

WCML Service Plans

The Purpose, Background and Method

This article refers to and should be read in conjunction with several other articles. ‘Towards a High Speed **Network**’ is the original, and seeks to make the case for developing a network plan for all the HS routes which will eventually be needed, and, as a contribution to getting the discussion started, gives my own thoughts of what such a network could look like. Naturally, this involved describing a number of routes, in varying but superficial detail.

The article ‘HS2 Route and Service Plans’ deals in detail with HS2, the route from London to the West Midlands and the North West. This is the route planned by HS2 Ltd., (excluding the Leeds arm). It contains maps of the selected alignment, and also describes, with maps, short extensions to HS2 Ltd’s plans, to Liverpool and Preston. (It also includes a very speculative and highly futuristic extension to Scotland.) But most importantly, it gives the service plans. Several service plans are developed, reflecting the piecemeal development of the network. As new sections open, further services come into operation. In all cases, consideration is given to maximum loadings – which section(s) are fully loaded and thus determine the maximum service frequencies. In general I take 16tph as the maximum throughput; if this is ever exceeded, the fact will be highlighted. As well as the GC-gauge services running exclusively on HS lines, there are a number of classic-compatible (UK loading gauge) services. These start from Euston, and join HS2 at Old Oak Common North Junction. They run on HS2 until **either** just after Lichfield, where, at Lichfield WCML Junction, they rejoin the classic WCML and serve Rugeley Trent Valley and Stafford, **or** Crewe HS South Junction, and serve Crewe station (the GC-gauge services may also serve Crewe station, or bypass it in tunnel). They then serve many destinations on the classic routes, replicating and replacing the present services to Manchester via Stoke, to Chester and North Wales, and to destinations on the classic WCML north of Crewe, at the same or better frequencies than at present, but much faster, due to the high speed section between Old Oak Common and Lichfield/Crewe. (There are also classic compatible services which start at Birmingham, and join the classic WCML at Crewe.)

The GC-gauge services use the underground station at Euston Cross, passing through London and then serving destinations in Kent and East Sussex. The article ‘Cross-London Inter-Regional Connections’ describes all the GC-gauge routes across London and the services provided, and gives detailed network diagrams of important locations on these routes, such as Old Oak Common.

‘HS2 Route and Service Plans’ deals in passing with the Regional Metro services on the classic WCML and other LNW routes, insofar as these have inter-connection with the HS services. The present article deals in detail with the Regional Metro services on the classic routes, referring to the HS services only insofar as these interconnect with them. It makes reference to the various HS2 service plans, and is structured in a similar sequence. It **only** deals with service plans, since the route has been in existence for quite a long time and is well known, and few significant infrastructure changes are involved.

The opening of Crossrail will see a very significant change to the WCML services. I deal with this, in particular with the services on the WCML arm of Crossrail, in the article ‘Crossrail Service Plans’.

Development of the Overground, in particular the short section between Kensal Green and Old Oak Common (shared with the Bakerloo), sees the DC electrics rerouted from Primrose Hill to the East London Line. See the article ‘Overground into Crossrail’ for details.

The Service Plans

A new service plan comes into effect when some significant change takes place which causes a change to the service loadings of one or more sections of HS4 itself. This most commonly occurs when a new section of HS4 opens, but it may also be a consequence of a change on some other HS route.

The service plans use the following notation:

- tph trains per hour
- G GC gauge train
- GG GC gauge, double deck train
- C classic-compatible train
- R Regional Metro train, semi-fast service
- RS Regional Metro train, stopping service (all stations)

(This notation is not used in service plan 0, as that involves classic, rather than Regional Metro services, and these essentially consist of the current, existing services of the Virgin WCML and London Midland franchises, except for the important changes introduced by Crossrail, on the slow lines out to Northampton.)

Service Plan 0

This is the basic service plan, before any part of HS2 opens. It assumes that Crossrail has opened, including Old Oak Common and the arm to the WCML. It further assumes that the Overground Watford DC services have been rerouted from Primrose Hill onto the East London Line, the new services from Old Oak Common likewise.

WCML Fast Lines (Virgin):

- 1tph Euston – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Oxenholme – Carlisle – Glasgow Central
- 1tph Euston – Milton Keynes Central – Coventry – Birmingham Int'l – Birmingham New St. – Sandwell & Dudley – Wolverhampton – Crewe – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Penrith – Carlisle (split/join) – :
– Glasgow Central
– Haymarket – Edinburgh Waverley
- 1tph Euston – Stoke-on-Trent – Macclesfield – Stockport – Manchester Piccadilly
- 1tph Euston – Milton Keynes Central – Stoke-on-Trent – Stockport – Manchester Piccadilly
- 1tph Euston – Crewe – Wilmslow – Stockport – Manchester Piccadilly
- 1tph Euston – Stafford – Crewe – Runcorn – Liverpool Lime St.
- 1tph Euston – Milton Keynes – Crewe – Chester (– Rhyl – Colwyn Bay – Llandudno Junction – Bangor – Holyhead; irregular and infrequent)
- 1tph Euston – Milton Keynes Central – Coventry – Birmingham Int'l – Birmingham New St. – Sandwell & Dudley - Wolverhampton
- 1tph Euston – Rugby – Coventry – Birmingham Int'l – Birmingham New St.

- 1tph Euston – Watford Junction (pick up) – Coventry – Birmingham Int'l – Birmingham New St.

WCML Fast Lines (London Midland):

- 2tph Euston – Watford Junction – Milton Keynes Central – Northampton – Rugby – Coventry – Birmingham Int'l – Birmingham New St.
- 1tph Euston – Watford Junction – Milton Keynes Central – Rugby – Nuneaton – Atherstone – Polesworth – Tamworth – Lichfield TV – Rugeley TV – Stafford – Stone – Stoke-on-Trent – Kids Grove – Alsager – Crewe

WCML Slow Lines (Crossrail / London Midland):

- 4tph Old Oak Common – Harrow and Wealdstone – Bushey – Watford Junction – King's Langley – Apsley – Hemel Hempstead – Berkhamsted – Tring
- 4tph Old Oak Common – Watford Junction – Hemel Hempstead – Berkhamsted – Tring – Cheddington – Leighton Buzzard – Bletchley – Milton Keynes
- 4tph Euston – Watford Junction – Tring – Bletchley – Milton Keynes – Wolverton – Northampton – Long Buckby – Rugby

Cross-Country (XC):

- 2tph Bournemouth – Brockenhurst – Southampton – Southampton Airport Parkway – Winchester – Basingstoke – Reading – Oxford – Banbury – Leamington Spa – Kenilworth – Coventry – Birmingham Int'l – Birmingham New St. – Wolverhampton – Stafford – Crewe – Wilmslow – Stockport – Manchester Piccadilly
- 2tph Bournemouth – Brockenhurst – Southampton – Southampton Airport Parkway – Winchester – Basingstoke – Reading – Oxford – Banbury – Leamington Spa – Kenilworth – Coventry – Birmingham Int'l – Birmingham New St. (reverse) – Tamworth – Burton-on-Trent – Derby – Chesterfield – Sheffield – Rotherham – Wakefield Westgate – Leeds City – Micklefield – York

Overground East London Line DC Electrics:

- 4tph Watford Junction – Watford High St. – Bushey – Carpenders Park – Hatch End – Headstone Lane – Harrow & Wealdstone – Kenton – South Kenton – North Wembley – Wembley Central – Stonebridge Park – Harlesden – Willesden Junction – Kensal Green – Queen's Park – Kilburn High Road – South Hampstead – Primrose Hill – Camden Road – Caledonian Road & Barnesbury – Highbury & Islington – Canonbury – Dalston Junction – Haggerston – Hoxton – Shoreditch High St. – Whitechapel – Shadwell – Wapping – Rotherhythe – Canada Water – Surrey Quays – New Cross
- 4tph Harrow & Wealdstone – Kenton – South Kenton – North Wembley – Wembley Central – Stonebridge Park – Harlesden – Willesden Junction – Kensal Green – Queen's Park – Kilburn High Road – South Hampstead – Primrose Hill – Camden Road – Caledonian Road & Barnesbury – Highbury & Islington – Canonbury – Dalston Junction – Haggerston – Hoxton – Shoreditch High St. – Whitechapel – Shadwell – Wapping – Rotherhythe – Canada Water – Surrey Quays – New Cross Gate – Brockley – Honor Oak Park – Forest Hill – Sydenham – Crystal Palace
- 4tph Old Oak Common – Kensal Green – Queen's Park – Kilburn High Road – South Hampstead – Primrose Hill – Camden Road – Caledonian Road & Barnesbury – Highbury &

Islington – Canonbury – Dalston Junction – Haggerston – Hoxton – Shoreditch High St. – Whitechapel – Shadwell – Wapping – Rotherhythe – Canada Water – Surrey Quays – New Cross Gate – Brockley – Honor Oak Park – Forest Hill – Sydenham – Penge West – Anerley – Norwood Junction – West Croydon

- 4tph Old Oak Common – Kensal Green – Queen’s Park – Kilburn High Road – South Hampstead – Primrose Hill – Camden Road – Caledonian Road & Barnesbury – Highbury & Islington – Canonbury – Dalston Junction – Haggerston – Hoxton – Shoreditch High St. – Whitechapel – Shadwell – Wapping – Rotherhythe – Canada Water – Surrey Quays – Queen’s Rd. Peckham – Peckham Rye – Denmark Hill – Clapham High St. – Wandsworth Rd. – Clapham Junction

The WCML slow lines services make tight connections amongst themselves (note: **connections** i.e. into the following service, as opposed to **interchange** i.e. both ways):

at Watford Junction:

- 00 Euston → Rugby
- 02 Crossrail → Milton Keynes
- 05 Crossrail → Tring

at Tring:

- 00 Crossrail → Tring (terminates in its own platform)
- 01 Euston → Rugby
- 05 Crossrail → Milton Keynes

at Milton Keynes:

- 00 Crossrail → Milton Keynes
- 07 Euston → Rugby

– repeating at 15, 30 and 45 minutes past. Full details of the timetable for these services are contained in the article ‘Crossrail Service Plans’. Note also that the 4tph Overground service from New Cross connects into all three services at Watford Junction, likewise the Metropolitan service, rerouted from Croxley. This last later metamorphoses into Crossrail 4 – see the article ‘Beyond Crossrail 2’.

The service plan imposes the following loadings on the WCML Fast Tracks:

- Euston – Queen’s Park Junction 13tph
- Queen’s Park Junction – Hanslope Junction 13tph
- Hanslope Junction – Rugby station 11tph
- Rugby station – Coventry 6tph
- Coventry – Birmingham New St. station 10tph
- Birmingham New St. station – Wolverhampton station 4tph
- Wolverhampton station – Stafford station 3tph
- Rugby station – Lichfield WCML Junction 7tph
- Lichfield WCML Junction – Colwich Junction 6tph
- Colwich Junction – Stone Junction 2tph
- Colwich Junction – Stafford station 5tph

• Stafford station	– Norton Bridge Junction	8tph
• Norton Bridge Junction	– Stone Junction	1tph
• Stone Junction	– Kidsgrove Junction	3tph
• Kidsgrove Junction	– Cheadle Hulme Junction	2tph
• Kidsgrove Junction	– Crewe station	1tph
• Norton Bridge Junction	– Crewe HS South Junction	7tph
• Crewe HS South Junction	– Crewe station	7tph
• Crewe station	– Cheadle Hulme Junction	3tph
• Cheadle Hulme Junction	– Manchester Piccadilly station	5tph
• Crewe station	– Chester	1tph
• Crewe station	– Crewe HS North Junction	3tph
• Crewe HS North Junction	– Weaver Junction	3tph
• Weaver Junction	– Liverpool Lime St. station	1tph
• Weaver Junction	– Bamfurlong Junction (*)	2tph
• Bamfurlong Junction	– Preston station	2tph

(* Site of – doesn't actually exist until HS2 phase 2B opens, at service plan 3.)

The service plan imposes the following loadings on the WCML Slow Tracks:

• Euston	– Sudbury Junction	4tph
• Old Oak Common station	– Sudbury Junction	8tph
• Sudbury Junction	– Tring station	12tph
• Tring station	– Milton Keynes station	8tph
• Milton Keynes station	– Hanslope Junction	4tph
• Hanslope Junction	– Northampton station	6tph
• Northampton station	– Rugby station	6tph
• Rugby station	– Colwich Junction	1tph

(There are only 2 tracks between Colwich Junction and Stafford station. After Stafford, nothing is explicitly assigned to the slow lines.)

Service Plan 1

The first service plan comes into effect as soon as HS2 Phase 1, the core route between Euston and Birmingham / Lichfield WCML Junction, opens. The services are all, initially, classic-compatible.

HS2:

- 3tphC Euston – Old Oak Common – Birmingham Interchange – Birmingham HS
- 2tphC Euston – Old Oak Common – Stockport – Manchester Piccadilly
- 1tphC Euston – Old Oak Common – Crewe – Wilmslow – Stockport – Manchester Piccadilly
- 2tphC Euston – Old Oak Common – Birmingham Interchange – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly

- 2tphC Euston – Old Oak Common – Stafford – Crewe – Runcorn – Liverpool Lime Street
- 1tphC Euston – Old Oak Common – Stafford – Crewe – Chester (some to Holyhead)
- 1tphC Euston – Old Oak Common – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Oxenholme – Carlisle – Glasgow Central
- 1tphC Euston – Old Oak Common – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Penrith – Carlisle – Edinburgh Waverley
- 2tphC Birmingham HS – Rugeley Trent Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly
- 1tphC Birmingham HS – Crewe – Warrington Bank Quay – Wigan North Western – Preston (splits/joins) – :
 - Oxenholme – Carlisle – Lockerbie – Haymarket – Edinburgh Waverley
 - Lancaster – Penrith – Carlisle – Lockerbie – Glasgow Central

Comparing service plan 1 with service plan 0:

- The 1tph direct Scottish service of SP0 has been replaced at SP1 by two CC services, each 1tph, to Glasgow and Edinburgh separately.
- The 1tph Scottish service via Birmingham of SP0 has been replaced at SP1 by a CC service of 1tph, starting at Birmingham. This splits at Preston to serve both Glasgow and Edinburgh (with different intermediate stops).
- The two 1tph services to Manchester via Stoke of SP0 have been replaced at SP1 by a CC service of 2tph, with a few more stops above Lichfield WCML Junction.
- The 1tph Manchester via Wilmslow service of SP0 has been replaced at SP1 by a CC service of 1tph, non-stop between Old Oak Common and Crewe.
- The 1tph Liverpool service of SP0 has been replaced at SP1 by a CC service of 2tph.
- The 1tph Chester (some Holyhead) service of SP0 has been replaced at SP1 by a CC service of 1tph.

7 slots per hour have thus been freed up on the WCML fast tracks, between Queen's Park Junction and Lichfield WCML Junction. There are an extra 6tph (3tph to Birmingham, 2tph to Manchester and an extra 1tph to Liverpool) on the section from Euston to Queen's Park Junction, which are all assigned to the fast lines, making 19tph on this section, but this doesn't matter as some of them will in fact use the slow lines – only loaded to 4tph on this section before the Crossrail services join at Sudbury Junction. The classic services to the West Midlands are unaffected at this service plan, even though a new CC service of 3tph has been introduced. A new CC service of 2tph between Birmingham and Manchester via Stoke has also been introduced. The **only** fast track services carried forward from SP0 are the 5tph services to Birmingham (1tph to Wolverhampton), and the 1tph Trent Valley service to Crewe via Stoke, which are all now Regional Metro services, thus:

WCML Fast Lines:

- 1tphR Euston – Milton Keynes Central – Coventry – Birmingham Int'l – Birmingham New St. – Sandwell & Dudley - Wolverhampton
- 1tphR Euston – Rugby – Coventry – Birmingham Int'l – Birmingham New St.
- 1tphR Euston – Watford Junction (pick up) – Coventry – Birmingham Int'l – Birmingham New St.

- 2tphR Euston – Watford Junction – Milton Keynes Central – Northampton – Rugby – Coventry – Birmingham Int'l – Birmingham New St.
- 1tphR Euston – Watford Junction – Milton Keynes Central – Rugby – Nuneaton – Atherstone – Polesworth – Tamworth – Lichfield TV – Rugeley TV – Stafford – Stone – Stoke-on-Trent – Kidsgrove – Alsager – Crewe

WCML Slow Lines:

- 4tphRS Old Oak Common – Harrow and Wealdstone – Bushey – Watford Junction – King's Langley – Apsley – Hemel Hempstead – Berkhamsted – Tring
- 4tphR Old Oak Common – Watford Junction – Hemel Hempstead – Berkhamsted – Tring – Cheddington – Leighton Buzzard – Bletchley – Milton Keynes
- 4tphR Euston – Watford Junction – Tring – Bletchley – Milton Keynes – Wolverton – Northampton – Long Buckby – Rugby

Service Plan 1A

This service plan comes into effect as soon as HS2 Phase 1A, the extension from Lichfield HS Junction to Crewe HS South Junction, opens. Those services north of Lichfield **not** stopping at Stafford, viz:

- 2tphC Euston – Old Oak Common – Stockport – Manchester Piccadilly
- 1tphC Euston – Old Oak Common – Crewe – Wilmslow – Stockport – Manchester Piccadilly
- 1tphC Euston – Old Oak Common – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Oxenholme – Carlisle – Glasgow Central
- 1tphC Euston – Old Oak Common – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Penrith – Carlisle – Edinburgh Waverley
- 1tphC Birmingham HS – Crewe – Warrington Bank Quay – Wigan North Western – Preston (splits/joins) – :
 - Oxenholme – Carlisle – Lockerbie – Edinburgh Waverley
 - Lancaster – Penrith – Carlisle – Lockerbie – Glasgow Central

now proceed directly from Lichfield HS Junction to Crewe.

The complete service plan 1 imposes the following loadings on the WCML Fast Tracks:

- | | | |
|------------------------------|------------------------------|-------|
| • Euston | – Queen's Park Junction | 19tph |
| • Queen's Park Junction | – Hanslope Junction | 6tph |
| • Hanslope Junction | – Rugby station | 4tph |
| • Rugby station | – Coventry | 5tph |
| • Coventry | – Birmingham New St. station | 9tph |
| • Birmingham New St. station | – Wolverhampton station | 3tph |
| • Wolverhampton station | – Stafford station | 2tph |
| • Rugby station | – Lichfield WCML Junction | 1tph |
| • Lichfield WCML Junction | – Colwich Junction | 8tph |
| • Colwich Junction | – Stone Junction | 0tph |

• Colwich Junction	– Stafford station	8tph
• Stafford station	– Norton Bridge Junction	10tph
• Norton Bridge Junction	– Stone Junction	5tph
• Stone Junction	– Kidsgrove Junction	5tph
• Kidsgrove Junction	– Cheadle Hulme Junction	4tph
• Kidsgrove Junction	– Crewe station	1tph
• Norton Bridge Junction	– Crewe HS South Junction	5tph
• Crewe HS South Junction	– Crewe station	11tph
• Crewe station	– Cheadle Hulme Junction	5tph
• Cheadle Hulme Junction	– Manchester Piccadilly station	9tph
• Crewe station	– Chester	1tph
• Crewe station	– Crewe HS North Junction	5tph
• Crewe HS North Junction	– Weaver Junction	5tph
• Weaver Junction	– Liverpool Lime St. station	2tph
• Weaver Junction	– Bamfurlong Junction	3tph
• Bamfurlong Junction	– Preston station	3tph

There are no changes to the slow tracks loadings.

Service Plan 2

This service plan comes into effect as soon as the first section of HS3, south of Crick Junction, opens. A classic-compatible service begins between St. Pancras and Wolverhampton, splitting/joining there, and proceeding on to Liverpool and Chester. Simultaneously, the classic route from Bedford to Northampton via Olney is reopened, and the following RM services introduced / extended.

HS3:

- 2tphC St. Pancras – Luton Airport Parkway – Northampton – Rugby – Coventry – Birmingham Int'l – Birmingham New St. – Wolverhampton (splits/joins) – :
 - Stafford – Crewe – Runcorn – Liverpool S. Parkway – Liverpool Lime St.
 - Telford – Wellington – Shrewsbury – Wrexham – Chester

This supplants the 2tph Euston – Liverpool and 1tph Euston – Chester of service plan 1 (both of which served Stafford). These are replaced by:

HS2:

- 2tphC Euston – Old Oak Common – Birmingham Interchange – Crewe – Warrington Bank Quay – Wigan North Western – Preston (splits/joins) – :
 - Kirkham – Poulton le Fylde – Blackpool
 - Lancaster – Oxenholme – Kendal – Windermere
- 1tphC Euston – Old Oak Common – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead

MML:

- 2tphR St. Pancras – St. Albans – Luton Airport Parkway – Luton – Bedford – Olney – Northampton – Rugby – Coventry – Birmingham Int'l – Birmingham New Street – University – Bromsgrove – Droitwich Spa – Worcester Shrub Hill
- 2tphR (Crossrail) Brighton → Bedford – Olney – Northampton

The HS3 service to St. Pancras replaces the classic (Virgin) services from Birmingham to London, and thus frees up 3 further slots/hour on the WCML south of Rugby. (The 2tph Euston – Birmingham via Northampton service is retained indefinitely.)

Representative Hourly Interchange Pattern at Northampton (not cross-platform):

- 00C (HS3) St. Pancras – Wolverhampton → Liverpool / Chester
R (Thameslink) Brighton → Northampton
R Euston – Rugby
- 07C (HS3) St. Pancras – Derby – Sheffield – York
R Euston – Birmingham New St.
- 15R (MML) St. Pancras – Birmingham New St. – Worcester
R Euston – Rugby
- 23C (HS3) St. Pancras – Derby – Matlock (or Sheffield) – Manchester
(no connection at this SP)

– repeating at 30, 37, 45 and 53 minutes past. Strictly speaking, the HS3 CC services to York and Manchester are introduced slightly later (at HS3 SP1A, when HS3 opens from Crick Junction to Leicester).

Service plan 2 imposes the following loadings on the WCML Fast Tracks:

- | | | |
|------------------------------|------------------------------|-------|
| • Euston | – Queen's Park Junction | 16tph |
| • Queen's Park Junction | – Hanslope Junction | 3tph |
| • Hanslope Junction | – Rugby station | 1tph |
| • Rugby station | – Coventry | 6tph |
| • Coventry | – Birmingham New St. station | 10tph |
| • Birmingham New St. station | – Wolverhampton station | 4tph |
| • Wolverhampton station | – Stafford station | 4tph |
| • Rugby station | – Lichfield WCML Junction | 1tph |
| • Lichfield WCML Junction | – Colwich Junction | 5tph |
| • Colwich Junction | – Stone Junction | 0tph |
| • Colwich Junction | – Stafford station | 5tph |
| • Stafford station | – Norton Bridge Junction | 9tph |
| • Norton Bridge Junction | – Stone Junction | 5tph |
| • Stone Junction | – Kidsgrove Junction | 5tph |
| • Kidsgrove Junction | – Cheadle Hulme Junction | 4tph |
| • Kidsgrove Junction | – Crewe station | 1tph |
| • Norton Bridge Junction | – Crewe HS South Junction | 4tph |

• Crewe HS South Junction	– Crewe station	11tph
• Crewe station	– Cheadle Hulme Junction	5tph
• Cheadle Hulme Junction	– Manchester Piccadilly station	9tph
• Crewe station	– Chester	1tph
• Crewe station	– Crewe HS North Junction	5tph
• Crewe HS North Junction	– Weaver Junction	5tph
• Weaver Junction	– Liverpool Lime St. station	2tph
• Weaver Junction	– Bamfurlong Junction	3tph
• Bamfurlong Junction	– Preston station	3tph

The service plan imposes the following loadings on the WCML Slow Tracks:

• Euston	– Sudbury Junction	4tph
• Old Oak Common station	– Sudbury Junction	8tph
• Sudbury Junction	– Tring station	12tph
• Tring station	– Milton Keynes station	8tph
• Milton Keynes station	– Hanslope Junction	4tph
• Hanslope Junction	– Northampton station	6tph
• Northampton station	– Rugby station	10tph

Service Plan 3

This service plan comes into effect when:

- HS2 phase 2B opens from Crewe HS South Junction to Manchester and Wigan
- HS8 opens to Liverpool Lime St. from Kenyon South and North Junctions
- HS2 opens from Euston Cross to Old Oak Common North Junction
- HS2 opens from Euston Cross east to Woodgrange Road Junction, where it merges with HS1.

The 3tph Euston – Birmingham and the 3tph Euston – Manchester via Crewe become GC-gauge, add a fourth tph and switch to the new route, and from Euston to Euston Cross (thus 6tph less between Euston and Queen’s Park Junction). The 2tph from Birmingham to Manchester likewise become GC-gauge and switch to the new route. New services of 1tphC from Birmingham to Holyhead, and 1tph Liverpool – Scotland (same stopping pattern as Birmingham – Scotland), are added. The full service on HS2 is thus (including the HS1 origins of the GC-gauge inter-regional services):

HS2:

- 4tphGG [HS1 Maidstone →] Euston Cross – Old Oak Common – Birmingham I/change – Birmingham HS
- 4tphGG [HS1 Dover →] Euston Cross – Old Oak Common – Manchester I/change – Manchester HS
- 2tphGG [HS1 Hastings →] Euston Cross – Old Oak Common – Crewe – Liverpool Lime St.
- 2tphC Euston – Old Oak Common – Birmingham Interchange – Rugeley Trent

Valley – Stafford – Stone – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly

- 2tphC Euston – Old Oak Common – Birmingham Interchange – Crewe – Warrington Bank Quay – Wigan North Western – Preston (splits/joins) – :
– Kirkham – Poulton le Fylde – Blackpool
– Lancaster – Oxenholme – Kendal – Windermere
- 1tphC Euston – Old Oak Common – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 1tphC Euston – Old Oak Common – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Oxenholme – Carlisle – Glasgow Central
- 1tphC Euston – Old Oak Common – Warrington Bank Quay – Wigan North Western – Preston – Lancaster – Penrith – Carlisle – Edinburgh Waverley
- 2tphGG Birmingham HS – Crewe – Manchester Interchange – Manchester HS
- 1tphC Birmingham HS – Crewe – Chester – Flint – Rhyl – Llandudno Junction – Bangor – Holyhead
- 1tphC Birmingham HS – Crewe – Wigan North Western – Preston (splits/joins) – :
– Oxenholme – Carlisle – Lockerbie – Edinburgh Waverley
– Lancaster – Penrith – Carlisle – Lockerbie – Glasgow Central
- 1tphC Liverpool Lime St. – Wigan North Western – Preston (splits/joins) – :
– Oxenholme – Carlisle – Lockerbie – Edinburgh Waverley
– Lancaster – Penrith – Carlisle – Lockerbie – Glasgow Central

HS3:

- 2tphC St. Pancras – Luton Airport Parkway – Northampton – Rugby – Coventry – Birmingham Int'l – Birmingham New St. – Wolverhampton (splits/joins) – :
– Stafford – Crewe – Runcorn – Liverpool S. Parkway – Liverpool Lime St.
– Telford – Wellington – Shrewsbury – Wrexham – Chester

On the WCML, the only RM services carried forward from earlier service plans are the 2tph Euston – Birmingham New St. and 1tph Euston – Crewe via Stoke services of London Midland. The former continues unchanged, but the latter is replaced by a service of slightly different route and double the frequency. New WCML Fast Line services are introduced, Euston – Crewe via Stafford and Euston – Barrow in Furness. The full services are:

WCML Fast Lines:

- 2tphR Euston – Watford Junction – Milton Keynes Central – Northampton – Rugby – Coventry – Birmingham Int'l – Birmingham New St.
- 2tphR Euston – Watford Junction – Milton Keynes Central – Northampton – Rugby – Nuneaton – Atherstone – Polesworth – Tamworth – Lichfield TV – Rugeley TV – Stone – Stoke-on-Trent – Longport – Kidsgrove – Alsager – Crewe
- 2tphR Euston – Watford Junction – Milton Keynes Central – Northampton – Rugby – Nuneaton – Atherstone – Polesworth – Tamworth – Lichfield TV – Rugeley TV – Stafford – Crewe
- 2tphR Euston – Watford Junction – Milton Keynes Central – Northampton – Rugby – Nuneaton – Stafford – Crewe – Warrington Bank Quay – Wigan North Western – Leyland – Preston – Lancaster – Carnforth – Grange over Sands – Ulverston – Barrow in Furness

- 2tphR St. Pancras – St. Albans – Luton Airport Parkway – Luton – Bedford – Olney – Northampton – Rugby – Coventry – Birmingham Int’l – Birmingham New St. – University – Bromsgrove – Droitwich Spa – Worcester Shrub Hill

WCML Slow Lines:

- 4tphRS Old Oak Common – Harrow and Wealdstone – Bushey – Watford Junction – King’s Langley – Apsley – Hemel Hempstead – Berkhamsted – Tring
- 4tphR Old Oak Common – Watford Junction – Hemel Hempstead – Berkhamsted – Tring – Cheddington – Leighton Buzzard – Bletchley – Milton Keynes
- 4tphR Euston – Watford Junction – Tring – Bletchley – Milton Keynes – Wolverton – Northampton – Long Buckby – Rugby

XC:

- 2tph Bournemouth – Brockenhurst – Southampton – Southampton Airport Parkway – Winchester – Basingstoke – Reading – Oxford – Banbury – Leamington Spa – Kenilworth – Coventry – Birmingham Int’l – Birmingham New St. – Wolverhampton – Stafford – Crewe – Wilmslow – Stockport – Manchester Piccadilly
- 2tph Bournemouth – Brockenhurst – Southampton – Southampton Airport Parkway – Winchester – Basingstoke – Reading – Oxford – Banbury – Leamington Spa – Kenilworth – Coventry – Birmingham Int’l – Birmingham New St. (reverse) – Tamworth – Burton-on-Trent – Derby – Chesterfield – Sheffield – Rotherham – Wakefield Westgate – Leeds City – Micklefield – York

The WCML slow lines services make tight connections amongst themselves (note: **connections** i.e. into the following service, as opposed to **interchange** i.e. both ways):

at Watford Junction:

00R Euston → Rugby
 02R Crossrail → Milton Keynes
 05RS Crossrail → Tring

at Tring:

00RS Crossrail → Tring (terminates in its own platform)
 01R Euston → Rugby
 05R Crossrail → Milton Keynes

at Milton Keynes:

00R Crossrail → Milton Keynes
 07R Euston → Rugby

– repeating at 15, 30 and 45 minutes past.

Representative Hourly Interchange Pattern at Northampton (the HS3 connections are not cross-platform, but the intra-WCML connections are):

- 00C (HS3) St. Pancras – Wolverhampton – Liverpool / Chester
R (Crossrail) Brighton –> Bedford – Olney - Northampton
R Euston – Crewe via Stoke
R Euston – Rugby
- 07C (HS3) St. Pancras – York
R Euston – Birmingham New St.
- 15R (MML) St. Pancras – Birmingham New St. – Worcester Shrub Hill
R Euston – Crewe via Stafford
R Euston – Rugby
- 23C (HS3) St. Pancras – Manchester Piccadilly
R Euston – Barrow in Furness

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

Representative Hourly Cross-Platform Interchange Pattern at Stafford:

- 00R (XC) Bournemouth – Manchester Piccadilly
R Euston – Barrow in Furness
- 15C (HS3) St. Pancras – Wolverhampton – Liverpool Lime St. (portion)
C Euston – Manchester Piccadilly (via Stoke)
- 23R Euston – Crewe via Stafford (no connection)

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

- 00C Euston – Holyhead
R (HS3) St. Pancras – Wolverhampton – Chester (portion)
- 30C Birmingham – Holyhead
R (HS3) St. Pancras – Wolverhampton – Chester (portion)

Service plan 3 imposes the following loadings on the WCML Fast Tracks:

- | | | |
|------------------------------|------------------------------|-------|
| • Euston | – Queen’s Park Junction | 15tph |
| • Queen’s Park Junction | – Hanslope Junction | 8tph |
| • Hanslope Junction | – Rugby station | 0tph |
| • Rugby station | – Coventry | 6tph |
| • Coventry | – Birmingham New St. station | 10tph |
| • Birmingham New St. station | – Wolverhampton station | 4tph |
| • Wolverhampton station | – Stafford station | 4tph |
| • Rugby station | – Lichfield WCML Junction | 6tph |
| • Lichfield WCML Junction | – Colwich Junction | 8tph |
| • Colwich Junction | – Stone Junction | 2tph |
| • Colwich Junction | – Stafford station | 6tph |
| • Stafford station | – Norton Bridge Junction | 10tph |
| • Norton Bridge Junction | – Stone Junction | 2tph |
| • Stone Junction | – Kidsgrove Junction | 4tph |

• Kidsgrove Junction	– Cheadle Hulme Junction	2tph
• Kidsgrove Junction	– Crewe station	2tph
• Norton Bridge Junction	– Crewe HS South Junction	8tph
• Crewe HS South Junction	– Crewe station	13tph
• Crewe station	– Cheadle Hulme Junction	2tph
• Cheadle Hulme Junction	– Manchester Piccadilly station	4tph
• Crewe station	– Chester	2tph
• Crewe station	– Crewe HS North Junction	7tph
• Crewe HS North Junction	– Weaver Junction	7tph
• Weaver Junction	– Liverpool Lime St. station	2tph
• Weaver Junction	– Bamfurlong Junction	5tph
• Bamfurlong Junction	– Preston station	6tph

Service plan 3 imposes the following loadings on the WCML Slow Tracks:

• Euston	– Sudbury Junction	4tph
• Old Oak Common station	– Sudbury Junction	8tph
• Sudbury Junction	– Tring station	12tph
• Tring station	– Milton Keynes station	8tph
• Milton Keynes station	– Hanslope Junction	4tph
• Hanslope Junction	– Northampton station	12tph
• Northampton station	– Rugby station	16tph

Service Plan 4

This service plan comes into effect only when the Transpennine routes HS8 and HS9 open fully between Manchester HS and Liverpool / Bolton and Preston. The connections between HS2 and HS8 at Kenyon Junctions were made in service plan 3. Now a connection is likewise made between HS2 at Bamfurlong Junction and HS8 at Gibb Farm Junction making available a GC-gauge route between London and Preston.

- 2tphGG [HS1 Hastings →] Euston Cross – Old Oak Common – Crewe – Preston

This increases the route loadings of HS2 by 2tph between Euston Cross and Bamfurlong, but has no effect whatever on the WCML services, which remain as at service plan 3.

It is assumed that by service plan 4, Crossrail 4 will have opened, and taken over the Metropolitan lines north of Baker St., thus from Watford Junction. A full description is contained in the article ‘Beyond Crossrail 2’, but for completeness (and to complement the entry for the Watford DC Electrics), the services on Crossrail 4 from Watford Junction are given:

- 8tphR Watford Junction – Watford High St. – Watford Vicarage Road – Cassiobridge – Croxley – Moor Park – Northwood – Northwood Hills – Pinner – North Harrow – Harrow-on-the-Hill – Wembley Park – Finchley Road – Marylebone – Bond St. Green Park – Victoria – Batterssea – Clapham Junction – Balham – Streatham Hill – West Norwood – Gipsy Hill – Crystal Palace – Norwood Junction – East Croydon – South Croydon – Purley Oaks – Purley –:

- Reedham – Smitham – Woodmansterne – Chipstead – Kingswood – Tattenham Corner /
- Kenley – Whyteleaf – Whyteleaf South – Caterham

– 4tph each, alternately.

Service Plan 4A

This service plan comes into effect when HS3 opens to Scotland. The two HS2 CC services from London to Scotland are cancelled, replaced by GC-gauge services on HS3, but the services from Birmingham and Liverpool remain, as they are traffic streams in their own right, and usefully serve intermediate locations.

This service plan has a minimal effect on the WCML services, reducing the loadings between Euston and Rugby by 2tph. Everything else remains as at service plan 3. Service Plan 3, above, contained a full statement of all the services and connections, and is thus the final statement of the WCML services (as far ahead as these plans consider).

Some Concluding Remarks

The final service plan illustrates very well the characteristics of Regional Metro services.

Note the key role of Watford Junction. All RM and Crossrail services stop there. There are no **interchanges** (i.e. each-way connections), but faster service connect into slower ones (see the ‘Crossrail Service Plans’ article which explains precisely how this works) and the Overground and Crossrail 4 services terminating there connect into everything.

The WCML fast line services are regular-interval, and all have the same stopping pattern to Rugby:

- 8tphR Euston – Watford Junction – Milton Keynes – Northampton – Rugby

All services between Northampton and Birmingham New St. have the same stopping pattern:

- 6tph Northampton – Rugby – Coventry – Birmingham International – Birmingham New St.

They are not regular (to Birmingham). From Northampton at 00, 07, 15, 30, 37, 45:

00/30 are HS3 CC St. Pancras – Wolverhampton – Liverpool / Chester

07/37 are WCML RM Euston – Birmingham New St.

15/45 are MML RM St. Pancras – Birmingham New St. – Worcester Shrub Hill

The Trent Valley stations between Rugby and Stafford have regular-interval services:

- 4tphR Euston → Rugby – Nuneaton – Atherstone – Polesworth – Tamworth – Lichfield TV – Rugeley TV →

– which then divide equally:

- 2tphR Stone – Stoke on Trent – Longport – Kidsgrove – Alsager – Crewe
- 2tphR Stafford – Crewe

Nuneaton and Stafford have an additional 2tph Euston → Barrow.

Note that there are now no passenger services whatever on the WCML fast lines between Hanslope Junction and Rugby; they all go via Northampton, and the fast lines are given over wholly to freight (which can certainly make good use of them). A flyover junction between fast and slow lines at Hanslope is very desirable, replacing the flat crossover.