GWML 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 involves describing a number of routes, in varying but superficial detail.

The article 'HS4 Route and Service Plans' deals in detail with HS4, the route from London to South Wales, and, in association with HS7, to Bristol and the West Country. It describes the chosen alignment, with maps, and 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 Paddington, and join HS4 at Old Oak Common West Junction. They run on HS4 until just before Swindon, where, at Magic Roundabout Junction, they rejoin the classic GWML and serve Swindon station (the GC-gauge services bypass Swindon in tunnel). They then serve many destinations on the classic routes, replicating and replacing the present services to Bristol, South Wales, the West Country and Gloucester / Cheltenham, at the same or better frequencies than at present, but much faster, due to the high speed section between Old Oak Common and Swindon.

The GC-gauge services use the underground station at Euston Cross, passing through London and then serving destinations in Essex, North Kent and East Anglia. 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.

'HS4 Route and Service Plans' deals in passing with the Regional Metro services on the classic GWML and other GW 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 HS4 service plans, and is structured in a similar sequence. It deals **only** with service plans, since the route has been in existence for quite a long time and is well known, and relatively few significant infrastructure changes are proposed.

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

The article 'Beyond Crossrail 2' describes my proposals for Crossrail 3 and Crossrail 4, the latter of which seeks to relieve capacity constraints at Victoria, by linking a number of services in South London with others in North West London. Crossrail 4 takes over, inter alia, the GC line from Marylebone to Princes Risborough, and as a consequence of this, the long distance Chiltern Line services are moved back to Paddington, where there is plenty of room for them, after Crossrail (1) has taken over the GWML suburban services. (Another recommended move to Paddington is the West Country service currently from Waterloo. This concentrates all West Country services at Paddington, providing a slight relief to

capacity on the South Western routes, and provides that service with connections to the Heathrow Shuttle, and to Crossrail.)

The article 'The Oxford Metro' gives detailed plans of all services in the Oxford area, and 'East-West Rail Service Plans' describes the new inter-regional services enabled by the restored East-West route. All these are closely integrated with the GWML services.

Paddington Terminus

The terminal station at Paddington has 12 full-size platforms (1-12) and 2 short ones (13, 14). With Crossrail taking over all the suburban services which used to terminate at Paddington, the two short platforms will be redundant – there will no longer be any trains terminating at Paddington short enough to use them. They are also very inconveniently located for the main station. I propose therefore transferring them to the Metropolitan Hammersmith and City line, the eastbound Metropolitan line (in the existing H&C station) remaining where it is, and the westbound line taking over the former platform 13. The two platforms in between will then provide a reversing facility. With the transfer of all Metropolitan routes north of Baker St. to Crossrail 4, there will more capacity available for Hammersmith and City Line trains, along the route from Paddington to Liverpool St. and points east. There will certainly be more capacity available than could be justified all the way to Hammersmith (or to Barking), so I suggest an additional shuttle service between Paddington and Aldgate, terminating platforms being available at each end. This serves the vastly important transport mega-hub of London Hbf (Euston Cross, Pancras Cross, Euston, St. Pancras West, East and International, King's Cross, Thameslink, Crossrails 2 and 3, and all the Underground lines), and also connects with Crossrail (and Thameslink, again,) at Farringdon.

So Paddington will retain just the 12 full-size platforms for GW and other main line services. Each platform can certainly handle at least 2tph, giving a minimum capacity of 24tph. I suggest that the platforms serving the Heathrow shuttle trains could handle 4tph; these would all be serviced at the 'country' end of the six branches, so the trains would come into Paddington, empty, fill, and go straight out again.

The various platforms are grouped and assigned to specific services. In the eventual, final service plan (as far ahead as these plans consider):

- 1-3 serve the Regional Metro services to Hereford, Plymouth and Weymouth, respectively, 2tph (platform 1, Hereford,) or 3tph (platforms 2 and 3) each
- 4-6 serve the Heathrow Shuttle services, 4tph each
- 7,8 serve the Chiltern Line services, 2tph each
- 9-12 serve the HS4 classic-compatible services, 2tph each

That gives a capacity of 32tph in total, out to Old Oak Common, over which section there are at least 4 tracks. (It just so happens that this is exactly what we will need in the final service plan.) The services from platforms 7-12 all leave the GWML at Old Oak Common, the classic compatibles joining HS4 there, and the Chiltern Line services taking the route to Northolt Junction.

Heathrow Shuttle Services

Access to Heathrow is provided by a fast shuttle service between Paddington and Slough, continuing beyond Slough to various destinations. Initially, there are three destinations, Swindon, Oxford and Pewsey, with 2tph each, but later another three destinations are added, Marlborough, Milton Keynes and Henley, and the Pewsey service is extended to Devizes and on to Bristol via Bradford on Avon. Appendix H contains a map of the Shuttle routes. The ultimate core service out to Slough is:

- 12tph   Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough –>

LHR Interchange, (the former Langley, moved slightly to the east, where there is more space available, and extensively redeveloped – see Appendix A for the layout,) is intended primarily to give HS4 (especially GC-gauge services) access to and from Heathrow. The shuttle connects into westbound HS4 services at LHR Interchange, and eastbound HS4 services connect into the shuttle there. Old Oak Common serves a similar purpose, with westbound HS4 services connecting into the shuttle, and the shuttle connecting into eastbound HS4 services. All HS4 services stop at Old Oak Common and LHR Interchange, but are then non-stop to Swindon (classic compatible services) or Bristol Parkway HS (GC-gauge services).

LHR Interchange will have extensive parking facilities, including long-term, as it is very close to the M4 and M25. I suggest a short stub of motorway (c.1 mile) from the M4 where it crosses the LHR Shuttle route, running alongside this to the station. This benefits both the Heathrow Shuttle and all the other services, main line, suburban and Crossrail, as they **all** stop there.

Five of the six shuttle services travel on the GWML fast lines, and the sixth on the relief lines, between Paddington and Heathrow Airport Junction, and rejoin the main line at LHR Interchange East Junctions. Three (Swindon, Marlborough and Devizes) rejoin the fast lines, and the other three (Oxford, Milton Keynes and Henley) join the relief (Crossrail) lines, for the remainder of their journeys (on the GWML, that is). The Shuttle to Milton Keynes uses the relief lines from Paddington, purely to balance the loadings.

Heathrow Terminals 1,2,3 station is also served by the Heathrow Connect service of Crossrail, which then terminates at Heathrow Terminal 4.

LHR Interchange / Slough Services

In considering the service pattern at Slough, we have to remember to include the non-stop GWML fast services, and the terminating Crossrail ones. We take LHR Interchange as the starting point, as **all** services stop there, and because the Heathrow Shuttle services are split between fast and relief lines, west from there.

It is assumed that the Windsor line will have been joined at Windsor to the Southern line, so the Slough Windsor services are all now through services from Waterloo, and are not considered in the present article. An extra bay platform would be desirable for them, (as also for the terminating Crossrail service, at the far side of the station).

It is worth spending some time analysing the services between Slough and Reading. (For full details of the Crossrail services, refer to the article 'Crossrail Service Plans'.) The sequence of the Heathrow Shuttle services from Paddington to LHR Interchange is:

00	Swindon
05	Oxford
10	Devizes
15	Milton Keynes
20	Henley
25	Marlborough

– repeating at 30 minutes past.

From LHR Interchange, the pattern on the fast lines is:

00	Swindon
10	Devizes
25	Marlborough

and on the relief lines:

05	Oxford
15	Milton Keynes
20	Henley

The fast line Shuttle services stop at Slough and then travel from Slough to Reading non-stop, which takes 16 minutes (according to the current FGW timetable). The relief line Shuttle services stop additionally at Maidenhead and Twyford, as appropriate, and take 25 minutes to Reading (the Milton Keynes service diverges at Maidenhead and the Henley service obviously diverges at Twyford, so only the Oxford Shuttle continues through to Reading).

The Oxford service thus takes 9, say 10, minutes longer between Slough and Reading than the non-stop services, and so the sequence on arrival at Reading is:

00	Swindon
10	Devizes
15	Oxford
25	Marlborough

It is necessary to analyse the usage of the relief lines between Slough and Reading, since these are shared by Crossrail and three of the Heathrow shuttle services. The following timings are taken from the current FGW timetables:

	Fast		Relief LHR Shuttle		Relief Crossrail	
LHR I/chng	00:00	00:00	00:00	00:00	00:00	00:00
Slough	*00:03*	00:05	00:05	00:05	00:05	00:05
Burnham					00:09	00:09
Taplow					00:13	00:13
Maidenhead			00:12	00:12	00:17	00:17

Twyford				00:20	00:20		00:25	00:25
Wargrave					00:24			00:29
Shiplake					00:27			00:32
Henley					00:32			00:37
TVP					====		00:32	====
Reading	00:19	00:21		00:30			00:35	

These timings will be used to derive the representative service pattern between LHR Interchange and Reading in the service plans. Note that an *italicised* time is a non-stop, *passing* time. (TVP – Thames Valley Park – is a proposed new station, c.1½ miles east of Reading, serving a business park. The Crossrail timing is estimated, and the same time to Reading is assumed.)

Reading Services

The arrival sequence of the Heathrow Shuttle services at Reading is noted above; they continue westbound in the same sequence. The Swindon service takes the fast lines west of Reading and the Oxford service the relief lines. The Devizes and Marlborough services diverge at Reading on to the Berks & Hants route. The service from Gatwick Airport to Oxford and Milton Keynes joins at Reading, and takes the relief lines. It alternates with the Oxford Shuttle.

In considering the service pattern at Reading, we have to include the Cross Country services, which reverse there. There are 4tph from Bournemouth, 2tph each to Manchester and York alternately. They bypass Didcot Parkway station via the station avoiding lines, thus very conveniently overtaking the other (relief line) services which stop there. A diveunder connection, (rather than a flyover, because of the extensive new housing which has been built there recently, inconveniently close to the avoiding lines, very inconsiderate,) is highly desirable east of Didcot, from the fast lines directly to the avoiding lines. This connection, at Didcot Subway Junction, is just to the east of the existing Didcot East Junction – the set of level crossovers. The Cotswold line service likewise bypasses Didcot. Appendix B gives the layout.

The service patterns are normally given for just the down direction (since those for the up direction are readily deducible from them). But at Reading, the service pattern must include the Cross Country services in both directions, as these reverse at Reading, and thus both count as down services – either between Reading and Oxford or between Reading and Basingstoke.

In addition, there are stopping services between Reading and Basingstoke (and Salisbury), and between Reading and Newbury, (the stopping services between Reading and Didcot are provided by the Oxford Shuttle and Gatwick – Milton Keynes services, and there is an additional stopping service between Didcot and Oxford, which eventually becomes part of the Oxford Metro,) and we must consider available capacity on the Berks & Hants route between these points. (Refer to the article 'Crossrail Service Plans' for an extensive discussion of how to optimise capacity when stopping and non-stop services must share the same 2-track route.) We obtain the necessary capacity by providing an overtaking and interchange facility at Thatcham, (rebuilding the station with 2 island platforms,) so that the Heathrow Shuttle and other services to Newbury and beyond can overtake the stopping services there (and connect into and out of them). Newbury station already has an overtaking facility, with fast lines through the centre of the alignment, but this does not provide for interchange. No overtaking facility is needed as such between Reading and Basingstoke, but a short amount of quadruple track will be needed, from west of Reading station as far as Southcote Junction (only c.1 mile, but not easy). The stopping service from Henley to Basingstoke has its own platform there, so, on arrival, it is immediately out of the way of the following

Cross Country service, and connects into it. The other stopping service from Reading to Basingstoke will eventually continue through to Salisbury, so needs some other provision.

The present article does not consider Southern services to Reading, except for the semi-fast service from Gatwick Airport, which continues through to Oxford, and then, via the East-West Route, on to Bletchley and Milton Keynes..

We need to analyse closely the timings between Reading and Oxford, since six services share this section, and we must ensure that they can all be fitted in. From the current timetable, the various timings are:

Station										
Reading	00:00	00:00	00:00	00:00	00:00	00:00	00:00			
Tilehurst							00:04			
Pangbourne							00:08			
Goring & S.							00:13			
Cholsey							00:18			
Didcot arr				00:15	00:15	00:15	00:25			
						====	====			
Didcot dep	*00:14*	*00:12*	*00:12*	00:16	00:16		*00:00*	00:00	00:00	00:00
Foxhall Junction						*00:00*				
Appleford										00:05
Culham										00:08
Radley		*00:15*	00:16			*00:03*	*00:03*	*00:04*	00:05	00:12
Oxford	00:24	00:22	00:25			00:10	00:10	00:12	00:14	00:21
	====	====	====			====	====	====	====	====

Station					
Oxford	00:00	00:00			
Foxhall Junction	*00:10*	*00:10*			
Wantage Rd.	*00:14*	00:15		*00:21*	00:23
Swindon	00:27	00:29		00:34	00:37

The Didcot passing times make the reasonable (I think) assumption that the Didcot to Oxford service will take c.2 minutes longer between these points, through having to start and get up to speed, as compared with the non-stop service which passes Didcot at full speed. If we make the further assumption that the diveunder is in place east of Didcot from the fast lines to the avoiding lines, I think we can assume a c.2 minute saving through not having to slow down for the flat crossovers and then accelerate back up to speed. So take the Reading – Didcot pass time as c.12 minutes, and 22 minutes through to Oxford, non-stop. The second column contains this adjustment. (We may reasonably expect that these times, particularly of the stopping services, will be reduced by electrification, but I make no assumptions or adjustments for this beyond noting that the timings should have a little more slack available than those derived here.) Services from the East-West route to the West Country travel directly between Oxford and Swindon via Foxhall Junction, immediately west of Didcot. See the article 'East-West Rail Service Plans' for full details.

The section between Didcot North Junction and Oxford, and through to Wolvercote Junction, will need to be quadruple track throughout. There's no escaping this; the proposed traffic levels demand it. Quadrupling the GWML west of Didcot through to Wootton Bassett Junction would also be highly desirable, if not absolutely essential (but considerations of freight demands may make this essential, also.

Similar timings for the Berks and Hants lines are:

Reading	00:00	00:00	00:00	00:00	00:00	00:00
Reading West		00:03			00:03	
RGP		00:05				
Mortimer		00:11				
Bramley		00:16				
Basingstoke	00:20	00:25				
Theale	====	====		00:08	00:08	
Aldermaston					00:13	
Midgham					00:17	
Thatcham				00:16	00:22	00:14
Newbury RC					00:27	
Newbury			00:14	00:22	00:34	00:20
Kintbury				00:29	====	00:27
Hungerford				00:36		00:34
Bedwyn				00:43		00:41
Pewsey			00:36	00:55		00:53
Westbury			00:54	01:12		01:10

The final column is an adjustment of the previous-but-one column, omitting the Theale stop. (RGP – Reading Green Park – is an officially-planned new station, c.2 miles south of Reading West, serving a business park. The above time is an estimate, the other times are assumed unchanged.)

All the Oxford Metro services from Abingdon (8tph) make connections at Radley with southbound services to Paddington (2tph), Gatwick Airport (2tph), or stopping services to Didcot (4tph). Likewise all services to Abingdon connect at Radley with the corresponding Oxford-bound services. This may be via a contraflow arrangement, for maximum passenger convenience, if the cost-benefit calculations stack up. See appendix E for details.

These two sets of timings will be used to derive the representative service patterns between Reading and Oxford, Basingstoke and Newbury etc. in the service plans.

West Country Services

As noted earlier, with the reopening of the East-West route between Oxford and Cambridge, a number of new services from Yorkshire, Lincolnshire and East Anglia to the West Country are routed via Oxford. In addition, it is planned to switch the service from Waterloo to Exeter (and on to Plymouth via Okehampton) to run instead from Paddington via Reading, rejoining the LSW route at Basingstoke. This provides a slight but worthwhile release of capacity at Waterloo, speeds up the service while at the same time providing connections for Heathrow Airport, and (I believe) improves passenger convenience by having all London – West Country services (including the High Speed service) starting from the same station.

Formal Connections and Platform Numbers

Formal connections, (i.e. advertised and guaranteed, subject to the usual conditions,) will be shown where appropriate, in the service plans. These are cross-platform wherever possible. Formal connections are **not** given for LHR Interchange, Slough or Reading, as the services there are so frequent as not to need them.

Platform numbers are given where appropriate and illuminating

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)

Occasionally other notations are used; these will be defined when used. In the present article, X means classic express – which will eventually become regional metro when HS has taken over that route. (This notation is not used in service plan 0, as that involves classic, rather than Regional Metro services.)

Service Plan 0

This is the basic service plan, before any part of HS4 opens. It assumes that the GW electrification project has been completed, and that Crossrail has opened, (including Old Oak Common and the arm to the WCML,) effectively taking over the relief pair of tracks. It further assumes that the Heathrow western approach is in place, including the new London Heathrow Interchange station. Beyond that, it assumes that the East-West Route has reopened (and been electrified) at least as far as Bedford, so that the service from Gatwick Airport to Oxford can continues through to Milton Keynes and also the inter-regional services from York to Weymouth and from Cleethorpes to Plymouth have been introduced. (If it has opened all the way to Cambridge, the Norwich – Plymouth service has also been introduced.) It finally assumes that the (rather more speculative) proposal for the Didcot diveunder has been implemented, and that Oxford station has at last been rebuilt (otherwise there simply won't be room there) – see appendix E for, inter alia, the proposed Oxford station layout. The service plan is:

GWML Fast Tracks:

- 2tph   Paddington – Old Oak Common – LHR Interchange – Reading – Bristol Parkway – Bristol Temple Meads (Brunel Trainshed)
- 2tph   Paddington – Old Oak Common – LHR Interchange – Reading – Didcot Parkway – Swindon – Chippenham – Bath Spa – Bristol Temple Meads
- 2tph   Paddington – Old Oak Common – LHR Interchange – Reading – Swindon – Bristol Parkway – Newport – Cardiff – Bridgend – Port Talbot – Neath – Swansea
- 1tph   Paddington – Old Oak Common – LHR Interchange – Reading – Didcot Parkway – Swindon – Kemble – Stroud – Stonehouse – Gloucester (reverse) – Cheltenham
- 1tph   Paddington – Old Oak Common – LHR Interchange – Reading – Taunton – Exeter St. David's – Plymouth – stations to Penzance

- 1tph   Paddington – Old Oak Common – LHR Interchange – Reading – Thatcham – Newbury – Pewsey – Westbury – Castle Cary – Taunton – Tiverton Parkway – Exeter St. David's – Dawlish – Teignmouth – Newton Abbot – Totnes – Ivybridge – Plymouth
- 1tph   Paddington – Old Oak Common – LHR Interchange – Reading – Oxford – Hanborough – Charlbury – Kingham – Moreton in March – Honeybourne – Evesham – Pershore – Worcester Shrub Hill – Worcester Foregate Street – Malvern Link – Great Malvern – Colwell – Ledbury – Hereford
- 2tph   Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Reading – Didcot Parkway – Wantage Rd. – Swindon (LHR Stuttle)
- 2tph   Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange –: (LHR Shuttle – continues from LHR Interchange on the relief tracks, on to Oxford)
- 2tph   Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Reading – Thatcham – Newbury – Kintbury – Hungerford – Bedwyn – Pewsey (LHR Shuttle)
- 2tph   Reading – Reading West – Reading Green Park – Mortimer – Bramley – Basingstoke (note that a further 2tph all stations to Basingstoke service is provided, starting from Henley – see the relief tracks services)
- 4tph   Reading – Reading West – Theale – Aldermaston – Midgham – Thatcham – Newbury Racecourse – Newbury.
- 2tphR York – Micklefield – Leeds City – Wakefield Westgate – Rotherham – South Yorkshire (Meadowhall) Sheffield Midland – Chesterfield – Derby – East Midlands Parkway – Loughborough – Leicester – Market Harborough – Kettering – Wellingborough – Bedford Midland – Bletchley – Winslow – Calvert – Bicester Village – Oxford Parkway – Oxford – Wantage Rd. – Swindon – Royal Wootton Bassett – Chippenham – Melksham – Holt Junction – Trowbridge – Westbury – Frome – Castle Cary – Yeovil Pen Mill – Dorchester West – Weymouth
- 2tphR Cleethorpes – Grimsby Town – Barnetby – Market Rasen – Lincoln – Newark Castle – Nottingham – East Midlands Parkway – Loughborough – Leicester – Market Harborough – Kettering – Wellingborough – Bedford Midland – Bletchley – Winslow – Calvert – Bicester Village – Oxford Parkway – Oxford – Wantage Rd. – Swindon – Royal Wootton Bassett – Chippenham – Melksham – Holt Junction – Trowbridge – Westbury – Frome – Castle Cary – Yeovil Pen Mill – Yeovil Junction – Crewkerne – Chard Parkway – Axminster – Seaton Junction – Honiton – Exeter Central – Exeter St. David's – Crediton – Okehampton – Tavistock – Bere Alston – Plymouth
- [2tphR Norwich – Wymondham – Thetford – Ely – Cambridge – Sandy – Bedford St. John's – Bletchley – Winslow – Calvert – Bicester Village – Oxford Parkway – Oxford – Wantage Rd. – Swindon – Royal Wootton Bassett – Chippenham – Melksham – Holt Junction – Trowbridge – Westbury – Frome – Castle Cary – Yeovil Pen Mill – Yeovil Junction – Crewkerne – Chard Parkway – Axminster – Seaton Junction – Honiton – Exeter Central – Exeter St. David's – Crediton – Okehampton – Tavistock – Bere Alston – Plymouth]
- 2tphR Bristol Temple Meads – Bath Spa – Chippenham – Royal Wootton Bassett – Swindon – Oxford

GWML Relief Tracks, west of Old Oak Common – Crossrail – and branches:

- 4tph   Old Oak Common – Acton Main Line – Ealing Broadway – West Ealing – Drayton Green – Castle Bar Park – South Greenford – Greenford

- 4tph   Old Oak Common – Ealing Broadway – West Ealing – Hanwell – Southall – Hayes and Harlington – Heathrow Terminals 1,2,3 – Heathrow Terminal 4
- 4tph   Old Oak Common – Ealing Broadway – Hayes and Harlington – West Drayton – Iver – LHR Interchange – Slough
- 2tph   Old Oak Common – Ealing Broadway – LHR Interchange – Slough – Burnham – Taplow – Maidenhead – Twyford – Wargrave – Shiplake – Henley
- 2tph   Old Oak Common – Ealing Broadway – LHR Interchange – Slough – Burnham – Taplow – Maidenhead – Twyford – Thames Valley Park – Reading
- 2tph   Henley – Shiplake – Wargrave – Twyford (reverse) – Thames Valley Park – Reading – Reading West – Reading Green Park – Mortimer – Bramley – Basingstoke
- 2tph   (LHR Shuttle; fast tracks previously) – LHR Interchange – Slough – Maidenhead – Twyford – Reading – Tilehurst – Pangbourne – Goring and Streatley – Cholsey – Didcot Parkway – Radley – Oxford
- 4tph   Maidenhead – Furze Platt – Cookham – Bourne End (reverse) – Marlow
- 4tph   Didcot Parkway – Appleford – Culham – Radley – Oxford
- 2tph   Gatwick Airport – Redhill (reverse) – Reigate – Dorking Deepdene – Dorking West – Guildford – Ash – North Camp – Farnborough North – Wokingham – Reading – Tilehurst – Pangbourne – Goring and Streatley – Cholsey – Didcot Parkway – Radley – Oxford – Oxford Parkway – Islip – Bicester Village – Calvert – Winslow – Bletchley – Milton Keynes

The following Representative Mini-Timetable between LHR Interchange and Reading is built using the timings extracted from current FGW timetable, as listed in the section 'LHR Interchange / Slough Services':

	CR	HS-S	CR	(CR)	B-H	HfdGl	HS-O	CR	HS-P	CR
LHR I/chng	-01:55	00:00				00:05	00:05	00:09	00:10	00:10
(platform)	(5)	(2)				(2)	(5)	(6)	(1)	(5)
Slough	00:00	00:05				*00:08*	00:10	00:14	00:15	00:15
(platform)	(4)	(2)				(2)	(4)	(6)	(2)	(4)
Burnham	00:04			➔				====		00:19
Taplow	00:08			00:08						00:23
Maidenhead	➔			00:12			00:17			➔
(platform)				(3)			(3)			
Reading					00:10					
Henley			00:08							
Twyford			00:20	00:20	00:20		00:25			
(platform)			(4)	(3)	(5)		(3)			
Wargrave					00:24	➔				
Shiplake					00:27					
Henley					00:32					
TVP			00:18	00:27	====					
Reading			00:21	00:30		00:24			00:31	
(platform)			(9)	(12/13)		(9)			(8)	

	BrF	(HS-O)CR	(CR)	H-B	BrB	CR	Swa	PlyCo
LHR I/chng	00:15				00:20	00:24	00:25	00:28
(platform)	(2)				(1)	(6)	(1)	(2)
Slough	*00:18*				*00:23*	00:29	*00:28*	*00:31*
(platform)	*(2)*				(2)	(6)	(2)	(2)
Burnham			→		====			
Taplow			00:23					
Maidenhead			00:27					
(platform)			(3)					
Reading		00:25						
Henley		→		00:23				
Twyford	00:25	00:35	00:35	00:35				
(platform)	(3)	(4)	(3)	(5)				
Wargrave			00:39					
Shiplake			00:42					
Henley			00:47					
TVP			====	00:42				
Reading	00:34	00:35			00:45	00:39	00:44	00:47
(platform)	(9)	(12/13)			(12/13)	(8)	(8)	(7)

– repeating at 30 minutes past.

Key: CR   Crossrail
   ====   terminates
   00:00   passing time
   00:00   train is travelling in reverse direction (applies around Twyford – see below)
   H-B   Henley – Basingstoke service
   B-H   Basingstoke – Henley service
   HS-S   Heathrow Shuttle to Swindon
   HS-O   Heathrow Shuttle to Oxford
   HS-P   Heathrow Shuttle to Pewsey
   BrF   Paddington – Bristol (fast) service, via Bristol Parkway
   BrB   Paddington – Bristol service, via Bath
   HfdGl   Paddington – Hereford service (00:24 ex LHR Interchange)
       Paddington – Cheltenham service (00:54 ex LHR Interchange)
   Swa   Paddington – Swansea service
   PlyCo   Paddington – Plymouth service (00:28 ex LHR Interchange)
       Paddington – Penzance service (00:58 ex LHR Interchange)

Refer to the section 'Service Plan 5 – Summary' for a full commentary on the complete timetable, (in particular around Twyford).

Representative Hourly Interchange Pattern at Maidenhead:

00   Old Oak Common – Maidenhead – Henley (platform 3)

10   Maidenhead – Marlow (platform 5)

15	Old Oak Common – Maidenhesd – Reading (platform 3)

15   Old Oak Common – Maidenhesd – Reading (platform 3)

20   Paddington – Oxford (LHR Shuttle – platform 3)

25   Maidenhead – Marlow (platform 5)

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

Representative Hourly Interchange Pattern at Twyford:

00   Old Oak Common – Twyford – Reading
  Basingstoke – Reading – Twyford (reverse) – Henley
  Henley – Twyford – Old Oak Common

05   Paddington – Oxford (LHR Shuttle)

15   Old Oak Common – Twyford – Henley
  Henley – Twyford (reverse) – Reading – Basingstoke
  Reading – Twyford – Old Oak Common

– repeating at 30, 35 and 45 minutes past.

The following Representative Mini-Timetables between Reading and Oxford and between Reading and Basingstoke / Newbury and points west are built using the timings extracted from current FGW timetable, as listed in the section 'Reading Services':

	XCCP	HS-S	(HS-O)	Oxfd	GMK	CR	XCMB	Newb
Reading		00:00			00:00	00:00	00:00	00:02
(platform)		(9)			(12)	(13)	(3)	(1)
Tilehurst					00:04	====	++++	++++
Pangbourne					00:08			
Goring & Str.					00:13			
Cholsey			➜		00:18			
Didcot arr.		00:15	00:10		00:25			
(platform)		(1)	(3)		(3)			
Didcot Dep.		00:16	00:11	00:13	00:26			
Foxhall Jn.					➜			
Appleford				00:18				
Culham				00:21				
Radley			00:16	00:25				
Kennington Jn.				00:30				
Oxford	00:03		00:25	00:35				
(platform)	(3)		(7)	(9)				
Foxhall Jn.	00:13		====					
Wantage Rd.	00:18	00:23						
Swindon	00:32	00:37						
(platform)	(1)	(2)						

	HfdGl	XCWY	XCBY	B-O	HS-P	Bas	(GMK)	Oxfd	BrF
Reading	00:03		00:10		00:10	00:10			00:15
(platform)	(9)		(3)		(8)	(2)			(9)
Tilehurst					++++	++++			
Pangbourne									
Goring & Str.									
Cholsey							→		
Didcot arr.							00:25		
(platform)							(3)		*(1)*
Didcot Dep.	*00:15*		*00:22*				00:26	00:28	*00:28*
Foxhall Jn.		*00:16*		*00:28*					
Appleford								00:33	
Culham								00:36	
Radley	*00:18*	*00:19*	*00:25*	*00:31*			00:31	00:40	
Kennington Jn. .								00:45	
Oxford	00:25	00:26	00:32	00:38			00:40	00:50	
(platform)	(1)	(2)	(1)	(8)			(1)	(9)	
Foxhall Jn.				====					
Wantage Rd.									
Swindon								00:45	
(platform)								(2)	

	XCYW	HS-O	XCYB	Newb	XCBM	XCPC	(HS-O)	Oxfd	Swa	H-B	PlyCo
Reading	00:15	00:15	00:17	00:25					00:25	00:25	00:28
(platform)	(12)	(3)	(1)	(3)					(9)	(13)	(8)
Tilehurst	00:19	++++	++++						++++	++++	
Pangbourne	00:23										
Goring & Str.	00:28										
Cholsey	00:33						→				
Didcot arr.	00:40						00:40				
(platform)	(3)						(3)	*(1)*			
Didcot Dep.	00:41				*00:37*		00:41	00:43	*00:38*		
Foxhall Jn.	→					*00:38*					
Appleford								00:48			
Culham								00:51			
Radley					*00:40*	*00:41*	00:46	00:55			
Kennington Jn								01:00			
Oxford	<u>00:30</u>				00:47	00:48	00:55	01:05			
(platform)	*(3)*				(1)	(2)	(7)	(9)			
Foxhall Jn.	<u>*00:40*</u>						====				
Wantage Rd.	00:45										
Swindon	00:59								00:55		
(platform)	(1)								(1)		

– repeating at 30 minutes past.

For the Berks and Hants services:

	HS-S	GMK	CR	XCMB	Newb	XCBY	HS-P	Bas	(Newb)	BrF
Reading (platform)	00:00 (9)	00:00 (12)	00:00 (13)	00:00 (3)	00:02 (1)	00:10 (3)	00:10 (8)	00:10 (2)		00:15 (9)
Reading West	++++	++++	====		00:05	++++		00:13		++++
RGP								00:15		
Mortimer								00:21		
Bramley								00:26		
Basingstoke				00:20				00:35		
Theale					00:10			====		
Aldermaston					00:15					
Midgham					00:19					→
Thatcham arr					00:23	00:24				00:23
Thatcham dep					00:27	00:25				00:27
Newbury RC				→						00:32
Newbury arr						00:30				00:39
Newbury dep						00:33				====
Kintbury						00:40				
Hungerford						00:47				
Bedwyn						00:54				
Pewsey						01:06				
Westbury										

	HS-O	XCYB	BrB	Newb	HfdGl	XCBM	Swa	H-B	PlyCo	(Newb)
Reading (platform)	00:15 (12/13)	00:15 (3)	00:20 (8)	00:17 (1)	00:24 (9)	00:25 (3)	00:25 (9)	00:25 (12/13)	00:28 (8)	
Reading West	++++			00:20	++++	++++	++++	00:28		
RGP								00:30		
Mortimer								00:36		
Bramley								00:41		
Basingstoke		00:35						00:50		
Theale				00:25				====		
Aldermaston				00:30						
Midgham				00:34						→
Thatcham arr				00:38					00:41	00:38
Thatcham dep				00:43					00:42	00:43
Newbury RC				→						00:48
Newbury arr									00:47	00:55
Newbury dep									00:48	====
Kintbury										
Hungerford										
Bedwyn										
Pewsey									01:10	
Westbury									01:28	

– repeating at 30 minutes past.

Key:
CR	Crossrail	
====	terminates	
++++	service not part of current timetable, but included for completeness	
00:00	passing time	
H-B	Stopping service Henley – Basingstoke	
Bas	Stopping service Reading – Basingstoke	
Newb	Stopping service Reading – Newbury	
Oxfd	Stopping service Didcot Parkway – Oxford	
HS-S	Heathrow Shuttle to Swindon	
HS-O	Heathrow Shuttle to Oxford	
HS-P	Heathrow Shuttle to Pewsey	
GMK	Gatwick Airport – Oxford – Milton Keynes service	
XCMB	Cross-Country service Manchester – Bournemouth	
XCYB	Cross-Country service York – Bournemouth	
XCBM	Cross-Country service Bournemouth – Manchester	
XCBY	Cross-Country service Bournemouth – York	
XCYW	Cross-Country service York – Weymouth	
XCWY	Cross-Country service Weymouth – York	
XCCP	Cross-Country service Cleethorpes – Plymouth	
XCPC	Cross-Country service Plymouth – Cleethorpes	
BrF	Paddington – Bristol (fast) service, via Bristol Parkway	
BrB	Paddington – Bristol service, via Bath	
HfdGl	Paddington – Hereford service (00:24 ex Reading)	
	Paddington – Cheltenham service (00:54 ex Reading)	
Swa	Paddington – Swansea service	
PlyCo	Paddington – Plymouth service (00:28 ex Reading) – stops as shown	
	Paddington – Penzance service (00:58 ex Reading) – non-stop	
B-O	Bristol – Oxford service	

Refer to the section 'Service Plan 5 – Summary' for a full commentary on the complete timetable.

Representative Hourly Service Pattern at Didcot Parkway:

00   Paddington – Swindon (LHR Shuttle)

10   Gatwick Airport – Oxford

12   Didcot Parkway – Oxford

15   Paddington – Weymouth

25   Paddington – Oxford (LHR Shuttle)

27   Didcot Parkway – Oxford

– repeating at 30, 40, 42, 45, 55 and 57 minutes past.

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

- Paddington — Old Oak Common station — 16tph
- Old Oak Common station — Heathrow Airport Junction — 16tph
- Heathrow Airport Junction — Heathrow Tunnel Junction — 6tph
- Heathrow Tunnel Junction — LHR Terminals 1,2,3 — 10tph
- LHR Terminals 1,2,3 — LHR Terminal 5 — 6tph
- LHR Terminal 5 — LHR Interchange East Junctions — 6tph
- Heathrow Tunnel Junctions — LHR Interchange East Junctions — 10tph
- LHR Interchange East Jns — Slough station — 14tph
- Slough station — Reading station — 14tph
- Reading station — Didcot Subway Junction — 14tph
- Didcot Subway Junction — Foxhall Junction — 9tph
- Foxhall Junction — Swindon — 13tph
- Didcot Subway Junction — Didcot North Junction — 5tph
- Foxhall Junction — Didcot North Junction — 4tph
- Didcot North Junction — Oxford — 17tph
- Oxford — Hereford — 1tph
- Reading — Basingstoke — 8tph
- Reading — Newbury — 8tph
- Newbury — Pewsey — 4tph
- Pewsey — Plymouth — 2tph

Note that only the services starting from Paddington are included, together with the Cross-Country services from Reading, and stopping services from Maidenhead, Reading and Didcot, also the East-West services (York – Weymouth and Cleethorpes – Plymouth; not Norwich – Plymouth at this service plan). There may well be other services, on the sections beyond Reading. Some of the 16tph between Paddington and Old Oak Common will use the relief lines, but none are specified to do so (as they will be in later service plans).

The service plan imposes the following loadings on the GWML Relief Tracks – Crossrail:

- Old Oak Common — West Ealing Junction — 16tph
- West Ealing Junction — Greenford — 4tph
- West Ealing Junction — Heathrow Airport Junction — 12tph
- Heathrow Airport Junction — Heathrow Tunnel Junction — 4tph
- Heathrow Tunnel Junction — LHR Terminals 1,2,3 — 10tph
- LHR Terminals 1,2,3 — LHR Terminal 4 — 4tph
- Heathrow Airport Junction — LHR Interchange East Junctions — 8tph
- LHR Interchange East Jns — Slough station — 10tph
- Slough station — Maidenhead station — 6tph
- Maidenhead station — Marlow station — 4tph
- Maidenhead station — Twyford station — 6tph
- Twyford station — Henley station — 4tph
- Twyford station — Reading station — 6tph
- Reading station — Didcot Parkway station — 4tph
- Didcot Parkway station — Didcot North Junction — 8tph

Service Plan 1

This service plan comes into operation once the first section of HS4 opens. We assume that by then Crossrail 4 will have opened, and so the Chiltern Line services will again be running from Paddington. It is also assumed that the East-West route has reopened to Cambridge, so the Norwich – Plymouth service is now operational. The services on the GWML switch to the Regional Metro pattern, except for the sole remaining classic express, to Cornwall. (This will later become a classic-compatible.)

HS4:

The classic-compatible services of HS4 replace the corresponding classic services. They travel on the relief tracks between Paddington and Old Oak Common, which is where they are listed – see below – where they diverge from the GWML and join HS4.

The services on the GWML now assume the Regional Metro pattern, except for the express service to Cornwall (designated 'X').

GWML Regional Metro, Fast Tracks:

- 2tphX Paddington – Old Oak Common – LHR Interchange – Reading – Taunton – Exeter St. David's – Plymouth – stations to Penzance
- 2tphR Paddington – Old Oak Common – LHR Interchange – Reading – Thatcham – Newbury – Pewsey – Westbury – Castle Cary – Taunton – Tiverton Parkway – Cullompton – Exeter St. David's – Dawlish – Teignmouth – Newton Abbot – Totnes – Ivybridge – Plymouth
- 2tphR Paddington – Old Oak Common – LHR Interchange – Slough – Reading – Didcot Parkway – Wantage Rd. – Swindon – Royal Wootton Bassett – Chippenham – Melksham – Holt Junction – Trowbridge – Westbury – Frome – Castle Cary – Yeovil Pen Mill – Dorchester West – Weymouth
- 2tphR Paddington – Old Oak Common – LHR Interchange – Reading – Oxford – Hanborough – Charlbury – Kingham – Moreton in March – Honeybourne – Evesham – Pershore – Worcester Shrub Hill – Worcester Foregate Street – Malvern Link – Great Malvern – Colwell – Ledbury – Hereford
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Reading – Didcot – Wantage Rd. – Swindon (LHR Shuttle)
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange –: (LHR Shuttle – continues from LHR Interchange on the relief tracks, on to Oxford)
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Reading – Thatcham – Newbury – Kintbury – Hungerford – Bedwyn – Pewsey (LHR Shuttle)
- 2tphR Bristol Temple Meads – Bath Spa – Chippenham – Royal Wootton Bassett – Swindon – Oxford
- 2tphRS Reading – Reading West – Reading Green Park – Mortimer – Bramley – Basingstoke (note that a further 2tph all stations to Basingstoke service is provided, starting from Henley – see the relief tracks services)
- 4tphRS Reading – Reading West – Theale – Aldermaston – Midgham – Thatcham – Newbury Racecourse – Newbury

GWML Regional Metro, Relief Tracks Paddington – Old Oak Common:

- 2tphC Paddington – Old Oak Common – London Heathrow Interchange – Swindon – Bristol Parkway – Bristol Temple Meads (Brunel Trainshed)
- 2tphC Paddington – Old Oak Common – London Heathrow Interchange – Swindon – Royal Wootton Bassett – Chippenham – Bath Spa – Bristol Temple Meads
- 2tphC Paddington – Old Oak Common – London Heathrow Interchange – Swindon – Royal Wootton Bassett – Bristol Parkway – Newport – Cardiff – Bridgend – Port Talbot – Neath – Swansea
- 2tphC Paddington – Old Oak Common – London Heathrow Interchange – Swindon – Kemble – Stroud – Stonehouse – Gloucester (splits/joins) – :
  – Lydney – Chepstow – Newport – Cardiff
  – Cheltenham – Ashchurch – Worcester Shrub Hill (NB via classic route)
- 2tphR Paddington – Old Oak Common – South Ruislip – Gerrard's Cross – High Wycombe – Princes Risborough – Banbury – Leamington Spa – Warwick Parkway – Warwick – Dorridge – Solihull – Birmingham Moor St. – Birmingham Snow Hill – Smethwick Galton Bridge – Stourbridge Junction – Kidderminster (Chiltern Line)
- 2tphR Paddington – Old Oak Common – South Ruislip – Gerrard's Cross – High Wycombe – Princes Risborough – Haddenham and Thame Parkway – Bicester Village – Islip – Oxford Parkway – Oxford (Chiltern Line)

As noted earlier the four CC services diverge from the GWML and join HS4 at Old Oak Common. The Chiltern services likewise diverge, joining the Chiltern line (and Crossrail 4) at Northolt Junction. The relief lines are then taken over by Crossrail.

There are no changes foreseen to the Crossrail services. However, they are now Regional Metro services:

- 4tphRS Old Oak Common – Acton Main Line – Ealing Broadway – West Ealing – Drayton Green – Castle Bar Park – South Greenford – Greenford
- 4tphR Old Oak Common – Ealing Broadway – Hanwell – Southall – Hayes and Harlington – Heathrow Terminals 1,2,3 – Heathrow Terminal 4
- 4tphR Old Oak Common – Ealing Broadway – Hayes and Harlington – West Drayton – Iver – LHR Interchange – Slough
- 2tphR Old Oak Common – Ealing Broadway – LHR Interchange – Slough – Burnham – Taplow – Maidenhead – Twyford – Wargrave – Shiplake – Henley
- 2tphR Old Oak Common – Ealing Broadway – LHR Interchange – Slough – Burnham – Taplow – Maidenhead – Twyford – Thames Valley Park – Reading
- 2tphR Henley – Shiplake – Wargrave – Twyford (reverse) – Thames Valley Park – Reading – Reading West – Reading Green Park – Mortimer – Bramley – Basingstoke
- 2tphR (LHR Shuttle; fast tracks previously) – LHR Interchange – Slough – Maidenhead – Twyford – Reading – Tilehurst – Pangbourne – Goring and Streatley – Cholsey – Didcot – Oxford
- 4tphRS Maidenhead – Furze Platt – Cookham – Bourne End (reverse) – Marlow
- 2tph   Gatwick Airport – Redhill (reverse) – Reigate – Dorking Deepdene – Dorking West – Guildford – Ash – North Camp – Farnborough North – Wokingham – Reading – Tilehurst – Pangbourne – Goring and Streatley – Cholsey – Didcot Parkway – Oxford – Oxford Parkway – Islip – Bicester Village – Calvert – Winslow – Bletchley – Milton Keynes
- 4tphRS Didcot Parkway – Appleford – Culham – Radley – Oxford

The following Representative Mini-Timetable between LHS Interchange and Reading is built using the timings extracted from current FGW timetable, as listed in the section 'LHR Interchange / Slough Services':

	CRR	Corn	HS-S	CRH	(CRR)	B-H	Hfd	HS-O	CRS	HS-P
LHR I/chng	-01:55	-01:58	00:00				00:05	00:05	00:09	00:10
(platform)	(5)	(2)	(1)				(2)	(5)	(6)	(1)
Slough	00:00	*00:01*	00:05				*00:08*	00:10	00:14	00:15
(platform)	(4)	*(2)*	(2)				(2)	(4)	(6)	(2)
Burnham	00:04				→				====	
Taplow	00:08				00:08					
Maidenhead	→				00:12			00:17		
(platform)					(3)			(3)		
Reading						00:10				
Henley				00:08						
Twyford				00:20	00:20	00:20		00:25		
(platform)				(4)	(3)	(5)		(3)		
Wargrave						00:24		→		
Shiplake						00:27				
Henley						00:32				
TVP					00:27	====				
Reading		00:19	00:21		00:30		00:24			00:31
(platform)		(7)	(8)		(12/13)		(9)			(8)
					====					

	CRH	Wey	(HS-O)	CRR	(CRH)	H-B	CRS	CRR	Ply
LHR I/chng	00:10	00:15					00:24	00:25	00:28
(platform)	(5)	(2)					(6)	(5)	(2)
Slough	00:15	00:20					00:29	00:30	*00:31*
(platform)	(4)	(2)					(6)	(4)	*(2)*
Burnham	00:19				→				
Taplow	00:23				00:23				
Maidenhead	→				00:27		00:27	00:32	
(platform)					(3)		(5)	(3)	
Reading				00:25					
Henley			→			00:23			
Twyford			00:25	00:35	00:35	00:35		00:40	
(platform)			(3)	(4)	(3)	(5)		(3)	
Wargrave					00:39			00:44	
Shiplake					00:42			00:47	
Henley					00:47			00:52	
TVP					====			====	
Reading		00:36	00:35			00:45		00:47	
(platform)		(9)	(12/13)			(12/13)		(7)	

– repeating at 30 minutes past.

Key: CRS   Crossrail Slough service
        CRH   Crossrail Henley sService
        CRR   Crossrail Reading service
        ====   terminates
        00:00   passing time
        <u>00:00</u>   train is travelling in reverse direction (applies around Twyford – see below)
        H-B   Henley – Basingstoke service
        B-H   Basingstoke – Henley service
        HS-S   Heathrow Shuttle to Swindon
        HS-O   Heathrow Shuttle to Oxford
        HS-P   Heathrow Shuttle to Pewsey
        Hfd   Paddington – Hereford service
        Ply   Paddington – Plymouth service
        Corn   Paddington – Cornwall classic express service

Refer to the section 'Service Plan 5 – Summary' for a full commentary on the complete timetable (including extra services not present at this service plan).

Representative Hourly Interchange Pattern at Maidenhead:

00R   Old Oak Common – Maidenhead – Henley (platform 3)

10RS   Maidenhead – Marlow (platform 5)

15R   Old Oak Common – Maidenhesd – Reading (platform 3)

20R   Paddington – Oxford (LHR Shuttle – platform 3)

25RS   Maidenhead – Marlow (platform 5)

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

Representative Hourly Interchange Pattern at Twyford:

00R   Old Oak Common – Twyford – Reading
  RS   Basingstoke – Reading – Twyford (reverse) – Henley
  R   Henley – Twyford – Old Oak Common

05R   Paddington – Oxford (LHR Shuttle)

15R   Old Oak Common – Twyford – Henley
  RS   Henley – Twyford (reverse) – Reading – Basingstoke
  R   Reading – Twyford – Old Oak Common

– repeating at 30, 35 and 45 minutes past.

The following Representative Mini-Timetables between Reading and Oxford and between Reading and Basingstoke / Newbury and points west are built using the timings extracted from current FGW timetable, as listed in the section 'Reading Services':

	Corn	XCCP	HS-S	XCNP	(HS-O)	Oxfd	GMK	CR	XCMB	Newb
Reading	-01:56		00:00				00:00	00:00	00:00	00:02
(platform)	(8)		(9)				(12)	(13)	(3)	(1)
Tilehurst	++++						00:04	====	++++	++++
Pangbourne							00:08			
Goring & Str.							00:13			
Cholsey					→		00:18			
Didcot arr.			00:15		00:10		00:25			
(platform)			(1)		(3)		(3)			
Didcot Dep.			00:16		00:11	00:13	00:26			
Foxhall Jn.							→			
Appleford						00:18				
Culham						00:21				
Radley					00:16	00:25				
Kennington Jn.						00:30				
Oxford		00:03		00:18	00:25	00:35				
(platform)		(3)		(3)	(7)	(9)				
Foxhall Jn.		00:13		00:28	====					
Wantage Rd.		00:18	00:23	00:33						
Swindon		00:32	00:37	00:47						
(platform)		(1)	(2)	(1)						

	Hfd	XCWY	XCBY	XCPN	B-O	HS-P	(GMK)	Oxfd	Bas
Reading	00:03		00:10			00:10			00:10
(platform)	(9)		(3)			(8)			(2)
Tilehurst						++++			++++
Pangbourne									
Goring & Str.									
Cholsey									
Didcot arr.						00:25			
(platform)						(3)			
Didcot Dep.	*00:15*		*00:22*			00:26		00:28	
Foxhall Jn.		*00:16*		*00:23*	*00:28*				
Appleford								00:33	
Culham								00:36	
Radley	*00:18*	*00:19*	*00:25*	*00:26*	*00:31*	00:31		00:40	
Kennington Jn. .								00:45	
Oxford	00:25	00:26	00:32	00:33	00:38	00:40		00:50	
(platform)	(1)	(2)	(1)	(2)	(8)	(1)		(9)	
Foxhall Jn.					====				
Wantage Rd.									
Swindon									
(platform)									

	Wey	XCYW	HS-O	XCYB	Newb	XCBM	XCPC	(HS-O)	Oxfd	H-B	Ply
Reading	00:13	00:15	00:15	00:17	00:25					00:25	00:28
(platform)	(9)	(12)	(3)	(1)	(3)					(13)	(8)]
Tilehurst		00:19	++++	++++						++++	++++
Pangbourne		00:23									
Goring & Str.		00:28									
Cholsey		00:33						→			
Didcot arr.	00:28	00:40						00:40			
(platform)	(1)	(3)						(3)			
Didcot Dep.	00:29	00:41				*00:37*		00:41	00:43		
Foxhall Jn.		→					*00:38*				
Appleford									00:48		
Culham									00:51		
Radley						*00:40*	*00:41*	00:46	00:55		
Kennington Jn									01:00		
Oxford		<u>00:30</u>				00:47	00:48	00:55	01:05		
(platform)		*(3)*				(1)	(2)	(7)	(9)		
Foxhall Jn.		<u>*00:40*</u>						====			
Wantage Rd.	00:36	00:45									
Swindon	00:50	00:59									
(platform)	(2)	(1)									

– repeating at 30 minutes past.

For the Berks and Hants services:

	Corn	HS-S	GMK	CR	XCMB	Newb	Hfd	Bas	XCBY	HS-P
Reading	-01:56	00:00	00:00	00:00	00:00	00:02	00:03	00:10	00:10	00:10
(platform)	(8)	(9)	(12)	(13)	(3)	(1)	(9)	(2)	(7)	(8)
Reading West		++++	++++	====		00:05	++++	00:13	++++	
RGP								00:15		
Mortimer								00:21		
Bramley								00:26		
Basingstoke					00:20			00:35		
Theale						00:10		====		
Aldermaston						00:15				
Midgham						00:19				
Thatcham arr						00:23				00:24
Thatcham dep						00:27				00:25
Newbury RC						→				
Newbury arr										00:30
Newbury dep	*00:12*									00:33
Kintbury										00:40
Hungerford										00:47
Bedwyn										00:54

	Corn	HS-S	GMK	CR	XCMB	Newb	Hfd	Bas	XCBY	HS-P
Pewsey	*00:32*									01:06
Westbury										

	(Newb)	Wey	HS-O	XCYB	Newb	Hfd	XCBM	H-B	Ply	(Newb)
Reading	00:13	00:15	00:15	00:17	00:24	00:25	00:25	00:28		
(platform)	(9)	(12/13)	(3)	(1)	(9)	(3)	(12/13)	(3)		
Reading West	++++	++++		00:20	++++	++++		00:28		
RGP								00:30		
Mortimer								00:36		
Bramley								00:41		
Basingstoke				00:35				00:50		
Theale					00:25			====		
Aldermaston					00:30					
Midgham	➔				00:34				➔	
Thatcham arr	00:23				00:38				00:41	00:38
Thatcham dep	00:27				00:43				00:42	00:43
Newbury RC	00:32				➔					00:48
Newbury arr	00:39								00:47	00:55
Newbury dep	====								00:48	====
Kintbury										
Hungerford										
Bedwyn										
Pewsey									01:10	
Westbury									01:28	

– repeating at 30 minutes past.

Key:
CR	Crossrail	
====	terminates	
++++	service not part of current timetable, but included for completeness	
00:00	passing time	
H-B	Stopping service Henley – Basingstoke	
Bas	Stopping service Reading – Basingstoke	
Newb	Stopping service Reading – Newbury	
Oxfd	Stopping service Didcot Parkway – Oxford	
HS-S	Heathrow Shuttle to Swindon	
HS-O	Heathrow Shuttle to Oxford	
HS-P	Heathrow Shuttle to Pewsey	
GMK	Gatwick Airport – Oxford – Milton Keynes service	
XCMB	Cross-Country service Manchester – Bournemouth	
XCBM	Cross-Country service Bournemouth – Manchester	
XCYB	Cross-Country service York – Bournemouth	
XCBY	Cross-Country service Bournemouth – York	
XCYW	Cross-Country service York – Weymouth	
XCWY	Cross-Country service Weymouth – York	

XCCP Cross-Country service Cleethorpes – Plymouth
XCPC Cross-Country service Plymouth – Cleethorpes
XCNP Cross-Country service Norwich – Plymouth
XCPN Cross-Country service Plymouth – Norwich
Hfd   Paddington – Hereford service
Ply   Paddington – Plymouth service
Corn   Paddington – Cornwall classic express service

Refer to the section 'Service Plan 5 – Summary' for a full commentary on the complete timetable (including extra services not present at this service plan).

Representative Hourly Service Pattern at Didcot Parkway:

00R   Paddington – Swindon (LHR Shuttle)

10R   Gatwick Airport – Oxford

12RS   Didcot Parkway – Oxford

15R   Paddington – Weymouth

25R   Paddington – Oxford (LHR Shuttle)

27RS   Didcot Parkway – Oxford

– repeating at 30, 40, 42, 45, 55 and 57 minutes past.

Representative Hourly Cross-Platform Interchange Pattern at Swindon (the first connection with HS4 since LHR Interchange):

00C   Paddington – Bristol Temple Meads (platform 1)
  R   Heathrow Shuttle (platform 2)

15C   Paddington – Swansea (platform 1)
  R   Paddington – Weymouth (platform 2)

23C   Paddington – Gloucester – Cardiff / Worcester (no interchange – platform 5)

– repeating at 30, 45, and 53 minutes past. Refer to Appendix D for the layout at Swindon.

Representative Hourly Cross-Platform Interchange Pattern at Westbury:

00R   Paddington – Plymouth
  R   Paddington – Weymouth

– repeating at 30 minutes past.

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

- Paddington   – Old Oak Common station   14tph
- Old Oak Common station   – Heathrow Airport Junction   14tph
- Heathrow Airport Junction – Heathrow Tunnel Junction   6tph
- Heathrow Tunnel Junction – LHR Terminals 1,2,3   10tph

- LHR Terminals 1,2,3   – LHR Terminal 5   6tph
- LHR Terminal 5   – LHR Interchange East Junctions   6tph
- Heathrow Tunnel Junctions   – LHR Interchange East Junctions   8tph
- LHR Interchange East Jns   – Slough station   12tph
- Slough Station   – Reading station   12tph
- Reading   – Didcot Subway Junction   10tph
- Didcot Subway Junction   – Foxhall Junction   4tph
- Foxhall Junction   – Swindon   10tph
- Didcot Subway Junction   – Didcot North Junction   6tph
- Foxhall Junction   – Didcot North Junction   6tph
- Didcot North Junction   – Oxford   20tph
- Swindon   – Weymouth   2tph
- Oxford   – Hereford   2tph
- Reading   – Basingstoke   8tph
- Reading   – Newbury   10tph
- Newbury   – Pewsey   6tph
- Pewsey   – Plymouth   4tph

The service plan imposes the following loadings on the GWML Relief Tracks:

- Paddington   – Old Oak Common   12tph

These all leave the GWML at Old Oak Common, the CCs joining HS4, and the Chiltern services proceeding via Northolt Junction. Beyond Old Oak Common, the relief lines are taken over by Crossrail, with no changes whatever from Service Plan 0 in the loadings

Service Plan 2

This service plan comes into operation when:

- HS4 opens from Old Oak Common West to East Junction, and thus connects to the route to Euston Cross, which is already in service for HS2.
- HS11 opens from Southend Airport and Shenfield to Euston Cross. (Since Euston Cross is a through station only, when HS4 commences serving it, the balancing services on HS11 must commence simultaneously.)
- HS4 opens from Swindon (Magic Roundabout Junction) to Cardiff.
- HS7 opens from Birmingham Curzon St. to Bristol Temple Meads.

The fast Paddington – Bristol classic compatible service is replaced by a GC-gauge service.

HS4:

- 2tphG [HS12 Shenfield –>] Euston Cross – Old Oak Common – London Heathrow Interchange – Bristol Parkway HS – Cardiff HS
- 2tphG [HS11 Southend Airport –>] Euston Cross – Old Oak Common – London Heathrow Interchange –Bristol Parkway HS – Bristol Temple Meads BT. This replaces the classic-compatible extra-fast service to Bristol of service plan 1.

- 2tphG [HS11 Southend Airport –>] Euston Cross – Old Oak Common – London Heathrow Interchange – Bristol Parkway HS – Cardiff HS

There are no changes to the GWML Regional Metro services (nor to Crossrail). One classic-compatible service has been replaced by a GC-gauge service. Thus the **only** change on the GWML at this service plan is that the loading between Paddington and Old Oak Common (relief lines) is reduced by 2tph to 10tph.

Service Plan 3

This service plan comes into effect when HS7 opens from Bristol Temple Meads to Plymouth. A new HS4 classic compatible service is introduced, high speed all the way to Plymouth, then through to Penzance. The new classic-compatible service Paddington – Plymouth –> Penzance replaces the classic express of service plan 1, (thus there is no change in loading between Paddington and Old Oak Common beyond the switching of 2tph from fast to relief lines, which both thus have 12tph, but an extra 2tph on HS4 and 2tph less on the GWML fast lines thereafter).

HS4:

- 2tphC Paddington – Old Oak Common – London Heathrow Interchange –Bristol Parkway HS – Bristol Temple Meads HS – Taunton – Exeter St. David's – Plymouth – stations to Penzance / Padstow (see appendix E of 'HS4 Route and Service Plans' article).

GWML Regional Metro, Fast Tracks:

There is no overall change in loadings between Paddington and Old Oak Common, as noted above (still 24tph), but there is a change thereafter – the classic express service to Cornwall has been replaced by a classic compatible service, so the loadings on the GWML are 2tph less. We take the opportunity to double the Heathrow Shuttle services, introducing three new services, and extending the Pewsey service to Devizes and Bristol. In addition, the South Western service to Plymouth is brought over from Waterloo to Paddington, and the stopping service between Reading and Basingstoke is extended to Salisbury.

- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Reading – Thatcham – Newbury –Hungerford – Bedwyn – Pewsey – Devizes – Holt Junction – Bradford on Avon – Bath – Bristol Temple Meads (LHR Shuttle)
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Reading – Thatcham – Newbury – Kintbury – Hungerford – Bedwyn – Savernake – Marlborough (LHR Shuttle)
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange –: (LHR Shuttle – continues from LHR Interchange on the relief tracks, on to Henley)
- 2tphR Paddington – Old Oak Common – LHR Interchange – Reading – Basingstoke – Salisbury – Tisbury – Gillingham – Templecombe – Yeovil Junction – Crewkerne – Chard Parkway – Axminster – Seaton Junction – Honiton – Exeter Central – Exeter St. David's – Crediton – Okehampton – Tavistock – Bere Alston – Plymouth
- 2tphRS Reading – Reading West – Reading Green Park – Mortimer – Bramley – Basingstoke – Overton – Whitchurch – Andover – Grateley – Salisbury

GWML Relief Tracks, west of Old Oak Common – Crossrail – and branch:

The following changes are made to relief tracks:

- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – LHR Interchange – Slough – Maidenhead – Bourne End (connections to and from Marlow) – High Wycombe – Princes Risborough – Monks Risborough – Little Kimble – Aylesbury – Aylesbury Vale Parkway – Calvert (for HS2) – Winslow – Bletchley – Milton Keynes (LHR Shuttle; runs all the way from Paddington on the relief tracks, for better balance of loadings between fast and relief)
- 2tphR (LHR Shuttle; fast tracks previously) – LHR Interchange – Slough – Maidenhead – Twyford – Wargrave – Shiplake – Henley
- 4tphR Maidenhead – Furze Platt – Cookham – Bourne End (reverse) – Marlow (reverse) – Bourne End – Wooburn Green – Loudwater – High Wycombe

The introduction of the LHR Shuttle to Milton Keynes obviously depends on the reopening of the line between Bourne End and High Wycombe. Appendix F describes the services on the restored Marlow branch, which are inappropriate (too involved) to include in the main text.

In fact, with this service plan, the GWML services are complete, so, rather than including some 6 pages which will be repeated, identically, later, all the mini-timetables, interchange patterns and section loadings are held over until the Service Plan 5 Summary, where everything is gathered together and displayed in full.

Service Plans 4, 4A, 4B, 4C, 5

These service plans variously reflect inter alia the following changes:

- HS7 is opened north of Birmingham, to York and Leeds, also to Nottingham.
- HS9 opens its initial section between Leeds and Garforth.
- HS7 is extended from York to Newcastle, via Durham (Relly Mill) and Consett.
- HS8 (Southern Transpennine) opens, from Norwich to Preston. The Nottingham to South Wales service will instead start at Norwich, and call also at Peterborough.
- HS9 (Northern Transpennine) opens, together with the link from HS8 to Huddersfield. HS7 services will be routed between Leeds HS and Derby via Huddersfield and Sheffield HS, rather than via South Yorkshire (Meadowhall)
- [The remaining three changes occur much later.] HS4 is extended from Cardiff to Swansea. I have assumed that this will serve Cardiff Rhoose Airport whether or not it becomes a Heathrow satellite, and will also serve Port Talbot, approaching Swansea from the east (as opposed to from the north, with the classic route). Half the services will continue to Swansea, and half terminate at Cardiff, as detailed below.
- HS11 is extended from Faversham to Dover.
- HS12 is extended from Shenfield North junction to Norwich.

That's all terrifically important stuff, but its effects are completely confined to HS4 (and all the others). There are no changes of any kind on the GWML.

Service Plan 5 - Summary

It's worth summarising the full set of services at service plan 5, (which is, as far as the GWML is concerned, unchanged from service plan 3,) as this represents the final, complete state of these plans, and the services have so far been introduced piecemeal, at the various stages.

HS4 GC-gauge, via Euston Cross:

- 2tphG [HS12/HS11 Norwich –>] Euston Cross – Old Oak Common – London Heathrow Interchange – Bristol Parkway HS – Cardiff HS – Cardiff (Rhoose) Airport – Port Talbot – Swansea
- 2tphG [HS11 Dover –>] Euston Cross – Old Oak Common – London Heathrow Interchange – Bristol Parkway HS – Cardiff HS
- 2tphG [HS11 Dover –>] Euston Cross – Old Oak Common – London Heathrow Interchange – Bristol Parkway HS – Bristol Temple Meads BT

HS4's Classic Compatible services travel from Paddington to Old Oak Common on the relief tracks (qv).

GWML Regional Metro, Fast Tracks:

- 2tphR Paddington – Old Oak Common – LHR Interchange – Reading – Oxford – Hanborough – Charlbury – Kingham – Moreton-in-Marsh – Honeybourne – Evesham – Pershore – Worcester Shrub Hill – Worcester Foregate Street – Malvern Link – Great Malvern – Colwell – Ledbury – Hereford
- 2tphR Paddington – Old Oak Common – LHR Interchange – Reading – Thatcham – Pewsey – Westbury – Frome – Castle Cary – Taunton – Tiverton Parkway – Cullompton – Exeter St. David's – Dawlish – Teignmouth – Newton Abbot – Totnes – Ivybridge – Plymouth. (NB does **not** stop at Newbury, because of the necessity to overtake a Heathrow Shuttle service there – overtaking tracks only at Newbury.)
- 2tphR Paddington – Old Oak Common – LHR Interchange – Reading – Basingstoke – Salisbury – Tisbury – Gillingham – Templecombe – Yeovil Junction – Crewkerne – Chard Parkway – Axminster – Seaton Junction – Honiton – Exeter Central – Exeter St. David's – Crediton – Okehampton – Tavistock – Bere Alston – Plymouth
- 2tphR Paddington – Old Oak Common – LHR Interchange – Slough – Reading – Didcot Parkway – Wantage Rd. – Swindon – Royal Wootton Bassett – Chippenham – Melksham – Holt Junction – Trowbridge – Westbury – Frome – Castle Cary – Yeovil Pen Mill – Dorchester West – Weymouth
- 2tphR Bournemouth – Brockenhurst – Southampton Central – Southampton Airport Parkway – Winchester – Basingstoke – Reading – Oxford – Banbury – Leamington Spa – Coventry – Birmingham International – Birminham New St. – Wolverhampton – Stafford – Stoke on Trent – Macclesfield – Stockport – Manchester Piccadilly (Cross-Country)
- 2tphR Bournemouth – Brockenhurst – Southampton Central – Southampton Airport Parkway – Winchester – Basingstoke – Reading – Oxford – Banbury – Leamington Spa – Coventry – Birmingham International – Birminham New St. (reverse) – Tamworth – Burton on Trent – Derby – Chesterfield – Sheffield Midland – South Yorkshire (Meadowhall) – Rotherham – Wakefield Westgate – Leeds City – Micklefield – York (Cross-Country)
- 2tphR York – Micklefield – Leeds City – Wakefield Westgate – Rotherham – South Yorkshire (Meadowhall) – Sheffield Midland – Chesterfield – Derby – East Midlands Parkway –

Loughborough – Leicester – Market Harborough – Kettering – Wellingborough – Bedford Midland – Bletchley – Winslow – Calvert – Bicester Village – Oxford Parkway – Oxford – Swindon – Royal Wootton Bassett – Chippenham – Melksham – Holt Junction – Trowbridge – Westbury – Frome – Castle Cary – Yeovil Pen Mill – Dorchester West – Weymouth (Cross-Country)

- 2tphR Cleethorpes – Grimsby Town – Barnetby – Market Rasen – Lincoln – Newark Castle – Nottingham – East Midlands Parkway – Loughborough – Leicester – Market Harborough – Kettering – Wellingborough – Bedford Midland – Bletchley – Winslow – Calvert – Bicester Village – Oxford Parkway – Oxford – Wantage Rd. – Swindon – Royal Wootton Bassett – Chippenham – Melksham – Holt Junction – Trowbridge – Westbury – Frome – Castle Cary – Yeovil Pen Mill – Yeovil Junction – Crewkerne – Chard Parkway – Axminster – Seaton Junction – Honiton – Exeter Central – Exeter St. David's – Crediton – Okehampton – Tavistock – Bere Alston – Plymouth (Cross-Country)
- 2tphR Norwich – Wymondham – Thetford – Ely – Cambridge – Sandy – Bedford St. John's – Bletchley – Winslow – Calvert – Bicester Village – Oxford Parkway – Oxford – Wantage Rd. – Swindon – Royal Wootton Bassett – Chippenham – Melksham – Holt Junction – Trowbridge – Westbury – Frome – Castle Cary – Yeovil Pen Mill – Yeovil Junction – Crewkerne – Chard Parkway – Axminster – Seaton Junction – Honiton – Exeter Central – Exeter St. David's – Crediton – Okehampton – Tavistock – Bere Alston – Plymouth (Cross-Country)
- 2tphR Bristol Temple Meads – Bath Spa – Chippenham – Royal Wootton Bassett – Swindon - Oxford
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Reading – Didcot – Wantage Rd. – Swindon (LHR Shuttle)
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange –: (LHR Shuttle – continues from LHR Interchange on the relief tracks, on to Oxford)
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Reading – Thatcham – Newbury –Hungerford – Bedwyn – Pewsey – Devizes – Holt Junction – Bradford on Avon – Bath – Bristol Temple Meads (LHR Shuttle)
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Reading – Thatcham – Newbury – Kintbury – Hungerford – Bedwyn – Savernake – Marlborough (LHR Shuttle)
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange –: (LHR Shuttle – continues from LHR Interchange on the relief tracks, on to Henley
- 2tphRS Reading – Reading West – Reading Green Park – Mortimer – Bramley – Basingstoke – Overton – Whitchurch – Andover – Grateley – Salisbury (note that a further 2tph all stations to Basingstoke service is provided, starting from Henley – see the relief tracks services)
- 4tphRS Reading – Reading West – Theale – Aldermaston – Midgham – Thatcham – Newbury Racecourse – Newbury

GWML Regional Metro, Relief Tracks, Paddington – Old Oak Common:

- 2tphC Paddington – Old Oak Common – London Heathrow Interchange –Bristol Parkway HS – Bristol Temple Meads HS – Taunton – Exeter St. David's – Plymouth – stations to Penzance / Padstow.
- 2tphC Paddington – Old Oak Common – London Heathrow Interchange – Swindon – Royal Wootton Bassett – Chippenham – Bath Spa – Bristol Temple Meads

- 2tphC Paddington – Old Oak Common – London Heathrow Interchange – Swindon – Royal Wootton Bassett – Bristol Parkway – Newport – Cardiff – Bridgend – Port Talbot – Neath – Swansea
- 2tphC Paddington – Old Oak Common – London Heathrow Interchange – Swindon – Kemble – Stroud – Stonehouse – Gloucester (splits) – :
  – Lydney – Chepstow – Newport – Cardiff
  – Cheltenham – Ashchurch – Worcester Shrub Hill (NB via classic route)
- 2tphR Paddington – Old Oak Common – South Ruislip – Gerrard's Cross – High Wycombe – Princes Risborough – Banbury – Leamington Spa – Warwick Parkway – Warwick – Dorr-idge – Solihull – Birmingham Moor St. – Birmingham Snow Hill – Smethwick Galton Bridge – Stourbridge Junction – Kidderminster (Chiltern Line)
- 2tphR Paddington – Old Oak Common – South Ruislip – Gerrard's Cross – High Wycombe – Princes Risborough – Haddenham and Thame Parkway – Bicester Village – Oxford Parkway – Oxford (Chiltern Line)
- 2tphR Paddington – Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Maidenhead – Bourne End (connections to and from Marlow) – High Wycombe – Princes Risborough – Monks Risborough – Little Kimble – Aylesbury – Aylesbury Vale Parkway – Calvert (for HS2) – Winslow – Bletchley – Milton Keynes (LHR Shuttle)

All except the last service, the Milton Keynes Shuttle, leave the GWML at Old Oak Common. The Shuttle continues on the relief lines, joined by Crossrail.

GWML Relief Tracks, west of Old Oak Common – Crossrail – and branches:

- 4tphRS Old Oak Common – Acton Main Line – Ealing Broadway – West Ealing – Drayton Green – Castle Bar Park – South Greenford – Greenford
- 4tphR Old Oak Common – Ealing Broadway – Hanwell – Southall – Hayes and Harlington – Heathrow Terminals 1,2,3 – Heathrow Terminal 4
- 4tphR Old Oak Common – Ealing Broadway – Hayes and Harlington – West Drayton – Iver – LHR Interchange – Slough
- 2tphR Old Oak Common – Ealing Broadway – LHR Interchange – Slough – Burnham – Taplow – Maidenhead – Twyford – Wargrave – Shiplake – Henley
- 2tphR Old Oak Common – Ealing Broadway – LHR Interchange – Slough – Burnham – Taplow – Maidenhead – Twyford – Thames Valley Park – Reading
- 2tphR [Paddington –] Old Oak Common – LHR Terminals 1,2,3 – LHR Terminal 5 – LHR Interchange – Slough – Maidenhead – Bourne End (connections to and from Marlow) – High Wycombe – Princes Risborough – Monks Risborough – Little Kimble – Aylesbury – Aylesbury Vale Parkway – Calvert (for HS2) – Winslow – Bletchley – Milton Keynes (LHR Shuttle)
- 2tphR (LHR Shuttle; fast tracks previously) – LHR Interchange – Slough – Maidenhead – Twyford – Reading – Tilehurst – Pangbourne – Goring and Streatley – Cholsey – Didcot – Oxford
- 2tphR (LHR Shuttle; fast tracks previously) – LHR Interchange – Slough – Maidenhead – Twyford – Wargrave – Shiplake – Henley
- 2tphRS Maidenhead – Furze Platt – Cookham – Bourne End (reverse) – Marlow (reverse) – Bourne End – Wooburn Green – Loudwater – High Wycombe
- 2tphRS Henley – Shiplake – Wargrave – Twyford (reverse) – Thames Valley Park – Reading – Reading West – Reading Green Park – Mortimer – Bramley – Basingstoke

- 2tph Gatwick Airport – Redhill (reverse) – Reigate – Dorking Deepdene – Dorking West – Guildford – Ash – North Camp – Farnborough North – Wokingham – Reading – Tilehurst – Pangbourne – Goring and Streatley – Cholsey – Didcot Parkway – Oxford – Oxford Parkway – Bicester Village – Calvert – Winslow – Bletchley – Milton Keynes
- 4tphRS Didcot Parkway – Appleford – Culham – Radley – Kennington Junction – Oxford –> Banbury / Moreton-in-Marsh (this service becomes part of the Oxford Metro).

Paddington Terminal Platform Usage:

1. 2tphR Hereford, via the Cotswold Line
2. 2tphR Plymouth, via Westbury
   1tphR Weymouth, via Chippenham and Westbury
3. 2tphR Plymouth, via Salisbury
   1tphR Weymouth, via Chippenham and Westbury
4. 2tphR Newbury, Marlborough (LHR Shuttle)
   2tphR Newbury, Devizes, Bristol (LHR Shuttle)
5. 2tphR Swindon (LHR Shuttle)
   2tphR Oxford (LHR Shuttle)
6. 2tphR Twyford, Henley (LHR Shuttle)
   2tphR Maidenhead, High Wycombe, Aylesbury, Milton Keynes (LHR Shuttle)
7. 2tphR Birmingham, Kidderminster (Chiltern)
8. 2tphR Princes Risborough, Oxford (Chiltern)
9. 2tphC Plymouth and Cornwall
10. 2tphC Bristol Temple Meads
11. 2tphC Swansea
12. 2tphC Stroud, Gloucester, Cardiff / Worcester

The rationale behind this arrangement is that services from platforms 7-12 travel to Old Oak Common on the relief lines, and they all leave the GWML at Old Oak Common, 9-12 travelling thence to Swindon on HS4, and 7-8 joining the Chiltern Line (and Crossrail 4) at Northolt Junction. Services from platforms 1-6 **except** the LHR Shuttle to Milton Keynes travel on the fast lines to Old Oak Common, continuing on the fast lines to Heathrow Airport Junction, where the Shuttle services diverge. The Milton Keynes Shuttle is sent via the relief lines purely to balance the loadings better, after the Plymouth via Salisbury service has been moved to Paddington. It joins Crossrail services on the relief lines west of Old Oak Common. See appendix I for the track layout diagrams of Old Oak Common for clarification.

The following Representative Mini-Timetable between LHS Interchange and Reading is built using the timings extracted from current FGW timetable, as listed in the section 'LHR Interchange / Slough Services':

	CRR	Ply	HS-S	CRH	(CRR)	B-H	Hfd	HS-O	CRS	PvS	HS-D	CRH
LHR I/chng	-01:55	00:00	00:00				00:05	00:05	00:09	00:10	00:10	00:10
(platform)	(5)	(2)	(1)				(2)	(5)	(6)	(2)	(1)	(5)
Slough	00:00	*00:03*	00:05				*00:08*	00:10	00:14	*00:13*	00:15	00:15
(platform)	(4)	*(2)*	(2)				(2)	(4)	(6)	*(2)*	(2)	(4)
Burnham	00:04				→				====			00:19
Taplow	00:08				00:08							00:23
Maidenhead	→				00:12			00:17				→

```
(platform)                          (3)               (3)
   Reading                                    00:10
   Henley                         00:08
```

[	CRR	Ply	HS-S	CRH	(CRR)	B-H	Hfd	HS-O	CRS	PvS	HS-D	CRH	]
Twyford				00:20	00:20	00:20		00:25					
(platform)				(4)	(3)	(5)		(3)					
Wargrave						00:24		➔					
Shiplake						00:27							
Henley						00:32							
TVP					00:27	====							
Reading		00:19	00:21		00:30		00:24			00:29	00:31		
(platform)		(7)	(8)		(12/13)		(9)			(7)	(8)		
					====								

	Wey	(HS-O)	CRR	(CRH)	H-B	HS-K	HS-H	CRS	CRR	HS-M	[Ply	]
LHR I/chng	00:15					00:15	00:20	00:24	00:25	00:25	[00:30	]
(platform)	(2)					(5)	(5)	(6)	(5)	(1)	[(2)	]
Slough	00:20					00:20	00:25	00:29	00:30	00:30	[00:33	]
(platform)	(2)					(4)	(4)	(6)	(4)	(2)	[(2)	]
Burnham				➔				====	00:34			
Taplow				00:23					00:38			
Maidenhead				00:27		00:27	00:32		➔			
(platform)				(3)		(5)	(3)					
Reading			00:25									
Henley		➔			00:23							
Twyford	00:25	00:35		00:35	00:35			00:40				
(platform)	(3)	(4)		(3)	(5)			(3)				
Wargrave				00:39				00:44				
Shiplake				00:42				00:47				
Henley				00:47				00:52				
TVP				====				====				
Reading	00:36	00:35			00:45				00:46		[00:49	]
(platform)	(9)	(12/13)			(12/13)				(8)		(7)	

– repeating at 30 minutes past.

Key: CRR   Crossrail (Reading)
      CRH   Crossrail (Henley)
      CRS   Crossrail (Slough)
      ==== terminates
      00:00 passing time
      00:00 train is travelling in reverse direction (applies around Twyford – see below)
      H-B   Henley – Basingstoke service
      B-H   Basingstoke – Henley service
      HS-S Heathrow Shuttle to Swindon
      HS-O Heathrow Shuttle to Oxford

HS-D   Heathrow Shuttle to Devizes (and Bristol)
HS-M   Heathrow Shuttle to Marlborough
HS-K   Heathrow Shuttle to Milton Keynes
HS-H   Heathrow Shuttle to Henley
Wey   Paddington – Weymouth service
Hfd   Paddington – Hereford service
Ply   Paddington – Plymouth service
PvS   Paddington – Plymouth via Salisbury service

Much of the complexity of the above timetable is in showing the connections at Twyford, thus

1. The Crossrail service to Reading (00:00 ex Slough) connects at Twyford with the eastbound Crossrail service from Henley, giving a connection Henley – Reading, and with the Basingstoke – Henley service, giving a connection Old Oak Common – Henley.
2. The Crossrail service to Henley (00:15 ex Slough) connects at Twyford with the eastbound Crossrail service from Reading, giving a connection Reading – Henley, and with the Henley – Basingstoke service, giving a connection Old Oak Common – Reading.

The point of all this is to give both Reading and stations Twyford – Henley a 4tph service on Crossrail, the same as everywhere else, albeit with one change (but the same overall times as the direct services).

The platform numbers are essential information, to be able to understand how the services coexist without getting in each other's way. Changes are required at Twyford station, and the new layout is described in Appendix C. Appendix A gives the platform numbers at LHR Interchange. Otherwise the platforms at Slough, Maidenhead and (the new) Reading stations are as is. The following details may need further elucidation:

The Heathrow Shuttle service to Milton Keynes uses platform 5 at Maidenhead (for the Marlow branch), thus keeping out of the way of the immediately preceding Crossrail service to Henley, in platform 3. While this interaction is taking place, the Marlow and High Wycombe branch train is parked out of the way in the siding on the north side of the relief lines east of Maidenhead East Junction. As soon as the Milton Keynes Shuttle has departed, it moves back into platform 5 to provide a connection from the following Henley Shuttle. The other Marlow service, 15 minutes later, is not required to take this avoiding action; it provides a connection from the Oxford Shuttle. The Marlow branch arrangements are slightly complicated, and are described at length in Appendix F.

At the new Reading station, 8 and 9 are the main westbound platforms. But 8 allows for a connection to the Berks and Hants lines, whereas 9 doesn't. Accordingly, the Hereford service uses 9 but the Shuttle to Marlborough must use 8. Likewise the Weymouth service uses 9 but the Shuttle to Devizes (and Bristol) must use 8. Platform 7 (the 'Westbury' platform) is actually the main platform for the Berks and Hants. The Cross Country services reverse at Reading using platforms 3.

Representative Hourly Interchange Pattern at Maidenhead:

00R   Old Oak Common – Maidenhead – Henley (platform 3)
  R   Paddington – Milton Keynes (LHR Shuttle – platform 5)

05R   Paddington – Henley (LHR Shuttle – platform 3)

10RS   Maidenhead – Marlow – High Wycombe (platform 5)

15R   Old Oak Common – Maidenhead – Reading (platform 3)

20R   Paddington – Oxford (LHR Shuttle – platform 3)

25RS Maidenhead – Marlow – High Wycombe (platform 5)

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

(See Appendix F for a detailed description of the services to Marlow.)

Representative Hourly Interchange Pattern at Twyford:

00R   Old Oak Common – Twyford – Reading
  RS   Basingstoke – Reading – Twyford (reverse) – Henley
  R   Henley – Twyford – Old Oak Common

05R   Paddington – Oxford (LHR Shuttle – no connection)

15R   Old Oak Common – Twyford – Henley
  RS   Henley – Twyford (reverse) – Reading – Basingstoke
  R   Reading – Twyford – Old Oak Common

20R   Paddington – Twyford – Henley (LHR Shuttle – no connection)

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

The following Representative Mini-Timetables between Reading and Oxford and between Reading and Basingstoke / Newbury and points west are built using the timings extracted from current FGW timetable, as listed in the section 'Reading Services':

	Ply	XCCP	HS-S	XCNP	(HS-O)	Oxfd	GMK	CR	XCMB	Newb
Reading	-01:58		00:00				00:00	00:00	00:00	00:02
(platform)	(7)		(9)				(12)	(13)	(3)	(1)
Tilehurst	++++						00:04	====	++++	++++
Pangbourne							00:08			
Goring & Str.							00:13			
Cholsey					➔		00:18			
Didcot arr.			00:15		00:10		00:25			
(platform)			(1)		(3)		(3)			
Didcot Dep.			00:16		00:11	00:13	00:26			
Foxhall Jn.							➔			
Appleford						00:18				
Culham						00:21				
Radley					00:16	00:25				
Kennington Jn.						00:30				
Oxford		00:03		00:18	00:25	00:35				
(platform)		(3)		(3)	(7)	(9)				
Foxhall Jn.		00:13		00:28	====					
Wantage Rd.		00:18	00:23	00:33						

Swindon (platform)   00:32 (1)   00:37 (2)   00:47 (1)

Station	Hfd	XCWY	PvS	XCBY	XCPN	B-O	HS-D	(GMK)	Oxfd	Sal
Reading (platform)	00:03 (9)		00:08 (7)	00:10 (3)			00:10 (8)		00:10 (2)	
Tilehurst			++++				++++		++++	
Pangbourne										
Goring & Str.										
Cholsey										
Didcot arr. (platform)							00:25 (3)			
Didcot Dep.	*00:15*			*00:22*			00:26		00:28	
Foxhall Jn.		*00:16*			*00:23*	*00:28*				
Appleford									00:33	
Culham									00:36	
Radley	*00:18*	*00:19*		*00:25*	*00:26*	*00:31*	00:31		00:40	
Kennington Jn.									00:45	
Oxford (platform)	00:25 (1)	00:26 (2)		00:32 (1)	00:33 (2)	00:38 (8)	00:40 (1)		00:50 (9)	
Foxhall Jn.						====				
Wantage Rd.										
Swindon (platform)										

Station	Wey	XCYW	HS-O	XCYB	Newb	XCBM	XCPC	(HS-O)	Oxfd	HS-M	H-B	[Ply]
Reading (platform)	00:13 (9)		00:15 (12)	00:15 (3)	00:17 (1)	00:25 (3)				00:25 (8)	00:25 (13)	[00:28] [(8)]
Tilehurst			00:19	++++	++++					++++	++++	[++++]
Pangbourne			00:23									
Goring & Str.			00:28									
Cholsey			00:33					➔				
Didcot arr. (platform)	00:28 (1)		00:40 (3)					00:40 (3)				
Didcot Dep.	00:29		00:41			*00:37*		00:41	00:43			
Foxhall Jn.			➔				*00:38*					
Appleford									00:48			
Culham									00:51			
Radley						*00:40*	*00:41*	00:46	00:55			
Kennington Jn									01:00			
Oxford (platform)		<u>*00:30*</u> (3)				00:47 (1)	00:48 (2)	00:55 (7)	01:05 (9)			
Foxhall Jn.		<u>*00:40*</u>						====				
Wantage Rd.	00:36	00:45										
Swindon (platform)	00:50 (2)	00:59 (1)										

– repeating at 30 minutes past.

The all stations service from Didcot to Oxford must therefore depart at 28 and 43 minutes past, immediately after that non-stop between these points. (This timing could only be determined after fixing the others.)

The above table looks a dreadful mess because of the need to pack so much stuff in – especially the East-West trains in both directions! Note that overtaking is possible at Radley.

What **is** impossible, at present, is the ability of the appalling Oxford station to accommodate the above services. This would have to be rebuilt (possibly at a new location) with at least two island platforms, and separate bays for the terminating trains. This should of course have been done at least 50 years ago. The station buildings have been replaced in the interim, so the passenger facilities are somewhat better, but, as far as the transport infrastructure is concerned, the present station is no better than the 'temporary' station (dating from the 1870s) that I remember from my time there as an undergraduate, back in the mid 1960s.

A suggested design for Oxford station is in Appendix E. This actually retains all of the current rail infrastructure, expanding below the Botley Road. It doesn't actually have island platforms, but has the next best thing – same-platform, as opposed to cross-platform, interchange.

For the Berks and Hants services:

`	HS-M (HS-D)	Ply	HS-S (HS-M)	GMK	CR	XCMB	Newb	Hfd	PvS	XCBY	HS-D
Reading (platform)	-01:55 (8)	-01:58 (7)	00:00 (9)	00:00 (12)	00:00 (13)	00:00 (3)	00:02 (1)	00:03 (9)	00:08 (7)	00:10 (7)	00:10 (8)
Reading West RGP			++++	++++	====		00:05	++++		++++	
Mortimer											
Bramley											
Basingstoke						00:20			00:28		
Theale							00:10				
Aldermaston							00:15				
Midgham							00:19				
Thatcham arr	00:09	00:11					00:23				00:24
Thatcham dep	00:10	00:12					00:27				00:25
Newbury RC							➔				
Newbury arr	00:15		➔								00:30
Newbury dep	00:17	*00:16*	00:17								00:33
Kintbury	➔		00:24								00:40
Hungerford			00:31								00:47
Bedwyn	➔		00:38								00:54
Pewsey	00:36	00:38									01:06
Westbury			00:56								➔

	Sal	(Newb)	Wey	HS-O	XCYB	Newb	XCBM	HS-M	H-B	Ply	(Newb) (HS-M)
Reading (platform)	00:10 (2)		00:13 (9)	00:15 (12/13)	00:15 (3)	00:17 (1)	00:25 (3)	00:25 (8)	00:25 (12/13)	00:28 (8)	
Reading West	00:13		++++	++++		00:20	++++		00:28		
RGP	00:15								00:30		
Mortimer	00:21								00:36		
Bramley	00:26								00:41		
Basingstoke	00:35				00:35				00:50		
Theale						00:25			====		
Aldermaston						00:30					
Midgham		➔				00:34					➔
Thatcham arr		00:23				00:38		00:39		00:41	00:38
Thatcham dep		00:27				00:43		00:40		00:42	00:43
Newbury RC		00:32				➔					00:48
Newbury arr		00:39						00:45			00:55
		====									====
											➔
Newbury dep								00:47		*00:46*	00:47
Kintbury										➔	00:54
Hungerford											01:01
Bedwyn										➔	01:08
Pewsey								01:06		01:08	
Westbury										01:26	

– repeating at 30 minutes past.

Key:
CR	Crossrail	
====	terminates	
++++	service not part of current timetable but included for completeness	
00:00	passing time	
Oxfd	Didcot – Oxford stopping service	
Newb	Reading – Newbury stopping service	
Sal	Reading – Salisbury stopping service	
H-B	Henley – Basingstoke stopping service	
HS-S	Heathrow Shuttle to Swindon	
HS-O	Heathrow Shuttle to Oxford	
HS-D	Heathrow Shuttle to Devizes (and Bristol)	
HS-M	Heathrow Shuttle to Marlborough	
GMK	Gatwick Airport – Milton Keynes service	
Wey	Paddington – Weymouth service	
Hfd	Paddington – Hereford service	
Ply	Paddington – Plymouth service	
PvS	Paddington – Plymouth via Salisbury service	
B-O	Bristol – Oxford service	
XCBM	Cross-Country service Bournemouth – Manchester	
XCBY	Cross-Country service Bournemouth – York	

XCMB Cross-Country service Manchester – Bournemouth
XCYB Cross-Country service York – Bournemouth
XCYW Cross-Country service York – Weymouth
XCWY Cross-Country service Weymouth – York
XCCP Cross-Country service Cleethorpes – Plymouth
XCNP Cross-Country service Norwich – Plymouth
XCPC Cross-Country service Plymouth – Cleethorpes
XCNP Cross-Country service Plymouth – Norwich

Note the excellent connection of the Devizes Shuttle at Pewsey into the following Plymouth service
(00:36 ➔ 00:38 and 01:06 ➔ 01:08). Also note how the Plymouth service now has to skip the Newbury
stop, (thus is accelerated by 2 minutes,) because the Marlborough Shuttle is occupying the platform line,
so it has to take the through line (Newbury has overtaking-only lines in the centre of the alignment).
However, the Plymouth service connects into and out of the stopping service to Newbury at Thatcham,
and is connected into at Pewsey (thus from Newbury) by the Devizes Shuttle as just noted.

Representative Hourly Service Pattern at Didcot Parkway:

00R   Paddington – Swindon (LHR Shuttle)

10R   Gatwick Airport – Oxford – Milton Keynes

12RS   Didcot Parkway – Oxford

15R   Paddington – Weymouth

25R   Paddington – Oxford (LHR Shuttle)

27RS   Didcot Parkway – Oxford

– repeating at 30, 40, 42, 45, 55 and 57 minutes past.

Representative Hourly Cross-Platform Interchange Pattern at Swindon (the first connection with HS4
since LHR Interchange):

00C   Paddington – Bristol Temple Meads (platform 1)
  R   Heathrow Shuttle (platform 2 – clears and waits in reversing line, returning via platform 3)

02R   York – Weymouth (platform 2 – connected into by the Shuttle)

07R   Cleethorpes – Plymouth (no connection)

15C   Paddington – Swansea (platform 1)
  R   Paddington – Weymouth (platform 2)

23C   Paddington – Gloucester – Cardiff / Worcester (platform 5)
  R   Norwich – Plymouth (platform 1 – so a non-cross-platform connection)

– repeating at 30, 37, 45, and 53 minutes past. The Heathrow Shuttle service makes a cross-platform
connection into the Paddington – Bristol service, then moves forward onto the reversing line, out of the
way of the following York – Weymouth service, which also uses platform 2, before returning to

Paddington from platform 3. See appendix D for the revised layout at Swindon, which clarifies these arrangements.

There is also the Cirencester Shuttle, between Swindon and Cirencester, 2tph timed so as to give connections at Kemble between Cirencester and Gloucester, and vice versa.

Representative Hourly Cross-Platform Interchange Pattern at Westbury:

00R	Paddington – Plymouth	
R	York – Weymouth	

07R	Cleethorpes – Plymouth (no connection)	

15R	Paddington – Weymouth	
R	(Avon Metro) Weston-Super-Mare – Westbury and return	

23R	Norwich – Plymouth	
R	Swansea – Portsmouth Harbour	

– repeating at 30, 37, 45 and 53 minutes past. The Avon Metro service Weston-Super-Mare – Westbury connects cross-platform into and out of the Paddington – Weymouth service, arriving in Westbury shortly before xx:15 or 45 and returning to Weston shortly after. This means that the Weymouth services in both directions should ideally cross at Westbury, to enable this connection to serve both.

Representative Hourly Cross-Platform Interchange Pattern at Holt Junction:

00R	York – Weymouth (no connection)	

07R	Cleethorpes – Plymouth	
R	Paddington – Bristol via Devizes (LHR Shuttle)	

15R	Paddington – Weymouth (no connection)	

23R	Norwich – Plymouth (no connection)	

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

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

- Paddington — Old Oak Common station 18tph
- Old Oak Common station — Heathrow Airport Junction 18tph
- Heathrow Airport Junction — Heathrow Tunnel Junction 10tph
- Heathrow Tunnel Junction — LHR Terminals 1,2,3 16tph
- LHR Terminals 1,2,3 — LHR Terminal 5 12tph
- LHR Terminal 5 — LHR Interchange East Junctions 12tph
- Heathrow Airport Junctions — LHR Interchange East Junctions 8tph
- LHR Interchange East Jns — Slough station 14tph
- Slough Station — Reading station 14tph
- Reading station — Didcot Subway Junction 10tph
- Didcot Subway Junction — Foxhall Junction 4tph
- Foxhall Junction — Swindon 10tph

- Swindon – Westbury 8tph
- Didcot Subway Junction – Didcot North Junction 6tph
- Foxhall Junction – Didcot West Curve Junction 6tph
- Didcot West Curve Junction – Didcot North Junction (*) 14tph
- Didcot North Junction – Oxford 20tph
- Oxford – Hereford 2tph
- Reading – Southcote Junction 20tph
- Southcote Junction – Basingstoke 10tph
- Southcote Junction – Newbury 10tph
- Newbury – Marlborough 2tph
- Newbury – Pewsey 4tph
- Pewsey – Devizes and Bristol 2tph
- Pewsey – Plymouth 2tph

(*) Oxford-bound services calling at or starting from Didcot station join at Didcot West Curve Junction.

The service plan imposes the following loadings on the GWML Relief Tracks:

- Paddington – Old Oak Common 14tph
- Old Oak Common – West Ealing Junction 18tph
- West Ealing Junction – Greenford 4tph
- West Ealing Junction – Heathrow Airport Junction 14tph
- Heathrow Airport Junction – Heathrow Tunnel Junction 6tph
- Heathrow Tunnel Junction – LHR Terminals 1,2,3 16tph
- LHR Terminals 1,2,3 – LHR Terminal 4 4tph
- Heathrow Airport Junction – LHR Interchange East Junctions 8tph
- LHR Interchange East Jns – Slough station 14tph
- Slough station – Maidenhead station 10tph
- Maidenhead station – High Wycombe station 6tph
- Maidenhead station – Twyford station 8tph
- Twyford station – Henley station 6tph
- Twyford station – Reading station 6tph
- Reading station – Didcot Parkway station 4tph
- Didcot Parkway station – Didcot West Curve Junction (*) 8tph

Note that Didcot Subway Junction is not a feature of the relief tracks. (*) Oxford-bound services calling at or stating from Didcot station continue from Didcot West Curve Junction in main line table.

The precise loadings around Didcot are unavoidably complicated. Refer to appendix B for the layout, in particular the many junctions, for elucidation. There need to be (at least) four tracks between Didcot North Junction and Oxford (through to Wolvercote North Junction in fact).

Clearly there is the need to quadruple between Reading and Southcote Junction. With the rebuilding of Reading station, the junctions to the west are now grade-separated. The section requiring quadrupling is from just north of the Oxford Rd. underbridge through Reading West station and under the Tilehurst Rd. and Bath Rd. overbridges, a distance of about 1 mile. No properties are necessarily threatened, but the earthworks are heavy.

Appendix A – London Heathrow Interchange

London Heathrow Interchange replaces Langley station, and is built slightly to the east of it, where there is more room for expansion. It is served by the London Heathrow Shuttle services, which connect there into all westbound HS4 and GWML Regional Metro services, and are connected into by all the eastbound. The western connection from Heathrow Terminal 5 joins the WCML alignment at the set of London Heathrow Interchange East Junctions. Connections are provided to the fast lines and to the relief lines (i.e. Crossrail). No connection is made with HS4; that connection is only for passengers to make on foot.

Three of the Heathrow Shuttle services join the fast lines, and three join the relief lines.

The track layout is:
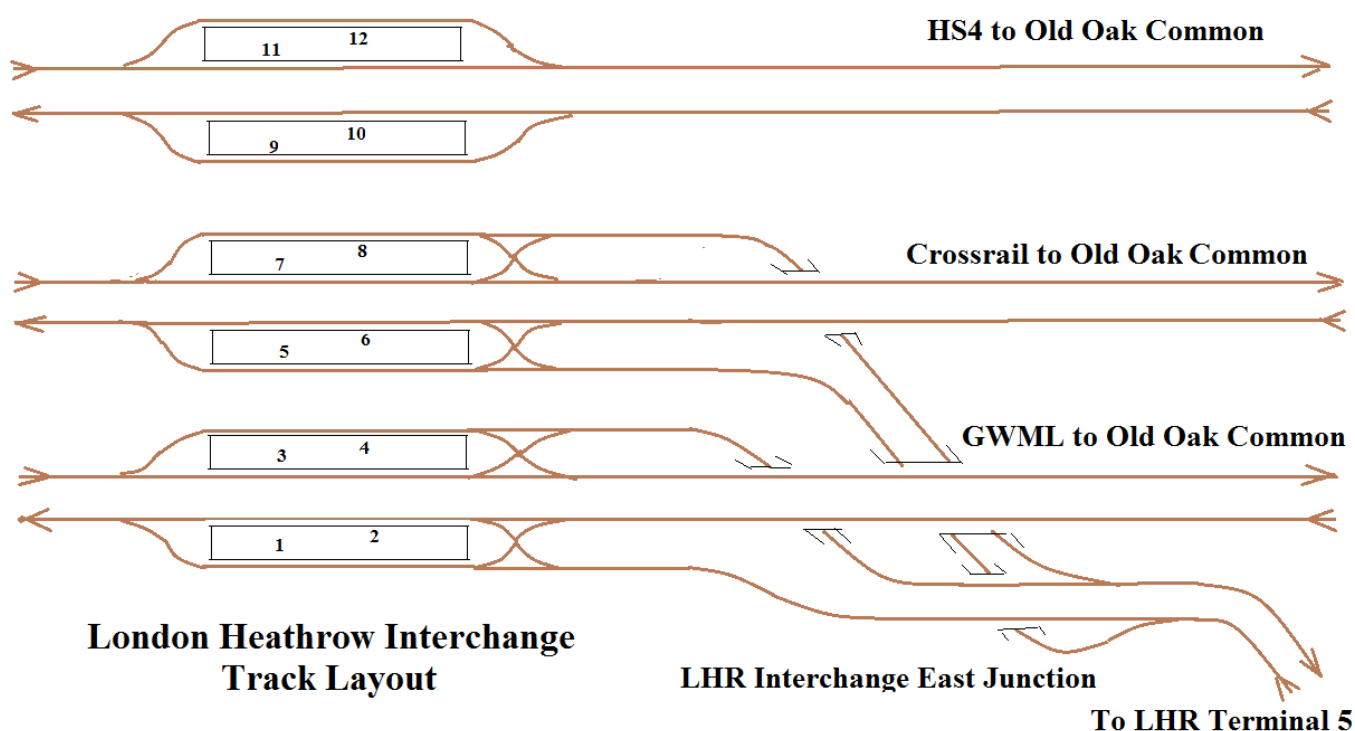
The HS4 platforms could well be underground, as HS4 needs to be in tunnel immediately after (west of) LHR Interchange.

Appendix B – Didcot Parkway

The most significant changes at Didcot are:

1. the provision of a diveunder junction from the fast lines to the station avoiding lines, to provide a non-conflicting route for Cross Country services to avoid Didcot Parkway station, at full speed, and there overtake LHR Shuttle Oxford, Gatwick Airport – Milton Keynes and stopping services,
2. Didcot North Junction rebuilt as a flyover,
3. A new flyover junction – Milton Junction – west of Didcot to rearrange the tracks, paired by direction.

There are no significant changes to Didcot station itself.
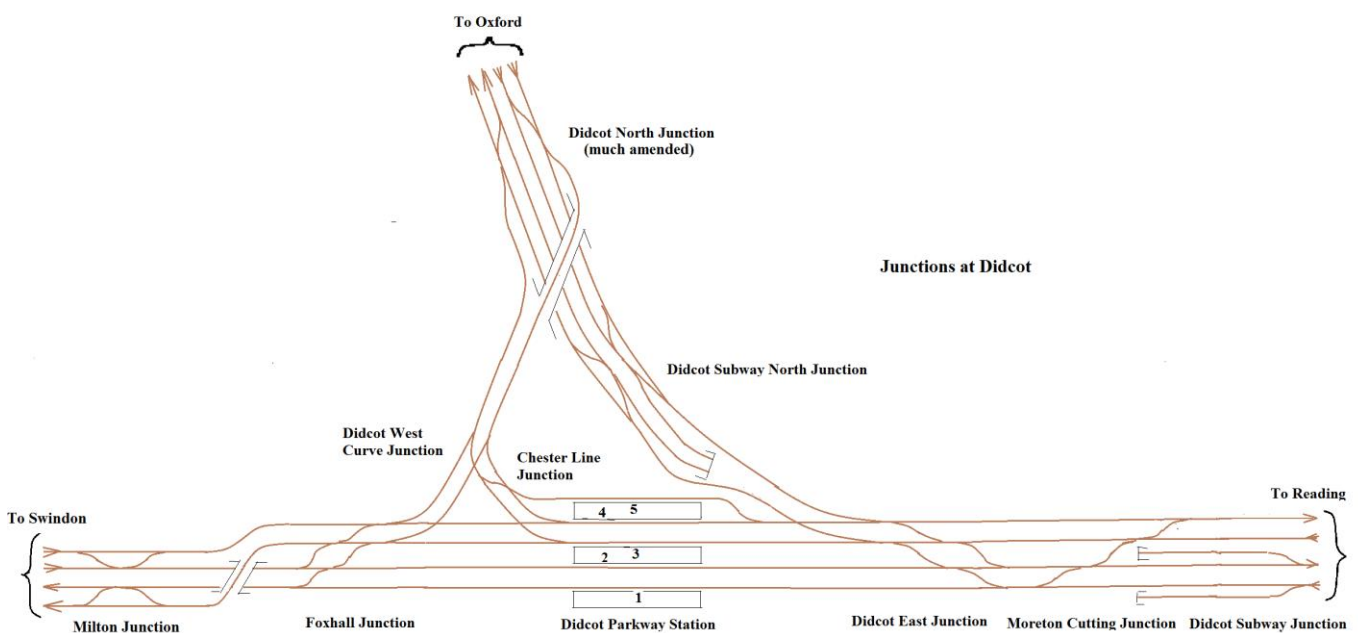
Four tracks between Didcot North Junction and Wolvercote Junction are essential to accommodate the proposed services, even more so when the Oxford Metro is included – see the article 'The Oxford Metro' for the **full** service, urban metro and Regional Metro, on all the lines around Oxford.

Four tracks would also be very desirable between Didcot and Wootton Bassett Junction, even if not absolutely essential on these plans (but consideration of freight requirements may well cause this to change).

Appendix C – Twyford

A few more connections are needed at Twyford to enable the 3-way interconnections required between Crossrail and a stopping service between Henley and Basingstoke.

A suitable layout is:

To Henley

Twyford Station Layout

To Maidenhead

5   4

2   3

1

To Reading
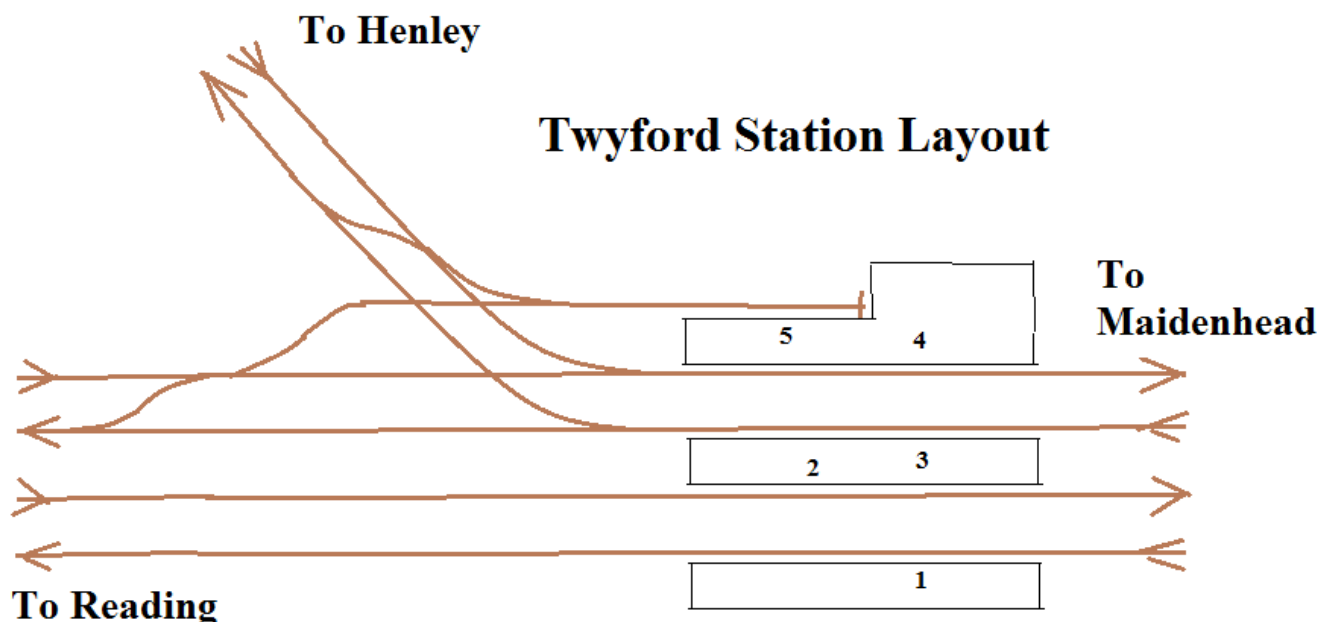
The Henley branch is redoubled, and a double junction provided from London. The bay platform line crosses the branch on the level, with a single track connection to the branch and to the westbound relief lines.

Appendix D – Swindon Station Arrangements

Swindon needs a few more platforms.

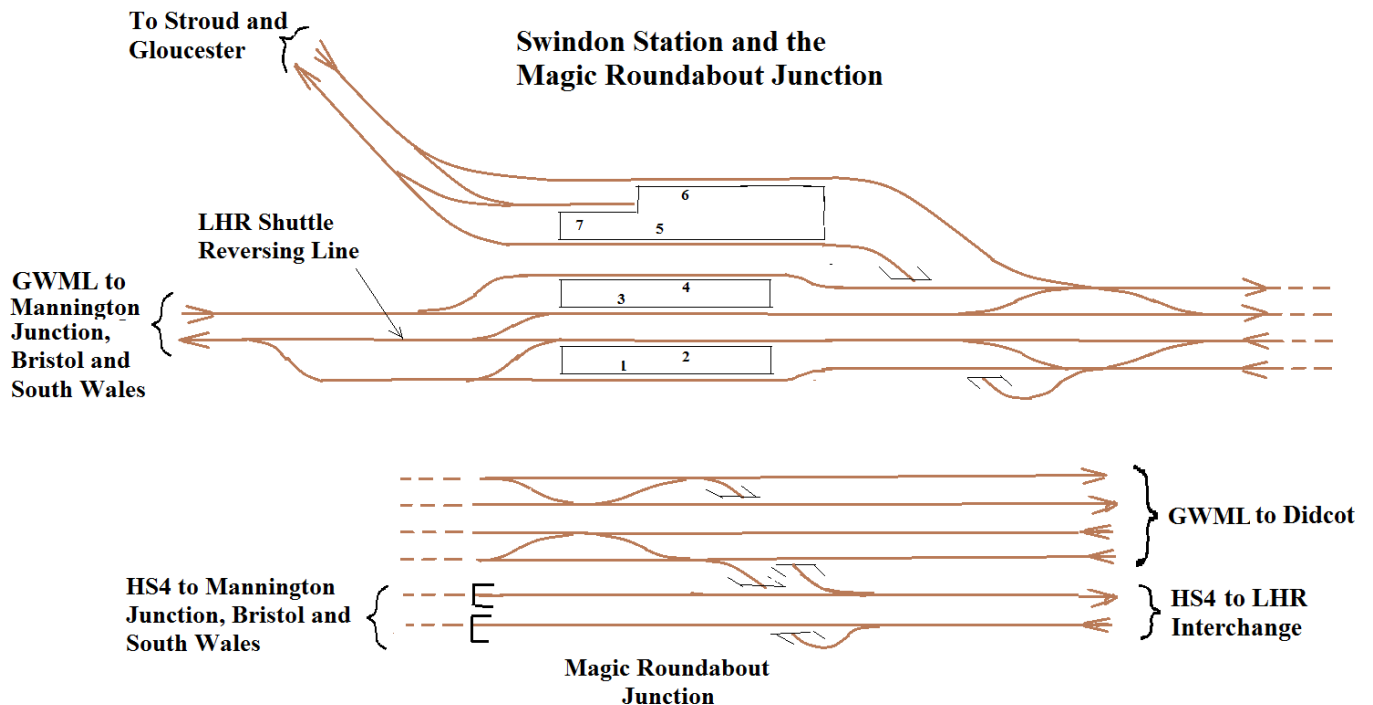3 & 4 are the existing island platform, unchanged. The westbound platform has been slewed one track's width north – through lines are not required – and another platform face opened on the other side (there should be room between the railway alignment and the adjacent office block. This is 1 & 2. Platforms 5 & 6 are an island on the north side, formerly sidings. 7 is a short bay.

1 & 2 deal with westbound services. 1 generally takes classic-compatibles to Bristol and South Wales, and 2 the Swindon arm of the LHR shuttle and the Paddington – Weymouth Regional Metro service.

3 & 4 deal with eastbound services. 4 generally takes classic-compatibles from Bristol and South Wales, and 3 the returning LHR shuttle and the Weymouth – Paddington Regional Metro service.

5 & 6 deal with classic-compatibles to and from Stroud, Gloucester (split / join) and Cardiff / Worcester. 7 deals with the Cirencester shuttle, via the restored line from Kemble, a service of 2tph timed to provide connections at Kemble for Cirencester – Gloucester and vice versa (there's plenty of stuff for it to connect into at Swindon).

Appendix E – Track Layout between Didcot North Junction and Wolvercote Junction

4 track to Wolvercote Junction

To East-West Route

Oxford Station Layout

To underground Metro platrorms (9 and 10)

5   6

1   3

Entrance for passengers with tickets

Main station entrance and passenger facilities

Botley Road

Entrance for passengers with tickets

2   4

7   8

Passive provision for third bay platform

To underground Metro platrorms (9 and 10)

To Didcot Parkway and Reading
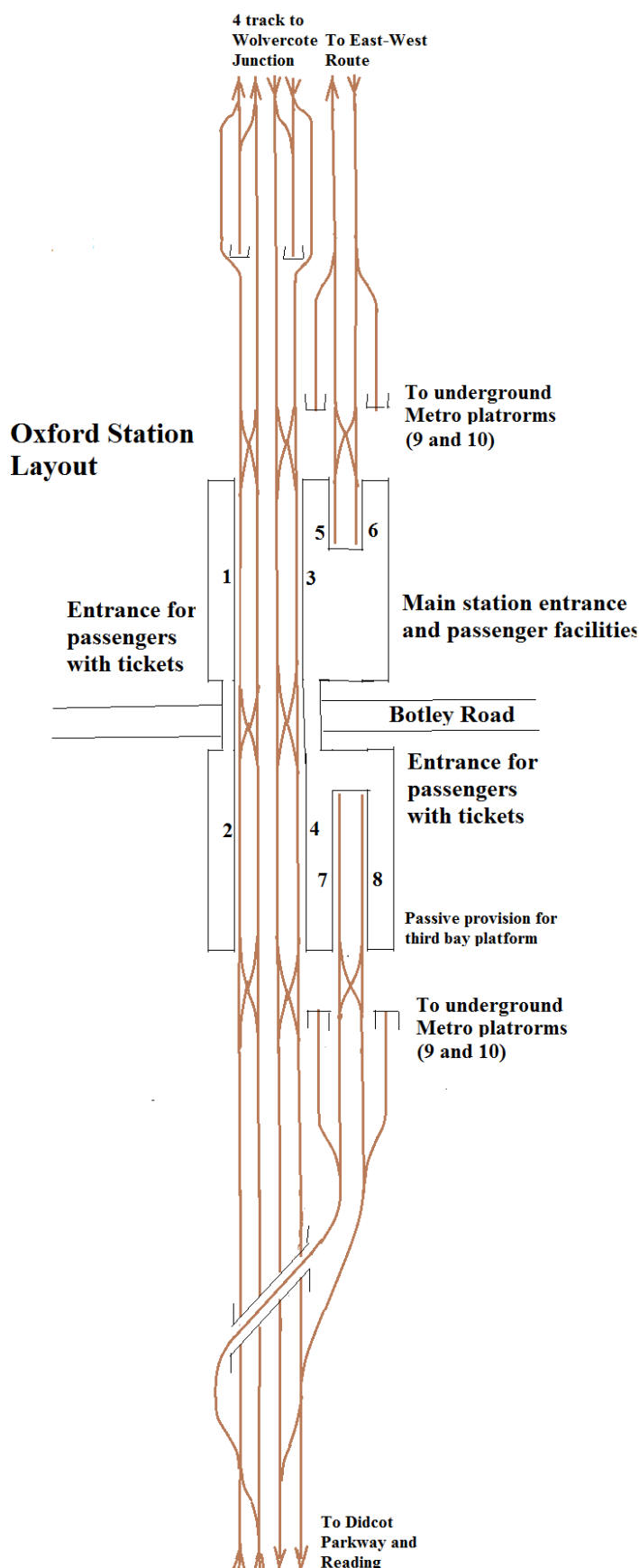
The most critical location is Oxford station. The layout given here is a development of the original proposal, to include the Oxford Metro. See the article 'The Oxford Metro' for further details.

Oxford needs several more platforms. Because of the laterally-constrained site of the existing station, the new platforms should be continuations of the existing two through platforms, on the south side of Botley Road. Scissors crossovers are required at the north and south ends of the platforms, and in the centre, on the Botley Road bridge. Each platform can thus contain two trains simultaneously, and they can overtake. This is same-platform interchange – not as good as cross-platform interchange, as it requires the passengers to walk further, but still quite good (no steps). The southern-facing bay platforms are on the east side, and definitely require access from the south via a flyover, because of the intensity of traffic. Extra entrances for passengers with tickets, closer to their trains, are recommended, as indicated.

Note that this design retains all of the existing infrastructure.

The Oxford Metro platforms are underground, beneath the station buildings or, more likely, in a cut-and-cover construction beneath the station forecourt. They are approached by lines branching from the approaches to the terminal platforms, north and south and also from the main lines to the north.

The southern terminal platforms accommodate the Oxford branch of the Heathrow Shuttle. The northern terminal platforms accommodate the London via Bicester and the Cambridge services.

There are four tracks (at least) between Didcot North Junction and Wolvercote Junction, paired by direction.

To Oxford

Radley Station Layout

Radley

To Abingdon

To Didcot
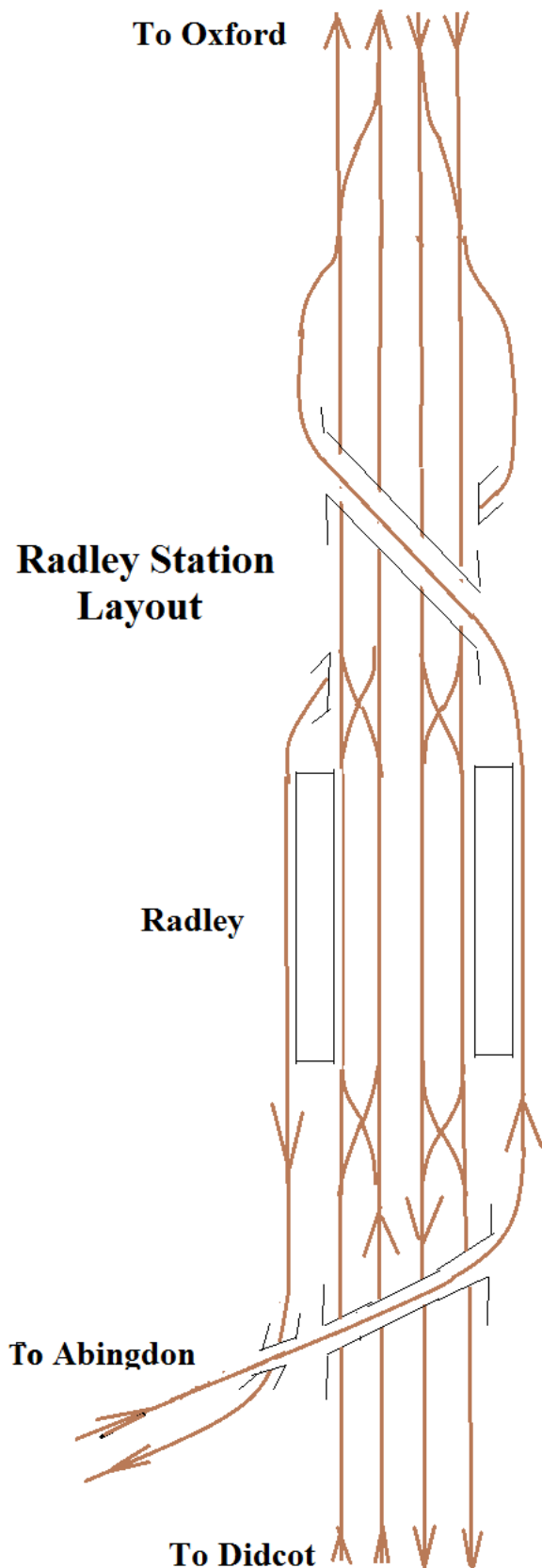
The layout at Radley, left, is notable. Since the purpose is to provide cross-platform connections between the Abingdon-Bicester service and the Heathrow Shuttle to London, also the (alternating) Milton Keynes – Gatwick Airport services, a contraflow arrangement is adopted such that trains **from** Abingdon have the cross-platform connection into trains **to** London via Heathrow or to Gatwick, and trains **from** London / Gatwick have cross-platform connections into trains **to** Abingdon. This is a very elaborate (and expensive!) arrangement, but it provides very great convenience for the passenger.

The idea is that the services **from** Abingdon of the Oxford Metro (4tph Abingdon – Bicester North and 4tph Abingdon – Woodstock, alternating,) all make southbound connections at Radley, (to the 2tph Oxford – Paddington Shuttle / 2tph Milton Keynes – Gatwick Airport, and the 2tph Banbury – Didcot / 2tph Moreton-in-Marsh – Didcot services). Likewise the northbound services make connections at Radley **to** Abingdon.

The Abingdon branch is double track.

The lines switch to the usual arrangement, paired by direction, north of Radley, since otherwise it would not be possible to have straightforward crossovers between fast and relief lines between Radley and Oxford. (A very luxus arrangement would have 6 tracks between Radley and Kennington Junction, the outer tracks being contraflow, and make the switch at Kennington.)

Radley also, very usefully, provides an overtaking facility for non-stop trains.

Actually, it would be quite easy to add the contraflow arrangement later, having seen if demand justifies it. Initially, the Abingdon branch would come in with the normal flyover junction, to the south of the station. Subsequently switching the direction over the flyover would be trivial. (The rest of the work, north of the station, would not, of course, be trivial.)
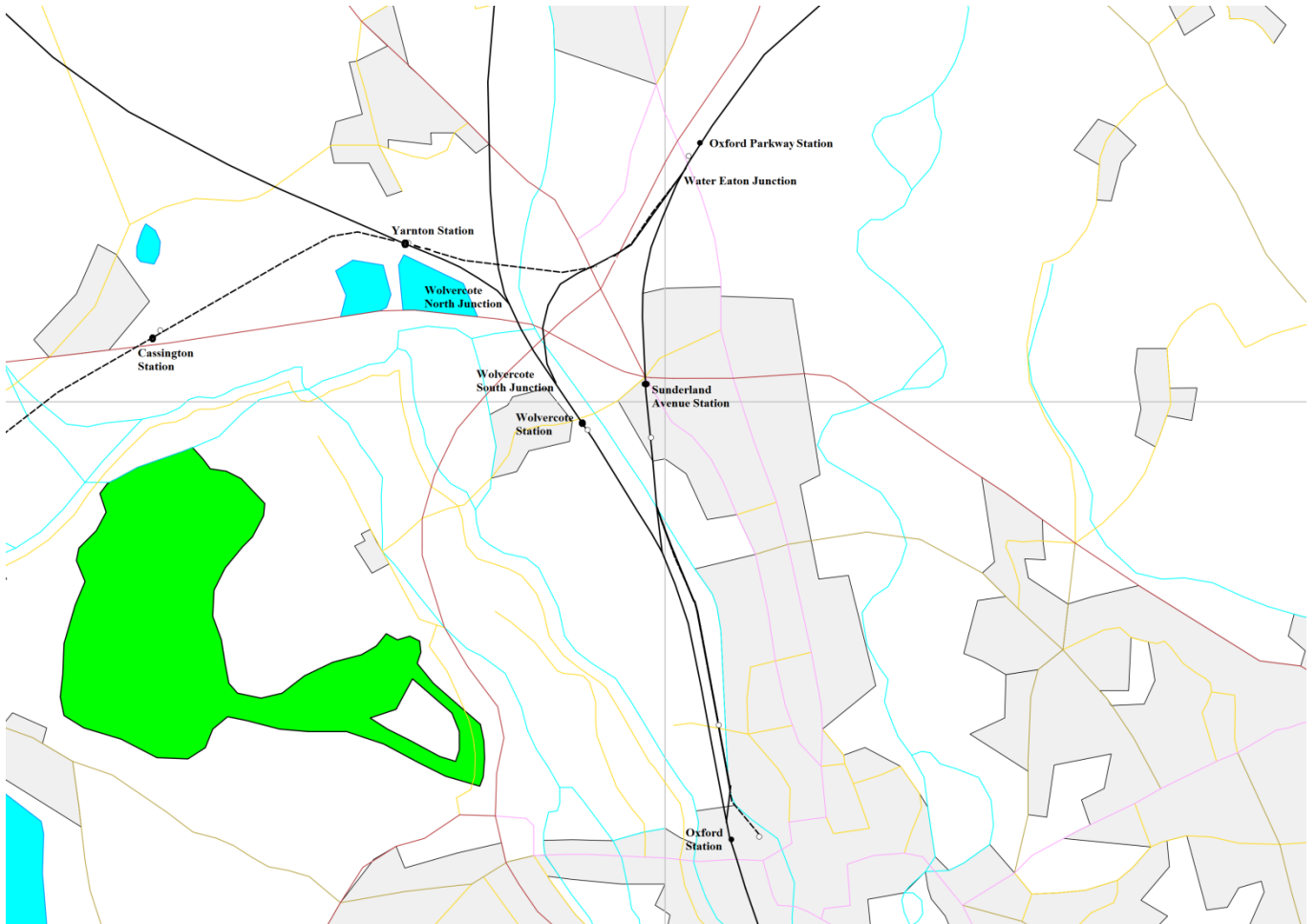
As noted above, there are (at least) 4 tracks between Didcot North and Wolvercote North (the original Wolvercote) Junctions. There are also 4 tracks between Oxford and Bicester Village, for the East-West route and the Oxford Metro. But to avoid the problems of widening Wolvercote Tunnel and the surrounding cuttings, the extra two tracks are routed over part of the former freight chord between Water Eaton Junction and Yarnton. After passing beneath the Woodstock Road, the two new tracks curve to the south and join the main line, with flyover, at the new Wolvercote South Junction. The above map illustrates the arrangement.

East-West services terminating at Oxford, in the two north bay platforms, (these are the Chiltern service from Paddington via High Wycombe and the stopping service from Cambridge,) and also the Abingdon – Bicester North service of the Oxford Metro, use the original two (LNW) tracks between Water Eaton and Oxford, via Wolvercote Tunnel. All through East-West services use the new connection to Wolvercote South Junction, which leads them straight to/from the double-length through platforms at Oxford (1,2 and 3,4).

Appendix F – The Marlow Branch

The basic principle underlying services on the Marlow branch is that they serve and are focused on Marlow, since Marlow is the fundamental, deciding reason why the branch is there. Marlow is **not** served by a shuttle from Bourne End, with all passengers having to change there. Instead, trains proceed straight through to Marlow, from Maidenhead (reversing at Bourne End) and from High Wycombe.

Bourne End becomes a major interchange station, since **everything** has the possibility of interchange there. It needs four platforms (two islands), which must be long enough to hold two branch trains. The service runs as follows:

Branch trains from Maidenhead and High Wycombe arrive at the same platform at Bourne End, from opposite directions, obviously. This would be the outer, down platform (I am assuming down is the direction from Maidenhead). They subsequently both run separately, c.1 minute apart, to Marlow. (They run separately because they need to return from Marlow in the reverse order, to be in the correct order in the single platform they will both occupy at Bourne End – the outer, up platform.) Branch trains for High Wycombe and Maidenhead, in that order, arrive at Bourne End from Marlow, c.1 minute apart, arriving from the same direction, but subsequently departing in opposite directions. The four branch trains all wait at Bourne End together, for around 5 minutes, while the Heathrow Shuttle Milton Keynes services arrive and depart in both directions, using the inner two tracks. Connections are provided, everything to everything – this may seem a little excessive, but I don't see that there's any reason not to.

The branch is short enough, with sufficiently few intermediate stations, for all this to be possible. There will need to be crossing loops provided – this will become clear when the service pattern is described. The only reason a Marlow passenger would ever have to change at Bourne End would be to join or alight from the Heathrow Shuttle. Passengers from intermediate stations before Bourne End for stations beyond Bourne End would change there. (They could indeed stay on the same train and enjoy a diversion via Marlow, arriving at their destination 30 minutes later than they would have, had they changed at Bourne End!)

Two platforms are required at Marlow, to allow services, in effect, to cross there. Thus, the service from Maidenhead, which arrives in Marlow 1 minute before the service from High Wycombe, must likewise depart, it now being the service to High Wycombe, 1 minute before what is now the service to Maidenhead. (The trains have a 10 minute lay-over in Marlow; time for a brief servicing.)

The Heathrow Shuttle Milton Keynes service is 2tph whereas the branch service is 4tph. An extra 2 slots per hour are thus available on the branch, for some other service, as yet undetermined. The Marlow service has very comfortable connections at Maidenhead, departing 5 minutes after the westbound Heathrow Shuttle services to Oxford and to Henley. (As noted in the main text, it parks itself out of the way in a convenient siding while the Milton Keynes Shuttle uses its platform.)

Actual service timings for the Marlow branch are:

Maidenhead   00:00
Furze Platt   00:04
Cookham   00:07
Bourne End   00:11

Bourne End   00:00
Marlow   00:08

Estimated service timings for the bit not currently there, and for non-stop services:

Bourne End   00:00
Wooburn Grn. 00:04
Loudwater   00:08
High Wycmb. 00:16

Maidenhead   00:00
Bourne End   00:08

Bourne End   00:00
High Wycmb. 00:12

The following Representative Mini-Timetable is built using these timings. Unusually, this is given for both directions. This is necessary in order to determine the occupancy of the several sections, and determine where overtaking facilities are needed. **Note that the times are to the same baseline as those for the LHR Interchange – Reading timetables in the main text.**

	FrHW		ToMH	HSMK		FrHW		ToMH	*HSMK*	
Maidenhead	00:22			00:27		00:37			*00:42*	
Furze Platt	00:26					00:41				
Cookham	00:29					00:44				
Marlow			00:25	00:26	➔			00:40	00:41	➔
Bourne End a.	00:33	00:33	00:33	00:34	00:35	00:33	00:48	00:48	00:48	00:49	*00:50*	00:48
Bourne End d.	00:37	00:38	00:37	00:37	00:36	00:37	00:52	00:53	00:52	00:52	*00:51*	00:52
Marlow	00:45	00:46	➔				01:00	01:01	➔		
Wooburn Grn.				00:41						00:56	
Loudwater				00:45						01:00	
High Wycmb.				00:48	00:53					*01:03*	01:08

Key: Fr   from
       To   to (unsurprisingly)
       HW   High Wycombe
       MH   Maidenhead
       HSMK Heathrow Shuttle service to/from Milton Keynes
       00:00   a phantom time – the unfilled slot 15 minutes after the Milton Keynes Shuttle

	FrMH	ToHW					FrMH	ToHW				
High Wycmb.	00:17		00:23				00:32		*00:38*			
Loudwater	00:25						00:40					
Wooburn Grn.	00:29						00:44					
Marlow		00:25	00:26	➔				00:40	00:41	➔		
Bourne End a.	00:33	00:33	00:33	00:34	00:35	00:34	00:48	00:51	00:48	00:49	*00:50*	00:49
Bourne End d.	00:37	00:38	00:37	00:37	00:36	00:37	00:52	00:56	00:52	00:52	*00:51*	00:52
Marlow	00:45	00:46	➔				01:00	01:04	➔			
Cookham				00:41						00:56		
Furze Platt				00:44						00:59		
Maidenhead			00:48	00:48					*00:59*	01:03		

The Maidenhead – Bourne End section is occupied (has a train on it somewhere):

00:22 – 00:35 (northbound)
00:37 – 00:50 (")
00:19 – 00:33 (southbound)
00:36 – 00:48 (")

– so we need a crossing place pretty much in the middle. A dynamic loop between Furze Platt and Cookham stations (1¾ miles) would do very nicely.

Likewise for Bourne End – High Wycombe:

00:36 – 00:53 (northbound)
00:21 – 00:38 (")
00:32 – 00:50 (southbound)
00:17 – 00:35 (")

– so we need a crossing place somewhat to the south of Loudwater station. A dynamic loop between Loudwater and Wooburn Green stations (1½ miles) would likewise be very satisfactory.

Finally, for Bourne End – Marlow:

00:37 – 00:46 (westbound)
00:51 – 01:01 (")
00:40 – 00:49 (eastbound)
00:55 – 01:04 (")

– just double it all (2½ miles) – there's only a single overbridge (the A404, Marlow bypass, where there is already plenty of room as it is shared with two minor roads, one each side of the railway track,) and not a single underbridge.

Appendix G – The Oxford Metro

This now has its own article (q.v.).

N.B. The custom colour is bright pink R/G/B 255/0/255

Old Oak Common Track Layout Ground Level

To Northolt Junction
Chiltern Line 4tph

To WCML
Crossrail 8tph

Reversing Sidings
Crossrail Stratford - Old Oak Common Shuttle 8tph

To Reading
Crossrail 16tph
LHR Shuttle 2tph
18tph

To Central London
Crossrail 32tph

To Paddington (platforms 7 - 12)
HS4 CC 8tph
Chiltern Line 4tph
LHR Shuttle 2tph
14tph

HS4 CC 8tph

To Old Oak Common West Junction

To Reading
GWML 8tph
LHR Shuttle 10tph
18tph

To Paddington (platforms 1 - 6)
GWML 8tph
LHR Shuttle 10tph
18tph

Old Oak Common Track Layout Low Level (all in tunnel)

To Birmingham
HS2 17tph

Old Oak Common North Junction

To Queens Park Junction and Euston
HS2 CC 5tph

To Euston Cross
HS2 12tph
HS4 6tph
18tph

To South Wales
HS4 14tph

Old Oak Common West Junction

To Old Oak Common Ground Level and Paddington
HS4 CC 8tph

Old Oak Common East Junction

Appendix I: Track Layouts at Old Oak Common