

Route Plans 2008
Route 16
Chilterns



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Route 16 Chilterns



Section 1: Today's railway

Route context

The Chilterns route consists of a main line from London Marylebone which divides into two at Neasden South junction. One line goes to Banbury and the other to Aylesbury/Claydon, with associated branches and freight lines. In the 1970s the section of the route from Princes Risborough to Aynho Junction was singled. Since then the route has increased in importance, with growing levels of traffic and considerable investment. Shortly before privatisation the route benefited from full modernisation, with renewed signalling and rolling stock. Since Chiltern Railways acquired the franchise, there has been further significant investment in infrastructure,

including redoubling of the singled Princes Risborough to Aynho Junction section, new depots and operational facilities and improved passenger facilities at stations. The Evergreen 2 project, which was completed in 2006, has delivered further significant infrastructure improvements, increasing capacity between Bicester North and London Marylebone.

The line has been used as a strategic diversionary route for the WCML and has accommodated freight diversions and additional passenger services during recent West Coast blockades. The route has proved popular with passengers during these upgrade works, although due to capacity constraints, most were accommodated on existing timetabled services.

As part of our ongoing RUS programme, we commenced the West Midlands & Chilterns (WM&C) RUS in March 2008. The WM&C RUS will reflect current growth scenarios and review those recommendations that the SRA set in 2005.

Today's route

The route has two main corridors from London Marylebone (dividing at Neasden South Junction) which are described below. The relevant Strategic Route Section is shown in brackets:

- one branch runs via High Wycombe, Princes Risborough and Bicester to Aynho Junction (16.01);
- the other branch runs via Amersham to Aylesbury (16.02 & 16.03), where the passenger service currently terminates, and then on to Claydon Junction. This branch runs parallel to the LUL Metropolitan and Jubilee Lines as far as Harrow-on-the-Hill. From just south of Harrow-on-the-Hill station extending as far as Amersham, (where LUL trains terminate) all tracks become LUL property, with shared running between main line and underground trains. North of Amersham, the main line trains re-enter Network Rail infrastructure. In addition:
- a branch links Princes Risborough and Aylesbury (16.04). There are also two freight branches from Bicester Town to Claydon LNE Junction and Aylesbury to Claydon LNE Junction. The route between Claydon LNE Junction and Bletchley is currently out of use.

Current passenger and freight demand

There is significant commuter and suburban traffic into London from locations along the line of route. Traffic on the route has grown considerably since 1994, particularly in the commuter market from as far north as Solihull, helped by a high level of performance and reliability. The West Midlands services have experienced considerable development and, following the implementation of Cherwell Valley resignalling (Route 17) have now attained a 2 tph frequency throughout the day. It was largely to serve this market that Chiltern Railways funded and constructed the 'park and ride' station at Warwick Parkway on Route 17. The West Midlands services are increasingly regarded as a viable alternative to the WCML, and although journey times are longer, fares are generally lower.

Freight demand includes significant domestic waste traffic to the landfill site at Calvert. Waste Recycling Group (WRG) continues to seek further business in both domestic and industrial waste. Overnight demand is determined by the operating hours at the landfill site.

Current services

The operators on this route are Chiltern Railways, London Underground Ltd (LUL) and Wrexham Shropshire Marylebone Railway (Spring 2008). The majority of the Chiltern Railways fleet, Class 165 DMUs, date from the early 1990s. Since privatisation, Chiltern Railways has invested in additional rolling stock in the shape of the Class 168 Clubman DMUs, introduced in 1998, which are now three or four cars in length.

The basic off-peak service pattern consists of the following services:

Six departures per hour from Marylebone of which:

- two form stopping services to High Wycombe;
- two form semi-fast services to Princes Risborough or Bicester North, with a two hour extension to Stratford-Upon-Avon; and
- two form services to Birmingham Snow Hill;

There are also two trains per hour between Marylebone and Aylesbury via Amersham, and one train per hour between Princes Risborough and Aylesbury.

This basic pattern is enhanced at peak times, with additional trains and altered stopping patterns, and with some Birmingham services extended to Kidderminster.

Since summer 2006 there has also been an increase in weekend traffic using the route on certain weekends in connection with Metronet renewals work on the London Underground. This traffic, hauled by First GBRf, gains access to the LUL network via either Harrow on the Hill or Mantles Wood (Amersham) and normally consists of up to 8 trains to and from the LUL network each weekend. This infrastructure supply contract is expected to continue until 2009.

The main freight operators along the route are Freightliner Heavy Haul Ltd. and English, Welsh and Scottish Railways (EWS).

Four loaded domestic waste services run per day to the Calvert disposal site from Cricklewood, Dagenham, Bristol and Northolt. Services from the London area are routed via High Wycombe and Aylesbury. Services from Bristol are routed via Oxford and Bicester. The Calvert site has capacity to accept similar quantities of waste for at least the next 20 years.

Aggregate services also operate to Neasden from Croft Quarry in Leicestershire and from Wool on the South coast.

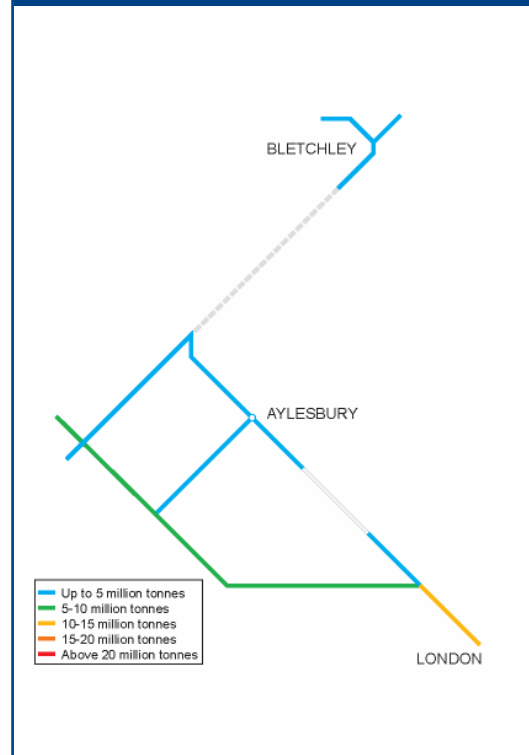
Figure 1 Current train service level (peak trains per hour)

Route Section	Main Lines
Marylebone – Aylesbury	4
Marylebone – Princes Risborough	4
Marylebone – Banbury	3
Marylebone – Birmingham Snow Hill	2
Princes Risborough – Aylesbury	1

Figure 1 shows the current level of service to London from principal stations.

Figure 2 shows the total annual tonnage levels on the route.

Traffic volumes are summarised in Figure 3.

Figure 2 Tonnage**Figure 3** Current use

	Passenger	Freight	Total
Train km per year (millions)	6	0	6
Train tonne km per year (millions)	746	140	885

Current infrastructure capability

The following maps set out the capability of the current network.

Figure 4 Line speed

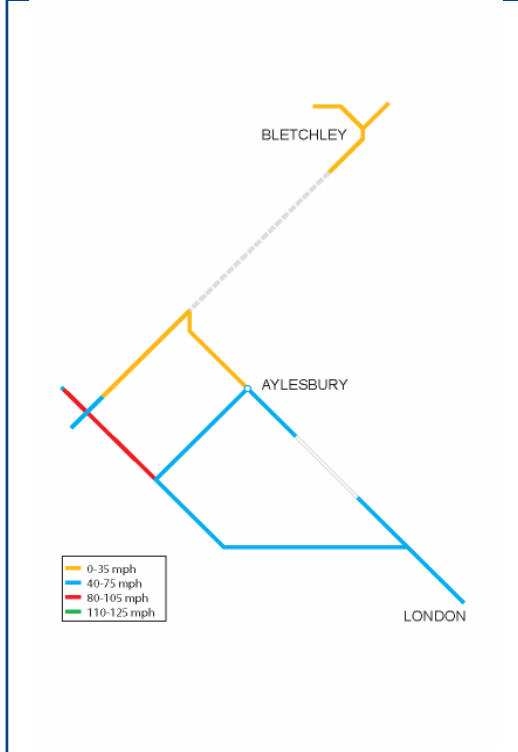


Figure 5 Electrification

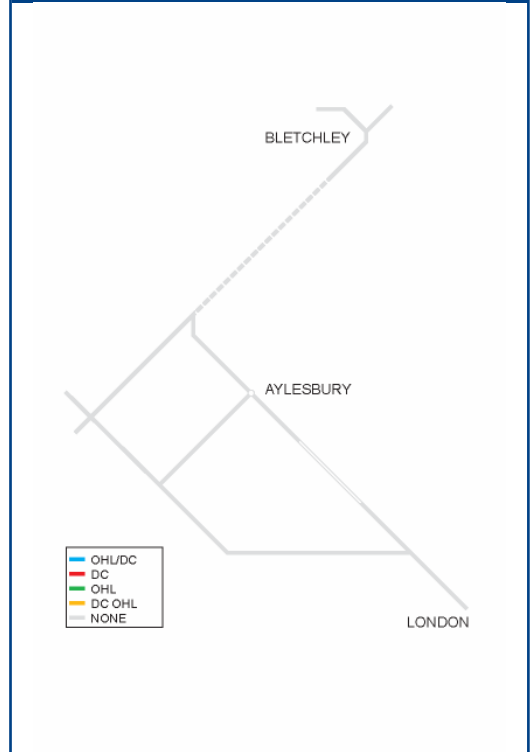


Figure 6 Route availability

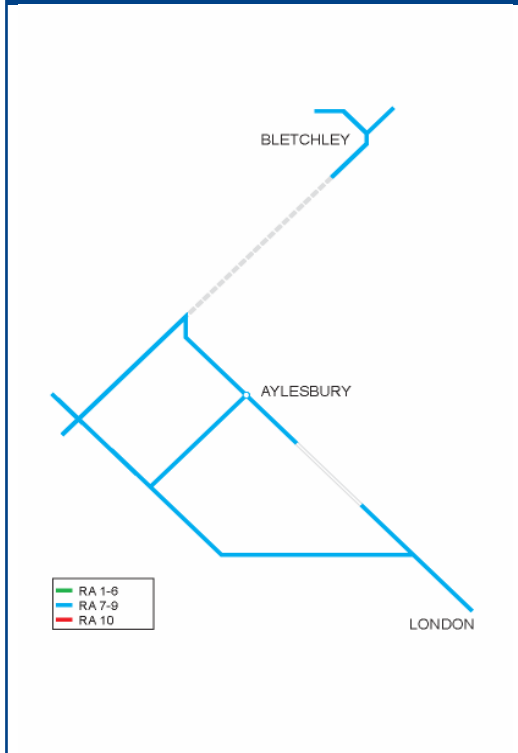


Figure 7 Gauge



Current capacity

Redoubling of the Princes Risborough – Bicester – Aynho section resulted in a significant improvement in capacity which, along with the Cherwell Valley resignalling on Route 17, allowed the frequency of London – West Midlands services to be doubled to two trains per hour.

Completion of the “Evergreen Phase 2” project in late 2006 has delivered further capacity improvements, which allows additional services from Bicester North southwards and greater operational reliability. The project included additional signal sections to improve capacity between Bicester North and High Wycombe, track and signalling improvements at Neasden South Junction to improve the marginal time between trains and increase flexibility, and additional platforms at Marylebone station to increase station capacity.

The requirement to share tracks with the frequent Metropolitan Line services between Amersham and Harrow-on-the-Hill imposes constraints and risks to performance on Aylesbury line services.

Following investment by Chiltern Railways, most stations now have either seven or eight car platform lengths.

Figure 1 represents the number of trains in the morning peak hour.

Two years ago, a new maintenance depot was opened at Wembley Stadium, delivering additional capacity for maintaining Chiltern Railway’s fleet, a reduction in empty stock mileage and capacity for expansion of the fleet in future.

Following continued growth in peak passenger demand and due to its close proximity to the Bull Ring development, passenger crowding at Birmingham Moor Street (Route 17) is reaching critical levels, exacerbated by its narrow platforms. This crowding can have an impact on the services on this Route.

Current performance

Figure 8 shows the current PPM on the route.

Performance continues to be very good with some record breaking PPM achievements seen over the early months of 2008. The route is one of the best performing in the country, helping Chiltern Railways to maintain their position as the top performing train

operator, with a moving annual average of trains arriving on time of 94.9 percent.

Underlying infrastructure performance has remained good and contributed to this excellent result. Performance during the summer of 2007 was, however, adversely affected by the weather. Extensive flooding during June and July severely disrupted services and heavy rainwater run-off destabilised the cutting to the north of Harbury tunnel, resulting in a significant speed restriction. Autumn seasonal issues showed further year-on-year improvement in 2006. The ‘predict and prevent’ approach to track defect detection and correction has yielded important reliability benefits on the route. Improvements to signalling and communications power back-up supplies and systems are being progressively implemented by the maintenance team, with corresponding reductions in major failures from unreliable supplies and poor equipment.

The ‘Evergreen 2’ project saw the introduction of new signals to reduce headways and the timetable was enhanced to take advantage of this improvement. Experience to date indicates that, where certain peak services have been planned to the reduced headways, following trains are having difficulty maintaining their timetable. A joint project has been initiated with Chiltern Railways to investigate this issue and establish the actual achievable headways for planning purposes. It is likely that modification to a signal at Neasden Junction will solve this problem.

The Spring 2008 timetable will see the introduction of additional services on the route for the Wrexham, Shropshire and Marylebone Railway Company. These present a challenge to existing performance levels.

Figure 8 Current PPM MAA (2007/08)

TOC	MAA	As at period
Chiltern Railways	94.9%	12

Section 2: Tomorrow's railway

HLOS output requirements

Figure 9 Total demand to be accommodated by Strategic Route

Routes	Annual passenger km forecast in 2008/09 (millions)	Additional passenger km to be accommodated by 2013/14 (millions)
Chiltern Lines	661	98

Figure 10 Peak hour arrivals to be accommodated by Strategic Route

London Terminals	Peak three hours			High- peak hours		
	Forecast demand in 2008/09	Extra demand to be met by 2013/14	Maximum average load factor at end CP4 (%)	Forecast demand in 2008/09	Extra demand to be met by 2013/14	Maximum average load factor at end CP4 (%)
Marylebone	9,100	1,000	67	4,600	600	76

Future demand

It is expected that there will be continued commuting growth into London from all parts of the route, following the improvements in service frequency. As already stated, this growth will be catered for mainly by means of longer trains.

With the planned introduction of new Class 172 vehicles, the current timetable will be further improved, ready for a December 2010 launch. This new timetable will standardise service patterns, deliver more capacity and improve journey times to key destinations.

There is particularly high predicted growth in inter-modal traffic using the West Coast. If growth continues the Chiltern corridor will provide an alternative route for Inter-modal flows between the South West and Midlands/North West. Catering for scheduled freight flows on a regular basis may require some significant gauge clearance (W10) at key sections of the route.

Section 3: Proposed strategy

Figure 11 summarises the key milestones during CP4 in order to deliver the proposed strategy for the route. Further explanation of the key service changes and infrastructure enhancements are set out in the following sections.

Figure 11 Summary of proposed strategy milestones

Implementation date	Service enhancement	Infrastructure enhancement	Expected output change
2013-2014	Banbury area Re-signalling (on Route 17)	Re-signalling of Banbury station area. Additional enhancements may include re-modelling and additional platforms at Banbury, inclusion of some bi-directional signalling and freight loop improvements at Fenny Compton.	Additional enhancements may include; Developing additional platforms and re-instate freight loops.
2008-2015	Services strengthened with increased vehicles. Anticipated increases in vehicles: 2010 (8); 2011 (0); 2012 (8); 2013 (4); 2014 (4); 2015 (4) – Chiltern Railways Business Plan.	Generally sufficient 'headroom' in terms of platform lengths and stabling. Requirement to lengthen a small number of platforms, if a suitable timetable solution cannot be found.	HLOS targets for Marylebone and Birmingham. (Note that HLOS requires approx 12 vehicles, but Chiltern Railways Business Plan assumes a higher growth).
2008-2015	Additional Car Parking Facilities.	An increase in car park capacity at some stations along the route, in line with demand projections and rolling stock provision.	Key measure to enable access to the railway in line with demand forecast and train capacity provision
2009-2020	Mix of fast and slow services to better match demand.	Three and Four Track of key sections of route.	Increases operational capacity and flexibility and improves journey time.
2010	Journey Time Improvements.	Planned line speed improvements between Marylebone and Birmingham Moor Street.	Improves capacity and journey times.
2009-14	East West Rail	Re-opening of the Oxford / Aylesbury – Bedford railway between Bicester Town and Bletchley	New route and services creating extra capacity on the route
On-going	Bi-directional signalling	Key sections of the route enhanced with Bi-directional signalling (TOC funded)	Increases operational capacity and flexibility. Enables 7 day railway to be introduced. Industry revenue to be increased while reducing costs.

Strategic direction

This route is forecast to see continued growth in both passenger and freight demand. Capacity provision for passenger growth will be achieved by either longer trains or, where possible, increased levels of service frequency. It is believed there is enough headroom to accommodate increased passenger capacity in both peaks with only minor platform lengthening or signalling alterations. During CP4, therefore, the requisite increase in passenger capacity will be achieved by the procurement of rolling stock and a commensurate increase in car park provision.

The lengthening of the Pendolino fleet to eleven cars on the West Coast Main Line is expected to provide sufficient passenger capacity until around 2016, after which services will become increasingly crowded. The Chiltern route offers an alternative journey between London and Birmingham, and is considered likely to provide a cost effective option for meeting demands for increased capacity. Chiltern Railways have aspirations to operate a higher service frequency between Birmingham and London and their long term vision is to offer passengers a 90 minute journey time. A strategy of incremental capacity and journey time improvements is being developed and appropriate opportunities will be progressed during CP4.

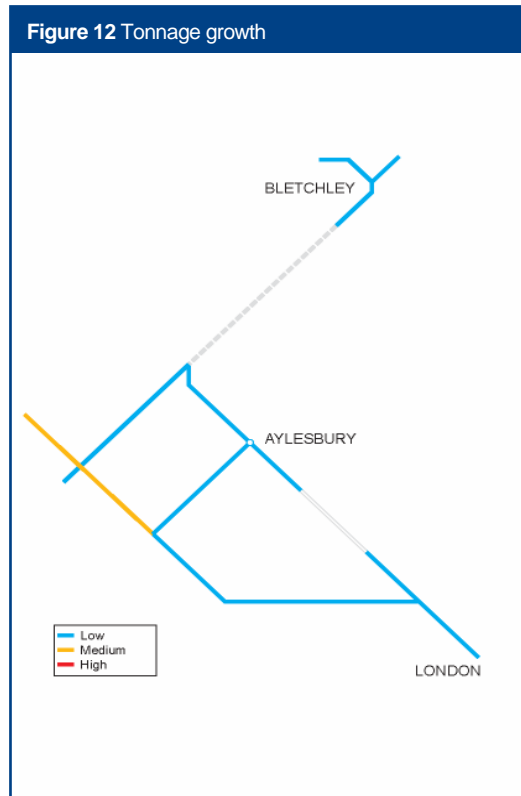
The concept of the 'seven day railway' is very important to the management team of Chiltern Railways. A key element to the achievement of this capability is through bi-directional signalling; this would possibly support the role in alleviating future crowding on the WCML. Chiltern Railways and Network Rail will work together during CP4 with the aim of developing and implementing a self-funded incremental bi-directional signalling strategy.

Chiltern Railways have an aspiration to increase the number of parkway stations on the route. A new station is currently being developed at Aylesbury Vale, about two miles north of the present terminus at Aylesbury Town on the freight route to Calvert. This station is jointly funded by private finance, the Local Authority and Government grant. It is planned to serve both a developing community in the area and to provide a better option for London commuters than the station at Aylesbury Town. The station will include 'Park and Ride' facilities, to avoid the need for passengers to travel into Aylesbury itself, thereby relieving congestion in the town.

Chiltern Railways are committed to promoting sustainable transport within their car park strategy in their '3 go free' car share scheme at stations. This scheme states that if three rail passengers travel together to a Chiltern operated station in the same car, there is no charge.

Looking further into the future, there are a number of capacity enhancements and extensions to the route that are under consideration, and which would significantly increase the service offering. These are described under 'Long Term Opportunities and Challenges'.

Network Rail aims to address the station challenges set out in the 'Developing a Sustainable Railway' White Paper, in CP4 and beyond, through the development of a National Station Improvement Programme. This programme is being developed with the industry, and is described in a separate section of the Strategic Business Plan.



Future train service proposals

Figure 12 indicates the forecast percentage change in tonnage to 2017.

It is envisaged that the current pattern and frequency of service on the route will remain broadly the same. However, to meet forecast growth, the provision of longer trains and some additional services may be necessary. Catering for additional services may require three or four tracking key sections or opportunistic line speed increases.

Aggregate traffic from the Mendips via Acton to Gerrards Cross to provide fill material for the Tesco development near Gerrards Cross station is ongoing. Waste Recycling Group (WRG) continues to seek further business to Calvert to exploit the full terminal capacity which could result in one additional train service in due course.

Future capability

We are investigating the feasibility of gauge clearing the route from Neasden to Aylesbury via High Wycombe, to allow W9 and possibly W10 traffic to use the line on a regular basis. Longer term, W12 remains an aspiration.

Platform Lengths

The lengthening of trains has been identified as a key approach to enable the industry to meet the growth in passenger demand across the route. Consequently, some platforms throughout the route will require lengthening – see Figure 13 – enabling us to reduce overcrowding and meet the capacity targets set by the HLOS through CP4 and beyond CP5. Route Planning has produced a Platform Lengthening Strategy to support the Strategic Business Plan which identifies the stations across the London North Western route where platform extension would be the most effective solution for accommodating lengthened services. The latest version of the strategy is available on request.

Future capacity

Chiltern Railways have commitments within their Franchise Agreement to invest in further capacity outputs required to meet demand – in particular, ensuring peak PIXC thresholds are not exceeded and, outside the peak hours, all passengers are seated. These investment outputs include the procurement of additional rolling stock, lengthening platforms (up to prescribed upper limits) and further investment in car park capacity, ensuring that certain average occupancy thresholds are not exceeded.

The increase in passenger capacity will be achieved through longer trains and the planned standardisation of the timetable in 2010.

It is expected that additional rail capacity will be released through an on-going review which identifies locations where tactical/ opportunistic line and junction speed improvements can be made. A study is already underway to assess the best value locations for line speed improvements. A strategy for bi-directional signalling along the route, based on TOC funding, will be progressed.

Figure 13 Stations to be lengthened

Lengthening required to accommodate 8 x 23m vehicles at:-

South Ruislip (Platforms 3 and 4), West Ruislip (Platforms 3 and 4), Saunderton (Up and Dn), Kings Sutton (Up and Dn), Sudbury Hill Harrow (Up and Dn), Sudbury and Harrow Road (Up and Dn) and Northolt Park (Up and Dn)

Figure 14 Forecast PPM MAA- CP4 plan

	2009/10	2010/11	2011/12	2012/13	2013/14
Chiltern Railways	95.2%	95.5%	95.7%	95.8%	96.0%

Figure 15 Forecast PPM MAA - proposed local commitments

	2009/10	2010/11	2011/12	2012/13	2013/14
Chiltern Railways	93.8%	94.1%	94.3%	94.4%	94.5%

Future performance

Figure 14 sets out the planned PPM for the train operator. Figure 15 sets out the trajectory we propose as local commitments with the operator. These are lower than planned given the need for flexibility in achieving the HLOS targets and to reflect the greater uncertainty and risk associated with projecting performance at a disaggregated level. Reasonable requirements will finally be established for CP4 in our 2009 Business Plan.

The route plan is being developed around these key points and currently suggests that performance for Chiltern Railways by April 2014 will be around 96.0 percent. This includes an allowance for passenger/traffic growth and an increase in engineering work. This figure has been discussed with Chiltern Railways and is in line with their aspirations.

- extreme weather mitigation through enhanced drainage
- continued maintenance of Automatic Train Protection (ATP) system; and
- review of length of ATP loops at various locations so that drivers can better respond to proceed aspects.

The route plan is being developed around these key points and currently suggests that performance for Chiltern Railways by April 2014 will be around 96.0 percent. This includes an allowance for passenger/traffic growth and an increase in engineering work. This figure has been discussed with Chiltern Railways and is in line with their aspirations.

Chiltern Railways

The performance of Chiltern Railways is currently 94.9 percent PPM. The forecast PPM MAA is 95.0 percent by April 2009, as an outcome of the 2008/09 Joint Performance Improvement Plan (J-PIP). Underlying infrastructure and rolling stock performance has remained good and contributed to this excellent result. The J-PIP has recently been supported by the newly formed Joint Performance Improvement Group and the LUL/Network Rail/Chiltern interface group.

The key performance issues and opportunities for this route have been identified as:

- increase timetable robustness, following the introduction of the new WSMR services;
- impact of the West Midlands re-signalling schemes;
- implementation of further bridge strike prevention and mitigation measures;
- reduction in the impact of trespass, vandalism and fatalities;
- higher quality Automatic Route Setting (ARS);
- right time railway – reduction in late starts;

Engineering access

Engineering access is available through a regular pattern of eight hours on Saturday nights and five hours on Sunday nights, as well as possession opportunities on week-nights which are limited due to Chiltern Railways late night services and empty stock movements.

Metronet, on behalf of London Underground Limited, are planning a large number of full weekend closures of the Metropolitan Line between Amersham and Harrow-on-the-Hill and Network Rail's own renewals and maintenance work has been carefully aligned with these possessions to avoid further disruption to Train Operators.

Possession planning on Route 16 is carefully integrated with the Birmingham to Didcot and West Coast Main Line routes, to enable the route to be used as an alternative for passengers and freight from London to the West Midlands.

Long term opportunities and challenges

As mentioned earlier, Chiltern Railways have an aspiration to provide a 90 minute journey time on their London-Birmingham service, and some improvements to line speeds will be pursued during CP4. Some carefully chosen sections of three or four tracking of the core Chiltern Route are likely to be more cost effective ways of increasing capacity between London & Birmingham than enhancing the capacity of the WCML. Chiltern Railways have developed an outline strategy for three/four tracking and estimate that it will cost up to £200m. Current thoughts on funding are that it would be part public/part private, and there is a prospect that this work could occur in CP4.

The provision of a south to west curve at Bicester (land for which is safeguarded in the Local Authority's Development Framework) would facilitate a Marylebone – High Wycombe – Oxford service. This relies on the upgrade of the Bicester – Oxford section of line to double track with a 90/100mph line speed (perhaps as part of East West railway initiative). Chiltern Railways envisage new stations at Bicester Village (to replace Bicester Town) and Water Eaton Parkway (to serve North Oxford). This new route offers the opportunity of Chiltern Railways providing the principal service between Oxford and London when the Great Western route is affected by Reading remodelling and Crossrail.

There is currently only one freight train per day each way over the Bicester Town – Claydon section. However, the line is also of strategic importance with regards to the long-term aspiration of Local Authorities and other bodies for the reopening of an East-West route linking Oxford, Bletchley, Bedford and Cambridge. Significant upgrading would be necessary, but the line of route is intact between Bicester and Bletchley and hence there are no major physical obstacles to reopening this element of the route, subject to a robust business case and funding. In parallel, there has been some initial thinking around the possibility of using an upgraded East West (Oxford – Bletchley) route to divert North East bound freight traffic off the Cherwell Valley and possibly the West Coast. This could also provide part of an alternative route for the Reading-Manchester Cross Country services, which would join the WCML at Bletchley and travel up the Trent Valley, resulting in significant journey time benefits. Against this background, the introduction of an Oxford – Bletchley – Milton Keynes service appears a reasonable possibility. If the Oxford – Bicester – Bletchley route were reinstated, Chiltern Railways have an aspiration to re-open to passenger trains along the Aylesbury North

– Claydon LNE route. This would enable an Aylesbury to Bedford or Milton Keynes service. The further addition of a crossover at Princes Risborough, together with an upgrade to the Aylesbury – Princes Risborough branch, would facilitate a London – High Wycombe – Princes Risborough – Aylesbury – Milton Keynes service, so fulfilling multiple stakeholder aspirations.

These proposals are likely to form a key input into the Franchise Agreement process. Uniquely, Chiltern Railways' 'investment led' franchise requires it to advocate infrastructure investments to the DfT, which, if approved, will progressively lead to confirmation of the 20 year Chiltern franchise term.

Enhancements to be completed by end of CP3

Figure 16 CP3 enhancements					
Implementation date	Project	Project description	Output change	Funding	GRIP stage
2008	(A) Denham Station improvements	Improved passenger facilities at Denham station	Improved passenger flows and ambience at the station	Third Party	6-7
2008/09	(B) Chinnor & Princes Risborough Railway	Extension of heritage railway to Princes Risborough	Extension of Line	Third Party	4
2008/09	(C) New Station	Provision of new parkway station at Aylesbury Vale	Improved access to the rail network and capacity for growth	Third Party	4
2008/09	(D) Petts Hill Underbridge	Replacement underbridge in connection with road improvements at Petts Hill	Road improvements	Third Party	4
Currently on hold pending completion of the Tesco works	(E) Turnback siding	Provision of new turnback siding at Gerrards Cross	Increased capacity and improved performance	Third Party	3
2008/09	(F) Line speed review – Bicester	Increase in line speed on up fast, south of Bicester.	Improved Performance and Capacity	Network Rail Discretionary Fund	2-3

Proposed enhancements in CP4

Figure 17 Proposed enhancements in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2009 -2010	Ⓒ East West Rail Link	Re-opening of the Oxford/Aylesbury – Bedford railway between Claydon and Bletchley	New route and services creating extra capacity on the route	Third party	2
2009-2014	Ⓗ Chiltern Platform lengthening	Platform extensions to support 8 car trains at Saunderton, West Ruislip, Northolt Park, Kings Sutton, South Ruislip, Sudbury Hill Harrow and Sudbury & Harrow Road	Increased capacity	Periodic Review 2008	–
2009-2014	Ⓘ Aynho – Banbury Crossover (potentially part of the Banbury remodelling scheme)	Additional Crossover to facilitate full Bi-directional working	Improves capacity and allows increased maintenance opportunities.	Third Party	–
2009-2014	Ⓜ Wrexham to Marylebone LSI	Line speed improvements across sections of the route.	Reduced journey times	Periodic Review 2008	–

NRDF Candidate schemes in CP4

Figure 18 Candidate NRDF schemes in CP4					
Implementation date	Project	Project description	Output change	Funding	GRIP stage
2009-2014	Ⓜ Chiltern Gauge Clearance (W12)	Review provisions for a wider gauge to allow Chiltern Route to be used as an alternative to the West Coast Main Line	Higher gauge capability	Network Rail Discretionary Fund.	-
2009-2014	Ⓚ Aylesbury – Princes Risborough new connection	Introduction of a new crossover at Princes Risborough	Improve operational flexibility, increased capacity and line speeds	Network Rail Discretionary Fund.	-
2009-2014	Ⓛ West Ruislip Crossover	Introduction of a new facing crossover between West Ruislip and London Marylebone	Enables new service between West Ruislip and London Marylebone, thus releasing station calls in Birmingham and London services	Network Rail Discretionary Fund.	-

Maintenance and renewals activity

Figure 19 shows the estimated maintenance and renewal costs and activity volumes.

The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible consistent with the reasonable requirements of operators and other stakeholders.

It should be noted that in order to manage the deliverability of our Civils, Signalling & Electrification plans we have included an element of over planning in our work banks. As a consequence the sum of our route plans exceeds our plan for the network as a whole. It is likely that a small proportion of the activities in these areas will slip to subsequent years.

Figure 19 Summary of estimated maintenance & renewals costs and activity volumes

£m (2006/07 prices)	2009/10	2010/11	2011/12	2012/13	2013/14	Control Period Totals			
						CP4	CP5	CP6	CP7
Maintenance expenditure									
Track	3	3	3	3	3	15	13	12	12
Signalling	1	1	1	1	1	4	4	3	3
Electrification	0	0	0	0	0	0	0	0	0
Telecoms	1	1	1	1	1	4	4	3	3
Plant and Machinery	0	0	0	0	0	1	1	1	1
Other (overheads / indirect)	4	4	4	4	4	20	18	17	17
Total	9	9	8	8	8	43	38	37	37
Renewals									
Track	10	10	9	9	9	47	17	11	16
Signalling	0	0	0	1	2	4	8	5	23
Civils	5	5	5	5	4	23	20	19	19
Operational Property	2	2	2	2	2	10	10	10	10
Electrification	0	0	0	0	0	0	0	0	0
Telecoms	3	2	2	1	0	9	4	3	4
Plant and Machinery	1	1	1	0	0	4	5	4	5
Total	22	21	18	17	18	97	64	52	76
Renewals Volumes									
Rail (KM)	5	5	5	5	5	24	43	23	16
Sleepers (KM)	19	19	19	19	19	94	17	17	33
Ballast (KM)	19	19	19	19	19	94	17	17	33
S&C Units	1	2	0	0	1	4	6	2	0
SEUs commissioned	0	0	0	0	0	0	42	0	139

Appendix

Figure 20 Strategic route sections

Predominant aspect recorded (secondary aspects recorded in brackets). ELR is Engineers Line Reference, RA is Route Availability

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway (mins)	No of Tracks
16.01	Marylebone – Aynho Jcn	NAJ2 & 3 MJC1	London & SE	DfT	No	W7 (W6)	8 (7)	100 (60)	none	TCB	3 (5) (7) (11)	2
16.02	Neasden South Jcn – Harrow	MJC1	London & SE	DfT	No	W6	8 (7)	75 (60)	none	TCB	4	2
16.03	Aylesbury – Great Missenden	MJC2	London & SE	DfT	No	W6	8	75	none	TCB	9	2
16.04	Princes Risborough Jcn – Aylesbury	PRA	London & SE	DfT	No	W7 (W6)	7	40	none	TCB	15	1
16.05	Freight Lines	OXD MJC3	Freight	DfT	No	W8	8 (7)	30	none	KT TB	various	1

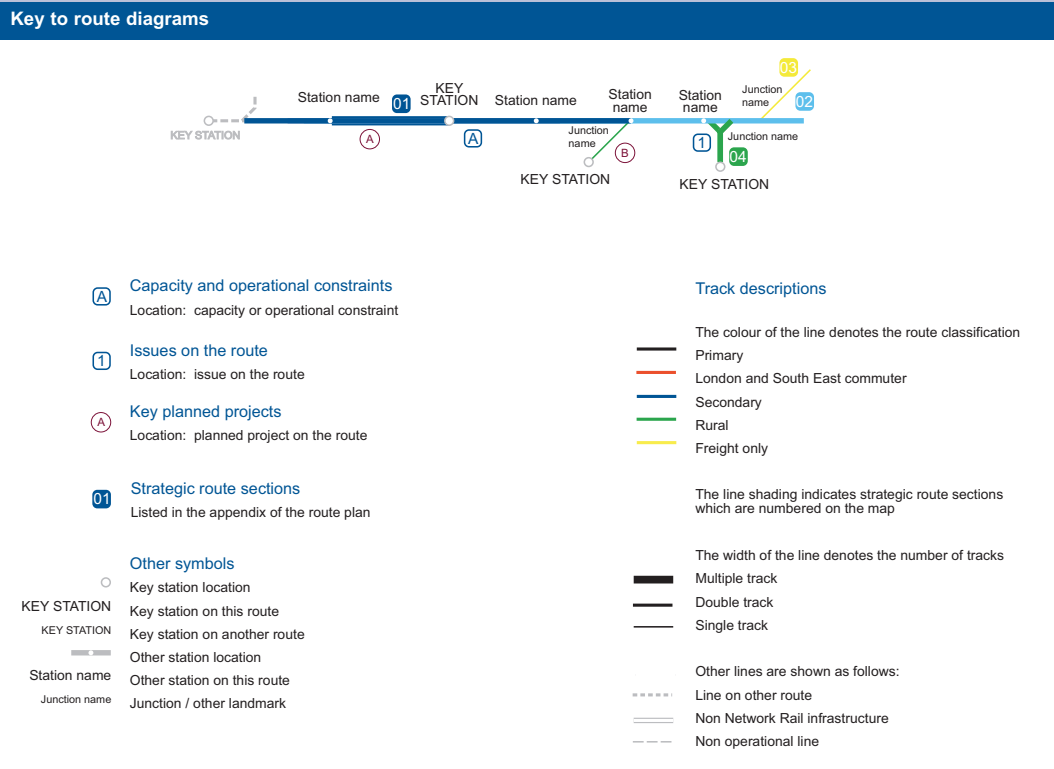
Capacity and operational constraints

- A Beaconsfield station: no through fast lines
- B Aylesbury – Princes Risborough: single track section
- C Marylebone to Banbury: no loops for overtaking

Note

This Route Plan forms part of the April 2008 update of Network Rail's Strategic Business Plan. The Route Plan supersedes the version published on 1 November 2007.

Other documents in the Strategic Business Plan can be found on the Network Rail website www.networkrail.co.uk



GRIP stages

1	Output definition
2	Pre-feasibility
3	Option selection
4	Single option selection
5	Detailed design
6	Construction, test and commission
7	Scheme hand back
8	Project close out

**This Route Plan is part of a set.
To view or download the others
visit www.networkrail.co.uk**

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