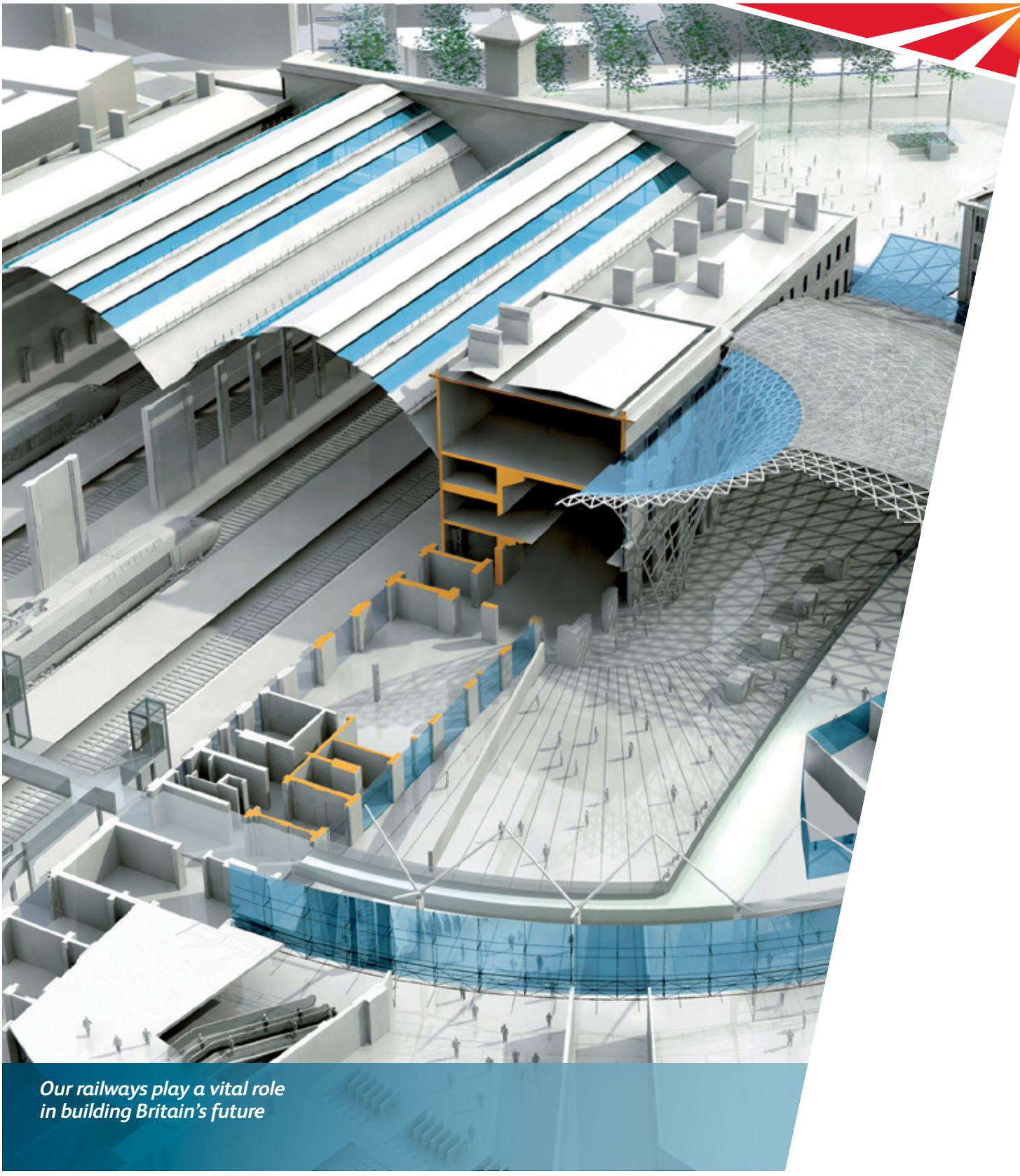
Moving ahead
Planning tomorrow's railways

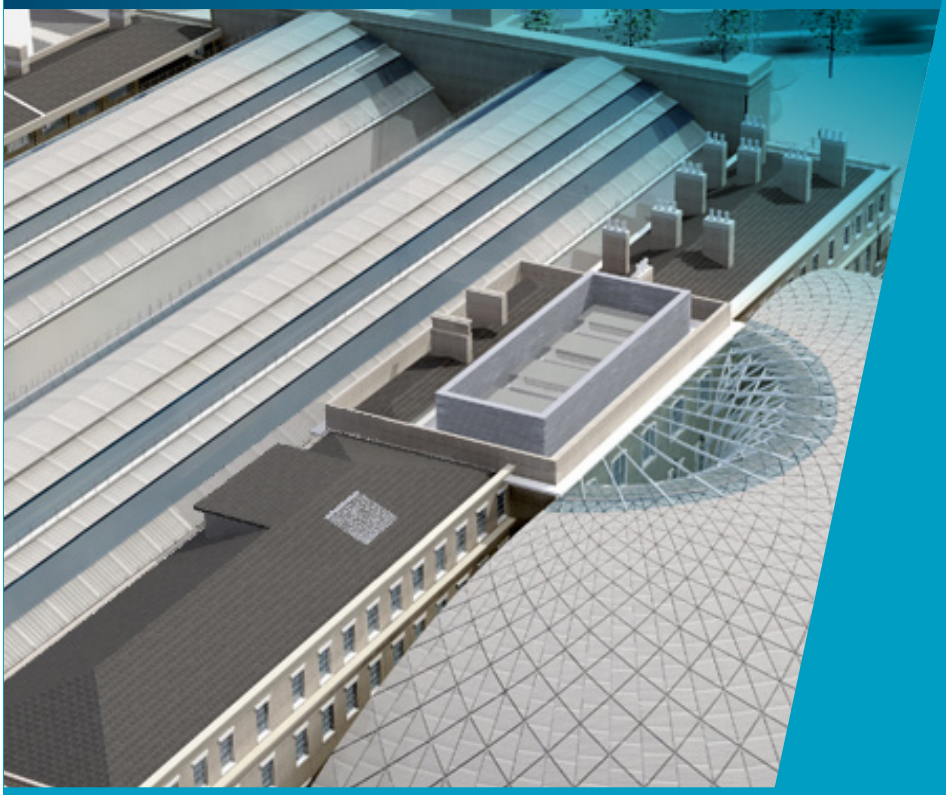
NetworkRail



Our railways play a vital role in building Britain's future

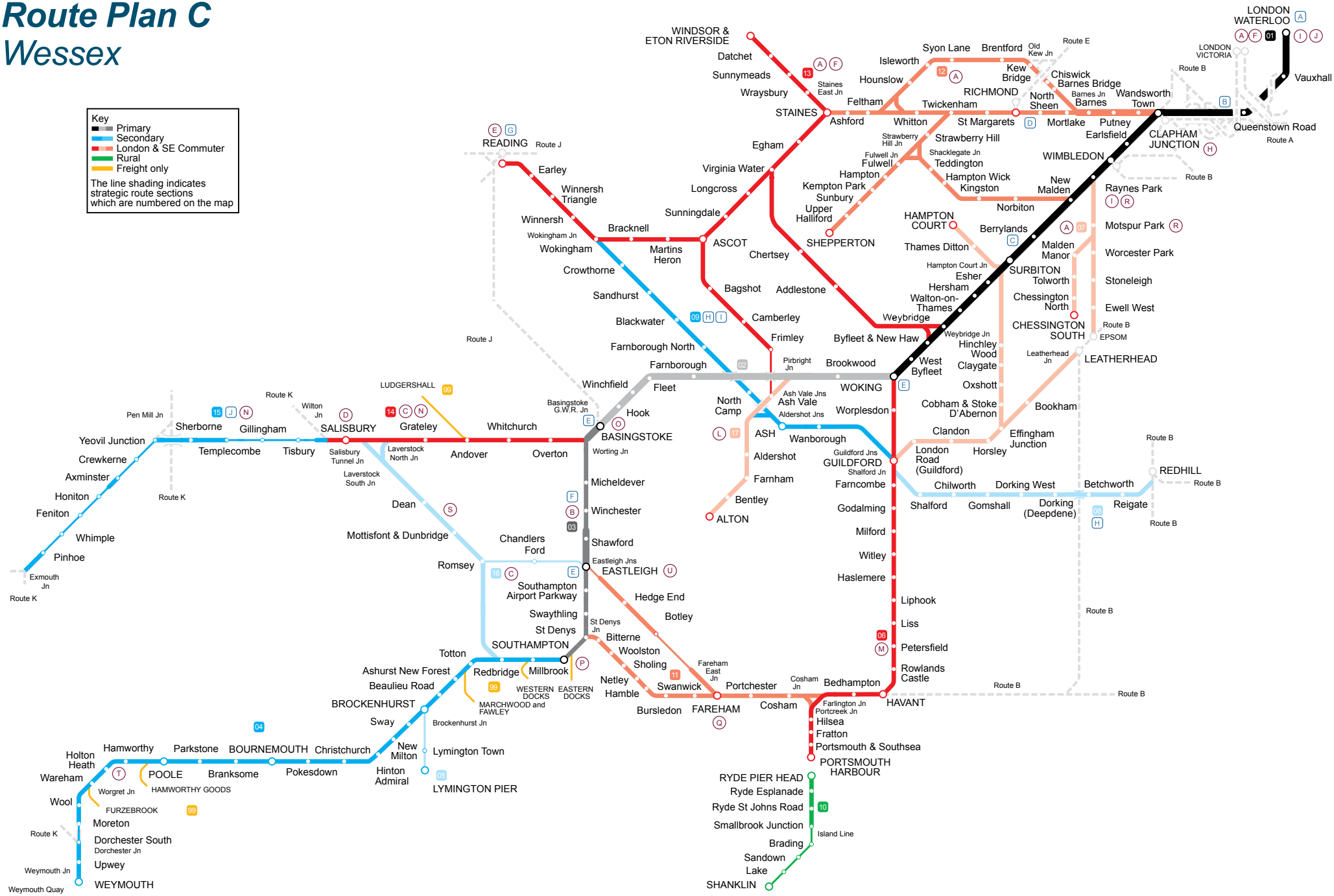
Planning tomorrow's railways

Our £500 million investment in King's Cross station will transform the experience of passengers using the station. We are delivering hundreds of projects across the network to build a bigger, better railway for passengers, freight and the whole of Britain.

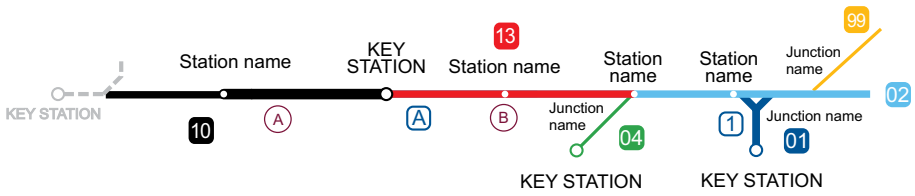


Route Plan C
Wessex

Route Plan C
Wessex



Key to route diagrams



Capacity and operational constraints

Location: capacity or operational constraint

Issues on the route

Location: issue on the route

Key planned projects

Location: planned project on the route

Strategic route sections

Listed in the appendix of the route plan

Other symbols

Key station location

KEY STATION — Key station on this route

KEY STATION — Key station on another route

Other station location

Station name — Other station on this route

Junction name — Junction / other landmark

Track descriptions

The colour of the line denotes the route classification

- Primary
- London and South East commuter
- Secondary
- Rural
- Freight only

The line shading indicates strategic route sections which are numbered on the map

The width of the line denotes the number of tracks

- Multiple track
- Double track
- Single track

Other lines are shown as follows:

- Line on other route
- Non Network Rail infrastructure
- Non operational line

Section 1: Today's railway

Route context

The Wessex route is one of the busiest and most congested routes on the network. It serves a major commuter area as well as providing long distance services from the south and south-west of England to London Waterloo. There is a large amount of leisure traffic to the coastal towns and to ferry terminals along the south coast such as Weymouth, Southampton, Portsmouth, Poole, and Lymington. In addition, the route supports important cross-country links between the south coast and major conurbations in the North, West and Midlands. The line from Exeter to Basingstoke plays an important diversionary role for passenger traffic when the Great Western Main Line is closed, and for freight traffic diverted via Romsey and Andover when the main line through Winchester is unavailable.

The route conveys a significant volume of freight traffic, especially intermodal and automotive flows from the Port of Southampton, as well as petroleum, aggregates and Ministry of Defence (MoD) flows.

In March 2006 Network Rail published its South West Main Line Route Utilisation Strategy (RUS), covering the period up until 2017. The RUS contained detailed analysis about this route, and appraised options to accommodate future growth. The RUS conclusions are reflected within this route plan. The DfT's Southern Regional Planning Assessment (RPA) for the Railway was published in January 2007, and the South West RPA in May 2007.

Today's route

The principal elements of the Wessex route are described below. The relevant Strategic Route Section is shown in brackets:

- the main line from Waterloo to Woking (C.01), where this splits into separate lines to Portsmouth Harbour (C.06) and to Weymouth via Basingstoke and Southampton (C.02, C.03, C.04)
- the 'main' suburban lines (C.07), which include branches to Epsom, Chessington, Hampton Court, and Guildford (via Cobham)
- the 'Windsor' suburban lines (C.12), which encompass lines to Shepperton, Staines (via Hounslow or Richmond), and Kingston (via Richmond)
- the outer 'Windsor' lines (C.13), comprising lines to Windsor, Reading and Frimley
- the North Downs line (C.08, C.09) from Redhill to Wokingham (via Guildford)
- the line from Cosham Jn to Fareham, where it splits into separate lines to Eastleigh and St Denys (C.11)
- the branch to Lymington (C.05)
- the Isle of Wight line (C.10)
- the corridor from Worting Jn to Exmouth Jn via Salisbury and Yeovil (C.14, C.15), linking Exeter with London Waterloo
- the line from Salisbury to Romsey, where it splits into separate lines to Redbridge and Eastleigh (C.16)
- the branch from Pirbright Jn to Alton (C.17)
- the freight only lines to Ludgershall, Furzebrook, Hamworthy Goods, Fawley and the docks in Southampton (C.99)

Current passenger and freight demand

The Wessex Route encompasses an area served by the main A3, M3, A303 and M27 trunk roads, all of which suffer from increasing levels of congestion.

The SWML RUS showed that the number of passenger journeys per year on Stagecoach South Western Trains (SSWT), the route's main operator, rose by 22 percent in six years. Commuter travel in the peaks grew by around 20 percent over the same period, leading to frequent overcrowding, with some passengers having to stand on journeys to London from as far as Andover and Winchester.

As well as the significant portion of main line demand represented by short distance commuting to London from stations such as Wimbledon, Surbiton and Woking, destinations away from London also attract considerable demand. This is focused on the major towns and cities, including Guildford, Reading, Basingstoke, Southampton, Bournemouth, Portsmouth, Salisbury and Exeter. Substantial all-year demand is experienced on cross-country services running from the south coast to destinations such as Bristol, Cardiff, Reading, Birmingham and Manchester.

Southampton, Bournemouth and Exeter airports attract an increasing flow of rail passengers, and there is strong off-peak demand for leisure and tourism activities across much of the area. In the summer months, appreciable seasonal demand is experienced on the line to Weymouth, and also on the Isle of Wight line.

The majority of freight demand is through Southampton's docks and container terminals. A high proportion of freight trains in the area carry containers, but there are also petroleum, metals, gypsum, automotive, aggregates and Ministry of Defence (MoD) flows. In addition, Eastleigh Yard provides an important facility for Network Rail infrastructure trains.

Current services

The predominant passenger operator on this route is SSWT. Other passenger operators are Southern, First Great Western, CrossCountry, and London Overground. DB Schenker, Freightliner Limited, Freightliner Heavy Haul Limited, and First GBRf are the major freight operators.

The majority of passenger services on the route serve London. The timetable changed considerably in December 2004, with SSWT providing more services into Waterloo and also significantly improving punctuality. From December 2009, the installation of a new passing loop at Axminster has enabled SSWT to increase to hourly the frequency of service between Waterloo and Exeter.

Outside London, First Great Western operates services from Reading to Gatwick Airport (via Guildford), and from Cardiff/Bristol to Salisbury, Southampton, Portsmouth and Brighton. CrossCountry runs trains from Bournemouth to Manchester, and a limited service from Guildford to Newcastle. Southern runs services from Southampton to Brighton and London Victoria, and London Overground operates services from Clapham Junction to west and north London.

Freight services on the route mainly operate from the Eastleigh and Southampton areas to Scotland, the North-East and North-West, the Midlands, the West and London. Quarried aggregates from Somerset operate via Westbury to destinations on the route; there are aggregates terminals at Tolworth, Woking, Fareham, Eastleigh, Botley and Wool. There is also some oil traffic between Holybourne and Fawley, and MoD traffic to/from terminals at Ludgershall, Marchwood and Wool.

The Wessex route accommodates a variety of traction. Much of the route is electrified with the 750v DC 3rd rail system, over which mostly modern electric multiple units are operated. On the non-electrified parts of the route (Worting Junction to Exeter, Salisbury to Southampton/Eastleigh, Wokingham to Aldershot South Junction, and Shalford Junction to Reigate) diesel multiple units are used. All CrossCountry services are operated with DMUs, and all freight services on the route are diesel-hauled.

From Waterloo to Worting Jn, fast and slow services are separated onto the fast and slow lines, and mixed traffic (with differing speed, acceleration and stopping patterns) is most problematic only on the two track sections between Southampton and Worting Junction. Between Salisbury and Exeter, there are long sections of single line which impose constraints on timetabling.

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

Figure 1 Current train service level (trains per hour)

From	Peak hour to Waterloo
Reading	3
Guildford	5
Basingstoke	4
Southampton	2
Portsmouth	4
Weymouth	1
Salisbury	2
Exeter	1
Richmond	7
Wimbledon	18
Surbiton	7
Woking	10

Figure 2 Tonnage

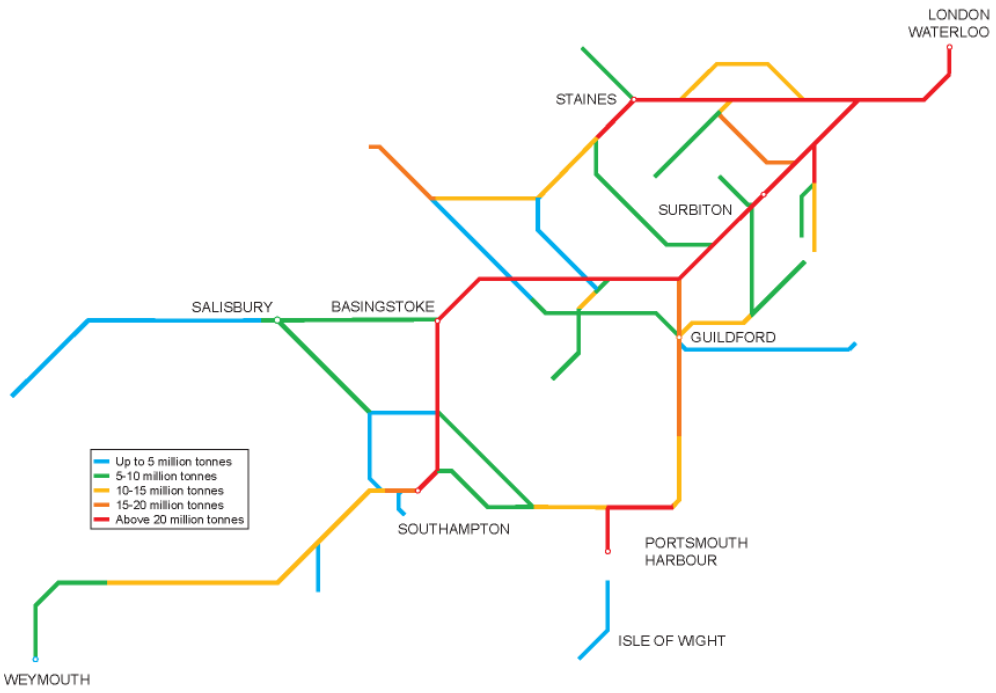


Figure 2 shows the total annual tonnage levels on the route.

Traffic volumes are summarised in Figure 3.

Figure 3 Current use

	Passenger	Freight	Total
Train km per year (millions)	44	2	46
Train tonne km per year (millions)	12,395	1,190	13,585

Current infrastructure capability

The following maps provide an indication of the predominant capability on each section of the route.

As part of the Infrastructure Capability Programme a number of Network Changes to Route Availability and Gauge, which may affect some of the detail of these maps, have been issued for consultation. Details of the Network Changes being consulted can be found on the Network Rail website and details of Network Changes established can be found on the Network Rail website.

Current capability is shown in the Network Rail Sectional Appendix.

Figure 4 Linespeed

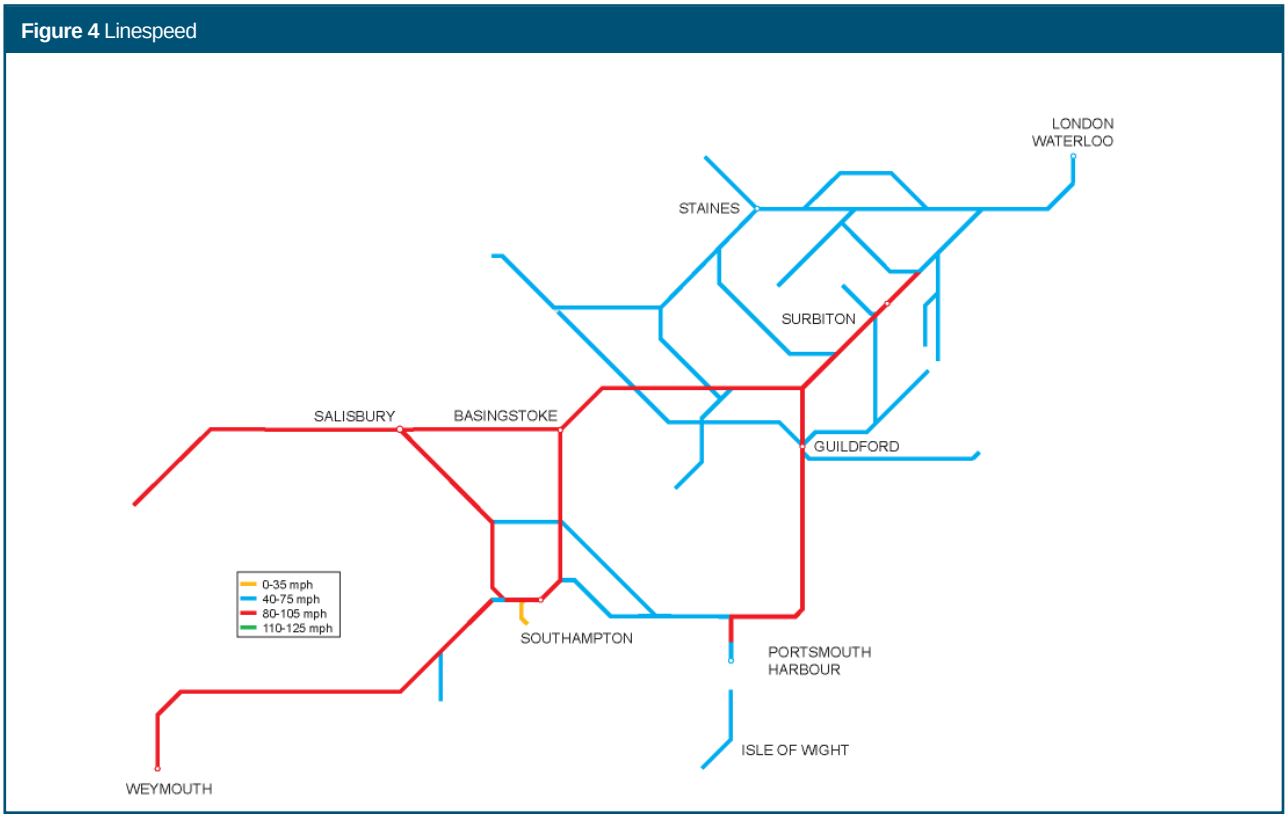


Figure 5 Electrification

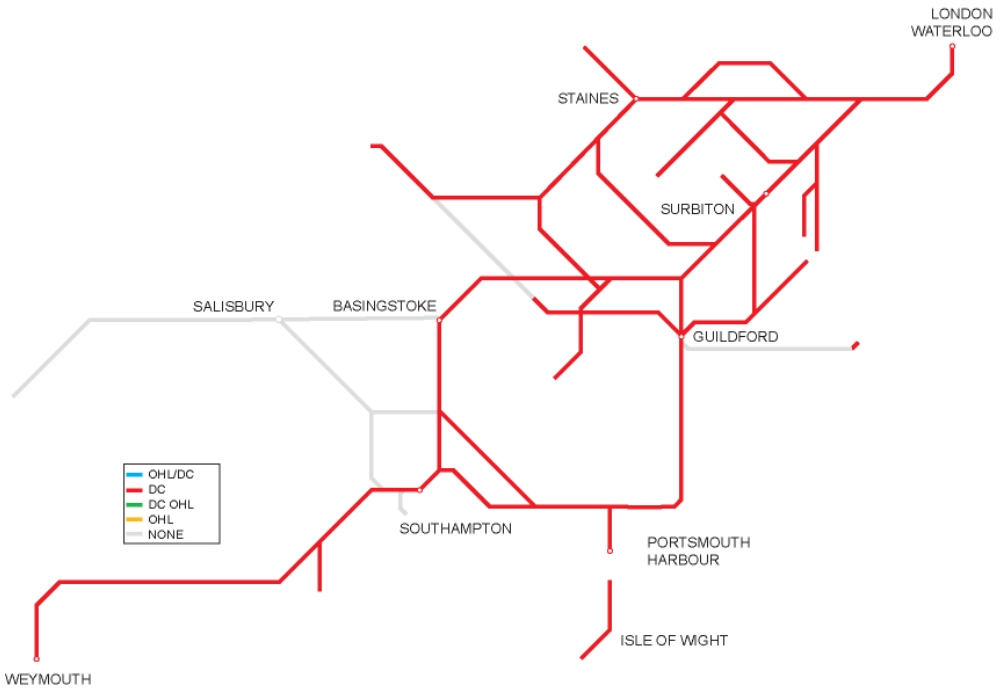


Figure 6 Route availability

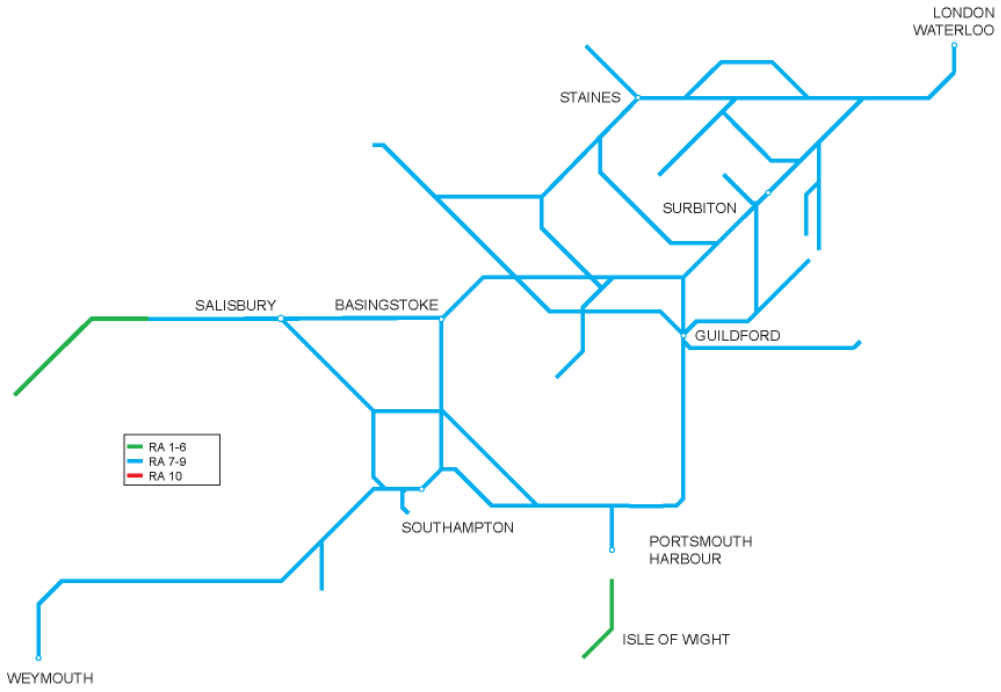
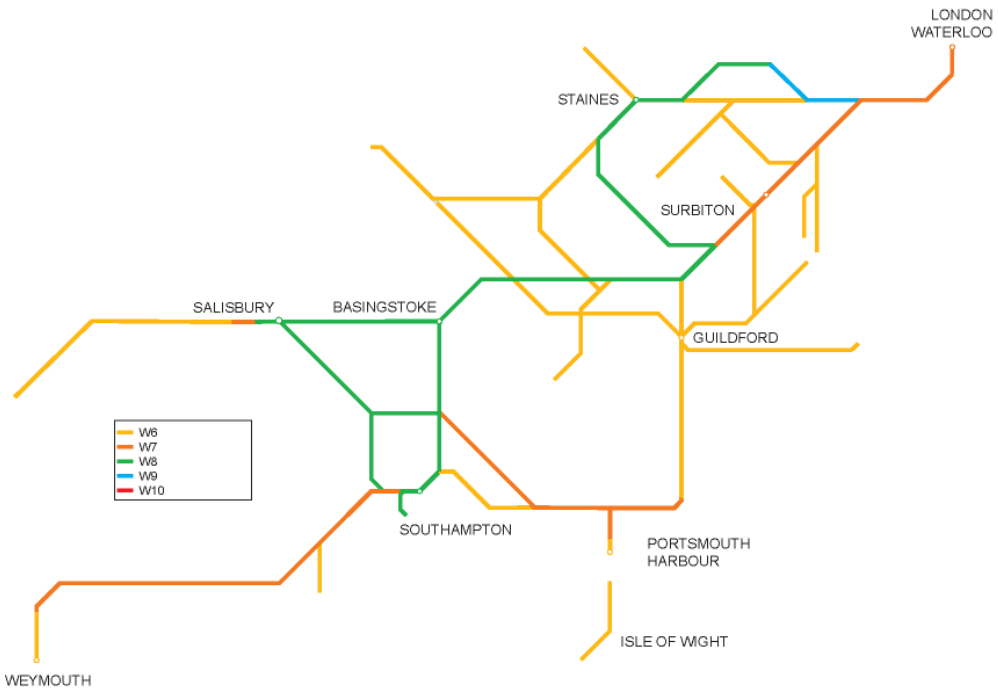


Figure 7 Gauge



Current capacity

The SWML is used intensively, especially close to London. During peak periods the fast lines from Woking to Waterloo and the slow lines from Raynes Park to Waterloo are operating at capacity so no additional train movements can be accommodated in the high peak hour between 08.00 and 09.00.

The route between Twickenham and Waterloo using the Windsor lines is also operated intensively during peak periods and this reduces short term options to relieve overcrowding. Waterloo has 19 platforms available for domestic traffic and these are also highly used at peak times. However, the transfer of Eurostar services from Waterloo International to St Pancras has provided an opportunity to increase platform capacity, and Platform 20 has been converted to domestic use. This will enable a minor enhancement to the quantum of peak Windsor line services during the current control period.

At off-peak times, the approaches to Waterloo are still operating close to capacity and additional train movements would have a severe impact on performance, particularly as the high peak service can only be accommodated because of the fire-break provided by a lower service level in subsequent hours.

The routes emanating from Salisbury (to Basingstoke, Southampton, Westbury and Exeter) are not used intensively, but still run close to capacity in several key locations. The long single track sections on the Exeter line considerably constrain the available capacity and limit the amount of paths that can be utilised nearer to London.

Use of capacity by cross-country operators is further constrained not only by pinchpoints within the route (such as Southampton) but by timetabling challenges at major locations elsewhere (such as Reading, Birmingham and Bristol) which determine at what times trains can be presented either on or off the Wessex route.

The SWML RUS highlighted the following key constraints:

- the layout of the Waterloo throat restricts the number of services that can access the platforms at any one time
- the layout at Clapham Jn does not allow all trains that currently pass through the station to stop there
- flat junctions at Woking, Basingstoke and Eastleigh combine to limit available pathways throughout the route
- single line sections of track restrict capacity on the lines between Salisbury and Exeter, Frimley and Ash Vale, Farnham and Alton, Botley and Fareham, Moreton and Dorchester South, and the approaches to Weymouth and Reading stations
- the suburban network is limited to 8-car operation owing to platform lengths
- key stations such as London Waterloo and Clapham Jn experience severe passenger congestion during the peak periods.

A further constraint on the ability of the SWML to accommodate passenger growth is the capacity of some station car parks, such as Southampton Airport Parkway, where demand exceeds the number of spaces presently available.

Key constraints for freight services also include:

- limited paths for freight services across the entire route, but particularly on the busy double-track sections between Southampton and Basingstoke via Winchester
- current infrastructure capability limits the length of trains; there are few locations on the route where it is possible for freight services to be looped or regulated
- freight services are restricted by the loading gauge and trailing load limits on certain lines
- the lack of diversionary routes at the appropriate gauge.

Figure 8 shows the current train service level in key sections of the route.

Figure 8 Current train service level (trains per peak hour)

Route Section	Maximum tph
Clapham Jn to Waterloo (Main Lines)	42
Clapham Jn to Waterloo (Windsor Lines)	16
Woking to Hampton Court Jn	20
Southampton Central to St Denys	10
Portsmouth & Southsea to Portcreek Jn	10
Romsey to Southampton Central	3
Salisbury to Basingstoke	2
Salisbury to Yeovil Jn	2

Current performance

SWML route performance has improved in 2009/10. However, the severe winter weather, poor autumn season and significant structural issues have caused a recent 0.7 percent worsenment in PPM MAA at Period 10 versus the corresponding period in 2008/09. The current PPM MAA projection for year end is 92.4 percent, a 0.8 percent fall on 2008/09, but ahead of the JPIP target.

SSWT, with other operators, continue to see year on year improvements in most delay categories. Most of SSWT's major KPIs are significantly better than plan in 2009/10. Network Rail delay minutes are forecast to be 6 percent worse than 2008/09 at year end.

The severe weather that has had an impact on the network has caused this downturn in forecast. Factoring out the severe weather, the delay minutes would have been forecast to be 6 percent better than 2008/09.

The significant issues with weather and infrastructure management are being addressed as part of the JPIP process.

Figure 9 shows the current PPM for the main TOCs running along the route.

Figure 9 2009/10 PPM

TOC	Forecast MAA	As at period
Stagecoach South Western Trains	92.6%	11
Southern	90.6%	11
CrossCountry	90.4%	11
First Great Western	92.2%	11
London Overground	93.0%	11

Section 2: Tomorrow's railway: requirements

HLOS output requirements

Figures 10 and 11 below shows the HLOS output requirement for the total demand to be accommodated on the former strategic routes which now largely make up Strategic Route C (Wessex).

Future demand in CP4

The high volume of demand for peak commuter services to London is expected to continue and to grow in line with increasing employment in London, as passenger kilometre growth of 23 percent between 2003 and 2016 is anticipated in the morning peak period of which up to 14 percent is expected by the end of CP4. Owing to a combination of factors (housing and economic development, congestion, both on the trains and the roads, and predicted passenger preferences) growth is strongest in the outer areas and weaker towards London. For example, commuting to London from west of Yeovil is expected to rise by 38 percent by 2017, and the enhanced frequency of service between Exeter and London, introduced in December 2009, is predicted to stimulate an additional 40,000 journeys on the line. Generally, however, increasingly crowded conditions are expected to limit total growth on the Wessex route as a whole to 19 percent.

Our analysis suggests that while growth of peak London commuter demand will continue to be partly constrained by crowding there may be better growth opportunities for off-peak travel because the demand for leisure services to both London and coastal destinations remains strong. Growth in regional travel from the Wessex Route to the rest of the country has actually exceeded commuter growth over the past few years. This has been reflected by continued growth in CrossCountry services, which is anticipated to continue for the rest of CP4.

The Olympics in 2012 will see events being held in Wimbledon and Weymouth but it is expected that travel demand in relation to these events can be broadly accommodated within the current network capability. Extra services may need to be provided at certain times, but, for example, Wimbledon already sees high demand during the tennis fortnight so it is expected that regularly implemented service strengthening will apply. Traction power supply issues between Bournemouth and Weymouth may limit any increase in the number of electric trains which can be run during the games period.

Partly in preparation for major works at London Bridge required by the Thameslink Programme, it is probable that Phase 2 of the East London Line Extension Project will be implemented in 2012. New services will run from Clapham Jn (Platforms 1/2) via the South London Line to Dalston Jn in North London.

The opening of Terminal 5 at Heathrow Airport in 2008 has provided further stimulus to the proposed Airtrack project, with a Transport & Works Act application submitted in Autumn 2009. This would provide a new connection from Terminal 5 onto the existing Staines to Windsor line, and give the potential to run a 2 tph service from the airport to each of Waterloo, Reading and Guildford. Work to examine how such additional paths can be reliably accommodated is ongoing. The target implementation date is 2014.

Figure 10 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
South West Main Line	5,012	706
Wessex Routes	431	58

Figure 11 Peak hour arrivals to be accommodated by Strategic Route

London Terminals	Peak three hours			High peak hours		
	Assessed 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 (%)
Waterloo	74,300	9,200	67	36,800	4,900	76

Note: the load factor requirement in the HLOS applies as an average across 12 London stations.

The ongoing extension of Transport for London's (TfL) Oyster ticketing system onto the national rail system within London during CP4 is expected to have a measurable effect on demand, and the continuing development of smart ticketing technology offers the opportunity for better management of peak demand.

The Freight RUS was published by Network Rail in March 2007 and established by the Office of Rail Regulation in May 2007. A key input to the strategy was a set of ten year demand forecasts that were developed and agreed by the industry through the RUS Stakeholder Management Group. The forecasts indicate that the majority of freight growth in the Wessex route area will be from two key commodity sectors:

- **Deep Sea Containers –** Strong deep sea container growth is forecast to continue now that W10 gauge clearance between the Port of Southampton and the WCML has been funded through the Transport Innovation Fund (TIF). Once delivered in 2011, the forecasts identify growth of six to eight trains per day in each direction to and from the Port by 2014/15. In order to avoid choking this growth off, funding from the Strategic Freight Network will provide W10 clearance on the diversionary route via Laverstock and Andover
- **Aggregates/Construction –** One additional train per day is projected from the Mendip quarries to terminals in the Wessex route. Volume growth of between 1 percent and 2 percent a year is forecast in the period 2007 to 2017.

Growth is also anticipated in other types of freight but this will have a more limited impact on the utilisation of train paths on the network.

Future demand beyond CP4

Demand growth is expected to continue well into CP5, for both freight and passenger businesses. By around 2020, the SWML RUS recommended that all suburban trains into Waterloo would need to be 12 cars in length. Beyond that, the Government's July 2007 White Paper challenged the industry to plan for a doubling of demand in the subsequent 30 years.

Once the recommended RUS interventions of longer trains and platforms have been implemented, accommodating future growth on the main lines nearer to London will involve significant infrastructure enhancements together with the implementation of the new signalling technologies. It is likely that major new rail lines will need to be constructed, such as Crossrail 2 proposed by TfL.

Away from London, demand is likely to be accommodated by the running of longer trains, or by exploiting train paths which are not currently utilised or making alterations to existing service patterns.

Continuing growth in container traffic to/from Southampton, with traffic potentially running seven days a week, will require a further diversionary route to be cleared for the conveyance of 9' 6" containers in order that the freight operators can offer a reliable service when the primary routes are shut for maintenance. Two options are being considered: the line from Salisbury via Westbury, Melksham and Didcot (Strategic Routes J and K), and the route through Woking, Hounslow and Kew to the West Coast Main Line.

Section 3: Tomorrow's railway: strategy

Figure 12 summarises the key milestones during CP4 in delivering the proposed strategy for the route.

Further explanation of the key service changes and infrastructure enhancements are set out in the following sections.

Figure 12 Summary of proposed strategy milestones

Implementation date	Service enhancement	Infrastructure enhancement	Expected output change
2011-2012	10-car operation: Waterloo to Windsor (via Richmond)	Platform extensions, with appropriate power supply upgrades; interim solution for stabling additional rolling stock	Up to 25% increase in peak capacity on the Windsor route
2011	Provision of W10 freight gauge between Southampton and WCML	Replacement of overbridges and track slewing to W10 gauge	Enables 9' 6" high containers to be conveyed on conventional wagons
2012-2013	10-car operation: Hounslow Loop; Virginia Water to Weybridge	Platform extensions, with appropriate power supply upgrades	Up to 25% increase in peak capacity on both routes
2013-2014	10-car operation: Shepperton Branch; Hampton Court Branch; Waterloo (excl) to Woking; Chessington South Branch; Raynes Park to Epsom; Leatherhead and Hinchley Wood to Guildford	Platform extensions, with appropriate power supply upgrades, and enhancements to depot and stabling facilities	Up to 25% increase in peak capacity on these routes
2011-2014	10-car operation: Waterloo	Full conversion of Waterloo International Terminal to domestic use, including the extension of short platforms in the main station	Enables full implementation of the 10-car suburban railway
2014	Potential implementation of Airtrack scheme	New connection to Terminal 5 New chord at Staines New bay platform at Staines Construction of new depot at Feltham New platform 4c at Reading	Introduction of 2tph from Heathrow Terminal 5 to each of Waterloo, Reading and Guildford
By 2014	Provision of W10 freight gauge between Southampton and WCML on diversionary route via Andover	Replacement of overbridges and track slewing to W10 gauge	Enables 9' 6" high containers to be conveyed on conventional wagons when the principal route via Winchester is unavailable
Ongoing	Scheme development for major improvements to Waterloo Station	Commercial and operational redevelopment of station and approaches	Increased concourse capacity, improved accessibility, ability to cater for future growth beyond CP4 with full 12-car capability, opportunity for commercial development
Ongoing	Development of schemes to improve linespeeds at various locations	Track and signalling enhancements	Improved journey times and/or more resilient performance
Ongoing	Developing accessibility, capacity and pedestrian flow improvements at Clapham Jn	DDA compliance, new entrance, commercial property development	Ability to cater for increased demand from longer trains, full accessibility to all platforms, relief of serious congestion
Ongoing	Increase in car parking capacity at strategic locations	Horizontal or vertical expansion of car parks	Ability to cater for increased demand at both peak and off-peak times

Figure 13 & figure 14 show how the HLOS load factor targets for locations on the route would be met by the proposed strategy if implemented in full. However, there are a range of options/variations on this strategy, currently being developed by SSWT/DfT/NR, which would reduce the figures below whilst still meeting HLOS targets.

The measures will also allow the total additional passenger kilometres to be accommodated.

Figure 13 Capacity enhancements to meet HLOS peak capacity in CP4

Description	Additional vehicles involved	Station served	0700 – 0959 Capacity Impact	0800 – 0859 Capacity Impact
Run more mainline trains at maximum length	140	London Waterloo	2,300	1,100
10-car operation on more suburban services		London Waterloo	8,300	4,800

Figure 14 Impact on HLOS peak capacity metric

London Terminals and regional Hubs	Peak three hours				High peak hours			
	Demand end CP4	Capacity start CP4	Capacity end CP4	Load factor end CP4	Demand end CP4	Capacity start CP4	Capacity end CP4	Load factor end CP4
Waterloo	83,500	128,300	138,900	66%	41,700	52,700	58,600	75%
Other London Termini	478,400	608,500	706,900		240,600	268,600	316,000	

Strategic direction

The SWML Route Utilisation Strategy was published on 21 March 2006 and established by the Office of Rail Regulation in May 2006. This details the strategic direction for the route across the period 2007 to 2017, although it also provides a foundation for further development beyond these dates.

Continued strong growth in both passenger and freight demand is predicted to be a key feature of the next ten years. The areas that are currently most congested, such as peak-time passenger services to and from London, will get much worse unless growth is accommodated. Other parts of the Wessex network also have certain key capability and operational weaknesses. A range of measures has been identified to make effective and efficient use of railway capacity and to develop additional capacity. They are based on a number of key gaps between what the route is capable of delivering and those outputs that are desired to accommodate the predicted growth in demand. These measures have been selected on the basis of their value for money and potential affordability across the 10 year period of the RUS. Centred around a strategy of train and platform lengthening, they are summarised below.

Measures to address overcrowding in the peak period are as follows:

- the proposed redevelopment of Waterloo station, including the International Terminal, would increase the concourse capacity and extend all platforms to accommodate at least 10-car trains. Remodelling of the station and, eventually, its approaches were recommended as the cornerstone of the rail industry's strategy for the SWML
- the redevelopment of Waterloo station is a key step towards the operation of longer trains – first 10-cars, later 12-cars - across the suburban network. It is recommended that the entire suburban network is extended for 10-car operation by 2014, beginning with the Windsor lines which are among the most crowded. An associated depot and berthing strategy is being developed to facilitate the additional vehicles required to deliver this measure
- short term measures to improve the effectiveness and capacity of the concourse at Waterloo station, such as reducing the space reserved for retail, will be progressed as necessary in the run up to the redevelopment of Waterloo. In order to provide the operational capacity and flexibility necessary for the redevelopment project, the Waterloo International Terminal is intended to be reserved for this use now that Eurostar services have transferred to St Pancras International. An opportunity exists with the development of new ticketing technology to introduce more flexible and sophisticated pricing in the peak and peak shoulders. The strategy aims to manage both supply and demand to meet forecast growth efficiently rather than suppress it.

Measures to improve the effective use of capacity are listed below:

- the timetable 'Rules of the Plan' will be continuously reviewed in the light of new rolling stock and infrastructure capabilities in order to achieve and maintain the most effective balance between performance and capacity. In the majority of locations across the route, evidence supports the view that the current rules represent a robust balance, allowing maximum exploitation of capacity while establishing minimum acceptable performance standards from an operational and scheduling perspective
- station facilities should be developed to improve access by appropriate modes of transport. As a priority, development of the best value car park expansion schemes, such as at Southampton Airport Parkway, will be progressed by Network Rail in conjunction with the franchise holder
- service alterations in the Southampton-Salisbury-Weymouth area have already been implemented. The alterations include a rebalancing of service groups and stopping patterns the better to match resources to demand, with only a minimal impact on service for specific stations
- the provision of a new passing loop at Axminster in December 2009 has enabled the operation of an hourly frequency service between Waterloo and Exeter; similar provision at Cranbrook, where a new station is proposed, would likewise enable the provision of a two trains per hour service between Axminster and Exeter subject to a business case being made

Measures to develop freight capability include:

- enhancing the rail freight routes (both via Winchester and via Andover) between the Southampton container terminals and Reading to provide W10 capability, which would enable the expansion of rail market share by accommodating the growing proportion of large containers and by remaining competitive with road haulage.

As part of the Strategic Freight Network, there is provision in CP4 for the investigation of an alternative route enabling Channel Tunnel freight traffic to run via Redhill and Reading and beyond, taking account of other traffic on the route. The scheme would offer a route from the Channel

Tunnel to the Midlands and the North West which avoids congested routes in the London area.

Future train service proposals

Figure 15 indicates the forecast percentage change in tonnage to 2019.

Operator responses to the predicted increase in demand will include a move towards 10-car operation on the suburban routes to London Waterloo, various changes in rolling stock utilisation, the provision of extra rolling stock and the running of three additional trains in the morning peak from the Reading and Hounslow areas.

The SWML RUS and subsequent work has calculated that up to 140 additional vehicles would be needed to implement a full 10-car suburban operation, with a similar further number required to support 12-car operation. However, the HLOS peak capacity targets can probably be met with an increase of only around 100 vehicles.

If implemented, the Airtrack proposals will introduce additional services onto the network for which new and enhanced infrastructure will be required. The scheme aspires to run 2 tph from Heathrow Terminal 5 to each of Waterloo, Reading and Guildford, and to extend the Heathrow Express service from Terminal 5 to a new bay platform at Staines.

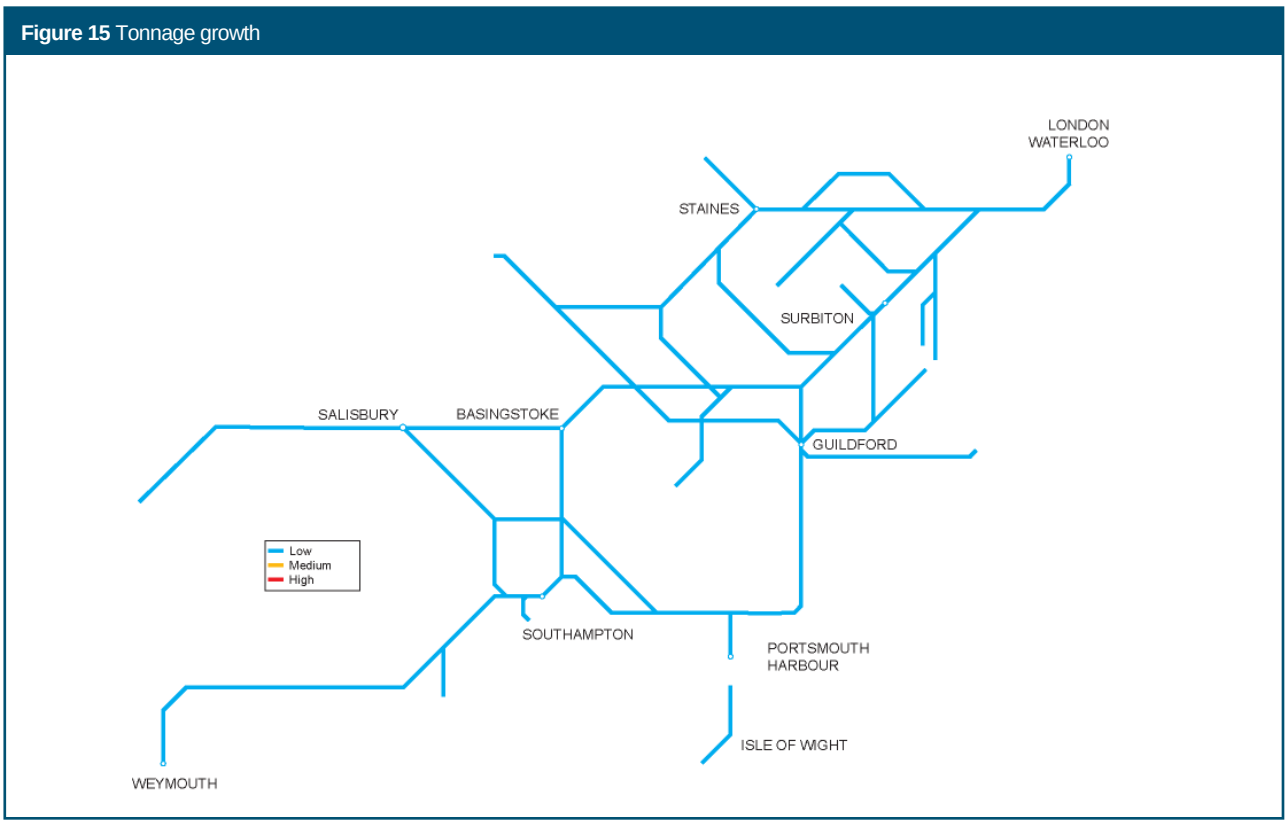
From December 2009, SSWT have introduced an hourly-frequency service from London Waterloo to Exeter.

The Great Western Main Line RUS has recommended that certain peak services on the Cardiff to Portsmouth route be lengthened to ease overcrowding. In addition, FGW also wish to enhance the Reading-Gatwick service to a half-hourly frequency in the peaks, subject to capacity constraints on Strategic Route B (Sussex) being satisfactorily resolved.

The Great Western RUS has recommended the extension of some Newcastle – Reading services to Southampton to improve connectivity and to ease crowding, particularly on services south of Reading.

Southern have a contingent franchise proposal to operate trains from the Sussex coast to Southampton via Botley instead of via Netley in order to serve Southampton Airport. Trains in the reverse direction would, however, continue to run via Netley.

Figure 15 Tonnage growth



Future capability

The current freight container market is seeing a significant growth trend in container traffic (5 percent per annum over 20 years), and in particular in the percentage of 'high cube' 9' 6" containers. The proportion of Twenty-foot Equivalent Units (TEUs) that is carried as 9' 6" containers currently stands at approximately 20 percent. This is expected to rise to approximately 45 percent by 2011 and to circa 60 percent by 2020, resulting in pressure to examine the most appropriate way to carry these containers to protect the rail freight market by rail, to utilise train paths efficiently and to facilitate the predicted levels of growth.

This arises because the 9' 6" containers cannot be carried on standard height platform wagons (1000mm) on most of the network without structure gauge enhancement to a capability known as 'W10'. Where this is not provided they have to be carried on specialist wagons which have a reduced payload of up to 33 percent, resulting in inefficiency in the use of paths on the network and possible pressure on capacity.

TIF funding has now been secured to provide the required W10 gauge capability from Southampton to the WCML, but only on the route via Winchester. When this route is not available for any reason, trains will have to be diverted via either Andover or Melksham, but reverting to using the less efficient specialist wagons. The diversionary route via Andover will therefore be cleared to W10 gauge in CP4 as part of the Strategic Freight Network initiative. In addition, the growth predicted in both freight and passenger traffic on the route via Winchester will put pressure on available capacity. In the longer term it may therefore be necessary to consider a further diversionary route from Southampton to the GWML via Westbury, or to the WCML via Woking and Kew, which would avoid the need for trains to be routed via Reading. Other schemes which are being investigated include the viability of running longer trains (up to 775m), and a freight route which avoids London from Redhill to Reading via Guildford. In the longer term, further enhancement to W12 gauge on the routes from Southampton may be required.

Line speeds across the route are generally considered adequate for local services due to the nature of their stopping patterns, however for longer distance journeys line speeds are a constraint. Infrastructure renewal proposals will be assessed to see if speed improvements can be delivered at the same time. In particular, there may be scope to increase to 90mph certain sections of the route to Exeter which are currently limited to 85mph. These may provide opportunities to enhance performance and/or reduce journey times.

The recommendation to review the timetabling rules, as outlined above, has already resulted in some proposed minor changes to sectional running times (the time taken for a train service to traverse a specific section of line).

There are a number of stations on the route that have platforms shorter than would be ideal. In particular the suburban network generally has platforms that can only accommodate 8-car trains. The requirement to lengthen the services, and platforms where necessary, is phased across a number of years:

- 10-car platforms on the line to Windsor and Eton Riverside by 2011
- other suburban platforms to 10-car by 2014
- all platforms to 12-car by the time of Waterloo resignalling, currently expected in the 2020s.

Work will continue in order to identify locations where the use of selective door opening (SDO) may be a preferable solution to the lengthening of platforms. However it should be noted that SDO is not provided on some types of existing rolling stock, and may be impossible to retrofit economically. In addition, there are a number of congested stations (e.g. Putney, Richmond etc) where SDO should not be considered except, in extremis, as a temporary interim solution.

The present stabling and maintenance facilities are likely to need adaptation in order to accommodate longer trains.

The recently completed Power Supply Upgrade allowed new rolling stock to replace the older slam door stock that had been a mainstay of the route since the 1960s. Further upgrade work will be necessary for the train lengthening project for which funding has been secured.

The National Stations Improvement Programme (NSIP) is targeted at delivering measurable improvements to up to 150 stations nationwide. Schemes are in progress or under development at around 25 stations on the Wessex route.

A scheme is currently being developed to deliver minor improvements on the single line from Farnham to Alton, for delivery by 2013.

Resignalling works between Poole and Wool are providing the opportunity for minor enhancements such as a run-round facility and a reduction of level-

crossing down-times at Wool, together with improved operational flexibility at Poole.

The Electrification RUS has looked at the case for further electrification on the route, and recommends only that a review be undertaken of the case for electrifying the line between Basingstoke and Exeter. The unelectrified parts of the North Downs line are not considered to be a high priority for electrification, although this scheme does remain an aspiration among the train operators.

Much of the infrastructure on the Island Line is due for renewal. Plans to regularise the service pattern on the Island Line would require a number of infrastructure changes and thus trigger the renewal requirements. However, the line is not part of the regulated railway, and this work cannot therefore be funded from the regulated financial settlement. A funding mechanism, and innovative low-cost infrastructure solutions, will need to be identified in order for this work to progress in an economically justifiable way.

Future capacity

Providing enough capacity to meet increasing demand is the key challenge for the route. The route is operating close to the maximum number of trains that can be run into Waterloo, around Woking Jn, from/to Portsmouth and in the entire inner suburban area.

The SWML RUS proposed to increase the number of people carried on some services by lengthening the trains. However, most trains already operate at the maximum length for the platforms they call at, so this is not a straightforward step to take. The strategy will provide additional on-train capacity by lengthening most of the few services that run shorter than their maximum length, largely in the shoulder peak. The subsequent train and platform lengthening programme will generate the greater step change in capacity provision on the South West London commuter network, potentially providing up to 15,000 additional seats in the am peak when 10-car operation is possible.

The number of train paths that the network can accommodate is dependent on physical features such as signalling headway, and on the mix of service types (fast and slow, express and stopping) using each line. In the case of the Wessex Route, apart from the line between Worting Jn and Southampton, the mix of services is most challenging between London and Woking. However, this section of line has at least four tracks available throughout, and for most of the distance these are arranged in pairs by direction. This permits services to 'weave' between fast and slow lines at the points most appropriate to their stopping pattern. Consequently, the RUS did not identify any capacity 'gap' that could be addressed by changing the mix of services.

An assessment was undertaken of the physical constraints which prevent additional services from running on the network. A number of options were outlined in the SWML RUS to increase track capacity at four key locations on the Wessex suburban network: London Waterloo, Clapham Jn, Woking Jn, and the approach to platforms 4a and 4b at Reading. It has become clear through the analysis of these options that, without the provision of extra capacity into and at London Waterloo, the value of costly infrastructure enhancements at the other locations is limited. The concept of a hierarchy of infrastructure capacity constraints has been developed, as follows:

- London Waterloo station and approaches;
- Reading station and approaches (which is being addressed as part of the major remodelling scheme at this location);
- Clapham Jn station and approaches
- Woking Jn.

As noted above, growth in deep sea container traffic, driven by W10 gauge enhancement, is likely to require a degree of capacity enhancement, particularly on the corridor between Southampton and Basingstoke. Schemes to relieve pinchpoints are being developed, such as gauge-clearance of a diversionary route, and a proposed freight loop at Basingstoke. Demand in other sectors is not forecast to grow at a rate that will require additional capacity within the ten-year horizon of the Freight RUS. In the longer term, industry forecasts for the period up to 2030 suggest that further capacity enhancements may be needed, which further work will be needed to identify.

Future performance

Continuous improvement in performance is a fundamental objective for both the passenger and freight railway in CP4.

Figure 16 sets out the planned PPM for each train operator as per the CP4 Business Plan. The PPM figure quoted represents the expected contribution of the TOC to the sector-level regulatory outputs in the CP4 delivery plan.

Stagecoach South Western Trains

The performance of the Stagecoach South Western Trains (SSWT) franchise is currently at an MAA of 92.7 percent PPM with a forecast to see decrease PPM MAA to 92.4 percent in April 2010. The Joint Performance Improvement Plan (JPIP) is supported by the Right Time Railway approach, a joint Network Rail and SSWT plan to focus on the measure of Right Time Arrival and Departure, which is delivered through nine local groups. This has proved a highly effective driver for performance improvement.

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

- mitigating the main risk to performance of passenger growth
- managing and reducing the propagation of Rolling Contact Fatigue
- improving the holistic planning process for infrastructure maintenance and renewal
- continued reduction in TSRs/ESRs
- improving the delivery of the Train Service Recovery Plan during periods of disruption
- use of the CP4 performance fund to deploy route, local and joint improvement schemes
- developing a route based strategy for the prevention and risk of bridge strikes
- deployment of a locally developed and nationally supported facility strategy
- replacement of track circuits with digital modern equivalents
- development and deployment of a conductor rail weather protection plan

The CP4 plan is being developed around these key points and currently suggests that performance on SSWT will be around 93.3 percent by April 2014, although this target has not been endorsed by SSWT.

The other train operators on this route are FGW, Southern and CrossCountry. The future performance section for FGW can be found in the plans for Routes J and K, Southern can be found in the plan for Route B and CrossCountry in the plans for Routes G, H, I, J, K and M.

Network Availability

The density of service and predominant two-track layout restrict arrangements for engineering access on this route. The layout of the inner Reading lines from London out to as far as Teddington and Hounslow offers a number of diversionary alternatives although use of these relies on replacement bus services to connect affected stations. The multi-track layout between Clapham Jn and Waterloo, which extends over approximately 3.5 miles and includes a number of significant overbridges and complex junctions, presents a number of particular practical problems owing to the difficulty of obtaining physical access and the intensity of services. The South West Main Line has four tracks between London and Worting Jn (near Basingstoke) but the degree of operational flexibility that this railway provides is severely compromised because the layout is paired by direction west of Wimbledon. The Effingham Jn line provides an alternative means of reaching Guildford from Surbiton. From Woking it is possible to reach Southampton and stations further west via the Portsmouth line.

Figure 16 Forecast PPM MAA – CP4 plan

	2010/11	2011/12	2012/13	2013/14
South West Trains	92.5%	92.8%	93.1%	93.3%
Southern	90.9%	91.1%	91.6%	91.9%
CrossCountry	90.2%	90.6%	90.9%	91.3%
First Great Western	91.3%	92.2%	92.7%	93.0%

The priority for Network Availability improvements on Wessex is to reduce weeknight and weekend disruption on three main routes – Waterloo to Weymouth, Waterloo to Portsmouth Harbour and Waterloo to West of England – and to provide adequate through paths for the freight traffic from Eastleigh to Southampton. The passenger train operating companies using the route have expressed an aspiration to operate the full Working Timetable on these routes seven days a week. Their first priority is to operate the full timetable on Saturdays, then improve availability after 16:00 on Sundays, and then after 10:00 on Sundays. The freight operators wish to maintain their existing level of operation on weekdays, and improve the scope to operate services on Saturdays and Sundays.

Waterloo to Weymouth is also a proposed Category A route under Network Rail's Route Categorisation initiative with the Association of Train Operating Companies. This will put in place protocols and provide criteria, guidelines and metrics that will assist the train operators using the Waterloo to Weymouth line and make certain that real improvements are delivered. It will include guidelines on bus substitution, the impact of diversions and planned disruption on Bank Holidays.

The overall vision for the route is therefore to build a railway that reduces disruption to all operators and better meets their needs, whilst delivering efficient and effective maintenance, renewals and enhancements. This will be done in three stages:

Stage One – 6 Day Railway: Operate the WTT during the week and on Saturdays
Stage Two – 6½ Day Railway: Operate the WTT during the week, on Saturdays and have the network fully available after 16:00 on Sundays
Stage Three – 7 Day Railway: Operate the full WTT throughout the week

To achieve this, following agreement with the operators, current possession arrangements may need to be changed to allow extended mid-week night access to be taken on Sunday/Monday, Monday/Tuesday, Tuesday/Wednesday and Wednesday/Thursday when there are fewer passengers on services. This will be achieved through 2 line working on the 4 track railway between London Waterloo and Worting Jn and single line working on the 2 track railway south of Worting Jn, as well as diverting freight services via Andover and Laverstock.

The start up of the service on a Sunday morning is later than during the week, with very low demand for services until around 10:00. Therefore it is possible to take longer possessions on a Saturday/Sunday under similar principles to those defined above for mid-week nights until around 10:00, dependent on location. In some locations, it may be possible to have twelve hours access from 22:00-10:00 if required.

These longer possessions will be used to undertake those maintenance activities that require longer than the times available during mid-week nights or where productivity efficiency dictates longer possessions, such as tamping of critical junctions, and for renewals.

Furthermore, on a specified number of occasions throughout the year it will be necessary to take abnormal possessions at certain locations to undertake specific activities which cannot be undertaken either in the available times or which require all lines to be blocked, such as, again, tamping of critical junctions and renewals.

There are several programmes underway which will contribute to the improvement in Network Availability.

- **Increasing productive working time in possessions:** The aim is to increase the available hours in a possession in which productive work can be undertaken. This will include investment to decrease the amount of time from when a possession can start to when productive work commences and improved methods of taking and giving up possessions. The benefit will be that fewer possessions will be required to do the same amount of work, which will increase network availability, specific examples include:
  - faster isolations
  - On Track Machines working on lines not under possession
  - investment in motorised hook switches which can be operated faster
  - investment in improved access points

- **Increasing productivity within possessions:** The aim is to increase the amount of work that can be done in the available hours. This will include:
  - better machinery
  - improved methods of working
  - track renewals will be undertaken in line with the national glide path for track renewals which defines the progressive improvements in normal maximum weekend possession duration by a year for track renewals possessions. The track CP4 commitment is to reduce maximum weekend possession

duration to 16 hours on key routes and 27 hours on second tier routes
  - lighting in tunnels
  - hoists to bring machinery in
  - better road-rail vehicular access
  - new storage facilities

- **Maximising use of/eliminating wasted opportunities to run trains around possessions:** The aim is to exploit fully opportunities to run trains on lines that are not being worked on. This includes making maximum use of:
  - single line working / adjacent line open working
  - split line blocks
  - disaggregating electrical isolations from T3 possessions ('Block to Electic traction')
  - diversionary routes e.g. the route via Andover is being gauge-cleared to provide a route for W10 gauge freight traffic during CP4
  - improved warning systems such as TOWS, LOWS or ATWS which can enable work to be done under Red Zone working

- **Infrastructure enhancements:** A number of infrastructure enhancements are being progressed which will offer increased flexibility of operations and timetabling and allow for extended mid-week possession opportunities, resulting in reduced disruptive possession requirements in particular for maintenance work and increased single line working capacity. The completion of these enhancements is subject to business case and funding priorities, which is overseen by the industry Governance Group. The enhancements under consideration include:
  - Additional crossovers;
    - Down slow to Down Fast crossover between Clapham Jn and Earlsfield
    - Up Fast to Up Slow crossover between Clapham Jn and Earlsfield
    - Down fast to down slow crossover at Raynes Park
    - Down to up crossover at Eastleigh West
  - Additional loops at Micheldever and Winchester to allow for additional passing locations other than Wallers Ash
  - Fast line platforms at Earlsfield (new Up Fast platform and extension of the Down Fast platform).

Long-term opportunities and challenges

The Department for Transport published its formal consultation document Delivering a Sustainable Transport System (DaSTS) in November 2008. It sets out long term transport priorities for the period to 2019 and beyond and reflects conclusions from the Eddington Study and the Stern review.

The document sets out five clear transport goals for the network these are:

To Support national economic competitiveness and growth by delivering reliable and efficient transport networks.

To reduce transports emissions of carbon dioxide (CO2) and other greenhouse gasses, with the desired outcome of tackling climate change.

To contribute to better safety and health and longer life expectancy by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health.

To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society, and

To improve quality of life for transport users and non transport users, and to promote a healthy natural environment.

Rail has the potential to help meet these objectives and Network Rail will continue to engage with the Regions and Local Authorities at all levels of the process. There are four stages in the process. In stage one each Region was invited to propose a number of strategically relevant studies to take forward which they believe will meet the DaSTS objectives. The DfT then selected the studies that would progress into stage two to generate options for appropriate interventions. All studies are currently in stage two and need to produce a long list of options by the end of March 2010 for further review. Stage three will involve the sifting and packaging of options, while stage four will see the completion of an overall programme, with all studies complete by 2012.

As part of the DaSTS programme there are both National and Regional studies, the national studies are led by the DfT and the local studies are led by the Regions. There are a number of joint studies with the involvement of both the DfT and the Regions.

There is a national Freight Modal Choice study looking to confirm the economic, social and environmental benefits of current freight movements by non-road modes on national network corridors and to identify where changes in future modal choice, from road to rail or water, could address issues on the network and deliver against the five DaSTS goals. This includes consideration of the

capacity and capability of the national infrastructure to accommodate these changes in modal choice.

On this route the studies that may affect long term opportunities and challenges are:

Urban South Hampshire, Thames Valley and South East Dorset.

The SWML RUS has identified the key opportunities and challenges for the route.

Successfully accommodating the expected growth of around 20 percent more passengers over the next 10 years, with little available capacity, is clearly the key challenge for the SWML. The RUS has concluded that this growth can be met with a combination of several initiatives, as outlined above.

The demand forecasts used in the SWML RUS are a consensus among the rail industry stakeholders. However there are a number of uncertainties that require the consideration of alternative growth rates. In developing the strategy, it was agreed that growth is unlikely to be significantly lower than the forecast, but a number of factors (e.g. road congestion or pricing) could drive passenger rail demand to be higher than the forecast. A sensitivity test concluded that if demand were to rise by 50 percent higher than the rate predicted over the 10 year period of the RUS, then the proposed train and platform lengthening facilitated by the redevelopment of Waterloo station would still be the most appropriate approach, but might need to be brought forward in time.

The extent to which this is possible is constrained by the lead time of the projects. Work to upgrade Waterloo is already underway, with 10-car capability being delivered on the Windsor lines from 2011 and the other suburban routes around two years later.

Finally, if growth is sustained at a level substantially higher than the base case forecast, then there could be a case to bring forward the Waterloo area signalling renewal (and the associated proposals to introduce 12-car suburban trains, and to remodel the track layout at Clapham Jn) to a date before 2020.

Gauge enhancement to W10 on the Winchester corridor will trigger further growth in deep sea container traffic, and therefore strengthen the established case for the diversionary route via Andover on both capacity and capability grounds – particularly if these forecasts prove to be conservative. This may prompt the need for a further route to be gauge-cleared, such as via Melksham or via Kew; further enhancement to W12 gauge; and the running of longer trains up to 775m.

The expectation that both passenger and freight demand will double in the 30-year period from 2007 will pose particular challenges of the SWML. Once all peak trains into Waterloo are running at 12-car length, there will be little or no scope for operating more, or even longer, passenger trains without major infrastructure enhancements or even the construction of new railway lines.

CrossCountry have highlighted the need to achieve journey time reductions as a key future objective across all their primary routes. The freight operators, too, aspire to reduced journey times and to avoiding the need to be held in loops.

Infrastructure investment in CP4

Figure 17 Infrastructure investment in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2011-2014	Ⓐ 10/12-Car Suburban Railway	Extension of suburban network platforms to 10/12-car length; power supply upgrade; berthing provision	Enables the lengthening of suburban trains to provide additional capacity	Periodic Review 2008	3
2011	Ⓑ Southampton to West Coast freight upgrade	Works to allow W10 gauge trains to run from Southampton to the WCML via Winchester	The line via Winchester will be cleared to enable 9' 6" high containers to be conveyed on conventional wagons	Transport Innovation Fund and Strategic Freight Network	6
2013	Ⓒ Southampton to West Coast freight upgrade	Works to allow W10 gauge trains to run from Southampton to the WCML via Andover	The line will be cleared as a diversionary route to enable 9'6" high containers to be conveyed on conventional wagons	Strategic Freight Network	3
2010/11	Ⓓ Salisbury Platform 1 reinstatement and other works	Reinstatement of platform for passenger use	Improves operational flexibility and increases platform capacity	Network Rail Discretionary Fund	3
2014	Ⓔ Reading Platforms 4a, 4b and 4c	Replacement of single-lead approach to platforms, coupled with platform lengthening	Enables the lengthening of trains, parallel working in and out of platforms, and provision for Airtrack	Periodic Review 2008	4
2014	Ⓕ Airtrack (subject to TWA powers)	Provision of new train service to/from Heathrow Terminal 5	A new train service of 2 tph from Heathrow to each of Waterloo, Reading and Guildford	Third party	3
Ongoing	Ⓖ Various car park expansion schemes	Car park expansion schemes at numerous locations	Increased parking provision to exploit increased train capacity	Various	Various
By 2014	Ⓗ Clapham Jn redevelopment	Platform straightening, lengthening and improvements to access and concourse	Enhancement to station capacity and facilities	Periodic Review 2008	Various
By 2014	Ⓘ Power supply enhancements	Strengthening of various feeders across	Facilitates SWML RUS strategy of suburban 10/12-car network	Periodic Review 2008	3
2012-2014	Ⓙ Waterloo International Conversion (Medium term)	Full conversion of Waterloo International Terminal to domestic use, including the extension of 1-4 platforms in the main station	Enables full implementation of the 10-car suburban railway	Periodic Review 2008	3
2010-2011	Ⓚ Regenerative braking	To facilitate the return of braking energy into power supply system	Reduction in operational costs	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
2013	Ⓛ Farnham area signalling renewals (enhancement elements)	Renewal of signal and track equipment	Options for additional small enhancements have been proposed to improve performance	Network Rail Discretionary Fund	3
2010	Ⓜ Buriton tunnel removal of speed restriction	Removal of 40mph speed restriction through tunnel	Would improve performance and capacity utilisation	Network Rail Discretionary Fund	–
2010	Ⓝ Study into increasing linespeeds between Worting Jn and Exeter	Investigation into the scope for increasing linespeed from 85mph to 90mph	Potential to improve journey times and performance	Network Rail Discretionary Fund	
2009-2014	Ⓞ Basingstoke Freight Loop	Provision of a looping and recessing facility for up direction freight trains	Enables improved regulation of trains. Passive provision already made under the Basingstoke resignalling scheme	Network Rail Discretionary Fund	–
2009-2014	Ⓟ Southampton Central Platform 5	Signalling enhancements to permit full passenger use of platform	Improved capacity utilisation in light of predicted freight growth	Network Rail Discretionary Fund	
2009-2014	Ⓠ Fareham additional signal section	Provision of new signal to allow down trains to clear single line	Improved performance	Network Rail Discretionary Fund	–
2009-2014	Ⓡ Raynes Park/Motspur Park turnback facility	Provision of fully signalled turnback facility	Would improve performance and recovery from perturbation	Network Rail Discretionary Fund	–
2010-2014	Ⓢ Test Valley AHB Renewals	Opportunity to provide passive provision for future linespeed increase	Improves performance	Network Rail Discretionary Fund	–
2012-2013	Ⓣ Poole-Wool signalling renewals (enhancement elements)	Renewal of signal and track equipment	New run-round facility at Wool; improved operational flexibility at Poole	Network Rail Discretionary Fund	–
2010-2014	Ⓤ Eastleigh capacity and capability improvements	New signal section between Eastleigh and Southampton Airport Parkway; ability to route 12-car up trains into Platform 3	Would improve performance and capacity utilisation	Network Rail Discretionary Fund	–

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

Renewals activity

Figure 19 shows the estimated renewals 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 renewals costs and activity volumes

£m (2010/11 prices)	2010/11	2011/12	2012/13	2013/14
Renewals				
Track	55	43	55	47
Signalling	40	33	26	20
Civils	14	14	9	22
Operational property	22	25	14	15
Electrification	19	22	26	26
Telecoms	5	4	4	6
Total renewals	**155**	**141**	**134**	**137**
Renewals volumes				
Track				
Rail (km)	74	34	69	70
Sleepers (km)	25	24	30	30
Ballast (km)	26	25	30	30
S&C (equivalent units)	29	38	37	39
Signalling				
Conventional (SEU)	114	351	107	71
ERTMS (SEU)	0	0	0	0
Level crossings (no)	2	3	8	1

Appendix

Figure 20 Strategic route sections

Predominant aspect recorded (secondary aspects recorded in brackets). ELR is Engineers Line Reference and 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
C.01	Waterloo – Woking (main lines)	BML1	Primary	DfT	No	W7 (8)	8	55-100	Third rail	TCB	2-3.5	4
C.02	Woking – Basingstoke	BML1	Primary	DfT	No	W8	8	100	Third rail	TCB	2-3.5	4
C.03	Basingstoke – Southampton	BML1,2	Primary	DfT	No	W8	8	100	Third rail	TCB	2-3.5	2 – 4
C.04	Southampton – Weymouth	BML2,3	Secondary	DfT	No	W8 (7)	8	55-100	Third rail	Various	2-8	2
C.05	Lymington Branch	BLP	Secondary	DfT	Yes	W6	8	60	Third rail	OTW (w/o)	N/A	1
C.06	Woking – Portsmouth	WPH	London & SE	DfT	No	W6 (7)	8 (7)	85	Third rail	TCB	2-4.5	2
C.07	Main Line Suburban Lines	RPE,MPC,LEJ, NGL, HAM	London & SE	DfT	No	W6	8	45-70	Third rail	TCB	2-5.5	2
C.08	Redhill – Guildford	RSJ	Secondary	DfT	No	W6	8	70	None	TCB	4-7	2
C.09	Guildford – Wokingham	GTW,NSA	Secondary	DfT	No	W6	8	70	Third Rail/ None	TCB	2.5-11	2
C.10	Isle of Wight	IOW	Rural	DfT	Yes	W5	1	45	Third rail	Various	N/A	1
C.11	Cosham Jn – St Denys/ Eastleigh	SDP,ETF	London & SE	DfT	No	W7 (6)	8 (7)	70	Third rail	TCB	2-6	2 (1)
C.12	Inner Windsor Lines	RDG1, HOU,NMS,TSJ	London & SE	DfT	No	W6 (8)	8 (7)	60	Third rail	TCB	2-5.5	4
C.13	Outer Windsor Lines	SWE, RDG1,2, AAV,VWW,	London & SE	DfT	No	W6 (7)	8 (7)	55-70	Third rail	Various	2-6.5	2 (1)
C.14	Worting Jn – Wilton Jn	BAE1,2	London & SE	DfT	No	W8	8	50-90	None	TCB	2-8	2
C.15	Wilton Jn – Exmouth Jn	BAE2	Secondary	DfT	No	W6 (7)	6 and 7	85 (70)	None	TB (TCB)	N/A	1 (2)
C.16	Redbridge/ Eastleigh – Salisbury	RTJ,ECR	Secondary	DfT	No	W8	8	30-85	None	TCB	4-14	1 and 2
C.17	Pirbright Jn - Alton	PAA	London & SE	DfT	No	W6 (7)	8 (7)	50-70	Third rail	TCB (AB)	2-5.5	2 (1)
C.99	Other Freight Lines	Various	Freight	DfT	No	Various	Various	Various	None	Various	N/A	Various

Figure 21 Capacity and other operational constraints

A	Waterloo station: all domestic platforms operate at or near to capacity during peak; station approaches close to capacity all day
B	Waterloo – Raynes Park: slow lines at capacity during peak
C	Waterloo – Woking: fast lines at capacity during peak
D	Waterloo – Twickenham: operates close to capacity with passenger overcrowding; level crossing down-times
E	Woking, Basingstoke and Eastleigh Junctions: crossing moves over flat junctions restrict capacity
F	Worting Jn – Southampton: traffic mix and two track sections restrict capacity
G	Reading station: only two platforms available for electric trains and short single track section leading to both
H	Reading – Redhill: mix of traffic restricts capacity, predominantly two track with no passing loops limits ability to run faster services
I	Wokingham – North Camp: signalling headway restricts capacity
J	Salisbury – Exeter: single line sections prevent significant increases in train service frequency, and limit use as a diversionary route, although the position has improved following the commissioning of Axminster loop in December 2009

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