

Strategic Business Plan – CP4

Route 18 Enhancement Projects

Final Review

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1 Executive Summary

1.1 Introduction

This report finalises and updates the views that have previously been expressed in our 'Initial Review' and 'Initial Review Update' documents. These documents considered Network Rail's proposals for the enhancement projects that are planned to be developed and implemented on Route 18, as set out in Network Rail's Strategic Business Plan (SBP) for Control Period 4 (CP4)¹ and in the Project Summaries² document. Network Rail has subsequently issued its SBP Update³ and the information contained within this document, together with supplementary information provided by Network Rail following review meetings (on 5 November 2007 and 6 March 2008) and in response to information requests, has been considered in producing this 'Final Review'.

The format that has been adopted for this report is similar to the format that has been adopted previously, and also used for the review of Network Rail's Initial Strategic Business Plan⁴. Further updates may be possible but will be subject to Network Rail's final representations and the timescales for the ORR's funding determination.

1.2 Enhancement Projects

Network Rail's Enhancement Projects are intended to deliver committed outputs on a sustainable basis at an efficient minimum cost. The plan for Route 18 includes projects that are already committed together with a scheme that seeks to take advantage of the opportunity that will be presented through the renewals programme. The range of funding that has been determined for each project in CP4 (see Appendix A) is summarised below.

- Stafford Colwich Remodelling - £115m to £449.5m, with a 'most likely' figure of £371.5m.
- Power Supply Upgrade - £229.5m to £254.0m, with a 'most likely' figure of £239.5m. These include a provision for Scotland, whose costs range from £59.0m to £65.5m, with a 'most likely' figure of £62.0m.
- Bletchley–Milton Keynes - £102.0m to £114.0m, with a 'most likely' figure of £107.5m.

¹ Network Rail Strategic Business Plan Control Period 4, dated October 2007.

² Network Rail Project Summaries Control Period 4, dated October 2007.

³ Network Rail Strategic Business Plan Update Control Period 4, dated April 2008.

⁴ Network Rail Initial Strategic Business Plan Control Period 4, dated June 2006, and Network Rail Route Strategies November 2006 Refresh, dated November 2006.

- Crewe Remodelling / Resignalling – £25.2m to £58.0m, with a ‘most likely’ figure of £33.6m.

In the case of Stafford Colwich Remodelling, Power Supply Upgrade and Crewe Remodelling / Resignalling, the projects are expected to continue into CP5. As a result, and in the absence of defined outputs in CP4, it is proposed that the funding should be ring fenced for each project and any underspend carried forward into the next Control Period.

2 Introduction

This report finalises and updates the views that have previously been expressed in our 'Initial Review' and 'Initial Review Update' documents. These documents considered Network Rail's proposals for the enhancement projects that are planned to be developed and implemented on Route 18, as set out in Network Rail's Strategic Business Plan (SBP) for Control Period 4 (CP4)⁵ and in the Project Summaries⁶ document. Network Rail has subsequently issued its SBP Update⁷ and the information contained within this document, together with supplementary information provided by Network Rail following review meetings (on 5 November 2007 and 6 March 2008) and in response to information requests, has been considered in producing this 'Final Review'.

The format that has been adopted for this report is similar to the format that has been adopted previously, and also used for the review of Network Rail's Initial Strategic Business Plan⁸. Consequently this report has assessed the enhancement projects against the following criteria, as set out in the ORR's email dated 28th September 2006:

- Is the scheme the best solution to deliver the outputs?
- Is it what the DfT wants? Has Network Rail gone further than the minimum required?
- Is the scheme (either outputs or scope) already funded in CP3? Is deferral into CP4 consistent with efficient delivery or does it compromise the sustainability of the CP3 outputs?
- Is the price quoted efficient?

In addressing the final bullet above, the report has provided a range of funding for CP4 that is considered to be reasonable for the project based on the current understanding of the project scope, the relevant GRIP Stage and allowances for funding in CP3.

Further updates may be possible as more detailed information becomes available, but this will be subject to the timescales set by the ORR for its final determination.

⁵ Network Rail Strategic Business Plan Control Period 4, dated October 2007.

⁶ Network Rail Project Summaries Control Period 4, dated October 2007.

⁷ Network Rail Strategic Business Plan Update Control Period 4, dated April 2008.

⁸ Network Rail Initial Strategic Business Plan Control Period 4, dated June 2006, and Network Rail Route Strategies November 2006 Refresh, dated November 2006.

3 Enhancement Projects

3.1 Introduction

Enhancement projects are proposals that will generally increase the capacity or capability of the rail network.

Whilst Network Rail has refined the proposed enhancement schemes for CP4 since the Initial Strategic Business Plan (ISBP), in the case of Route 18 many of the schemes are DfT baseline projects and, as such, are committed schemes. The schemes that fall into this category are Stafford Colwich Remodelling, Bletchley – Milton Keynes and Power Supply Upgrade.

In addition to the baseline projects, opportunities to enhance the network can arise through the infrastructure renewals programme. Smaller schemes are normally funded through the Network Rail Discretionary Fund (NRDF). However, Network Rail has included a specific provision in the SBP for larger schemes and these include Crewe Remodelling.

The descriptions of the projects listed below have been taken from Network Rail's project summaries document for CP4 dated October 2007 and updated to reflect the additional information provided in the SBP Update.

3.2 Stafford Colwich Remodelling

3.2.1 Project Objective

The Stafford area has been identified as a 'bottle-neck' limiting the opportunity to fully exploit the capacity offered by the modernised West Coast Main Line infrastructure and causing delay to existing and planned services. These capacity and performance constraints in the Stafford area are due to the number of conflicts that exist between the flows of traffic at Colwich Junction, Stafford and Norton Bridge.

The project's remit is to resolve the capacity and performance constraints in the Stafford area, given the requirements of the 2015 traffic flows.

3.2.2 Outputs

The project will provide increased capacity allowing additional passenger and freight services. It will reduce journey times, partly through line speed improvements and partly by allowing service patterns to change.

Output Grid

	CP4 Metric	Outputs / Definitions
Capacity	Increase in carrying capacity	Increased capacity allowing additional passenger services between London and Liverpool, and London and the North West / Scotland, and additional freight growth.
	Maximum average load factors	
	Maintain or reduce current peak load factors into specified stations	
Reliability	Performance	Improved performance by reducing the number of conflicting moves
Journey Time	Journey time reductions	<p>Reduced journey times. This is typically 2.5 minutes to Manchester, Liverpool, North West and Scotland. This will be dependent upon the final route selected. Existing route options may not provide the stated journey times.</p> <p>Reduced journey times, partly through linespeed and partly by allowing service patterns to change so that the fastest London to Glasgow services could be around 4 hours.</p>
Capability	Enhancement to infrastructure capability	May allow some maintenance flexibility, and significantly reduce the operational impact of re-signalling Stafford (due in CP5).

3.2.3 Project Interdependencies

	Project name	Interdependencies
Project Interdependencies	Crewe Remodelling	Independent at this stage but may have a complementary role.
	Stafford Resignalling CP5	Possibly complementary due to renewal timescales of the signalling, but could be independent due to selection of stand alone schemes or could be part of this scheme.

	Project name	Interdependencies
	Norton Bridge Remodelling	Independent, based on current option assessment.

3.2.4 Delivery / Key Milestones

The proposed duration of this project is from 2008/10 to 2015/16. Consultation will continue through the TWA process and will include negotiation on withdrawal of objections, land issues, etc.

Key milestones critical for delivery	Interdependencies
Commence consultation	Late 2008
Single Option Selection	Mid 2009
Complete design and environmental assessments	Mid 2010
Submit draft TWA order	Late 2010
Complete public enquiry	Late 2011
Secretary of State decision	Late 2012
Target completion	2015/16

3.2.5 Cost Summary

Figure 2: Project Summary (costs are exclusive of IPI)

CP4 Funding Source (DfT, 3 rd Party, NR, etc.)	CP4 project cost (£m) by funder	CP4 Funding Requirement	Comment
DfT	459.0	459.0	Part of the DfT strategy for the West Coast Main Line

3.2.6 Commentary against Assessment Criteria

- Is the scheme the best solution to deliver the outputs?

While Network Rail and the DfT have considered many options for the Stafford scheme, there is no defined scheme pending the outcome of the Transport Works Act (TWA) process.

- Is it what the DfT wants? Has Network Rail gone further than the minimum required?

Based on the discussions that we have had with the DfT the options that are currently under consideration for Stafford deliver the capacity and journey time improvements that are consistent with DfT's requirements. Furthermore the DfT has stressed that the delivery of the Stafford Colwich remodelling project is essential to the achievement of the freight capacity aspirations of the SRA Strategy⁹. The DfT considers that the business case for a number of the options remains strong and is being updated to reflect the higher usage and income levels that are currently being experienced, together with the future revenue increases that will result from the lengthening of the Pendolino fleet.

The final solution cannot be fully defined until the TWA process is complete and the powers obtained. It is likely therefore that the final scheme will include opportunity works and, as such, will go further than the minimum required.

- Is the scheme (either outputs or scope) already funded in CP3? Is deferral into CP4 consistent with efficient delivery or does it compromise the sustainability of the CP3 outputs?

The CP3 outputs for Stafford have been adjusted from those originally anticipated and are now limited to the development of an approved scheme through the TWA process.

The current target delivery date for the scheme in CP5 is considered to be more realistic than the date originally proposed in the SBP.

- Is the price quoted efficient?

The cost estimate for the scheme has increased as the various options have been developed, considered and either rejected or retained. With the commencement of the consultation process there remains some uncertainty about the exact scope of the final scheme. As a result the figures that have been provided below have been based simply on a re-phasing of the delivery of the scheme and the potential for further increases in cost. The 'Minimum' figures for CP4 and CP5 take into account the sensitivity analysis that has been carried out by Network Rail.

Subject to further reviews with Network Rail as the consultation and scheme development work progresses, it is considered that the CP4 element of funding

⁹ SRA West Coast Main Line Strategy, dated June 2003.

should be ring fenced specifically for Stafford and any underspend carried forward into CP5. It is noted that the DfT requirement is for the funding allowance of £483m, as identified by Network Rail, to be maintained for CP4.

The CP3 spend quoted below has been calculated from information provided in the Network Rail WCRM Period 13 report, which has been de-escalated to 2006/7 prices. It does not include 'General Management' costs.

Indicative range of funding for Stafford Colwich Remodelling (£m, 2006/7 prices including Input Price Inflation allowances)

Description	CP3	CP4	CP5	Total Project Cost
Network Rail SBP	0.0	483.0	149.8	632.9
Minimum	5.0	115.0	405.0	525.0
Most likely	5.0	371.5	250.0	626.5
Maximum	5.0	449.5	245.0	699.5

3.3 Power Supply Upgrade

3.3.1 Project Objective

The objective of the project is to deliver an Auto-Transformer (AT) system from North Wembley to Carstairs. The work has been divided into three phases. The first phase removed pre-existing power supply system non compliances and implemented non Auto-Transformer traction supply upgrades in time for the introduction of the September 2004 timetable. Phase two is required to meet the power demand for the 2009 timetable replace life expired equipment. The initial AT feeder area has been installed and commissioned between Ashton and Hillmorton ('Project Hilton'). Design approvals and safety case acceptance of Project Hilton will form the technical basis for Phase three, which is to implement the AT supply across the balance of the route.

3.3.2 Outputs / Benefits Remit

The outputs / benefits relating to this project are:

Output Grid

	CP4 Metric	Outputs / Definitions
Capacity	Increase in carrying capacity	The overall programme will deliver the '2020' design scenario agreed with the DfT. The works are phased through CP4/5 to ensure capacity is available in advance of demand in the most cost effective way.
	Maximum average load factors	n/a
	Maintain or reduce current peak load factors into specified stations	n/a
Reliability	Performance	The system will have a neutral effect on reliability and avoid the likelihood of train delays due to power supply weakness
Journey Time	Journey time reductions	The project will remove the Traction Power Supply as a constraint on line speed
Capability	Enhancement to infrastructure capability	The project will remove the Traction Power Supply as a constraint on capability

3.3.3 Project Interdependencies

	Project name	Interdependencies
Project Interdependencies	LNW Route 25kV Switchgear Renewals and Overhauls	Complementary: the renewals and overhauls are being carried out as part of this project.
	Renewal of 25kV traction power supply connection equipment at Rugby and Stafford	By better integration of the PSU programme with LNW Electrification Renewals, renewal of 50 year old ESI connections can be avoided whilst delivering the enhancement required.

3.3.4 Programme

Start Dates						
CP4 Title	Output Definition (GS1)	Single Option Development (GS4)	Detailed Design (GS5)	Construction, Test and Commission (GS6)	Scheme Handback (GS7)	Full Project Completion Date, incl. snagging
WCML Power Supply Upgrade	Complete	Started	1/4/09	First Sections 1/4/12	1/6/12 in stages into CP5	During CP5

3.3.5 Cost Summary

Figure 2: Project Summary (costs are exclusive of IPI)

CP4 Funding Source (DfT, 3 rd Party, NR, etc.)	CP4 project cost (£m) by funder	CP4 Funding Requirement	Comment
DfT	259.4	259.4	Part of the DfT strategy for the West Coast Main Line

3.3.6 Commentary against Assessment Criteria

- Is the scheme the best solution to deliver the outputs?

The strengthening of the electrical supply system to support the future increase in electrically hauled passenger and freight train paths has been the subject of much consideration over the years. The phasing proposed by Network Rail appears to be based on delivering the power upgrades to meet the demand associated with the growth in electrically hauled passenger and freight traffic. In principle this approach represents the best solution.

- Is it what the DfT wants? Has Network Rail gone further than the minimum required?

The phased delivery is what the DfT wants and is consistent with the anticipated growth in passenger and freight services. Indeed, the DfT is keen to see firm commitments from Network Rail to the delivery of the current phasing through CP4 and CP5.

The current view is that Network Rail is phasing the scheme to ensure that only the minimum is delivered to meet the output requirements.

- Is the scheme (either outputs or scope) already funded in CP3? Is deferral into CP4 consistent with efficient delivery or does it compromise the sustainability of the CP3 outputs?

The funding provision in CP3 has been determined on the basis of the scope that is required to be delivered to support the passenger and freight traffic demands that are anticipated following the introduction of the Winter 2008 timetable and in the intervening period prior to the introduction of the power supply improvements in CP4.

The phased introduction of the power supply upgrade through CP4 and then into CP5 is considered to be consistent with the DfT's requirements and the efficient delivery of improvements to meet the future demands of the network.

- Is the price quoted efficient?

Network Rail has reported a steady increase in the outturn costs for the Power Supply Upgrade project as the completion date has moved from CP3 into CP4 and CP5. The current budget estimate for the project as a whole, with the more appropriate provision for risk, appears to be more realistic than it was in the SBP, albeit that the expenditure through CP4 has remained unchanged. Other comments concerning Network Rail's expenditure proposal include:

1. Based on Network Rail's Period 13 (2007/08) Executive Report, the current forecast spend by the WCRM Programme, at 06/07 prices, on the Power Supply Upgrade is £160.0m, excluding Management Costs and Contingency. This is based on information previously provided by Network Rail;
2. Network Rail's management costs for the works that have been carried out on the WCRM Programme as a whole have averaged at circa 13% of the delivery costs. The adoption of 10% as an uplift figure for the Power Supply Upgrade is considered therefore to be reasonable. The assumed Management Costs value for the WCRM Programme is £16.0m;
3. The WCRM Programme Contingency is currently circa 6% of the 'To Go' spend. As the 'To Go' spend for the Power Supply Upgrade works is approximately £20m, the Contingency element is currently £1.2m;
4. It is known that the WCRM Programme will not complete the delivery of its scope under the Power Supply Upgrade project until mid-2009. The spend in CP4 is considered to be funded from CP3 and should be allocated accordingly.

Based on the above, the spend that should be allocated to CP3 is £177.2m. As a result, if the overall project cost is left unchanged then some of the CP4 spend should be re-allocated to CP3. It is proposed therefore that £27.2m is transferred to CP3, thereby reducing the actual CP4 funding to £245.2m. This is reflected in the figures in the table below.

The 'Most Likely' figures include a risk allowance of 15%, with 10% for the 'Minimum' and 22% for the 'Maximum' figures. These percentage allowances are considered to be consistent with projects of a similar size and complexity.

The figures that have been provided for Scotland are based on the construction costs split between England/Wales and Scotland. The management costs and risks have been allocated in accordance with the construction cost split.

It is considered that the CP4 element of funding should be ring fenced specifically for the Power Supply Upgrade and any underspend carried forward into CP5.

Indicative range of funding for Power Supply Upgrade in CP4/5 for GB (£m, 2006/7 prices including Input Price Inflation allowances)

Description	CP3	CP4	CP5	Total Project Cost
Network Rail SBP	150.0	272.4	134.0	556.4
Minimum	176.0	229.5	125.5	531.0
Most likely	177.2	239.5	131.0	547.7
Maximum	178.0	254.5	139.0	571.0

Indicative range of funding for Power Supply Upgrade in CP4/5 for Scotland (£m, 2006/7 prices including Input Price Inflation allowances)

Description	CP3	CP4	CP5	Total Project Cost
Network Rail SBP	N/A	63.0	22.1	85.1
Minimum	N/A	59.0	20.5	79.5
Most likely	N/A	62.0	21.5	83.5
Maximum	N/A	65.5	23.0	88.5

3.4 Bletchley – Milton Keynes

3.4.1 Project Objective

The signalling equipment in the Bletchley Power Signal Box (PSB) control area is life expired and the target renewal dates are between 2008 and 2012. There are also some plain line track and S&C renewals imminent.

This project, therefore, proposes to maximise the opportunities presented by the renewals to remodel the track layout and resignal with SSI technology, in order to provide greater functionality and capability; improved reliability; an overall reduction in signals and switches to improve maintainability and reduce first cost.

Control of all signalling will be transferred to the Rugby Signal Control Centre.

3.4.2 Outputs / Benefits Remit

The outputs / benefits relating to this project are:

Output Grid

	CP4 Metric	Outputs
Capacity	Increase in carrying capacity	12-car platform extensions at Bletchley will complete the [WCRM] Route Section 1 platform extension strategy.
	Maximum average load factors	Improve slow line capacity, enhance the use of the stone sidings, and enhance reversing facilities by remodelling the Bletchley Station area.
	Maintain or reduce current peak load factors into specified stations	
Reliability	Performance	Renewal of life expired assets. Minimise the performance impact of the combination of Virgin high speed services, London Midland fast and semi-fast services and freight services through the Bletchley and Milton Keynes area.
Journey Time	Journey time reductions	125mph EPS on the Up Fast line through the Bletchley South area (currently 110mph).

	CP4 Metric	Outputs
Capability	Enhancement to infrastructure capability	Provide bi-directional loop for regulating a 775m freight train, clear of but connected directly to the Slow lines to minimise the performance impact of freight traffic to Slow line passenger traffic.

3.4.3 Project Interdependencies

Figure 3: Project Interdependencies

	Project name	Interdependencies
Project Interdependencies	East West Rail Link	This scheme is independent. However, it has been designed with the intention that it will be complementary to the East West Rail Link in the future.
	Power Supply Upgrade	This scheme is independent. However, it has been designed with the intention that it will be complementary to Bletchley Crossways in the future.

3.4.4 Programme

		Start Dates					
CP4 Title	Sub-Project (where applicable)	Output Definition (GS1)	Single Option Development (GS4)	Detailed Design (GS5)	Construction, Test and Commission (GS6)	Scheme Handback (GS7)	Full Project Completion Date, incl. snagging
WCML Power Supply Upgrade	Bletchley	Complete	June 2008	February 2009	August 2010	August 2010	August 2010

3.4.5 Cost Summary

Figure 2: Project Summary (costs are exclusive of IPI)

CP4 Funding Source (DfT, 3 rd Party, NR, etc.)	CP4 project cost (£m) by funder	CP4 Funding Requirement	Comment
DfT	110.5	110.5	Part of the DfT strategy for the West Coast Main Line

3.4.6 Commentary against Assessment Criteria

- Is the scheme the best solution to deliver the outputs?

The current scheme addresses the additional passenger demands that will be created by the proposed expansion of Milton Keynes. This has led to a re-assessment of the requirements at Denbigh Hall, Wolverton and Hanslope, removing scope from these areas, and has resulted in a scheme that focuses on Bletchley and Milton Keynes. The scheme is currently considered to deliver outputs over and above the requirements of the SRA Strategy.

- Is it what the DfT wants? Has Network Rail gone further than the minimum required?

The scheme is supported by the DfT and addresses the aspirations of the ODPM (Office of the Deputy Prime Minister) and Milton Keynes Partnership. Both the ODPM and Milton Keynes Partnership are contributing financially to the delivery of the scheme. The infrastructure improvements to the Fast Lines, including resignalling, at Bletchley are now no longer required to deliver the CP3 outputs and can be deferred into CP4.

In providing additional capacity at Milton Keynes, Network Rail has gone further than the minimum required to deliver the SRA Strategy. However, it has been stated by the DfT that, in delivering this additional capacity, it has been possible to reduce the scope at Denbigh Hall, Wolverton and Hanslope.

The scope of work at Bletchley has been developed in consultation with the DfT and is considered therefore to be an agreed scheme. The delivery date of August 2010 is consistent with the DfT's requirements.

- Is the scheme (either outputs or scope) already funded in CP3? Is deferral into CP4 consistent with efficient delivery or does it compromise the sustainability of the CP3 outputs?

The works at Milton Keynes is part funded by the ODPM (£24m) and Milton Keynes Partnership (£8.3m). As stated above, in addressing the capacity requirements at Milton Keynes, it has been possible to reduce the scope at Denbigh Hall, Wolverton and Hanslope. It is currently considered therefore that the balance of the funding requirements for Milton Keynes should come from CP3 funds.

At Bletchley it has been agreed by the DfT that the scope of work is no longer required to deliver the CP3 outputs and, as such, is not funded in CP3. The infrastructure improvements and resignalling to the Fast Lines to achieve line speed increases and the platform extension works and new platform provision for the Bedford trains, including associated track layout changes, are considered to be enhancements that should be funded through the CP4 enhancements fund.

The funding of the condition driven re-signalling, the abandonment of the centre-line siding and parcel siding (reliability and maintenance driven) and general 'tidying up' of the layout is to be reviewed with Network Rail to ensure that there is no duplication with any provision in CP4 for renewals.

- Is the price quoted efficient?

The funding requirement for CP4 has remained unchanged following the issue of the SBP Update. Previously it was considered that the funding requirements were high. This view has not changed. The current estimate includes allowances for Network Rail management costs (10%), TOC Compensation (16%) and Risk (10%). While the management costs and risk allowances are considered to be reasonable, the TOC Compensation allowance is considered to be high.

In the absence of a detailed breakdown from Network Rail, setting out how it has built up its cost estimate, judgment has been applied based on past experience of the delivery of projects on the West Coast main line. As a consequence the following has been applied:

1. The construction costs proposed by Network Rail are considered to be of an order that is consistent with the work that is planned at Bletchley.
2. The Network Rail management costs have been retained at 10% of the construction costs.
3. The TOC Compensation percentage has been reduced to 6.5%. With the current intention to reduce the disruption to the TOCs Network Rail should be targeting a lower percentage.
4. A P80 risk allowance of 10% has been applied for 'Minimum', with a 15% risk allowance for 'Most Likely' and 22% for 'Maximum'. This is consistent with the figures that have been used for the Power Supply Upgrade assessment.

The CP3 spend quoted below has been calculated from information provided in the Network Rail WCRM Period 13 report, which has been de-escalated to 2006/7 prices. It includes ‘General Management’ and ‘TOC/FOC Compensation’ costs, together with an allowance based on the existing Programme Contingency provision and the ‘To Go’ spend.

Indicative range of funding for Bletchley – Milton Keynes in CP4/5 (£m, 2006/7 prices including Input Price Inflation allowances)

Description	Third Party Funding	CP3	CP4	CP5	Total Project Cost
Network Rail SBP	32.3	96.3	114.4	0.0	243.0
Minimum	32.3	60.2	102.0	0.0	194.5
Most likely	32.3	62.2	107.5	0.0	202.0
Maximum	32.3	63.7	114.0	0.0	210.0

3.5 Crewe Remodelling

3.5.1 Project Objective

Network Rail proposes to spend substantial renewals monies (circa XXX) in Crewe over the next 10 years. This scheme looks to maximise the impact of this spend via remodelling the layout and moving the station to attain the correct functionality at an appropriate cost. In addition the scheme should endeavour to address the aims of the Crewe Gateway Concordat which proposes to remodel the station entrance and passenger interchange facilities to make Crewe Station the gateway to Crewe, Cheshire and the North West. Network Rail is a signatory to the Concordat.

Crewe is a strategically significant location on the national rail network. With an even greater demand for track, sidings and maintenance capacity in a growing railway, this programme of work must seek to liberate available capacity and wherever economically possible future proof the railways expansion. The project is being designed to meet a train service specification for 2030.

3.5.2 Outputs / Benefits Remit

The outputs / benefits relating to this project are:

Output Grid

	CP4 Metric	Outputs
Capacity	Increase in carrying capacity	<p>Station and layout is being designed to accommodate a 2030 train specification both in terms of train frequency and length. This specification is essentially the same as the Stafford timetable specification and modelling has shown that the current station layout cannot support this specification. The design is therefore compliant with the Stafford remodelling work. The design is compliant with the latest IEP proposals.</p> <p>Existing operating restrictions are eliminated – lack of turn back facilities to Manchester, single line to and from South Wales, significant numbers of at grade crossing moves, etc.</p> <p>Design doubles the size of the existing car park as well as providing an integrated transport hub to make access to the railway as simple as possible for all those wishing to travel.</p>
	Maximum average load factors	
	Maintain or reduce current peak load factors into specified stations	Project is being designed to accommodate latest thinking on, as a minimum, half hourly West Coast services to all northern destinations.
Reliability	Performance	Existing complex, slow speed layout is being replaced with a simplified higher speed layout where all obsolete has been removed. Ten signal boxes are being replaced by one signal control centre which will have total control of this important set of junctions on the WCML. Crewe South junction is being removed and the North Junction will become grade separated.
Journey Time	Journey time reductions	Project will remove the current speed restriction on the fast lines through Crewe Station with the aim of achieving 125mph running for non-stop trains. Turnout speeds are to be increased wherever possible particularly on the key route to Manchester.
Capability	Enhancement to infrastructure capability	<p>In addition to carrying more trains faster, the project seeks to simplify access to and from the many freight in the area. Where aspirations are known to exist for new facilities, such as further maintenance facilities for the NDS, then this project is seeking to allocate space in the new layout for this growth.</p> <p>The new layout is being designed to facilitate maintenance access whilst maintaining train running capability over other parts of the layout, something that is virtually impossible now.</p>

3.5.3 Project Interdependencies

This section identifies the various interactions between schemes and asset renewals. There are four types of interdependencies:

Complementary: Where two or more schemes would need to be completed to achieve additional output.

Contingent: Where no benefit would be seen from this scheme unless other schemes were already complete.

Alternative: Where there is more than one investment to deliver similar outputs with different determining factors.

Independent: Standalone projects that do not rely on any other schemes to be delivered or benefits to be seen.

Figure 3: Project Interdependencies

	Interfaces with	Interdependencies & Commentary
Project Interdependencies	Track Renewals	Alternative – renewal of track on the Independent lines
	Signalling Renewals	Alternative – like for like renewal of 623 SEU around
	Station Renewals	Alternative – like for like renewal of station roof and platforms
		PLEASE NOTE THAT THIS PROJECT IS BUILT AROUND THE THREE RENEWALS SCHEMES LISTED ABOVE. HOWEVER, IT IS ONLY WHEN THE THREE RENEWALS SCHEMES ARE COMBINED INTO THIS PROJECT THAT THE MAJORITY OF THE SIGNIFICANT BENEFITS ARE DELIVERED

3.5.4 Programme

CP4 Title	Start Dates					
	Output Definition (GS1)	Single Option Development (GS4)	Detailed Design (GS5)	Construction, Test and Commission (GS6)	Scheme Handback (GS7)	Full Project Completion Date, incl. snagging
Crewe Remodelling	June 2007	October 2009	October 2010	April 2012	2017	2017

3.5.5 Cost and Funding Summary

The total AFC (Anticipated Forecast Cost) for the schemes is in the order of £524million (mean value). This AFC is for both the renewals and proposed enhancement elements. A high level summary is provided below.

Cost Elements	Value (£m)	Comment
Project Management	13.9	Incl. Sponsor; Project Manager; Delivery; Safety
Other Indirect Costs	8.3	Incl. Design; T&C; Isolations
Contract Costs	338.1	Incl. Preliminaries
Others	68.3	Incl. Schedule 4; Land Purchase; Legal; Planning
Contingency	95.4	P Mean contingency only
TOTAL	524.0	

The phasing by Control Period is set out below:

	CP3	CP4	CP5	Estimate Total
SBP Update	£5m	£183m	£335m	£524m

The assumed funding in CP4 is set out below.

Renewals expenditure	£110m
TOC (car park funding proposal)	£2m
North West Development Agency	£3m
DfT Regional funding allocation	£11m
Incremental enhancement expenditure	£58m
Total CP4	£183m

3.5.6 Commentary against Assessment Criteria

- Is the scheme the best solution to deliver the outputs?

In principle, introducing enhancements in conjunction with the renewal of life-expired assets is consistent with optimising delivery.

- Is it what the DfT wants? Has Network Rail gone further than the minimum required?

The scheme provides an opportunity to enhance operational flexibility and this is welcomed by the DfT.

A balance will need to be reached between what is desirable and what will generate tangible benefits. The cost of the scheme has risen significantly from the original SBP estimate of £310m. The current estimate of £524m represents a significant investment in the existing infrastructure at Crewe. Network Rail has advised that it has yet to establish a business case for the various enhancements that it is proposing. It is considered therefore that Network Rail has gone further than the minimum required.

- Is the scheme (either outputs or scope) already funded in CP3? Is deferral into CP4 consistent with efficient delivery or does it compromise the sustainability of the CP3 outputs?

The enhancement element of the scheme is not considered to be funded in CP3. Network Rail has advised that it has completed GRIP Stage 2 and is now developing the scheme through GRIP Stage 3. Network Rail has now estimated that its expenditure in CP3 will be circa £5m. Network Rail has confirmed that this expenditure will be funded through the 'Outperformance Fund'.

The Crewe Remodelling scheme, as currently proposed, has the potential to cause extensive disruption to the West Coast Main Line during the construction phase. This phase will need to be carefully planned in order to minimise the impact on the operational railway.

It is, however, noted that the enhancements that could arise from the implementation of the scheme include speed improvements on the approaches to Crewe Station. These will support the CP3 outputs for Route 18.

- Is the price quoted efficient?

The enhancement allowance of £10m in Network Rail's October 2007 SBP was a provisional sum. Since October, Network Rail has completed its GRIP Stage 2 work on the scheme and has identified potential opportunities that are greater than originally anticipated. Some of these opportunities involve third parties and Network Rail has indicated that third party funding may be available in CP4. Others, such as speed improvements and the rationalisation of the layout, will provide journey time, capacity, capability and journey time improvements.

The estimated outturn cost for the scheme is in the order of £524m. This is a substantial investment and is expected to extend over CP4 and CP5, with an anticipated delivery date of 2017. Network Rail has stated that it is currently working with stakeholders to value the various benefits that are associated with the scheme in order to then establish the business case for taking the scheme forward. In the absence of this business case, there remains significant uncertainty as to the scope of work, and hence enhancements, that will be delivered.

Network Rail has proposed an 'Incremental enhancement expenditure' of £58m without identifying how this figure has been determined and to which enhancements it should be attributed. The overall expenditure in CP4 is £183m, £16m of which is assumed by Network Rail to be funded by third parties. The balance of the expenditure, £110m, has been assigned to 'Renewals'. If the third party element of expenditure is ignored, the proportion of spend on enhancements is circa 35% of the overall enhancement and renewals spend (£168m). This is higher than would normally be expected and currently unsubstantiated by Network Rail.

Consequently, for the purposes of determining a 'Minimum', 'Most Likely' and 'Maximum', the percentages that have been applied are 15%, 20% and 35% respectively. It is considered that this provision should be 'ring fenced' so that it cannot be diverted to other schemes.

It is noted that the Network Rail's estimated renewals expenditure of £110m is approximately £115m less than previously advised.

Indicative range of enhancement funding for Crewe Remodelling in CP4/5 (£m, 2006/7 prices)

Description	CP3	CP4	CP5	Total Project Cost*
Network Rail SBP	N/A	58.0	TBA	524.0
Minimum	N/A	25.2	TBA	524.0
Most Likely	N/A	33.6	TBA	524.0
Maximum	N/A	58.0	TBA	524.0

*Renewals and Enhancements

APPENDIX A - Enhancement Project Funding

Stafford Colwich Remodelling

Indicative range of enhancement funding (£m, 2006/07 prices)

P80 plus Input Price Inflation (IPI) allowance

Description	CP3	CP4					CP5	Total CP4 Funding	Total Project Funding	Current GRIP Stage	Comments
		2009/10	2010/11	2011/12	2012/13	2013/14					
Network Rail SBP	0.00	29.63	39.29	97.84	159.74	156.58	149.81	483.08	632.89	1	CP3 spend has been provided by NR. Total CP4 funding includes IPI allowance. CP5 figure based on NR estimate with IPI allowance.
Minimum	5.00	7.50	15.00	22.50	30.00	40.00	405.00	115.00	525.00	1	CP3 cost provided separately. CP4 funding requirements are based on an initial review of the cost build up provided by Network Rail and the likely spread of cost through the control period. The rate of project development and funding requirements will be dependent on the length and outcome from the TWA process. The adjustments have been rounded to the nearest £0.5m.
Most Likely	5.00	14.00	29.00	56.00	112.50	160.00	250.00	371.50	626.50	1	
Maximum	5.00	20.00	34.00	76.50	144.00	175.00	245.00	449.50	699.50	1	

APPENDIX A - Enhancement Project Funding

Power Supply Upgrade

Indicative range of enhancement funding (£m, 2006/07 prices)

P80 plus Input Price Inflation (IPI) allowance

GB

Description	CP3	CP4					CP5	Total CP4 Funding	Total Project Funding	Current GRIP Stage	Comments
		2009/10	2010/11	2011/12	2012/13	2013/14					
Network Rail SBP	150.00	49.21	24.95	30.35	101.81	66.10	134.01	272.42	556.43	3	CP3 spend has been provided by NR. Total CP4 funding includes IPI allowance. CP5 figure based on NR estimate with IPI allowance
Minimum	176.00	20.50	23.50	28.50	95.00	62.00	125.50	229.50	531.00	3	The CP3 spend has been calculated based on figures provided by NR in its WCRM Period 13 Executive Report. The difference between NR's SBP CP3 spend and the WCRM Programme has been deducted from the proposed CP4 spend. The risk allowances that have been applied are 10% for the "Minimum", 15% for the "Most Likely" profile and 22% for the "Maximum" profile. The adjustments have been rounded to the nearest £0.5m.
Most Likely	177.20	21.50	24.50	29.50	99.50	64.50	131.00	239.50	547.70	3	
Maximum	178.00	22.50	26.00	31.50	105.50	68.50	139.00	254.00	571.00	3	

Scotland

Description	CP3	CP4					CP5	Total CP4 Funding	Total Project Funding	Current GRIP Stage	Comments
		2009/10	2010/11	2011/12	2012/13	2013/14					
Network Rail SBP	N/A	0.00	0.00	0.00	51.92	11.05	22.12	62.97	85.09	3	The Scotland figures are based on the construction split. Total CP4 funding includes IPI allowance. CP5 figure based on NR estimate with IPI allowance
Minimum	N/A	0.00	0.00	0.00	48.50	10.50	20.50	59.00	79.50	3	The risk allowances that have been applied are 10% for the "Minimum", 15% for the "Most Likely" profile and 22% for the "Maximum" profile. The adjustments have been rounded to the nearest £0.5m.
Most Likely	N/A	0.00	0.00	0.00	51.00	11.00	21.50	62.00	83.50	3	
Maximum	N/A	0.00	0.00	0.00	54.00	11.50	23.00	65.50	88.50	3	

APPENDIX A - Enhancement Project Funding

Bletchley - Milton Keynes

Indicative range of enhancement funding (£m, 2006/07 prices)
P80 plus Input Price Inflation (IPI) allowance

Description	CP3	CP4					CP5	Total CP4 Funding	Total Project Funding	Current GRIP Stage	Comments
		2009/10	2010/11	2011/12	2012/13	2013/14					
Network Rail SBP	128.60	83.70	30.70	0.00	0.00	0.00	0.00	114.40	243.00	3	CP3 figure from NR data sheet in SBP supporting documents and includes TOC/FOC compensation and general management costs. Total CP4 funding includes the IPI allowance.
Minimum	92.50	75.00	27.00	0.00	0.00	0.00	0.00	102.00	194.50	3	CP3 cost based on NR WCRM Period 13 07/08 Executive Report. CP4 funding requirements have been adjusted to reflect the TOC Compensation percentage experienced to date on WCRM, in the absence of any information to justify otherwise. Risk has been applied in a consistent manner to PSU. The adjustments have been rounded to the nearest £0.5m.
Most Likely	94.50	79.00	28.50	0.00	0.00	0.00	0.00	107.50	202.00	3	
Maximum	96.00	84.00	30.00	0.00	0.00	0.00	0.00	114.00	210.00	3	

APPENDIX A - Enhancement Project Funding

Crewe Remodelling

Indicative range of enhancement funding (£m, 2006/07 prices)
P80 plus Input Price Inflation (IPI) allowance

Description	CP3	CP4					CP5	Total CP4 Funding	Total Project Funding	Current GRIP Stage	Comments
		2009/10	2010/11	2011/12	2012/13	2013/14					
Network Rail WBS	2.50	5.00	15.00	71.37	71.37	71.37	71.37	234.11	307.98	2	Assumed to be the renewals and enhancement cost. No details provided by Network Rail to support costs.
Network Rail SBP (Renewals and Enhancements (incl. third party))	5.00	N/A	N/A	N/A	N/A	N/A	335.00	183.00	523.00	2	Figures include Renewals (£110m), Third Party (£16m) and Enhancements (£58m) in CP4.
Network Rail SBP (Enhancements, excl. third party)	N/A	N/A	N/A	N/A	N/A	N/A	TBA	58.00	TBA	2	Enhancement allowance only. This is approximately 35% of the anticipated infrastructure spend in CP4.
Minimum	N/A	0.00	0.00	0.00	0.00	25.20	TBA	25.20	TBA	2	It is considered that Network Rail's proposed enhancement spend is high and currently unjustified. The 'Minimum', 'Most Likely' and 'Maximum' values have been calculated through the application of the following percentages - 15%, 20% and 35% respectively.
Most Likely	N/A	0.00	0.00	0.00	0.00	33.60	TBA	33.60	TBA	2	
Maximum	N/A	0.00	0.00	0.00	0.00	58.00	TBA	58.00	TBA	2	