne – Glasgow (UHS)
2tphH Birmingham HS – Glasgow (UHS)
2tphH Liverpool Lime St. – Glasgow (UHS)
2tphH Whitehaven – Glasgow
2tphH HS3 Eastbourne – Glasgow
2tphH HS3 Newcastle – Glasgow
2tphH HS14 Hawick – Inverness
= 14tph

40. Carlisle – Carstairs South Junction

2tphH Euston – Carlisle (splits/joins) – Glasgow portion
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow portion
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow portion
2tphH Euston – Carlisle (splits/joins) – Edinburgh portion
1tphH Birmingham HS – Carlisle (splits/joins) – Edinburgh portion
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Edinburgh portion
= 8tph

41. Carstairs South Junction – Glasgow Central

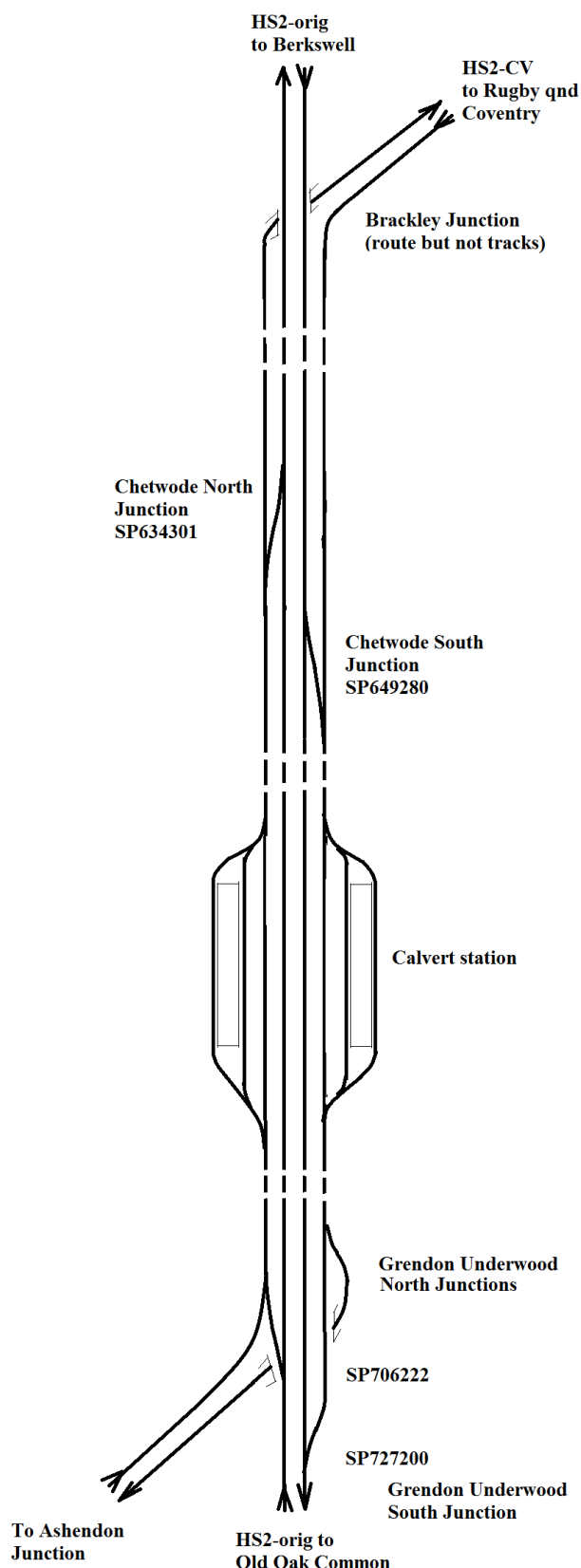
2tphH Euston – Carlisle (splits/joins) – Glasgow portion
1tphH Birmingham HS – Carlisle (splits/joins) – Glasgow portion
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Glasgow portion
= 4tph

42. Carstairs South Junction – Edinburgh Waverley

2tphH Euston – Carlisle (splits/joins) – Edinburgh portion
1tphH Birmingham HS – Carlisle (splits/joins) – Edinburgh portion
1tphH Liverpool Lime St. – Carlisle (splits/joins) – Edinburgh portion
= 4tph

Appendix A – Track Diagrams

Track Diagrams 1: Grendon Underwood Junction – Brackley Junction



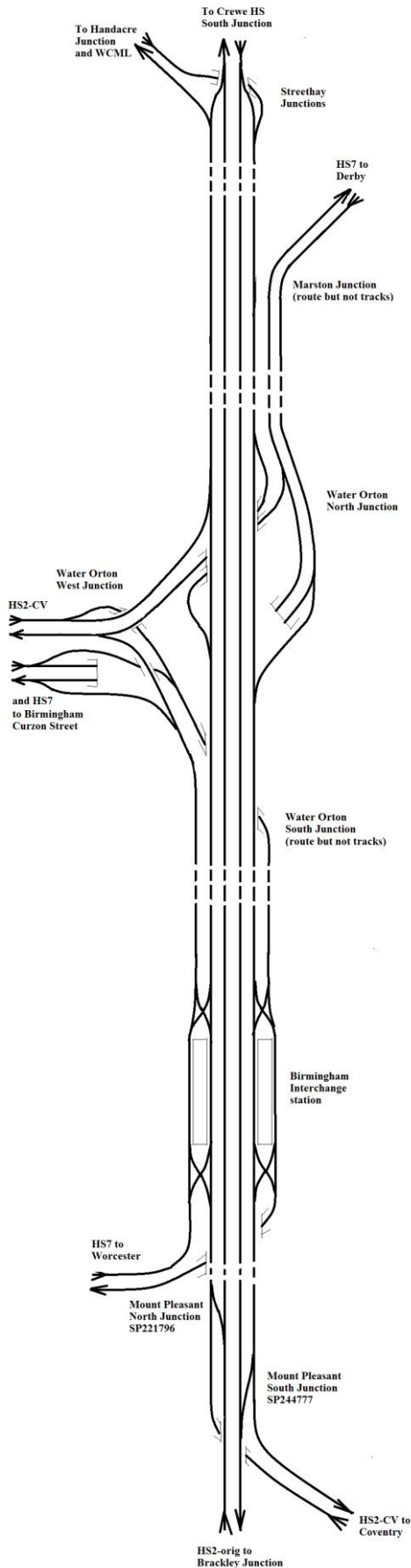
The article Same Speed Railways, Appendix B, gives extensive information on HS Junctions, layout of stations, acceleration and deceleration distances and times. The following track diagrams, while purely topological, follow the above conventions exactly.

HS2-CV begins at Grendon Underwood, where there are several track junctions. The northbound track of HS2-CV diverges from HS2-orig at map reference SP706222, and the southbound track joins HS2-orig further south at SP727200. These locations are prescribed by the requirement to come to a standstill in Calvert station, northbound, and to accelerate from standstill at Calvert station, southbound, diverging from / joining the main line at the turnoff limit speed of 230kph. (Deceleration actually begins / line speed is reached, some way further south, yet. These details are all in the above reference.) Chetwode junctions, north of Calvert, allow stopping services to regain / diverge from HS2-orig.

Calvert station and Brackley Junction are less than 18.5km, 11.6miles, apart (c.10miles, actually) so the station loops are continued between them, as recommended in the above reference; after Brackley Junction they become the lines of HS2-CV. There are 4 tracks through the middle of Calvert station, avoiding the platforms, since the HS2-CV services, while also using Grendon Underwood Junction, do not stop at Calvert, but pass through at high speed. I consider it very bad practice to allow a non-stop HS train to pass through a platform line.

Directly after Brackley station, the HS2-CV and HS2-orig routes diverge. Brackley Junction is a route junction but not a track junction, since there are no connections between the tracks. Indeed, after the connections at Grendon Underwood and Chetwode, the tracks do not have a further connection until Birmingham Interchange, for HS2-orig to HS2-CV, or, finally, Streethay Junction, for HS2-CV to HS2-orig.

Track Diagrams 2: Mount Pleasant – Streethay Junctions



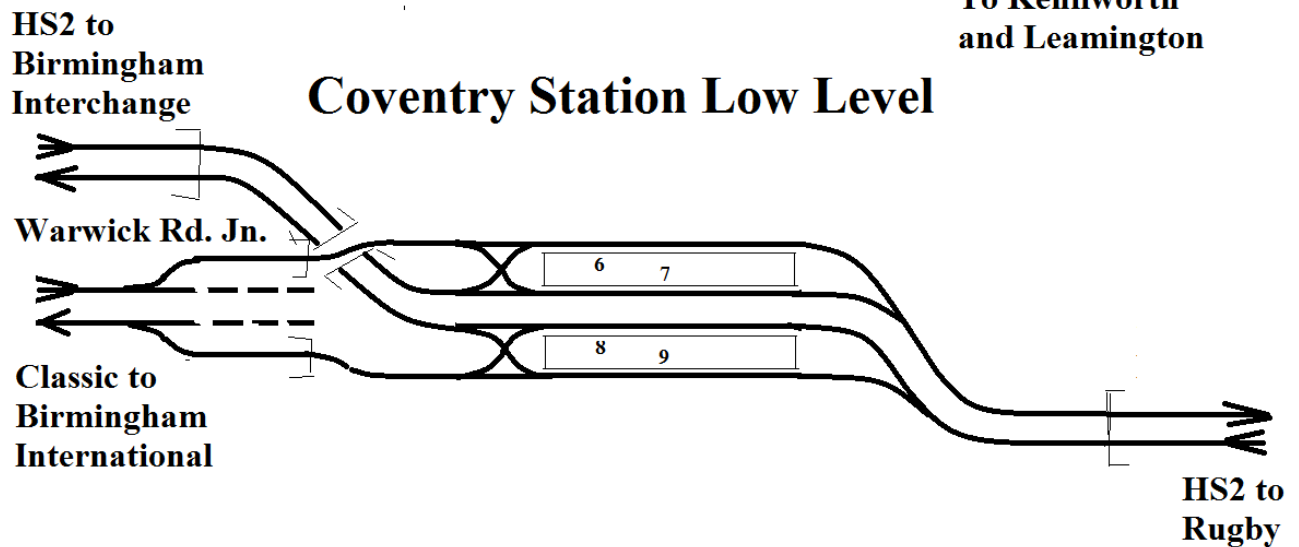
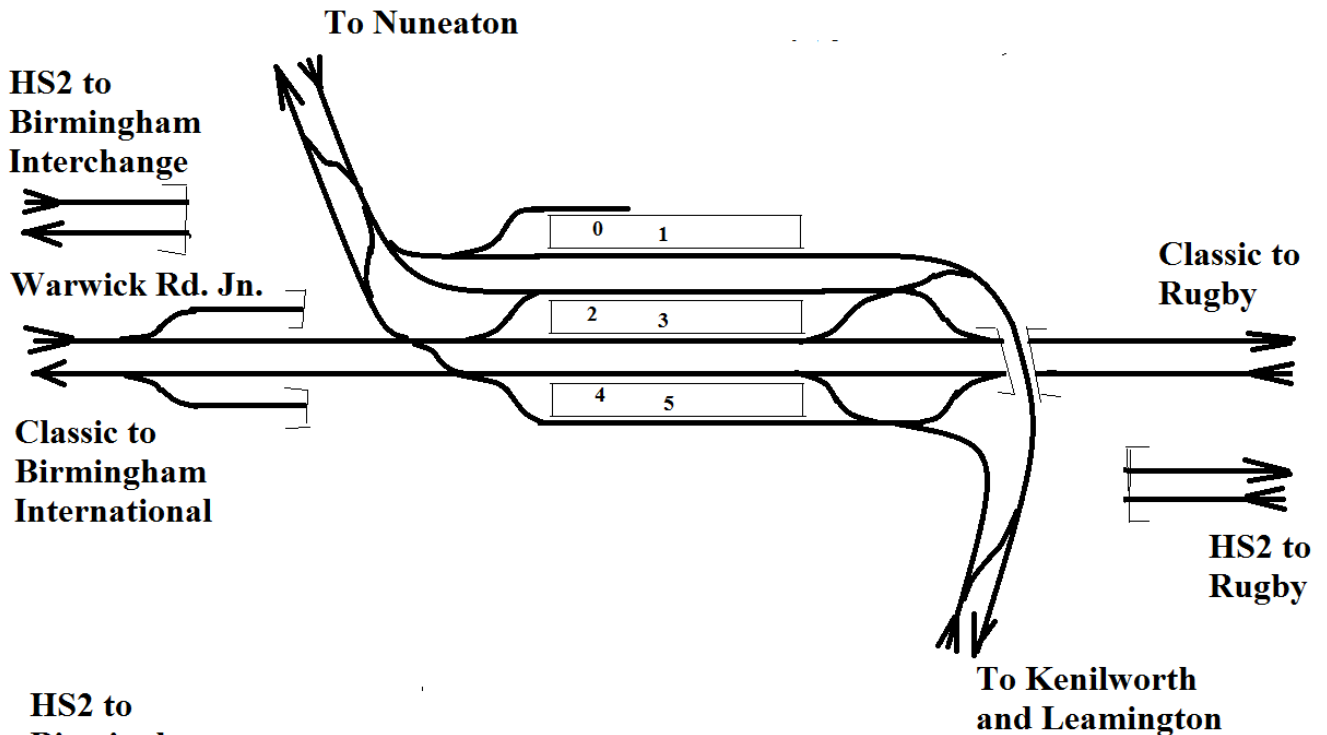
HS2-CV rejoins the route, but not the tracks, of HS2-orig at Mount Pleasant Junction, near Berkswell. Services on HS2-orig which stop at Birmingham Interchange, are, however able to switch to HS2-CV at Mount Pleasant North Junction, or join HS2-orig from HS2-CV at Mount Pleasant South Junction. By great good fortune, Mount Pleasant South Junction is just before the routes diverge (going south). HS2-CV occupies the outer two tracks of a 4-track, parallel arrangement. The 4-track section continues all the way to Streethay Junction, but over much of this section, where HS7 is also involved, there are effectively six tracks.

HS7 and HS2-CV have separate tracks, but with several connections between them. HS7 joins the route immediately south of Birmingham Interchange station. There are six tracks thence to Water Orton South Junction. There are scissors crossovers immediately south and north of Birmingham Interchange. Those to the south are for operational convenience, and not used in normal service, services switching between the outer pairs of tracks north of the station. The convention is that HS7 services use the two outermost platform faces, and HS2-CV the inner two. Services switch between tracks immediately north of the station, the arrangement being that services to and from Birmingham Curzon Street use the outermost of the six tracks, and those to and from Water Orton North Junction the inner tracks of the outer pairs.

There are four tracks between Water Orton West Junction and Curzon Street, arranged as alternating pairs, the north pair for HS2 services and the south pair for HS7. Northbound HS7 services from Curzon Street do not make connection with HS2, but pass beneath the HS2 tracks and diverge from the alignment at Marston Junction (a route but not a track junction). There are connections at Water Orton North Junction from the HS2 to the HS7 tracks, to enable the HS7 services not calling at Curzon Street to regain the HS7 route.

There are several track junctions at Streethay. The HS2-CV tracks finally merge with those of HS2-orig, for services to the North West via Crewe. But, immediately before that, there is a connection between the HS2-CV tracks and the WCML at Handsacre Junction. This is used only by the CC service from Euston to Manchester via Stoke. Note that there is no connection from the HS-orig tracks to Handsacre Junction.

Coventry Station, Ground Level



The above diagrams are intended to be largely self-explanatory.

The HS station is directly below the classic station, platforms 6, 7 directly below 2, 3 and 8, 9 below 4, 5, allowing stair, lift and escalator connections between them.

Platform 0 is for local services to Nuneaton. Platform 1 is reversible, and intended for services, in both directions, between Nuneaton and Leamington, perhaps to more distant destinations. It is possible for Nuneaton services to access the main lines, but this is not foreseen as normal.

It is expected that CC services will use platforms 6, 9 to ensure no conflict with GC-gauge services using 7, 8. The scissors crossovers at the west ends of these platforms are for operational convenience, but not used in normal service.