Route Plans 2008
Route 3
South West Main Line

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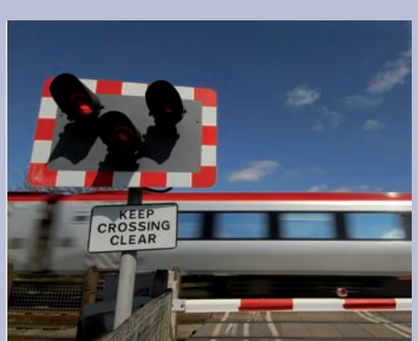


Route 3 South West Main Line

Section 1: Today's railway

Route context

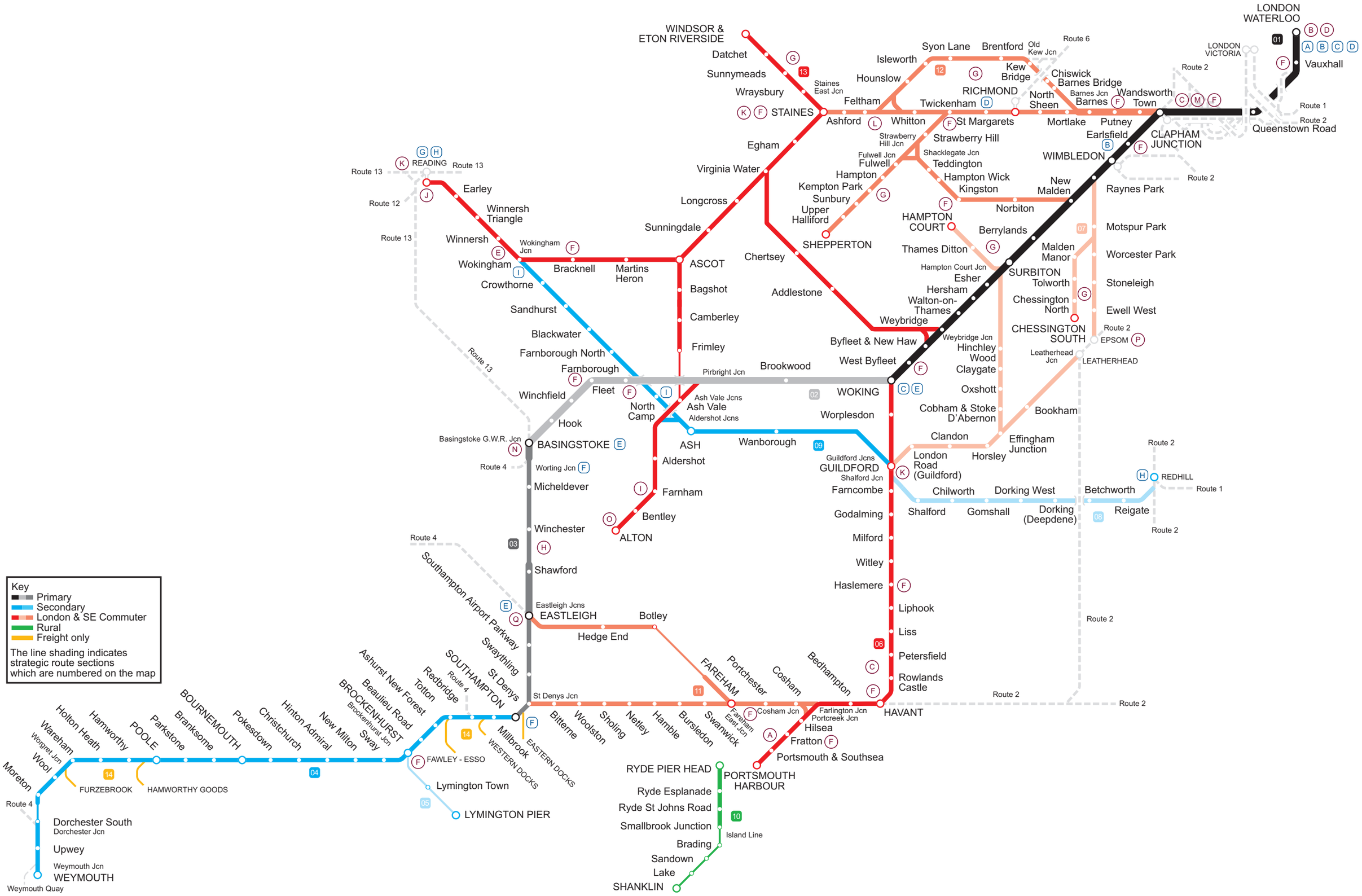
The South West Main Line (SWML) route is one of the busiest and most congested routes on the network. It serves a major commuter area as well as providing long distance services to Waterloo. There is also a large amount of leisure traffic to the coastal towns and a sizeable traffic flow connects to ferry terminals along the south coast such as Poole, Lymington, Southampton and Portsmouth. International services no longer use the route from Waterloo International station having transferred to London St Pancras International in November 2007. The route is also important for freight traffic, especially intermodal and automotive traffic from the Port of Southampton as well as petroleum, aggregates and Ministry of Defence (MoD) flows. Network Rail has published its first Route Utilisation Strategy (RUS) on the SWML, covering the period up until 2017. The RUS contains detailed analysis about this route, and has considered options to accommodate future growth. The RUS conclusions are reflected within this document. 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 South West Main Line route are described below. The relevant Strategic Route Section is shown in brackets:

- the main line from Waterloo to Woking (03.01), where this splits into separate lines to Portsmouth Harbour (03.06) and to Weymouth via Basingstoke and Southampton (03.02, 03.03, 03.04);
- the 'main' suburban lines (03.07), which include branches to Epsom, Chessington, Hampton Court, and Guildford (via Cobham);
- the 'Windsor' suburban lines (03.12), which encompass lines to Shepperton, Staines (via Hounslow or Richmond), and Kingston (via Richmond);
- the outer Windsor lines (03.13), comprising lines to Windsor, Reading and Alton;
- the North Downs line (03.08, 03.09) from Wokingham to Redhill (via Guildford);
- the line from Cosham Junction to Fareham, where it splits into separate lines to Eastleigh and St Denys (03.11);
- the branch to Lymington (03.05);
- freight lines to Furzebrook, Hamworthy Goods, Fawley and the docks in Southampton (03.14); and
- the Isle of Wight line (03.10).

Route 3 South West Main Line



Current passenger and freight demand

The SWML RUS has shown that the number of passenger journeys per year on Stagecoach South Western Trains (SWT), the route's main operator, has risen by 22 per cent in six years. Commuter travel in the peaks has risen by around 20 per cent in the same period, leading to frequent overcrowding. The SWML encompasses an area served by the main A3 and M3 trunk roads, which also suffer from increasing levels of congestion.

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 have considerable demand. This is focused on the major towns, including Guildford, Windsor, Reading, Basingstoke, Southampton, Bournemouth, Portsmouth and Exeter (from Route 4).

Southampton and Bournemouth 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.

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

Current services

The predominant operator on this route is SWT. Other operators are Southern, First Great Western, CrossCountry, and Island Line. English Welsh and Scottish Railway, Freightliner and First GBRf carry out freight operations.

The majority of services on the route serve London, with the timetable being primarily structured to allow an intensive level of service into Waterloo and also to maximise capacity at another pinch point, Woking Junction. Cross-country and some freight services are pathed based on timings on the West Coast Main Line (Strategic Route 18) and integrate with the SWML at Basingstoke.

The timetable changed considerably in December 2004, with SWT providing more services into Waterloo and also significantly improving punctuality.

The SWML carries a variety of traction, but predominantly modern electric multiple units. From Waterloo to Worting Junction, fast and slow services are separated onto the fast and slow lines, and mixed traffic with differing speed, acceleration and stopping patterns is only problematic between Southampton and Worting Junction. Freight services on the route mainly run to and from the Eastleigh and Southampton areas from Scotland, the North-East and North-West, the Midlands, the West and London. There is also some oil traffic between Holybourne and Fawley, and aggregates traffic.

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	3
Weymouth	1
Richmond	9
Wimbledon	18
Surbiton	7
Woking	11

Figure 2 Tonnage

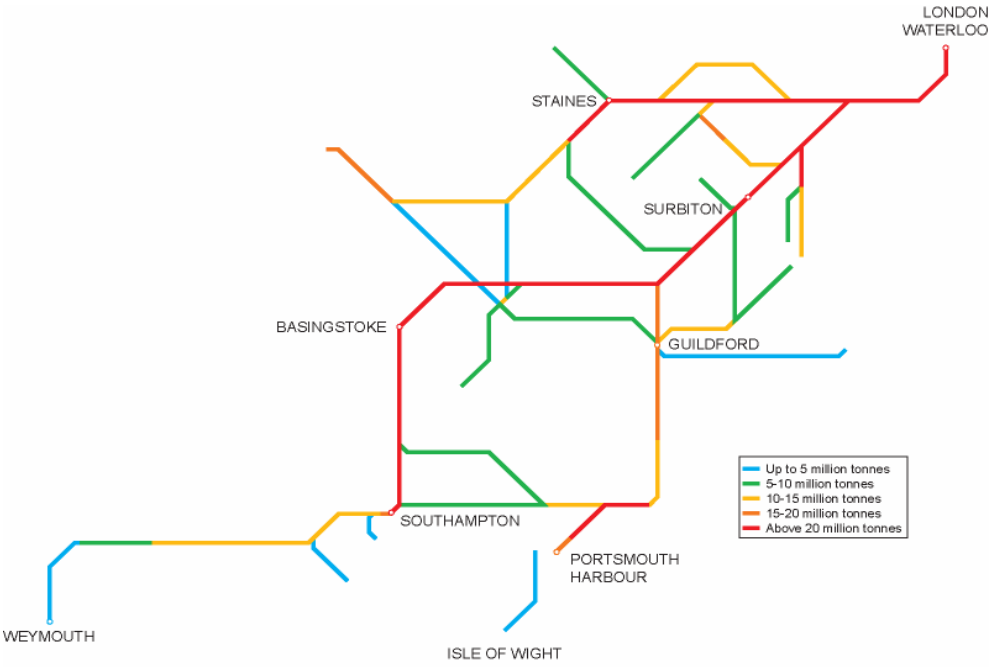


Figure 2 shows the total annual tonnage levels on the route.

Traffic volumes are summarised in Figure 3.

Figure 3 Current use

	Passenger	Freight	Total
Train km per year (millions)	39	2	41
Train tonne km per year (millions)	11,115	1,029	12,143

Current infrastructure capability

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

Figure 4 Linespeed

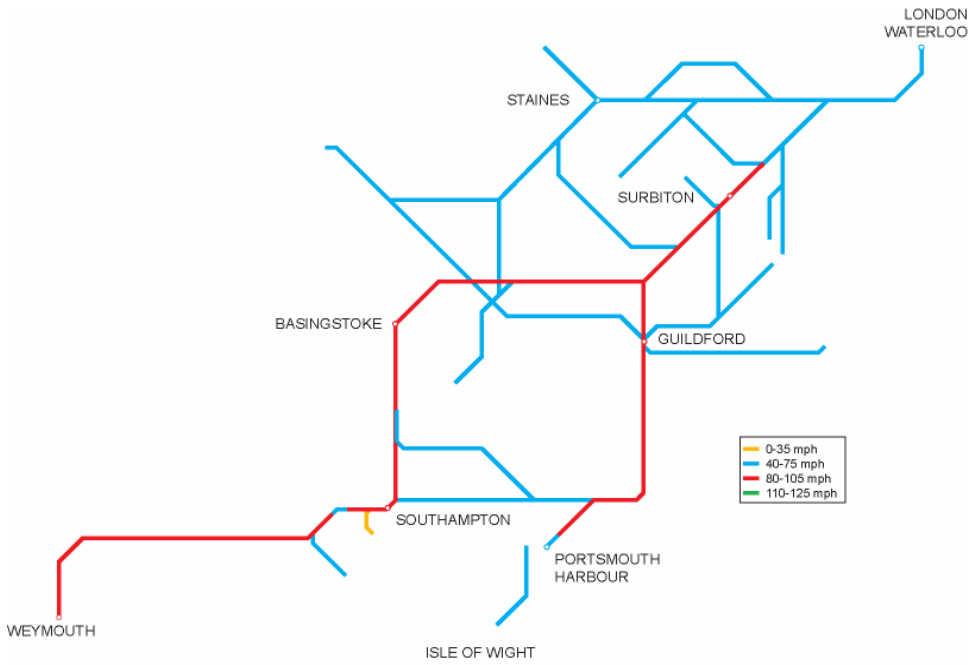


Figure 5 Electrification

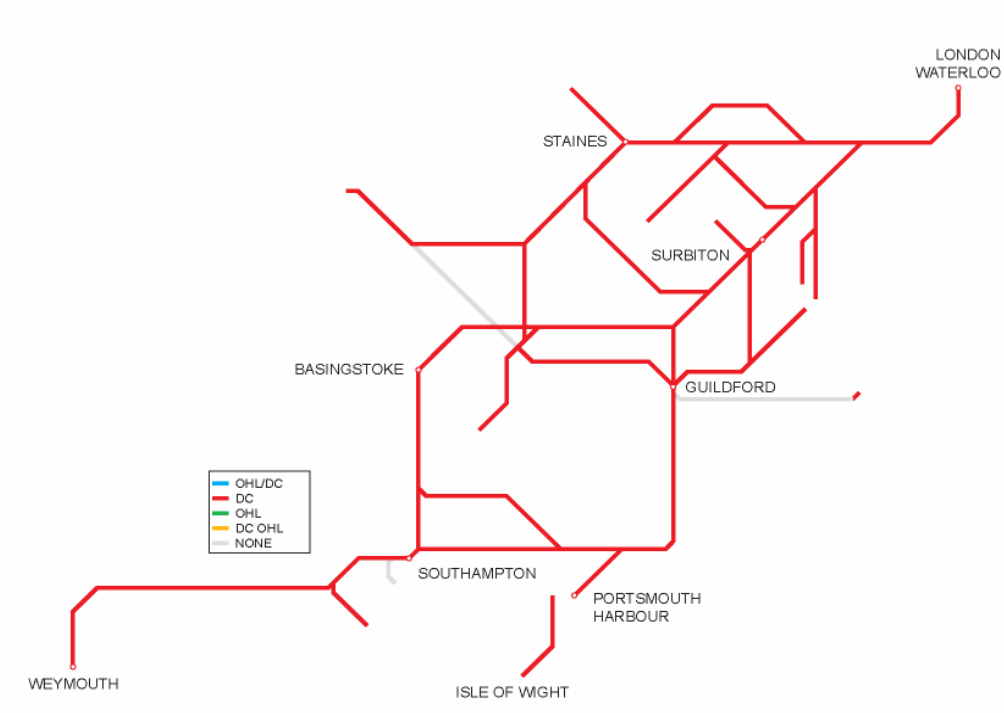


Figure 6 Route availability

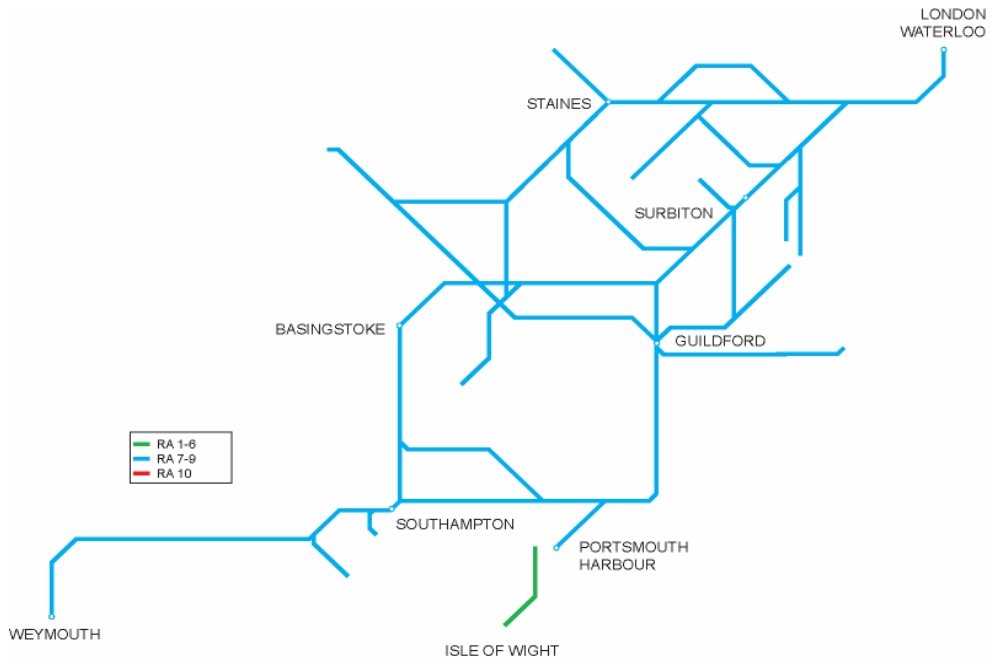
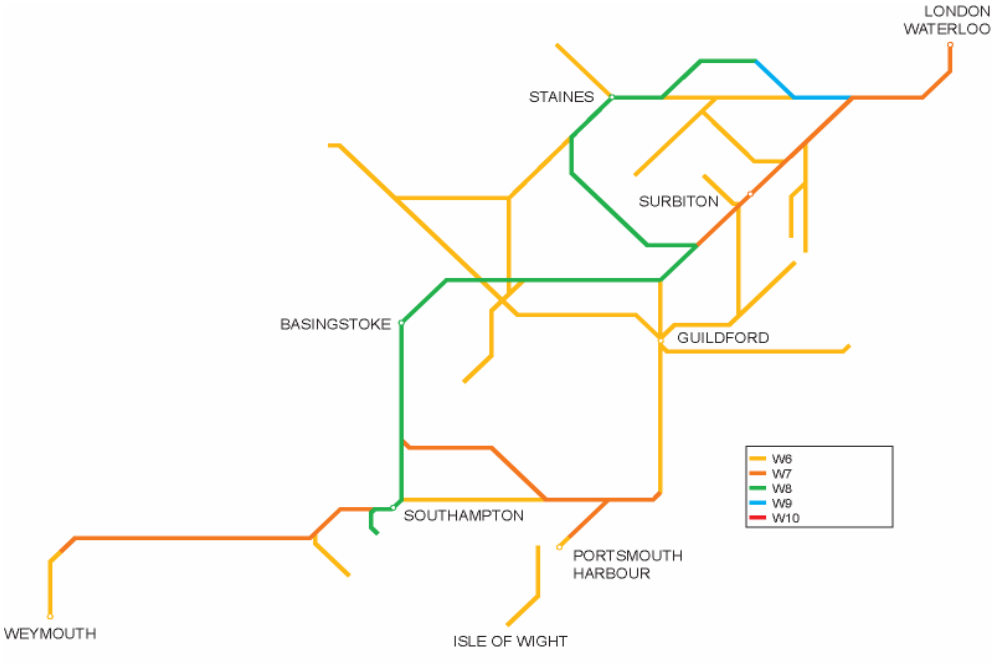


Figure 7 Gauge



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 Wimbledon 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 very 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 initially Platform 20 will be converted to domestic use during 2008 enabling a minor enhancement to the quantum of Windsor line services. During the off-peak, 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 a lower service level in subsequent hours.

The SWML RUS has 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 Junction 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 line between 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 due to platform lengths; and
- key stations such as London Waterloo and Clapham Junction 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;
- 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; and
- the lack of diversionary routes.

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
Waterloo-Clapham Junction (Main Lines)	42
Waterloo-Clapham Junction (Windsor Lines)	16
Woking to Hampton Court Junction	20
Southampton Central to St Denys	10
Portsmouth & Southsea to Portcreek Junction	10

Current performance

SWML route performance has improved in 2007/8, with a 2.2% improvement in PPM MAA at period 12 versus the corresponding period in 2006/07. A lack of corresponding significant weather events during period 11 have positively impacted upon the PPM MAA and the current projection for year end is 92.2%, a 2.1% improvement on 2006/07.

Stagecoach South Western Trains continue to see year on year improvements with all major KPIs significantly better than plan in 2007/08.

Network Rail delay minutes are forecast to be 10% better than 2006/07. The significant issues with weather and infrastructure management have been addressed as part of the Joint Performance Improvement Planning process although the Route has had to manage an emerging risk associated with rail flaw management which has impacted upon performance during the year.

Performance improvements have been delivered by analysing the root causes of train delay and taking the appropriate action to redress, through process control, people management or investment. Additionally the route has gained significant benefit through the introduction of the December 2004 SWT timetable (and subsequent revisions), creating the network's first Integrated Control Centre and aligning its maintenance and operations teams.

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

Figure 9 Current PPM MAA (2007/08)

TOC	MAA	As at period
South West Trains	92.2%	12
Southern	89.4%	12
CrossCountry	86.9%	12
First Great Western	83.0%	12

Note: from Period 1 2007/08 PPM figures are produced for Stagecoach SWT which also include Island Line.

Section 2: Tomorrow's railway

HLOS output requirements

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 (millions)
South West Main Line	5,012	706

Future demand

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% between 2003 and 2016 is anticipated in the morning peak period. 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. Increasingly crowded conditions are expected to limit growth to a 19% increase in passenger kilometres.

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.

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 with the current network capability. Extra services may need to be provided at certain times, but, for example, Wimbledon already sees high demand during the Wimbledon fortnight so it is expected that regularly implemented service strengthening will apply.

The opening of Terminal 5 at Heathrow Airport in 2008 has provided further stimulus to the proposed Airtrack project. This would provide a new connection from Terminal 5 onto the existing Staines to Windsor line, and give the potential to run a two tph service from the airport to each of Waterloo, Reading and Guildford. The target implementation date is 2013.

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 SWML 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 2010, the forecasts identify growth of six to eight trains per day in each direction to and from the Port by 2014/15.
- Aggregates/Construction
  Up to one additional train per day is projected from the Mendip quarries to terminals in the SWML area. Up to one additional service per day is expected between the SWML area and London.

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.

Section 3: Proposed strategy

Figure 11 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 11 Summary of proposed strategy milestones

Implementation date	Service enhancement	Infrastructure enhancement	Expected output change
2009-2010	Run all peak trains at maximum permitted length	None required	Would enable a marginal increase in peak capacity in advance of train lengthening strategy. The SWML RUS suggested that an additional 24 vehicles would be needed
2010	10-car operation: Waterloo to Windsor (via Richmond)	Platform extensions, with appropriate power supply upgrades	Up to 25% increase in peak capacity on the Windsor route
2010	Provision of W10 freight gauge between Southampton and WCML	Replacement of overbridges and track slewing to W10 gauge. There would also need to be track lowering work in Southampton Tunnel	Enables 9' 6" high containers to be conveyed on conventional wagons
2011	10-car operation: Staines to Reading	Platform extensions, with appropriate power supply upgrades	Up to 25% increase in peak capacity on the Reading route via Richmond
2012	10-car operation: Hounslow Loop Chertsey to Weybridge	Platform extensions, with appropriate power supply upgrades	Up to 25% increase in peak capacity on both routes
2012-2014	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	Up to 25% increase in peak capacity on these routes
2012-2014	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
2013	Potential implementation of Airtrack scheme	New connection to Terminal 5 New station at Staines Possible new platform 4c at Reading	Introduction of 2tph from Heathrow Terminal 5 to each of Waterloo, Reading and Guildford
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

Figure 11 Summary of proposed strategy milestones

Implementation date	Service enhancement	Infrastructure enhancement	Expected output change
Ongoing	Accessibility, capacity and pedestrian flow improvements at Clapham Junction	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

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 SWML 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 double the concourse capacity and extend all platforms to accommodate at least 10 car trains. Remodelling of the station and, eventually, its approach is 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 – across the suburban network. It is recommended that the entire suburban network is extended for 10 car operation by 2014, beginning with the Windsor and Reading lines which are the most crowded. An associated depot and berthing strategy will be required to facilitate the additional vehicles required to deliver this measure; and
- short term measures to improve the effectiveness and capacity of the concourse at Waterloo station, primarily gating the platforms and 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; and work has begun on the development of sophisticated but practical peak management techniques. 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 SWML, 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. A limited number of small improvements were implemented from the December 2007 timetable;
- 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 Southampton Airport Parkway and Winchfield, will be progressed by Network Rail in conjunction with the franchise holder; and
- service alterations in the Southampton - Salisbury - Weymouth area have been developed with DfT and the Train Operating Companies. 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.

Measures to develop freight capability include:

- enhancing the rail freight routes between Southampton container terminals and Reading to provide W10 capability, which would enable the retention and expansion of rail market share by accommodating the growing proportion of large containers.

As part of the Strategic Freight Network, there is provision in CP4 for the development 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 will 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 12 indicates the forecast percentage change in tonnage to 2017.

Operator responses to the predicted increase in demand will include a move towards 10-car operation on the route between London Waterloo and Windsor & Eton Riverside, various changes in rolling stock utilisation, the provision of additional rolling stock and the reconfiguration of the interior seating/standing layout of certain carriages. 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.

The present stabling and maintenance facilities are likely to need adaptation (or, in extremis, relocation) in order to accommodate longer trains.

The SWML RUS and subsequent work has calculated that around 140 to160 additional vehicles would be needed to implement 10 car suburban operation, with a similar further number required to support 12-car operation.

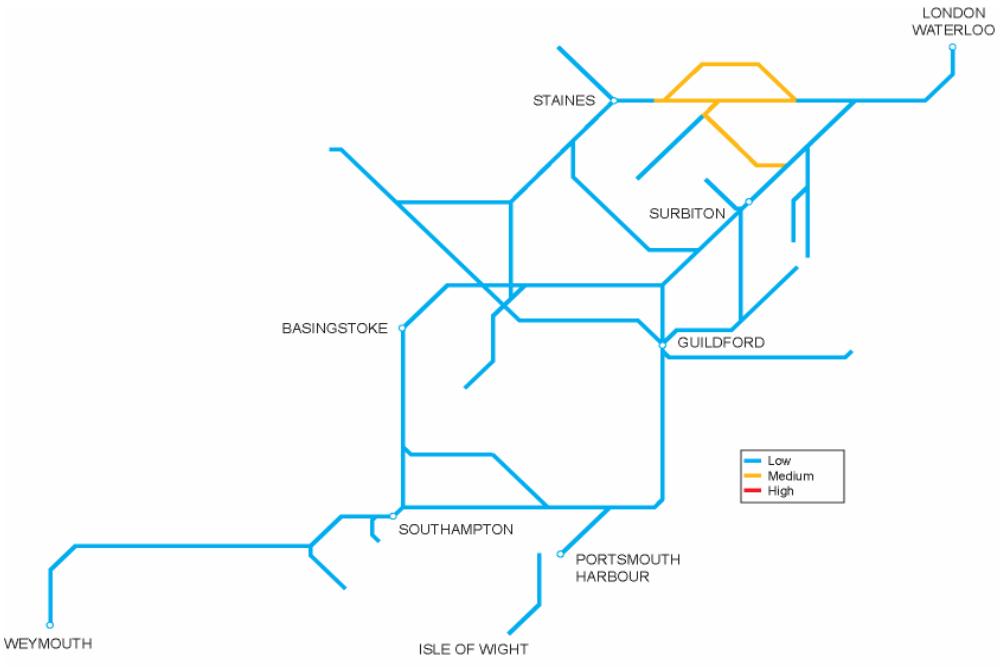
A particular issue concerns the optimum configuration of train units to achieve 10-car operation, particularly if 12-car operation is expected to follow some years later, since units can typically be configured in 2, 3, 4, 5 or even 6-car formations. The final strategy will need to take account of similar train lengthening objectives on Strategic Routes 1 (Kent) and 2 (Sussex) in order to achieve the most efficient deployment of new and existing rolling stock.

If implemented, the Airtrack proposals will introduce additional services onto the network for which new and enhanced infrastructure will be required.

SWT is committed through the new franchise to a number of 'Performance Management' items relating to signalling, line speeds and other infrastructure upgrades.

First Great Western are considering the deployment of class 165/166 units on the Cardiff to Portsmouth route, for which there may need to be some gauge clearance works.

Figure 12 Tonnage growth



Future capability

The current freight container market is seeing a significant growth 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 freight market by rail, 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. It is proposed that the diversionary route via Andover will be cleared to W10 gauge in CP4 as part of the Strategic Freight Network. In addition, the growth predicted in both freight and passenger traffic on the route via Winchester will put pressure on available capacity. It is therefore sensible to consider the case for gauge-clearance of a diversionary route on both capability and capacity grounds.

Line speeds on the route are generally considered adequate, as journey times are primarily dependent on stopping patterns rather than maximum speeds.

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 SWML 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 2010;
- other suburban platforms to 10-car by 2014; and
- all platforms to 12-car by the time of Waterloo resignalling, currently expected in the 2020s.

The implementation of the lengthened train service is required across the same timescales. Some platforms will be lengthened to accommodate 12 car trains while the 10 car facility is being constructed to minimise later disruption.

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 1950s. Further upgrade work will probably be necessary for the train lengthening project and investigatory work will be required as it is developed.

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

A scheme is currently being developed to reduce the length of single line on the Alton branch.

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 will need to be identified in order for this work to progress.

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 Junction, from/to Portsmouth and in the entire inner suburban area.

The SWML RUS proposes 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 the few services that run shorter than their maximum length, mostly 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, providing approximately 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 SWML, 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 are outlined in the SWML RUS to increase track capacity at four key locations on the SWML suburban network: London Waterloo, Clapham Junction, Woking Junction, 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;
- Clapham Junction station and approaches;
- Woking Junction; and
- Reading station and approaches.

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 will need to be developed, such as gauge-clearance of a diversionary route, and the 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.

Future performance

Figure 13 sets out the planned PPM for each train operator. Figure 14 sets out the trajectory we propose as local commitments with each 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. In some cases the services covered by the franchises will change; this means that the forecast PPM figures are not directly comparable with the current PPM figures.

Figure 13 Forecast PPM MAA - CP4 plan

	2009/10	2010/11	2011/12	2012/13	2013/14
South West Trains	92.5%	92.8%	93.1%	93.2%	93.3%
Southern	90.7%	91.0%	91.2%	91.7%	92.0%
Cross Country	87.9%	88.7%	89.7%	90.4%	90.9%
First Great Western	87.0%	88.2%	89.1%	89.7%	90.1%

Figure 14 Forecast PPM MAA - proposed local commitments

	2009/10	2010/11	2011/12	2012/13	2013/14
South West Trains	90.7%	91.0%	91.2%	91.4%	91.5%
Southern	89.0%	89.3%	89.6%	90.0%	90.4%
Cross Country	86.7%	87.4%	88.4%	89.1%	89.7%
First Great Western	86.1%	87.3%	88.2%	88.8%	89.2%

Stagecoach South Western Trains

The performance of the Stagecoach South Western Trains (SWT) franchise is currently 92.2% PPM and this is forecast to remain the same performance in April 2009. The Joint Performance Improvement Plan (J-PIP) is supported by the Right Time Railway approach, a joint Network Rail and SWT 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;
- continued improvement at Clapham Maintenance Delivery Unit;
- improving the delivery of the Train Service Recovery Plan during periods of disruption;
- undertaking small scale enhancements to improve performance.

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

The other operators on this route are FGW, Southern and CrossCountry. The future performance section for FGW can be found in the plans for Routes 12 and 13, Southern can be found in the plan for Route 2 and CrossCountry in the plans for Routes 8, 12, 13, 17, 18, 19 and 20.

Engineering access

The density of service and predominant two-track layout restricts arrangements for engineering access on this route. The layout of the inner Reading lines from London out to as far as Teddington and Hounslow offer a number of diversionary alternatives although use of these rely on replacement bus services to connect affected stations. The multi-track layout between Clapham Junction and Waterloo, which extends over approximately 3.5 miles and includes a number of significant overbridges and complex junctions, present a number of particular practical problems due to the difficulty of obtaining physical access and the intensity of services. The South West Main Line has four tracks between London and Worting Junction (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 Junction 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.

Planned cyclical maintenance is carried out during weeknight (where freight and passenger movements allow) and weekend possessions. The pattern of weeknight access, which has evolved in response to timetable limitations, seeks to provide maintenance opportunities on the main line based on a rolling 6 to 10 week cycle which is frequently modified in response to renewal projects. This provides a variety of different possession periods across the route from as little as 3hrs in the Portsmouth Harbour area, to as much 7hrs on a number of branch and country lines. On the main line possessions of less than 4hrs are available between Waterloo and New Malden and 5 to 6hrs on the section between New Malden and Basingstoke.

On the Staines to Reading line the operator needs to take out late trains and freight services require diversion to provide possessions in excess of 5hrs access. On the North Downs Line 4hr 30min possessions are available. Most of these periods are sub-optimal in terms of delivery, efficiency and cost.

At complex locations use of the short available weeknights is impractical and therefore maintenance of such sites tends to rely solely on weekend access opportunities.

A sequence of weekend ‘Golden’ possessions for most critical locations/junctions has been developed and agreed with operators. This typically provides fifty-five 10-28 hr possessions per year. Over the next two years this regime will provide essential access to the entire route for maintenance work including at the 15 critical junctions.

Long-term opportunities and challenges

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

Successfully accommodating the expected growth of around 20% 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% 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. The Waterloo redevelopment scheme could start as early as 2009, with 10 car capability being delivered on the Windsor and Reading routes from 2010 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 Junction) to a date before 2020. Even in the sensitivity case, these longer term changes would only be justified at the very end of the 10 year period of the RUS.

Gauge enhancement to W10 on the Eastleigh corridor will trigger further growth in Deep Sea container traffic, and therefore strengthen the requirement for a suitable diversionary route – particularly if these forecasts prove to be conservative.

Enhancements to be completed by end of CP3

Figure 15 CP3 enhancements

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2008	Ⓑ New Cross Grid feeder renewals (back-up feed to Waterloo)	Upgrade to Network Rail power supply feed from electricity company networks	Potential to increase capacity at a key power supply constraint		-
2008	Ⓓ Waterloo International Terminal short-term conversion to domestic use	The adaptation of Platform 20 to enable domestic services to use the platform	In the short term provides an additional platform at Waterloo for use by Stagecoach South Western Trains' services	DfT	4
2008	Ⓔ Wokingham turnback facility	Provision of a fully-signalled turnback facility in the down platform	Enables passenger trains to be reversed towards Bracknell or Crowthorne	Network Rail Discretionary Fund	4
2008/09	Ⓕ Access For All works	Accessibility works at Clapham Junction, Bracknell, Brockenhurst, Earlsfield, Fareham, Farnborough Main, Fleet, Fratton, Haslemere, Havant, Kingston, Putney, Staines, Twickenham, Vauxhall and West Byfleet.	Provision of step free access.	DfT AfA	Various 2-7

Proposed enhancements in CP4

Figure 16 Proposed enhancements in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2010-2014	Ⓖ 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	2
2010	Ⓗ Southampton to West Coast freight upgrade	Works to allow W10 gauge trains to run from Southampton to the WCML	The line will be cleared to enable 9' 6" high containers to be conveyed on conventional wagons	Transport Innovation 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, and parallel working in and out of platforms	Periodic Review 2008	2
2013	Ⓚ Airtrack	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 Junction redevelopment	Platform straightening, lengthening and improvements to access and concourse	Enhancement to station capacity and facilities	Periodic Review 2008	1
By 2014	Strategic Route 3: Power Supply enhancements	Works to be determined from power supply modelling	Facilitates SWML 2008 timetable changes and SWML RUS strategy of suburban 10/12-car network	Periodic Review 2008	1
2012-2014	Ⓓ Waterloo International Conversion (Medium term)	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	Periodic Review 2008	2
2008-2011	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 17 Candidate NRDF schemes in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2011	(I) Farnham area signal renewals Enhancement element	Renewal of signal and track equipment	Renewal. Options for additional small and medium sized enhancements are being considered. Provision for future platform extensions to 12-car length to be provided where appropriate	Network Rail Discretionary Fund	3
2011	(C) Buriton tunnel removal of speed restriction	Removal of 50mph speed restriction through tunnel	Would improve performance and capacity utilisation	Network Rail Discretionary Fund	-
2014	(L) Feltham area signalling renewals Enhancement element	Renewal of signalling	Electrification between New Kew/Old Kew Junctions and South Acton	Network Rail Discretionary Fund	-
2009-2014	(N) Basingstoke Freight Loop	Provision of a looping and recessing facility for up direction freight trains	Enables improved regulation of trains and consequent better performance	Network Rail Discretionary Fund	-
2009-2014	(O) Holybourne freight terminal	Provision of a run-round facility for freight services	Improved capacity at Alton as the current freight service runs round there. Improved operational performance and stock utilisation	Network Rail Discretionary Fund	3
2009-2014	(P) Epsom S&C renewal and layout changes	Reconfiguration of track layout as part of platform extension works	Would enable SWT services to reverse at Epsom without conflicting with other TOCs' services. Improved capacity and performance	Network Rail Discretionary Fund	-
2009-2014	(Q) Eastleigh removal of speed restriction	The speed of the turnout from the up main to the up loop increased from 15mph	Would improve performance and capacity utilisation	Network Rail Discretionary Fund	-

Figure 17 Candidate NRDF schemes in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2009-2014	Various locations	Provision of fully signalled turnback facilities	Would improve performance and recovery from perturbation	Network Rail Discretionary Fund	Various
2009-2014	Various locations	Gauge clearance for Class 165/166 units	Would enable deployment of this rolling stock on Cardiff to Portsmouth services	Network Rail Discretionary Fund	-

Maintenance and renewals activity

Figure 18 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 18 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	25	24	22	22	21	113	97	94	97
Signalling	8	7	7	7	7	36	33	31	31
Electrification	3	3	3	3	3	14	13	12	12
Telecoms	4	4	3	3	3	18	15	14	14
Plant and Machinery	1	1	1	1	1	6	5	5	5
Other (overheads / indirect)	17	17	16	16	16	81	73	70	70
Total	**58**	**56**	**53**	**51**	**50**	**268**	**236**	**227**	**230**
Renewals									
Track	45	49	43	41	39	218	169	116	119
Signalling	25	31	30	19	10	115	143	57	27
Civils	21	21	20	19	19	100	91	87	87
Operational Property	20	21	22	21	18	101	78	78	78
Electrification	11	15	17	16	16	74	33	51	69
Telecoms	16	11	9	6	4	46	22	21	23
Plant and Machinery	9	7	3	3	6	28	28	26	29
Total	**148**	**154**	**143**	**126**	**111**	**682**	**563**	**436**	**433**
Renewals Volumes									
Rail (KM)	53	53	54	53	54	267	244	107	138
Sleepers (KM)	35	35	35	35	35	176	161	157	147
Ballast (KM)	46	46	46	46	46	230	269	320	310
S&C Units	41	60	45	45	42	233	140	65	63
SEUs commissioned	0	134	94	64	101	393	607	255	0

Appendix

Figure 19 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
03.01	Waterloo – Woking (main lines)	BML1	Primary	DfT	No	W7 (8)	8	55 – 100	Third rail	TCB	2 – 3.5	4
03.02	Woking – Basingstoke	BML1	Primary	DfT	No	W8	8	100	Third rail	TCB	2 – 3.5	4
03.03	Basingstoke – Southampton	BML1,2	Primary	DfT	No	W8	8	100	Third rail	TCB	2 – 3.5	2 – 4
03.04	Southampton – Weymouth	BML2,3	Secondary	DfT	No	W8 (7)	8	55 – 100	Third rail	Various	2 – 8	2
03.05	Lymington Branch	BLP	Secondary	DfT	Yes	W6	8	60	Third rail	OTW (w/o)	N/A	1
03.06	Woking – Portsmouth	WPH	London & SE	DfT	No	W6 (7)	8 (7)	85	Third rail	TCB	2 – 4.5	2
03.07	Main Line Suburban Lines	RPE,MPC,LEJ,NGL, HAM	London & SE	DfT	No	W6	8	45 – 70	Third rail	TCB	2 – 5.5	2
03.08	Redhill – Guildford	RSJ	Secondary	DfT	No	W6	8	70	None	TCB	4 – 7	2
03.09	Guildford – Wokingham	GTW,NSA	Secondary	DfT	No	W6	8	70	Third Rail (None)	TCB	2.5 – 11	2
03.10	Isle of Wight	IOW	Rural	DfT	Yes	W5	1	45	Third rail	Various	N/A	1
03.11	Cosham Junction – St Denys/ Eastleigh	SDP,ETF	London & SE	DfT	No	W7 (6)	8 (7)	70	Third rail	TCB	2 – 6	2 (1)

Figure 19 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
03.12	Inner Windsor Lines	RDG1, HOU,NMS, TSJ	London & SE	DfT	No	W6 (8)	8 (7)	60	Third rail	TCB	2 – 5.5	4
03.13	Outer Windsor Lines and Alton	SWE, RDG1,2, AAV,VWW, PAA	London & SE	DfT	No	W6 (7)	8 (7)	55 – 70	Third rail	Various	2 – 6.5	2 (1)
03.14	Freight Lines	Various	Freight	DfT	No	Various	Various	Various	None	Various	N/A	Various

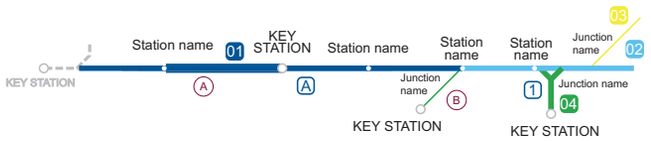
Capacity and other operational constraints	
A	Waterloo station: all domestic platforms operate at capacity during peak, approaches close to capacity all day
B	Waterloo – Wimbledon: slow lines at capacity during peak
C	Waterloo – Woking: fast lines at capacity during peak
D	Waterloo – Twickenham: operates close to capacity with passenger overcrowding
E	Woking, Basingstoke and Eastleigh Junctions: crossing moves over flat junctions restrict capacity
F	Worting Junction – 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

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

Key to route diagrams



Capacity and operational constraints
A — Location: capacity or operational constraint

Issues on the route
1 — Location: issue on the route

Key planned projects
A — Location: planned project on the route

Strategic route sections
01 — 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

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

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