Periodic review 2008
Advice to Ministers and framework for setting access charges

February 2007

OFFICE OF **RAIL REGULATION**

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Foreword

We are today starting the statutory phase of the 2008 periodic review. This requires the governments in London and Edinburgh to set out clearly their output expectations for the railways and at the same time the public funds that will be available to support railway services in England & Wales and Scotland respectively. These specifications and financial statements must be provided to us before the end of July 2007.

The 2008 periodic review started in August 2005 and we will conclude the review with our final determinations in October 2008 and then in December 2008 we will approve the detailed individual charges for all access to the mainline railway for control period 4, which we expect to run from April 2009 to March 2014 inclusive.

Over the last eighteen months Network Rail, the passenger and freight train operating companies, colleagues in the Department for Transport and Transport Scotland, other stakeholders and our staff have been working to provide a robust basis for government decisions and our later determinations.

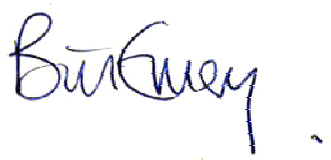
The backdrops to the decisions are: improving railway performance, including safety; passenger numbers and rail freight growing rapidly; Network Rail's costs coming further under control; and the continuing high level of support for the railway from public funds.

We set down in this document our advice to both governments. Our advice draws on all the good work done to date and particularly our own assessment of Network Rail's initial strategic business plan (published in July 2006). We have also set down how we will set access charges as our framework has a material effect on governments' decisions.

The governments' specifications of what they want the railway to deliver need to be translated into a robust and coherent strategic business plan by Network Rail. This plan will be submitted to us at the end of October 2007. We have set down here our expectations for this plan, which includes putting the 2009-14 period into the longer-term context.

It is important for Network Rail to work closely with its industry partners to develop the right least-cost whole industry plan. A plan that meets the government

specifications and the challenges of a growing but ever more affordable railway offering value for money for railway users and taxpayers.



Bill Emery
Chief Executive
28 February 2007

Acronyms

ACR2003	Access charges review 2003
AHB	Automatic half-barrier crossings
ATOC	Association of Train Operating Companies
Capex	Capital expenditure
CP3	Control period 3
CP4	Control period 4
DfT	Department for Transport
ERTMS	European railway traffic management system
ESI	Electricity supply industry
FIM	Financial indemnity mechanism
FOC	Freight operating company
FCR2001	Freight charges review 2001
FWIs	Passenger and public fatalities and weighted injuries
GRIP	Guide to railway investment projects
GSM-R	Global system for mobile communications – railways
HLOS	High level output specification
ICM	Infrastructure cost model
IEP	Intercity express programme
ISBP	Initial strategic business plan
ISG	Network Code industry steering group
KPI	Key performance indicator
MIP	Management incentive plan
NMF	Network modelling framework
NRDF	Network Rail discretionary fund
OM&R	Operating, maintenance and renewals
Opex	Operating expenditure
ORR	Office of Rail Regulation
PPM	Public performance measure
PR2000	Periodic review 2000
PR08	Periodic review 2008
PTE	Passenger Transport Executive

RAB	Regulatory asset base
ROSCO	Rolling stock company
RUS	Route utilisation strategy
SBP	Strategic business plan
SFO	Station facility owner
SoFA	Statement of public financial resources available
TfL	Transport for London
TIF	Transport innovation fund
TOC	Train operating company
UWC	User worked crossings

Executive summary

1. The 2008 periodic review (PR08) will determine Network Rail's regulated outputs, revenue requirement and access charges for control period 4 (CP4), which we expect to run from 1 April 2009 to 31 March 2014. We intend to conclude the review when we publish our final determinations in October 2008, with final levels of individual access charges and associated price lists approved by us in December 2008 following calculation by Network Rail.

2. Our overarching objective for the review is to ensure an outcome that secures value for money for users and taxpayers, by determining the level of Network Rail access charges and outputs in a way that balances the interests of all parties. Other objectives include promoting continuous improvement in health and safety, further to the company's existing obligations under safety legislation.

3. This document is divided into two parts. Part A describes how we have assessed Network Rail's revenue requirements in England & Wales and Scotland and provides ranges to assist the Secretary of State for Transport and Scottish Ministers in determining their requirements from the railway and the public funding necessary for those. We also include advice on specific additional investment to improve safety. This part also explains our process for dealing with the information the Secretary of State and Scottish Ministers to provide us on their requirements and we also provide guidance to Network Rail on what it needs to do to improve its plans ahead of its strategic business plan (SBP) submission in October 2007. Part B deals with how we expect to determine Network Rail's access charges and establish the incentives framework within which the company and the industry will operate in CP4. It also sets out our caps for freight charges in CP4.

PART A: ADVICE TO MINISTERS AND GUIDANCE TO NETWORK RAIL

Access charges review initiation notice

4. This document accompanies the notice to the Secretary of State, Scottish Ministers and other relevant parties of our proposal to undertake a review of access charges, under paragraph 1C of Schedule 4A to the Railways Act 1993. That notice starts the formal review phase of PR08.

HLOSs and SoFAs

5. A central element of PR08 is that the Secretary of State and Scottish Ministers will provide to us information about what they want to be achieved by railway activities during CP4 and the public financial resources that are, or are likely to be, available for the achievement of those activities. They are doing this by publishing HLOSs, setting out what they want to be achieved, and 'statements on the public financial resources available' (SoFAs). We require these to be provided by the end of July 2007.

6. The HLOSs and SoFAs form a key input for our work to determine Network Rail's outputs, revenue requirement and access charges. We will also take account of the reasonable requirements of all of Network Rail's customers and other funders, including open access passenger and freight train operators, in conducting PR08, to the extent these are not covered by the HLOSs.

7. Between now and October 2007, Network Rail will need to work with its industry partners to develop its SBP, which will set out its detailed costed plan for how it proposes to deliver its contribution to the whole industry outputs required by the HLOSs. Network Rail will submit its SBP to us by 31 October 2007.

8. One of our roles is to determine if the HLOS can be delivered within the constraints of the SoFA. The SBP is core to this, along with our own analysis and information that government will provide to us on expected franchise costs in CP4. The earliest date that we expect to know if there is a mismatch between either or both of the HLOSs and SoFAs is December 2007. If we identify a mismatch then we will ask the Secretary of State and/or Scottish Ministers if they wish to make revisions to their HLOSs/SoFAs. If, following any iteration, there remains, in our view, a discrepancy between HLOS and SoFA then we must determine what part of the HLOS should be delivered for the funding available.

9. We have worked closely with Network Rail, the Department for Transport (DfT) and Transport Scotland in development of the suite of models (the 'network modelling framework') that will support development of the HLOSs/SoFAs. We have also provided advice to DfT and Transport Scotland on development of the HLOSs/SoFAs.

Network Rail's initial strategic business plan

10. Network Rail published its initial strategic business plan (ISBP) in July 2006. It sets out the company's two defined 'strategies' for proposed activity, expenditure and revenue requirements in CP4. The Baseline strategy delivers a non-degrading network that will provide for minimal growth. The Base Case strategy delivers significant enhancements to address the company's projections of likely passenger and freight demand growth.

Assessment of the possible CP4 revenue requirement

11. We have undertaken an assessment of the possible CP4 net revenue requirement based on our analysis of Network Rail's ISBP[1]. It is produced to inform the development of the HLOSs and SoFAs by the Secretary of State and Scottish Ministers, and it sets a challenge to Network Rail.

12. There are still a large number of issues and uncertainties to be addressed during PR08, such as decisions on European railway traffic management system (ERTMS) implementation, the intercity express programme (IEP), Network Rail's future possessions strategy and the degree of efficiencies that Network Rail should be able to achieve. Given this, we have set out a range for the revenue requirement based on the information available to us now and the work we have carried out so far.

13. We have assessed Network Rail's expenditure and income forecasts and the key financial assumptions (e.g. rate of return, amortisation). We have combined different values for each of the components of Network Rail's revenue requirement to generate plausible upper and lower bounds for our range.

14. We have assumed that Network Rail can make efficiency savings of between 3.8% and 8% per annum during CP4 (without compromising safety or performance), based on Network Rail's assessment of what it can achieve in CP4 in its ISBP and on the study that LEK Consulting and Oxera undertook for us in 2005.

[1] The net revenue requirement is that which is funded by franchised passenger track access charges or network grant that may be paid by government in lieu of access charges. It is approximately 90% of the gross revenue requirement, which also includes income from other sources (principally stations charges, property income and open access passenger and freight operator charges).

15. Table A sets out our ranges for the net revenue requirement for the Baseline strategy. Our ranges for both England & Wales and Scotland lie below Network Rail's ISBP projections. In both cases, the lower bound of our range is approximately 20% less than the ISBP. In particular, this reflects the possible lower levels of expenditure on the infrastructure in CP4 due to greater efficiency, the lower rate of return we have assumed compared to Network Rail's assumption in the ISBP and a possible lower level for the amortisation charge.

Table A: Possible range for the total CP4 net revenue requirement

£ million (2005-06 prices)	**CP3** (see note)	**ISBP Baseline**	**Our assessed CP4 range**
England & Wales			
Total	20,810	19,920	16,470 – 19,200
Annual average	4,160	3,980	3,290 – 3,840
Scotland			
Total	2,470	2,410	1,950– 2,400
Annual average	490	480	390 – 480

Note: Control period 3 (CP3) is not directly comparable because of different level of enhancement expenditure but is shown to provide context. The separate England & Wales and Scotland values for CP3 are indicative and taken from our initial assessment of the CP4 revenue requirement published in December 2005.

16. Table B shows our ranges for the incremental expenditure and net revenue requirement for the Base Case strategy. The lower bound of our assessed range for incremental enhancement expenditure for England & Wales is approximately 30% lower than Network Rail's ISBP (and 'refresh' of this in November 2006) forecast of £4,760 million. The equivalent value for Scotland is approximately 15% lower than the ISBP (and 'refresh') forecast of £870 million. The upper end of our ranges for incremental expenditure are higher than Network Rail's forecasts and reflects the volatility in Network Rail's estimates at this stage.

17. The final level of enhancement expenditure will be influenced by what level of network capacity and performance the Secretary of State and Scottish Ministers specify in their HLOSs. The impact on the net revenue requirement will also depend on the balance between capitalised funding (added to the regulatory asset base) and grant funding for schemes.

Table B: Possible range for the Base Case enhancement expenditure (incremental impact to CP4 Baseline net revenue requirement)

£million (2005-06 prices)	**Our assessed CP4 range**
England & Wales	
Incremental enhancement expenditure	3,290 – 5,330
Incremental net revenue requirement	420 – 580
Total net revenue requirement (assuming Baseline OM&R expenditure – see note)	16,890 – 19,780
Scotland	
Incremental enhancement expenditure	730 – 990
Incremental net revenue requirement	130 – 150
Total net revenue requirement (assuming Baseline OM&R expenditure – see note)	2,080 – 2,550

Note: The Base Case strategy also includes incremental operating, maintenance and renewals (OM&R) expenditure of £280 million during CP4 in England & Wales and £40 million in Scotland. As the majority of this is additional renewals expenditure, which is capitalised, the effect on the revenue requirement will be significantly less.

18. Network Rail has identified additional investments to address specific areas of safety risk, which in its view go beyond its current obligations under safety legislation. These investments, additional to those already included in the ISBP, of £90 million over CP4, focus on reducing risk at level crossings. We believe Ministers should consider these options as part of the funding and outputs they are seeking for the railway, recognising that it will be for government to decide whether they represent the best use of available public funds in the light of their priorities as a whole.

Guidance to Network Rail

19. The ISBP is a significant improvement on previous plans produced by Network Rail, but there remains much to do if the company is to submit a robust SBP in October 2007.

20. The critical asset policies need to be supported by other quantified justifications. The independent reporters have advised that refining these policies could offer substantial scope for efficiency.

21. Network Rail's proposed assumptions for efficiencies also need to be justified, in the light of its own studies and those which have been tabled by others.

22. The disaggregation of activity and expenditure over the network, and particularly between England & Wales and Scotland, must be more accurate.

23. The company also needs to demonstrate that it can deliver the volume of work required.

PART B: FRAMEWORK FOR SETTING ACCESS CHARGES

Overall framework

24. Our overall framework for setting access charges is similar to that used by other UK economic regulators. We are retaining the 'building block approach' for CP4 where we determine the efficient level of costs that Network Rail needs to run its business (including an allowed return on its regulatory asset base). Charges are set to recover these costs.

25. We do not decide the detailed level, or pattern, of expenditure or work that Network Rail may ultimately need to undertake on the railway. It is for the company to define and deliver its workbanks consistent with its asset policies, actual asset condition and output requirements on the network.

26. In accordance with the new devolved responsibilities for setting the strategy and funding the railway we will be determining separate outputs, revenue requirements and access charges for Network Rail in England & Wales and Scotland, and monitoring and enforcing on this basis during CP4.

Financial framework

27. We have made our decision on the appropriate high-level financial framework for Network Rail in CP4. This includes: supporting Network Rail's proposal to raise debt without a government guarantee; disaggregating the financial framework between England & Wales and Scotland; and the approach to establishing Network Rail's allowed rate of return. We have taken account of the views of stakeholders, and have worked closely with Network Rail, DfT and Transport Scotland in an attempt to establish a financial framework that meets our objectives whilst also addressing the requirements of others.

28. We consider that we should support Network Rail's proposals to raise unsupported debt in CP4 because in our view it would materially strengthen

the corporate financial incentives the company faces to improve its efficiency and performance. This should enable us to have a greater degree of confidence that Network Rail will be able to achieve a higher level of efficiency than under the status quo in determining the revenue requirement. Raising unsupported debt represents a key milestone in Network Rail's progress towards financial independence.

29. We consider that Network Rail should be provided with an allowed return that reflects its risk-adjusted cost of capital. This will involve taking into consideration the type of financing strategy that an efficiently financed regulated utility could be expected to have in place based on historic, present and forward looking market conditions.

30. With a risk-adjusted cost of capital, Network Rail will have a surplus over and above its debt service costs. We intend to put in place a framework to ensure that this surplus is used appropriately to the benefit of the industry and to enable Network Rail to absorb reasonable cost shocks.

Incentives framework

31. As part of PR08 we are undertaking a comprehensive review of the incentives facing Network Rail and its industry partners. We intend to make improvements to the framework, to strengthen incentives on Network Rail, working with the industry, to deliver continuous improvements in efficiency and performance. We are undertaking further work on the practical issues, but we have decided in principle that:

- Network Rail should be provided with a volume incentive in CP4, with incentives to meet higher (or lower) than anticipated demand in the most effective way;

- there is merit in creating a mechanism that allows Network Rail and other industry participants flexibility in the delivery of the HLOSs in light of emerging information, e.g. that outputs initially intended that Network Rail delivers, and for which it is funded, are subsequently delivered by another party if agreement can be reached on commercial terms between Network Rail and the other party; and

- there is merit in establishing an efficiency benefit sharing mechanism, whereby train operators share in aspects of Network Rail's efficiency outperformance.

Structure of charges

32. Network Rail has provided an initial submission on its proposals for the structure of charges but it needs to do further work before October 2007, when it will be including a full set of indicative charges in its SBP.

33. We will be introducing a mechanism to allow changes to Network Rail's revenue requirement within the control period in line with any incremental (or decremental) changes that English Passenger Transport Executives (PTEs) might make to the level of rail services. We will consult on the detail of this proposal during 2007-08.

34. Following our consultation on broad options for the implementation of a reservation charge to incentivise the efficient holding of access rights, we are undertaking further work to consider the detailed design of a charge. We are doing this in parallel with consideration for improvement of administrative measures aimed at encouraging the efficient holding of rights. Given the complexity and possible implications of a charge we intend to consult further on the specific option in 2007-08 if we propose to implement a charge.

Freight charges

35. We are making decisions on caps for the maximum level of increase of certain charges paid by freight train operators (FOCs) in CP4. The specific charges and associated price lists will be determined later in PR08.

36. We consider that the total level of the variable usage charges paid by FOCs in CP4 should lie in the range between £41 million and £99 million per annum (at current traffic levels). The existing level of charges is £88 million per annum. We are setting the upper bound of our range as the cap for the maximum level of charges in CP4. We consider there is a strong possibility that final charges will be below current levels.

37. We are implementing a new charge to recover the fixed costs of freight only lines, consistent with government's intention that the full costs for these lines should be paid by FOCs. In accordance with government legislation, we can only propose a mark-up on the variable charges if the market can bear the

increase. We consider that only two markets can bear a mark-up: coal for the electricity supply industry (ESI) and spent nuclear fuel. We consider that the likely charge for ESI coal will fall in the range of £3.9 million to £13.9 million per annum. We are setting the cap at the upper bound of this range. For spent nuclear fuel we expect the charge to be no higher than £1.4 million per annum, and we are setting the cap at this level. We will consider further the specific form of the charge.

38. Any increases to charges will be phased in over CP4 but we would apply any reduction to the variable usage charge at the start of CP4. The maximum level of charge increases is set out in table C. It is important to note that these represent the maximum possible and it is likely that final charges will be much lower than this.

39. There is considerable uncertainty in the actual level of Network Rail's freight related costs and we are asking the company to improve its estimates by the time it produces its SBP, including indicative charges.

Table C: Phasing of freight caps (maximum level of cumulative increase)

	2009-10	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Variable usage charge (see note 1)	RPI + 2.4%	RPI + 4.9%	RPI + 7.4%	RPI +10.0%	RPI +12.6%
Freight only line charge (2005-06 prices) (see note 2)					
ESI coal	£2.8m	£5.6m	£8.4m	£11.2m	£13.9m
Spent nuclear fuel	£0.3m	£0.6m	£0.8m	£1.1m	£1.4m

Notes: 1. Charges for inter-modal traffic will be phased in between 2010-11 to 2014-15. 2. In addition to the variable usage charge.

Summary of the PR08 challenge

40. The success of PR08 and the affordability of the railway will, to a large extent, depend on how Network Rail rises to the challenge to prepare a robust and affordable strategic business plan (SBP). The SBP will represent the company's proposals for its activity and expenditure in CP4 in order to meet its contribution to delivering the Secretary of State's and Scottish Ministers' required outputs from the railway and the reasonable requirements of its other customers and other funders. It is therefore essential that Network Rail

engages closely with the industry in order to ensure that industry both buys-in to its proposals and that the most efficient division of the required outputs in each HLOS between train operators and Network Rail is achieved. It is important that a wide range of measures is considered to address the growth challenge, including enhancement schemes, timetabling and demand management, so that the final CP4 delivery plan represents value for money to railway customers, funders and taxpayers in delivering a safe and well performing railway.

1. Introduction

Context

The 2008 periodic review

1.1 The 2008 periodic review (PR08) will determine Network Rail's regulated outputs, revenue requirement and access charges for control period 4 (CP4), which we expect to run from 1 April 2009 to 31 March 2014. We intend to conclude the review in October 2008 when we publish our final determinations, with final levels of individual access charges and associated price lists approved by us in December 2008 following calculation by Network Rail.

1.2 In accordance with the new responsibilities for setting the strategy and funding the railway across Great Britain, we will determine separate outputs, revenue requirements and access charges for Network Rail in England & Wales and in Scotland, and will be monitoring and enforcing on this basis during CP4.

1.3 Our overarching objective for the review is to ensure an outcome that secures value for money for users and taxpayers, by determining the level of Network Rail access charges and outputs in a way that balances the interests of all parties. Annex A contains further specific objectives for PR08.

1.4 PR08 will be the first review to take place after the procedure for conducting an access charges review, set out in Schedule 4A to the Railways Act 1993 (the Act), was amended following the Railways Act 2005. The central element of the new process is that the Secretary of State for Transport and Scottish Ministers must separately provide us with information about what they want to be achieved by railway activities during the control period and the public financial resources that are, or are likely to be, available for the achievement of those activities. They are planning to do this by producing 'high-level output specifications' (HLOSs), setting out what they want to be achieved, and 'statements on the public financial resources available' (SoFAs). The HLOSs and SOFAs form a key input to our work to determine Network Rail's outputs, revenue requirement and access charges. In addition to the HLOSs and SoFAs we will take account of the reasonable requirements of all of Network

Rail's customers and funders, including freight and open access train operators, in determining the company's outputs, revenue requirement and access charges.

The industry context

1.5 Since Network Rail took over ownership and management of the network infrastructure in 2002 it has made good progress in improving performance, asset management and cost control. However, we consider that there remains considerable scope for further improvement in CP4. This is not only important for customers and funders of the railway in CP4 itself but also because decisions made in PR08 and implemented in CP4 will have significant implications for the longer-term. There has been considerable growth of passenger and freight traffic on the network since privatisation and current projections see this growth continuing during CP4. Further improvements in efficiency are essential to justify significant investment in capacity in CP4.

1.6 Against this backdrop, two recent government commissioned studies (the Eddington transport study and Stern review on the economics of climate change) provide both challenges and opportunities for making decisions on the future of the railway. At the same time as it publishes its HLOS and SoFA, the Department of Transport (DfT) will publish a White Paper on the long-term development of the railway, over the next thirty years; and the Scottish Executive has recently published the Scottish national transport strategy. PR08 provides the opportunity to take longer-term issues into account alongside the need to establish a robust determination for CP4.

1.7 The success of PR08 and the affordability of the railway will, to a large extent, depend on how Network Rail rises to the challenge to prepare a robust and affordable strategic business plan (SBP), which it will publish at the end of October 2007. The SBP will represent the company's proposals for its activity and expenditure in CP4 in order to meet its share of the HLOSs: the HLOSs cover outputs by the railway as a whole. It is therefore essential that Network Rail engages closely with the industry in order to ensure that industry both buys-in to its proposals and that the most efficient division of the required outputs in the HLOS between train operators and Network Rail is achieved. It is important that a wide range of measures is considered to address the growth challenge, including enhancement schemes, timetabling and demand management, so that the final CP4 delivery plan represents value for money

to taxpayers and railway customers and funders in delivering a safe and well performing railway.

PR08 progress

1.8 We started the preparation phase of PR08 in August 2005, when we published our first consultation document.[2] Since then we have consulted on: our overall approach to PR08 (our first consultation document); Network Rail's overall financial framework; the overall structure of charges; the incentive framework; our approach to amortisation of Network Rail's regulatory asset base; the treatment of risk and uncertainty; Network Rail's initial strategic business plan (ISBP); freight charge caps and implementation of a reservation charge. We also published in December 2005 our initial assessment of Network Rail's CP4 revenue requirement. All our consultation documents and the non-confidential responses are available on the PR08 section of our website, which includes other PR08 documentation, such as letters and consultant reports[3].

Purpose of this document

1.9 This document is an important step in the PR08 process and determining Network Rail's outputs and revenue requirement for CP4. It is divided into two parts:

- part A describes how we have assessed Network Rail's revenue requirements in England & Wales and Scotland and provides ranges to assist the Secretary of State and Scottish Ministers develop their HLOSs and SoFAs. We also include advice on specific additional investment to improve safety. This part also sets out how we will deal with the HLOSs and SoFAs and provides guidance to Network Rail on what it needs to do to improve its plans ahead of its SBP submission in October 2007; and

- part B deals with how we expect to determine Network Rail's access charges and establish the incentive framework within which the company and the industry will operate in CP4. It also sets out our caps for freight

[2] *Periodic Review 2008: First consultation document*, Office of Rail Regulation, August 2005. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/245.pdf.

[3] The PR08 page on our website is at http://www.rail-reg.gov.uk/server/show/nav.180.

charges in CP4 and the possible range within which final freight charges will fall.

Access charges review initiation notice

1.10 At the same time as this document is published, we are serving a review initiation notice in accordance with paragraph 1C of Schedule 4A to the Railways Act 1993 informing Secretary of State, Scottish Ministers and other relevant parties of our proposal to undertake this review. That notice starts the formal review phase of PR08, following the preparation phase that has run from August 2005.

1.11 The initiation notice is also available on our website[4]. In accordance with paragraph 1C(3) of Schedule 4A, this notice sets out that:

- the period to which we expect the PR08 determinations to relate is 1 April 2009 to 31 March 2014 (CP4);
- the Secretary of State and Scottish Ministers need to provide to us, by 31 July 2007, information about what they want to be achieved by railway activities during the period and the public financial resources that are, or are likely to be, available for the achievement of those activities; and
- there are no conditions which we require to be satisfied if we are to proceed with PR08.

1.12 Annex B provides further detail in respect of the initiation notice.

Implementation of PR08

1.13 We will implement the PR08 final determinations following the procedures set out in Schedule 4A to the Railways Act 1993. This process starts with the review notice, which needs to specify the relevant changes to be made to contracts, why we consider that they should be made and when these changes are proposed to have effect.

1.14 This notice must provide a period of not less than six weeks for objections to be made by Network Rail (or certain other parties specified in Schedule 4A) to

[4] *Notice of proposal to undertake an access charges review under paragraph 1C of Schedule 4A to the Railways Act 1993*, Office of Rail Regulation, 28 February 2007. This can be accessed at www.rail-reg.gov.uk/upload/pdf/PR08_note-of-proposal.pdf.

the review notice. In the event that objections are made, then we may either issue a revised review notice (in which case the process restarts) or make a reference to the Competition Commission under paragraph 9 of Schedule 4A.

Signalling

1.15 Until last winter we had intended to conduct a 'long term signalling review' (following on immediately from the 'medium term review' that we completed in December 2005), with final signalling determinations, at least for the early part of CP4, in October 2006. This was to provide Network Rail with certainty about funding for projects which have long lead times. It was also to give the signalling supply industry, which has suffered from fluctuating levels of activity in the UK, some confidence about future workloads so that they would grow the resources required for the current programme and realise efficiencies from steady utilisation.

1.16 When we published the medium term conclusions we rescheduled the long term review so that it aligned rather better with the rest of PR08. Our programme showed that we would publish draft signalling determinations in February 2007. Since then Network Rail has made good progress establishing framework agreements with signalling suppliers and awarding contracts for major renewals. In this document we will include estimates of the ranges within which we expect CP4 signalling renewal expenditure to lie, which will provide the industry with further useful forward indicators.

1.17 Against this background we have agreed with Network Rail that it is no longer necessary or desirable to seek to provide full draft determinations for signalling to different timescales from the rest of PR08. This will allow time for further development of their long term signalling strategy and of specific plans for CP4. We will therefore progress signalling issues to the same timescales as the remainder of PR08, with decisions on any 'early start' programme in February 2008, draft determinations in June 2008 and final determinations in October 2008.

Structure of this document

1.18 The rest of this document is structured as follows.

Part A: Advice to Ministers and guidance to Network Rail

- Chapter 2 describes the work we have done to assess Network Rail's ISBP.
- Chapter 3 provides our assessment of the possible range for Network Rail's CP4 revenue requirement.
- Chapter 4 outlines the process for conducting PR08 using the new procedures established by the Railways Act 2005.
- Chapter 5 summarises the guidance we have provided to Network Rail, setting out what we consider the company needs to do to submit a robust SBP to us in October 2007.

Part B: Framework for setting access charges

- Chapter 6 outlines the overall framework.
- Chapter 7 sets out our decisions on the high-level financial framework for Network Rail.
- Chapter 8 provides an update on the incentives framework for Network Rail in CP4.
- Chapter 9 provides an update on the work to determine the structure of charges.
- Chapter 10 provides our decisions on caps for freight charges in CP4.

PR08 timetable

1.19 Table 1.1 contains the high-level timetable for the formal phase of PR08.

Table 1.1: High-level timetable for the formal phase of PR08

Date	Milestone
February 2007	We publish our 'Advice to Ministers and framework for setting access charges'.
July 2007	Secretary of State and Scottish Ministers publish their high level output specifications (HLOSs) and statements of public funds available (SoFAs).
August 2007	We publish a letter consulting on detailed issues relating to Network Rail's financial framework, including the treatment of taxation and pensions.
October 2007	Network Rail publishes its strategic business plan (SBP), including indicative levels of individual access charges
November 2007	We launch a public consultation on Network Rail's SBP.
December 2007	We complete our initial assessment of whether the HLOSs can be delivered for the available public funds
February 2008	We publish our assessment of Network Rail's SBP, including decisions on the financial framework following the August 2007 consultation and decisions on the early start programme for 2009-10.
April 2008	Network Rail provides revisions to the SBP if necessary.
June 2008	We publish our draft determinations for CP4.
October 2008	We publish our final determinations for CP4.
December 2008	Final access charges (price lists/charge schedules) are audited and approved. Review notice is served starting implementation of PR08.
February 2009	Final point at which objections could me made to our review notice starting implementation, leading to a revised notice or possible Competition Commission reference.
March 2009	Network Rail publishes CP4 business plan.

Responses to this document

1.20 Although this document is not a formal consultation, we welcome comments on any issue raised in this document and will take them into account as part of the on-going work on PR08. Comments can be sent to or discussed with:

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1.21 Copies of this document can be found in the ORR library and on the ORR website (www.rail-reg.gov.uk).

PART A: ADVICE TO MINISTERS AND GUIDANCE TO NETWORK RAIL

2. Network Rail's initial strategic business plan

Introduction

2.1 This chapter describes the work we have done to assess Network Rail's ISBP. It explains how we have used it at this stage of PR08 to inform our assessment of the possible range for the CP4 revenue requirement (which is provided in chapter 3).

Background

Our initial assessment

2.2 In December 2005 we published our initial assessment of Network Rail's revenue requirement for CP4[5], identifying key issues for PR08 and emphasising how Network Rail's ISBP in 2006 and its SBP in October 2007 would need to contain much better information than has been made available in previous reviews. There needs to be more detail about the cost of operating the network alongside the detailed proposals for maintenance and renewal activities. These need to be well supported with analysis that justifies the projected activities and expenditure, showing how these are distributed across the network and what outcome is intended. We have always recognised that this poses an enormous challenge for Network Rail, but we also believe that it is within the company's abilities to achieve it as its asset management regime grows in maturity and it continues to improve its asset knowledge. (Chapter 5 summarises our guidance to Network Rail on what it needs to do to develop its SBP.)

Overview of the ISBP

2.3 Network Rail's ISBP was the first of the company's major submissions to PR08. We set out our expectations for the ISBP in a letter to Network Rail in

[5] *Initial assessment of Network Rail's CP4 revenue requirement and consultation on the financial framework*, Office of Rail Regulation, December 2005. This document can be accessed at http://www.rail-reg.gov.uk/upload/pdf/264.pdf.

February 2006[6]. It was important that it should show real progress towards establishing robust, accurate and well-informed plans for CP4. It is undoubtedly a step forward from previous plans. It is not, and does not claim to be, a fully developed plan for managing the network in CP4. However, it is a key milestone in the continuing development of Network Rail's planning process, and it forms an important foundation for the SBP, as the main submission for PR08. The remainder of this chapter provides a brief overview of the ISBP to set this in context.

Strategies for managing the network in CP4

2.4 The ISBP sets out the two 'strategies' for operating, maintaining, renewing and enhancing the network in CP4 and beyond:

- the Baseline strategy. This does not accommodate substantial growth, but is intended to maintain a railway that does not degrade (e.g. in terms of asset condition or capability) from the position achieved by March 2009 and to maintain these outputs at the efficient minimum whole life cost; and

- the Base Case strategy. This is intended to accommodate a reasonable level of traffic growth while sustaining, or improving further, the level of performance achieved by March 2009. A key difference between the Baseline and Base Case is therefore that the latter incorporates considerably more expenditure on network enhancements.

2.5 These do not present an either/or choice; rather, the Base Case identifies the additional costs and outputs of undertaking more enhancement work in CP4. As such, the ISBP treats enhancement expenditure as an overlay to the basic operations, maintenance and renewal (OM&R) expenditure on the network, i.e. costs that are largely common to both strategies.

2.6 Our assessment of the ISBP's expenditure plans has therefore been able to separate the examination of Network Rail's enhancement projects from the core analysis of the OM&R costs, and while they have been integrated within a single assessment project, the two workstreams have been conducted differently. More detail of our assessment methodology is provided below and

[6] *Periodic Review 2008 – Network Rail's initial strategic business plan*, Office of Rail Regulation, February 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/orrlet-nr-initial_strategic_business_plan.PDF.

in annex C; at this stage it is sufficient to note that we have drawn upon a wide range of expertise that includes our own economic and engineering teams, the industry's independent reporters and other consultants.

Outputs

2.7 The ISBP, and even more the SBP, must enable us (a) to understand the key outputs that Network Rail's proposed activities and expenditure will actually deliver in CP4, and (b) to match them to the HLOS requirements in England & Wales and in Scotland.

2.8 Network Rail's activity and expenditure forecasting tool is the infrastructure cost model (ICM), which is referred to in more detail below. Where the ICM models outputs, the tendency is to reflect outcomes in respect of asset condition measures, e.g. broken rails and track geometry defects. Positively, the ISBP attempts to differentiate such outputs for different parts of the network and different types of railway.

2.9 The ISBP is fairly ambitious in setting some asset condition targets, especially for the primary and main London & South East routes. They represent substantial improvements upon current outputs in the current control period (CP3)[7], but are claimed by Network Rail as being necessary for safe and reliable high-speed operation that meets the company's business objectives. In some cases this has the effect of reducing the average age of key assets.

2.10 There is more work to do to understand the justification for these proposals. We are not yet persuaded of the validity of all these assumptions, at least in a Baseline scenario for which the guiding principle is the need to understand the efficient minimum whole life cost of a non-degrading railway through CP4. We have taken such considerations into account as we have developed our expenditure range (in chapter 3), while still recognising the possibility that an improving asset condition could legitimately result from a renewals programme that is primarily driven by asset degradation and represents the optimum mix and timing of interventions.

2.11 Safety is one of the key outputs that will be specified within the HLOSs. The ISBP is not explicit in its treatment of safety as an output, but treats it as implicit within the asset policies. This will need to be addressed in the SBP,

[7] CP3 runs from 1 April 2004 to 31 March 2009.

because at this stage the way in which Network Rail has targeted certain asset condition measures
(e.g. broken rails, levels of track geometry exceedances, boundary incursions) for particular types of route cannot be fully substantiated.

Train service performance

2.12 The ISBP makes no projection for performance in the Baseline. The high levels of crowding in this scenario would create a specific performance risk from extended station dwell times. However there is no established methodology for evaluating this. Network Rail is undertaking research to enable this risk to be better quantified.

2.13 Base Case projections of the public performance measure (PPM) take 2006 industry forecasts of CP3 performance as a starting point[8]. The industry's continued success in driving performance improvement – PPM has now reached 88.4%[9] – means that these look too conservative; the joint performance improvement plans underlying them are currently being updated. The ISBP trajectory for CP4 then uses projections of incident numbers for the main asset categories, of delay per incident for Network Rail delays (including the effect of increasing train-km) and of total operator delays. Some of these are derived from the ICM and the decision support tools which provide input to it, but most are based on engineering or management judgment. Most are global and assume similar rates of improvement in delay factors on all routes. There is no apparent reflection of specific action plans which we would expect to improve performance materially, such as the temporary speed restriction reduction programme and the implementation of the 'global system for mobile communications – railways' (GSM-R). Enhancement schemes are assumed to enable traffic growth on relevant routes with no deterioration in performance, but there is no recognition that some may enable performance improvements. Our conclusion is that the Base Case PPM trajectory is therefore too low. In the light of this we have not considered the performance

[8] The public performance measure (PPM) represents the percentage of franchised passenger trains arriving at their destination within a specified lateness margin (typically five or ten minutes). This measure captures all delay causes (including Network Rail and train operators).

[9] Measured on a moving annual average basis for period 10 of 2006-07 (10 December 2006 – 6 January 2007).

of freight and open access passenger services, or delay minute trajectories, at this stage.

Asset policies

2.14 At the same time as it published the ISBP, Network Rail provided a suite of revised asset policies that define the maintenance and renewal of its infrastructure assets: track, signalling, civils, telecoms and electrification and plant. As Network Rail notes in its introductory remarks to the ISBP, these form the pivotal link between its business strategy and how it manages the asset base. They are key to the development of activity and expenditure plans; material changes to asset policies are likely to have significant effects on the revenue requirement for CP4.

2.15 Our assessment of the engineering and operational assumptions underlying the ISBP has been conducted at two levels. During 2006 AMCL, one of the industry independent reporters, conducted a comprehensive assessment of Network Rail's asset management regime, testing it against a template of world best practice[10].

2.16 AMCL's report recognises that Network Rail's re-written asset policies represent a step forward, defining a consistent approach to maintenance and renewals across the network. Crucially however, it also questions the extent to which the policies reflect the most cost effective asset management regime and it suggests that there could be scope for achieving the intended outputs at considerably less cost.

2.17 At the same time we have conducted a 'bottom-up' expenditure review, looking at:

- operating expenditure, including a wide range of 'controllable' expenditure associated with running the business and other costs (such as electric traction current and policing costs) which Network Rail deems to be 'non-controllable';
- maintenance and renewal expenditure by key asset categories; and

[10] *Independent Reporter Part C Services: Best Practice Review – Final Report Using the AMCL Excellence Model*™, Asset Management Consulting Ltd, February 2007. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/exp-amcl-060207.pdf.

- the projected costs of schemes to enhance the capability of the network.

2.18 Our bottom-up assessment has identified many issues that are corroborated by AMCL's conclusions, and hence our challenges to the asset-specific plans in the ISBP has focused on identifying plausible ranges of activity and expenditure that account for risks and opportunities.

2.19 The ISBP does not yet demonstrate a convincing or robust linkage between maintenance activity, underlying route conditions and asset condition and the projected volume of track renewals. Although the asset policies are intended to be based upon the minimisation of whole life costs, the amount of actual information about the cost and location of maintenance interventions impairs the analysis to the extent that we cannot be confident that the ISBP's mix of maintenance and renewal activities is the correct one for optimum management of the track assets.

2.20 Some evidence to support this view is the recent joint EWS/Network Rail benchmarking study involving an experienced Canadian railway engineer. Even though the sample size was small, it did question whether some track renewal work may be being carried out too early, when ongoing maintenance may still be the optimum solution.

2.21 Inevitably, we have to factor these uncertainties into the generation of our activity and expenditure range. Development of economic analysis to inform the optimum point on a whole life cost basis for a renewals intervention must be a key priority for Network Rail.

2.22 Since 2005 an industry possessions review has been examining the scope for more efficient use of possessions, and for alternative possession strategies which would improve whole industry financial and economic performance. This work is not reflected in the ISBP. It is described in more detail in chapter 5.

The infrastructure cost model (ICM)

2.23 In previous access charges reviews activity volumes and expenditure proposals were developed by various and unconnected forecasting methods. Though significant progress was made in some asset categories, there was no consistent process by which forecasts could be assembled. Only some of the forecasting methods attempted to model the connection between

activity/expenditure and network outputs, and none was able to provide robust figures to show the break down of expenditure below a global figure for the whole network.

2.24 Version one of the ICM was initially developed during 2005-06 to address these issues. The ICM calculates operating, maintenance and renewals expenditure. Asset expenditure is forecast for the key types of infrastructure and presents it for the whole network and for different methods and levels of disaggregation: between England & Wales and Scotland, between generic types of route and for specific route sections (for which the network is divided into approximately 300 sections).

2.25 A good understanding of the way this model operates is a fundamental requirement of the ISBP assessment. During 2006 AMCL undertook a two-stage audit of the ICM. Stage one verified the computational accuracy of the model, while stage two examined the modelling methodology to establish the validity of the processes and assumptions within it.

2.26 AMCL concluded that version one of the ICM succeeds in bringing together a number of business processes and techniques from different engineering disciplines (and in some cases develops these from first principles) to produce work volumes and expenditure profiles in a common format. It aligns reasonably well to the approaches set out in Network Rail's asset policies.

2.27 The ICM is therefore already a useful tool that underpins the ISBP, although AMCL recommend that it should go much further towards becoming a model at the heart of Network Rail's strategic planning processes, reflecting how varying degrees of criticality of the different asset types influence Network Rail's business. Network Rail agrees that it should be much more than just a calculation tool to support periodic review submissions.

2.28 The model attempts to link key outputs with levels of activity, or to predict the activities that will be required to deliver a fixed outcome. Some of its algorithms do this to a degree (most notably in the calculation of track renewal volumes) but elsewhere the modelling is less explicit. This is a key issue for our assessment, and its resolution requires much greater clarity within the SBP.

2.29 That is for future development. At this stage we consider that the ICM represents a good start. We have used it to investigate and analyse the ISBP

in detail, recognising its weaknesses and uncertainties. These have been factored into our thinking as we have developed our view on the possible CP4 expenditure range.

Disaggregation

2.30 Development of the ICM has made possible much more disaggregated assessment of Network Rail's plans.

2.31 Analysis of activity and expenditure plans for Scotland has revealed some major issues that we are still working to resolve before the Scottish HLOS is finalised. There is a substantial discrepancy in certain planned expenditures between the end of CP3 and beginning of CP4, while the levels of activity and expenditure in a number of areas represent percentages of the total network figures that are significantly different from assumptions made at the time of devolution, with the ISBP putting forward unexpectedly higher figures that cannot currently be explained, still less justified.

2.32 We have been examining these issues in liaison with Transport Scotland and Network Rail, and although there is still further work to do our present view is that the discrepancies are caused by the way in which the ICM, applying the asset policies, forecasts activities and allocates costs.

2.33 Where the issue is about the allocation of GB level calculations to lower levels then there will be implications for England & Wales as well as Scotland, although the relative impact of changes in allocations from the GB level on England & Wales is far smaller than on Scotland.

Operating expenditure

2.34 Network Rail has not provided robust justification in the ISBP for its proposed operating expenditure of some £1 billion per annum on average during CP4[11]. Its forecast is largely based on rolling forward the current budget. Network Rail has agreed that there is much more work to do to make their operations and operating cost forecasts robust.

[11] All values in this document are in 2005-06 prices unless otherwise stated.

Consultation on the ISBP

2.35 We undertook consultation on key 'options and issues' associated with Network Rail's ISBP between September and December[12]. We are grateful for thirteen responses[13]. Overall respondents recognise the start that Network Rail has made to improve management of the network and consider many aspects of the ISBP reasonable. However, there is wide recognition that there is much more to do to ahead of the SBP in October 2007 (acknowledged by Network Rail itself in its response).

2.36 Respondents consider that there maybe some limited scope for getting more from the existing network given the growth projections. There are doubts about the accuracy of the demand forecasts prepared by Network Rail, in particular about the forecasts at a local/regional level. Respondents consider that Network Rail needs to give more focus to these issues rather than apply a national approach, which will mean closer working with TOCs, Passenger Transport Executives (PTEs) and Transport for London. There is a general view that without appropriate measures to address growth then overcrowding will increase. There is little support for demand management measures.

2.37 There is a widespread view that train lengthening is generally the best means of addressing the requirement for growth. This will need to ensure that there is fully integrated thinking on rolling stock, platform lengthening and depot and other infrastructure costs. Respondents suggest that it will be necessary to ensure that the rolling stock companies (ROSCOs) are involved in the debate.

2.38 Generally respondents welcomed the enhancement schemes contained in Network Rail's Base Case strategy (and the subsequent 'refresh' of this in November) given the growth forecasts. Some respondents suggest that the phasing of Thameslink should be considered to ensure the best balance of cost and delivering growth/performance. There is recognition that our investment framework is starting to drive a better allocation of risks and hence reduce costs but many (though not all) respondents consider that the proposed enhancement costs are too high.

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[12] *Network Rail Initial Strategic Business Plan 2009-14: Issues and Options*, September 2006, Office of Rail Regulation. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/pr08-options-let-290906.pdf.

[13] The responses can be accessed at http://www.rail-reg.gov.uk/server/show/ConWebDoc.8457.

2.39 Many respondents do not feel able to comment in detail on Network Rail's efficiency proposals and its asset management. However, there is a consensus that there is scope for further efficiency improvement (without compromising performance) and that the asset policies need further development, which will ensure appropriate policies for community rail and freight only lines. There is considerable interest in the possessions strategy as a key factor in Network Rail's efficiency and because respondents are keen for a 'seven-day railway' given the growth, including the increased demand experienced at weekends. Respondents provided examples of what they consider to be inefficient practices by Network Rail, e.g. too much replacement of ballast at the expense of ballast cleaning and slow commissioning of signalling schemes. There is a lot of interest in implementation of bi-directional signalling.

2.40 Respondents see merit in focusing on further energy efficiency, including installing on-train metering and regenerative braking. Many mention the benefit of lighter rolling stock in relation to the energy discussion. There is also concern about the level of system losses of electric traction current (although we have no evidence that this is 'too high' or has increased).

2.41 With respect to station improvements, many see merit in delivery by TOCs (and other parties) instead of Network Rail, as respondents consider TOCs and others would be more responsive to local needs and more cost efficient. There is interest in innovative means of funding and partnership approaches. Car parks are also noted as an area that will require focus, in relation to the expected growth.

2.42 With respect to safety, the general view of respondents is that the overall level of safety is high, though the issue of level crossing risk is highlighted.

2.43 Many respondents support continuation of the Network Rail discretionary fund (NRDF) to quickly and flexibly address specific issues (e.g. pinch-points) on the network.

2.44 In its response, Network Rail recognises that 'significant further work is required to improve the robustness of its business plan'. Key areas of improvement include: developing the asset policies, developing the ICM, developing robust efficiency assumptions and unit costs, updating the enhancement projections, updating performance projections, preparing a

safety outputs trajectory, continued input to development of the financial and incentives framework and working with operators to take account of their input to the plan.

2.45 Transport Scotland identifies a number of Scotland specific issues that need to be addressed. They appreciate the separate identification/treatment being given to England & Wales and Scotland and request that we continue this in order to underpin the devolved responsibilities for rail strategy and funding.

2.46 Respondents recognise that Network Rail has engaged with them in developing the ISBP, but respondents who commented on this issue consider that more engagement should take place.

3. Assessment of Network Rail's CP4 revenue requirement

Introduction

3.1 This chapter provides our current assessment of the possible ranges for Network Rail's CP4 revenue requirement in England & Wales and Scotland. The net revenue requirement is that which is funded by franchised passenger track access charges, or, potentially, grant paid by government in lieu of access charges.

3.2 Because there is still uncertainty around the future revenue requirement we are not providing a central projection in this document. We are providing this assessment to assist DfT and Transport Scotland in the development of the HLOSs and SoFAs.

3.3 This chapter also presents our advice to government on areas of possible additional investment to address safety risk.

3.4 Our assessment of Network Rail's expenditure, and the implications for the revenue requirement, has focused on the ISBP Baseline strategy. We have also assessed the incremental enhancement expenditure to accommodate forecast traffic growth included in Network Rail's Base Case strategy and the company's 'refresh' of this.

Approach

3.5 Network Rail's net revenue requirement is the gross revenue requirement less other single till income (principally station charges, property income and charges paid by open access passenger and freight operators). The calculation of the revenue requirement follows the normal building block approach outlined further in chapter 6, which is the same approach we used to determine the requirement for the current control period and to produce our initial assessment of the CP4 requirement in December 2005.

3.6 Network Rail currently receives its net revenue through a combination of track access charges paid by franchised passenger train operating companies (TOCs) and grants paid to the company by DfT and the Scottish Executive in

lieu of access charges. We do not discuss in this document the possible balance of access charges and grants, which we will consult on separately.

Scope and limitations of our assessment

3.7 We are at a comparatively early stage in PR08 and there are still a wide range of issues and considerable uncertainties to be resolved before we publish our final determinations. This assessment takes account of many of the uncertainties. However, there are some areas of policy choice and/or uncertainty which, depending on the outcome, could mean that the final revenue requirements lie outside the ranges presented here. For example, we have not considered the implications of the European railway traffic management system (ERTMS) or the intercity express programme (IEP),[14] which could have significant implications for Network Rail's expenditure plans. Nor do we make any allowance for possible changes in possessions strategies arising from the current industry review; it may be that a change will be identified which delivers overall industry-level benefits while altering the balance of funding requirements between Network Rail and train operators. Moreover, Network Rail's revenue requirement will depend on the division of expenditure between it and the train operators that is established after the HLOSs and SoFAs are published in July.

3.8 For the purposes of this assessment we have taken as given Network Rail's assumptions in its ISBP regarding outputs, network capability and capacity, safety and environmental performance, and the company's assumptions of forecast demand. For key outputs relating to asset condition and train performance, the company currently predicts stability or continued improvement in CP4. The HLOSs will state the specific projection for the high-level railway outputs government wishes to fund, which will then affect our determination of Network Rail's specific outputs.

3.9 We assume that Network Rail achieves the expenditure levels, efficiencies and outputs assumed for control period 3 (CP3), which runs from April 2004 to March 2009.[15]

[14] The IEP will specify the next generation of high-speed trains.

[15] We will take into account in our determination of the CP4 revenue requirement any outperformance over the efficiency assumptions assumed for CP3, or underspend by Network Rail associated with failure to deliver its required outputs.

Price base and precision

3.10 All values in our assessment are in 2005-06 prices unless otherwise stated. Historic data is rebased to November 2005-06 prices using the all items retail prices index (RPI). Financial values are rounded to the nearest £10 million unless otherwise stated. As a result not all totals in subsequent tables will sum exactly.

Expenditure assessment

3.11 We have derived plausible ranges for each of operating, maintenance, renewal and enhancement expenditure by considering the basis of Network Rail's own ISBP figures, and applying adjustments to reflect our assessment of (a) the risks that could feasibly dictate a higher level of expenditure and (b) the opportunities for reducing levels of activity and/or expenditure without adversely affecting the network outputs. For OM&R we have focused on the Baseline strategy in the ISBP. For enhancements we have considered both the Baseline and Base Case strategies and Network Rail's 'refresh' of its Base Case enhancement portfolio.

3.12 The following paragraphs summarise our assessment and present the overall results. A more detailed description of the work we have carried out on the expenditure projections is provided in annex C.

Maintenance and renewals expenditure

3.13 We have undertaken a detailed engineering review to assess the extent to which maintenance and renewal activity volumes could vary from Network Rail's Baseline strategy figures with changes to key input assumptions (while delivering the same safety and performance outputs). Examples of factors that are likely to influence volumes include changes to asset policies and/or their application, assumptions about service lives of key assets and improved understanding of the linkages between activity levels and outputs.

3.14 We have combined the ranges for each asset type to provide an overall range. If the component ranges are simply added together then, given that there is no clear correlation between the risks and opportunities that we have identified, the high end of the range would be overestimated and the low end would be underestimated. We have therefore used standard risk analysis techniques to combine the ranges of the sub-categories.

Operating expenditure

3.15 We also challenged Network Rail's operating expenditure ('opex') assumptions. However Network Rail has done little detailed work to substantiate its proposed opex. For the purposes of determining a range for operating expenditure we have largely taken Network Rail's own projections, removed the company's efficiency assumptions (for controllable expenditure) and applied our own range for possible efficiency improvement (discussed below). For non-controllable opex, we have largely used Network Rail's forecasts at this time and put an indicative range around them to account for uncertainty, which lifts the upper end of our range above that assumed in the ISBP.

3.16 Network Rail took a relatively simple approach to the disaggregation of operating expenditure between England & Wales and Scotland in the ISBP. After discussions with Network Rail we have amended the allocations to take more account of the detailed allocation metrics used in the regulatory accounting guidelines to disaggregate central costs.

OM&R in the Base Case strategy

3.17 We have focused our OM&R assessment on the Baseline strategy. In the Base Case strategy Network Rail proposes a comparatively small amount of additional OM&R expenditure in CP4 (of £280 million in England & Wales and £40 million in Scotland):

- to reflect the impact of higher traffic volumes;
- to reduce costs in later control periods; and
- to bring forward performance related renewals of some electrification assets.

Enhancements

3.18 We have assessed both the ISBP and Network Rail's November 2006 refresh of route plans, which updates the ISBP. Our objective is to determine whether or not the schemes proposed by Network Rail are likely to deliver the incremental outputs described in the ISBP, and if so, what the range of efficient price of that delivery might be.

3.19 As well as assessing Network Rail's cost estimates for the schemes, we have assessed the arrangements proposed by Network Rail and government or other sponsors for delivery of schemes, particularly the proposed risk allocation. This is important as the risk allocation (including the basis of pricing) has a direct impact on the outturn costs of schemes as it largely determines the incentives for efficient delivery.

3.20 Our assessment has used top-down benchmarking of schemes as well as detailed, bottom-up cost analysis for a sample of schemes. In our assessment we have also drawn on expert advice from our strategic advisors Steer Davies Gleave and our engineering advisors Scott Wilson Railways.[16]

3.21 Both the ISBP and the refresh represent snapshots of an enhancement portfolio that will continue to change as schemes are developed. The actual schemes delivered during CP4 will depend on the outputs required by government and set out in the HLOSs.

3.22 Our overall assessment of the Baseline for England & Wales gives a lower range estimate that is 33% lower than Network Rail's estimate at £0.68 billion while our upper range estimate is some 11% higher than Network Rail's estimate at £1.13 billion.[17] This assessment of the range is largely driven by our assessment of the major WCRM schemes, for which we have reduced our estimates for work which may already have been funded in CP3.

3.23 For the Baseline, we have calculated that only £20 million of the total expenditure is related to enhancement schemes in Scotland: this estimate covers Scottish elements of the 'access for all' programme.

3.24 The relatively high degree of volatility in the portfolio of schemes in the Base Case in England & Wales was a key factor in our assessment of the range for

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[16] *Advice on assessing enhancement schemes proposed in Network Rail's ISBP*, Steer Davies Gleave, February 2007. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/pr08-isbp-sdg.pdf.

Advice on assessing enhancement projects proposed in Network Rail's ISBP, Scott Wilson Railways, January 2007. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/pr08-isbp-sctwlsn.pdf.

[17] All figures are net of third party funding and take account of the revised WCRM profile in the refresh.

the Base Case. Our key concerns, which Network Rail needs to address in its SBP, are that:

- the scope and cost of the schemes changed substantially between the ISBP and the refresh;
- the refresh does not take account of interactions between schemes, even where scheme objectives and outputs appear to overlap; and
- it is a considerable challenge for Network Rail to make sufficient progress in developing schemes to enable delivery of the portfolio of schemes in CP4.

3.25 A detailed description of our assessment of maintenance, renewals and enhancement expenditure is provided in annex C.

Efficiency

3.26 In its ISBP Network Rail has assumed that it can make efficiency savings totalling 17.6% over the course of CP4 (an average of 3.8% per annum), above and beyond the 31% efficiency improvement it is targeted to achieve in CP3. Network Rail has adjusted these figures downwards, on the grounds that it anticipates that input price inflation will be higher than RPI. This adjustment reduces the net cost savings assumed by Network Rail to 11.5% over CP4. Network Rail has made further downwards adjustments for insurance and pensions costs, where it assumes a zero efficiency, and for signalling and operational staff costs where it assumes efficiencies of 1.0% per annum but a net cost increase of 0.9% per annum once it has adjusted for forecast input price inflation.

3.27 We have based our assessment of the scope for Network Rail to make efficiency savings on the study that LEK Consulting and Oxera undertook for us in 2005.[18] The consultants estimated that Network Rail could make efficiency savings of up to 8% per annum in each year of CP4. For our current assessment we have used a range of
3.8% - 8% which captures both Network Rail's assumption of what it can achieve in CP4 and the upper end of the consultants estimates. For our lower

[18] *Assessing Network Rail's scope for efficiency gains over CP4 and beyond: a preliminary study*, LEK Consulting and Oxera, December 2005. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/lek-ox_cp4effgns.pdf.

estimate we have profiled the efficiency profile as 5%, 5%, 4%, 3% and 2% and for the upper estimate we have used a profile of 9%, 9%, 8%, 7% and 6%. This reflects the fact that the scope for efficiency savings is likely to be greater at the start of a control period. We discuss the possible treatment of efficiency in CP4 further in chapter 5.

3.28 We have applied our efficiency assumptions to virtually all of Network Rail's controllable costs but have made no assumptions as to the relative efficiencies that might be achieved in different areas of Network Rail's business.

3.29 Our range excludes any explicit consideration of the impact of input price inflation. We said in our risk and uncertainty consultation letter in September 2006 that our preferred approach would be for Network Rail to continue to bear input price inflation risk because it is at least partly controllable by the company.[19] We will provide a determination that we consider will provide Network Rail with sufficient revenues and appropriate protections (e.g. re-openers and logging up mechanisms) commensurate with the risks it faces, including input price inflation risk.

3.30 There is much work to be done on refining efficiency assessments and more robust estimates are unlikely to emerge until later in PR08. As part of the further work being undertaken, we are conducting some international benchmarking. However, this work will not yield usable results until much later in PR08. Annex D provides a summary of our efficiency assessment work programme.

Schedule 4 and 8 expenditure

3.31 For the purposes of this assessment we have not undertaken any specific analysis of Schedule 4 and 8 forecast expenditure. We have not varied Network Rail's ISBP projection of approximately £80 million per annum in England & Wales and £10 million per annum in Scotland.

[19] *Periodic review 2008: The treatment of risk and uncertainty*, Office of Rail Regulation, September 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/pr08-risk-let-280906.pdf.

Summary of expenditure assessment

3.32 Tables 3.1 and 3.2 summarise our range for the possible total efficient expenditure in CP4 in England & Wales and Scotland respectively.

Table 3.1: Possible range for total CP4 Baseline expenditure in England & Wales

£million (2005-06 prices)	Low	High	ISBP
Maintenance	3,140	3,980	4,070
Controllable opex	2,810	3,240	3,360
Non-controllable opex	1,580	2,070	1,850
Schedule 4 and 8	420	420	420
Renewals	6,760	8,430	8,850
Enhancements (see note)	680	1,130	1,020
Tax	30	50	0
Total expenditure	**15,420**	**19,320**	**19,570**

Note: Only core enhancements and renewals are included in the above table, i.e. it excludes risk buffer discretionary investment and is before the deduction of enhancements and renewals funded by the ring-fenced investment fund (discussed further in chapter 7).

Table 3.2: Possible range for total CP4 Baseline expenditure in Scotland

£million (2005-06 prices)	Low	High	ISBP
Maintenance	370	470	480
Controllable opex	310	350	350
Non-controllable opex	120	160	150
Schedule 4 and 8	50	50	50
Renewals	1,010	1,280	1,350
Enhancements (see note)	20	20	20
Tax	0	0	0
Total expenditure	**1,880**	**2,330**	**2,400**

Note: Only core enhancements and renewals are included in the above table, i.e. it excludes risk buffer discretionary investment and is before the deduction of enhancements and renewals funded by the ring-fenced investment fund (discussed further in chapter 7).

3.33 We have developed our range using the same approach as our initial assessment in December 2005. The upper bound of the range takes our high assessment of activity levels and applies to this the lower end of the range (3.8% per annum) for efficiency improvement. The lower bound of the range takes our low assessment of activity levels and applies the high end of the range (8% per annum) of efficiency improvement to this. These combinations are used to illustrate a plausible range at this stage in PR08.

3.34 In both cases our range for total expenditure lies below Network Rail's ISBP forecast although, as explained above, for non-controllable operating expenditure and enhancement expenditure, we consider that the final level of expenditure could be above that assumed in the ISBP. Our assessment of a potentially much lower level of expenditure than Network Rail has forecast (approximately 20% lower for both England & Wales and Scotland) reflects, on the basis of our work to date, significant opportunities to reduce activity levels and improve efficiency compared to the ISBP.

3.35 Figures 3.1 and 3.2 illustrate the range of the possible annual profiles of OM&R expenditure in CP4 compared to the levels in CP3 (with 2004-05 and 2005-06 being actual expenditure and the remaining three years being Network Rail's forecast).

Figure 3.1: Possible range for CP4 OM&R expenditure – England & Wales

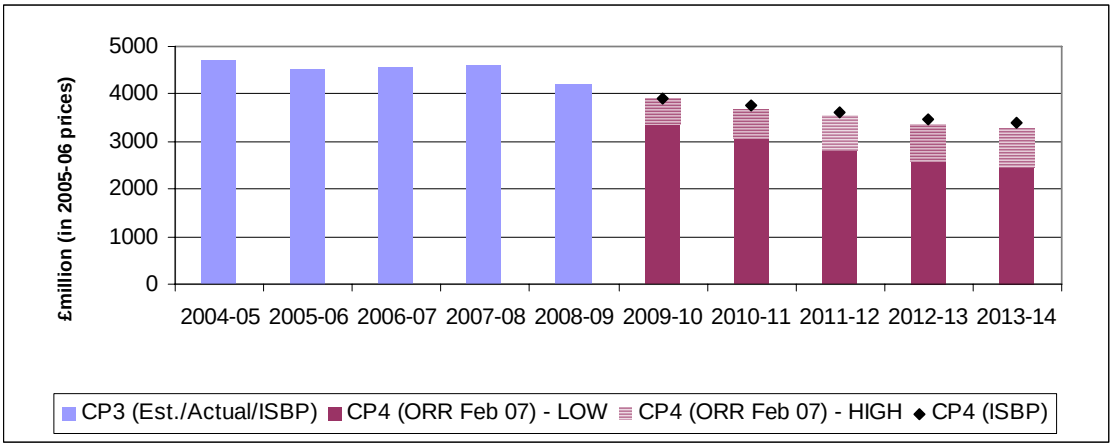


Figure 3.2: Possible range for CP4 OM&R expenditure – Scotland

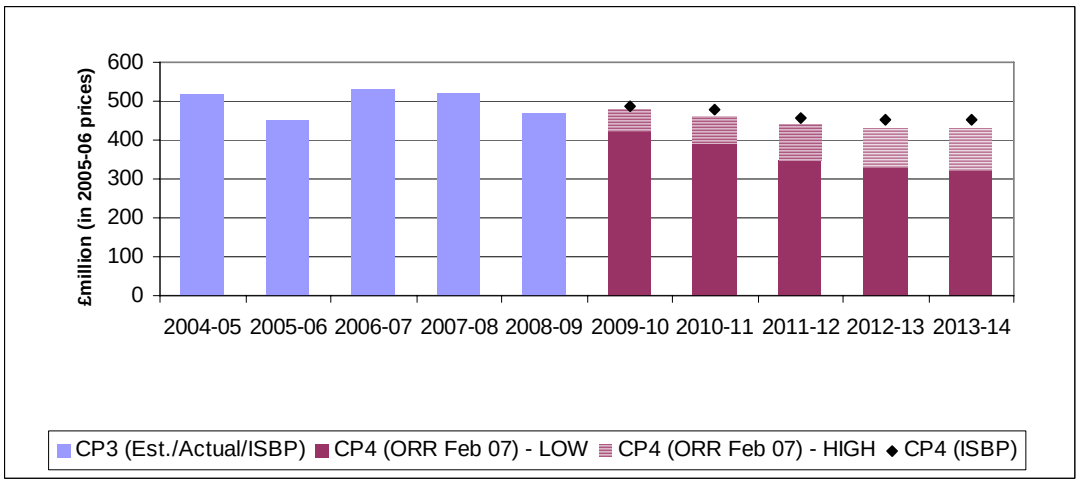
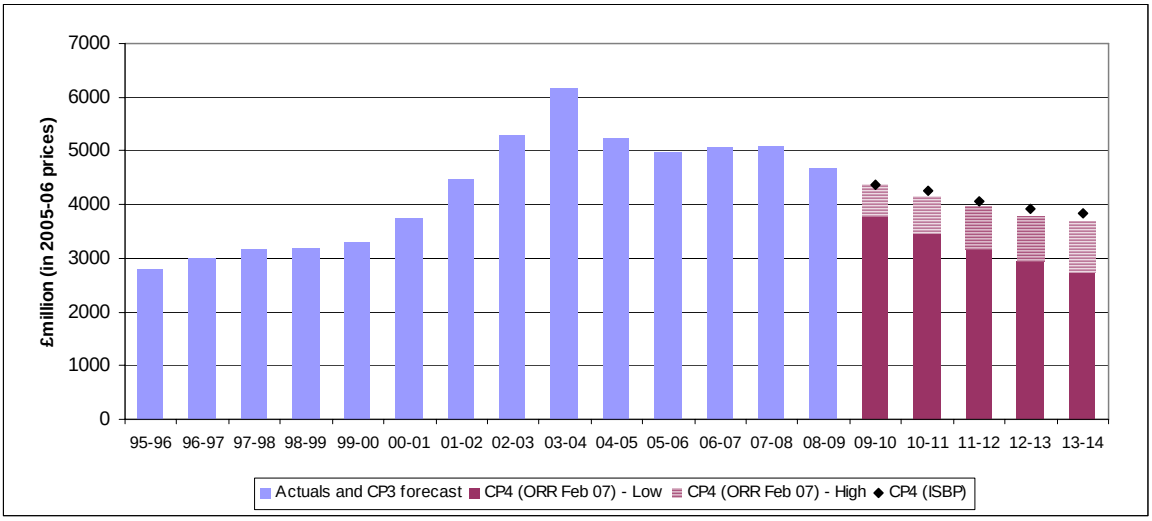


Figure 3.3 compares the forecasts for CP4 with the historic expenditure levels. These figures show the increase in expenditure following the Hatfield accident and the reductions since then reflecting improved efficiency.

3.36 The forecasts also largely reflect the allocation of costs between England & Wales and Scotland assumed in Network Rail's ISBP. Network Rail are reviewing their allocation of costs to Scotland and we would expect the SBP to include more robust allocations.

Figure 3.3: Historic OM&R expenditure and CP4 forecasts (GB-wide)



3.37 Tables 3.3 and 3.4 show our range for incremental enhancement expenditure for the Base Case. In England & Wales Network Rail has assumed that incremental expenditure (i.e. over and above that assumed in the Baseline) will be some £4,760 million. Our range is £3,290 - £5,330 million. For Scotland, Network Rail assumes incremental expenditure of £870 million. Our range is £730 - £990 million. In both cases the upper bound of our range is greater than the level Network Rail has forecast, by between 12 – 14%. This is driven largely by the volatility in Network Rail's estimates. Our assessment of the contingency allowance for enhancement schemes suggests that the allowance Network Rail has made may be too low in some cases compared to the standard contingency values used in Network Rail's guide to railway investment projects (GRIP).[20] Our lower bounds reflect significant opportunities to reduce the delivery cost of the enhancement programme. For

[20] 'GRIP' is Network Rail's guide to railway investment projects. It sets out the company's processes for project development and delivery.

England & Wales our lower bound is 31% lower than the ISBP and for Scotland 16% lower.

3.38 It is important to note that the final level of enhancement expenditure will be dependent on the level of capacity growth and reliability that the network is required to achieve that will be set out in the HLOSs and the balance between funding enhancement expenditure through access charges, i.e. through capitalisation of the expenditure and adding it to Network Rail's regulatory asset base (RAB), or funding through direct government grant.

Table 3.3: Possible range for Base Case incremental enhancement expenditure – England & Wales

£million (2005-06 prices)	Low	High	ISBP
Enhancements (incremental to the Baseline)	3,290	5,330	4,760

Table 3.4: Possible range for Base Case incremental enhancement expenditure – Scotland

£million (2005-06 prices)	Low	High	ISBP
Enhancements (incremental to the Baseline)	730	990	870

Financial assumptions

3.39 In order to calculate possible ranges for the revenue requirement in England & Wales and Scotland we have made a number of assumptions on the financial framework, namely the value of the RAB in England & Wales and Scotland at the start of CP4, the amortisation of the RAB and the allowed rate of return on the RAB. We have also made assumptions on tax.

3.40 The building block approach we use to determine the revenue requirement is explained further in chapter 6 and the financial framework is covered in chapter 7.

CP4 starting position

3.41 Network Rail has provided updated forecasts for the opening balances at 1 April 2009 for net debt, RAB and the tax opening balances (i.e. losses brought forward and the balances on the capital allowance pools). For some issues we have revised these forecasts to reflect the latest information and for the

purposes of our estimate of the RAB at 1 April 2009 we have assumed that Network Rail's renewals spend between now and that time is equal to the regulatory assumption made at ACR2003.

3.42 The RAB has already been (notionally) split between England & Wales and Scotland as part of the work to support devolved responsibility for rail strategy and funding in Scotland to Scottish Ministers.[21] The numbers in that document for the RAB for both countries have been rolled forward in accordance with the our policy established in the 2003 access charges review (ACR2003) on RAB roll forward.

3.43 For net debt and tax, opening balances at 1 April 2009 have been derived for England & Wales and Scotland by splitting the net debt and tax balances at 1 April 2006, on the basis of the 1 April 2006 RAB split. These balances are then rolled forward using the latest income and expenditure forecasts for each country.

3.44 The RAB split as part of the devolution work allocated 11.17% of the RAB to Scotland. This proportion will change over time depending on the level of expenditure in each country.

3.45 Our assessment is that the opening balance of the RAB at 1 April 2009 is £28,570 million for England & Wales and £3,170 million for Scotland. The difference between our assumptions and the ISBP are largely due to the inclusion in our forecast of the £3.3 billion revenue deferral RAB adjustment, which was not included in the ISBP.

Allowed return

3.46 As we discuss further in chapter 7, we intend to provide Network Rail with an allowed return in CP4 that reflects its risk-adjusted cost of capital. We have not yet undertaken any detailed analysis of the specific level. In assessing the overall revenue allowance we have used a range of 4.0 - 4.75% (real, vanilla[22]) based on recent regulatory precedent and evidence of the rates achieved in the market recently by regulated utilities. Based on preliminary

[21] *ORR's approach to regulation in Scotland: Conclusions*, Office of Rail Regulation, December 2005. http://www.rail-reg.gov.uk/upload/pdf/267.pdf.

[22] A vanilla return is a pre-tax cost of debt and a post-tax cost of equity (i.e. it excludes any tax adjustment to the cost of debt or cost of equity).

advice, we believe that an allowed return in this range would enable Network Rail to achieve a firm investment grade credit rating.

Amortisation

3.47 Our amortisation policy for CP4 is to base the amortisation charge on long-run steady state renewals, as we set out in September 2006.[23] For this assessment, we have derived an indicative range for the steady state amortisation charge by considering various alternative options for calculating the level of the long-run steady state renewals charge. This gives an assumption for the steady state amortisation charge of between £750 million and £1,330 million per annum for England & Wales and between £90 million and £180 million per annum for Scotland. In addition we have also assumed that we will amortise the post 1 April 2004 non-capital expenditure RAB additions over 30 years. This gives an additional amortisation charge of £120 million per annum for England & Wales and £20 million per annum for Scotland. Total amortisation is therefore between £870 million and £1,440 million per annum for England & Wales and between £100 million and £200 million per annum for Scotland.

3.48 Our ranges compares to Network Rail's own ISBP Baseline average CP4 assumption of £1,420 million per annum for England and Wales and £170 million per annum for Scotland.

Tax

3.49 The ISBP did not include a forecast for tax. For the purposes of this assessment only, we have assumed we will provide an ex ante allowance for the corporation tax we are assuming that Network Rail will pay in CP4. The issues involving tax will be consulted on in a letter that we intend to publish in August 2007.

3.50 At 1 April 2006 Network Rail has estimated brought forward tax losses of £6.9 billion (GB-wide). Our assessment at this stage suggests that Network Rail will not use up all of its losses before the end of CP4. Therefore, our allowance for tax is small and reflects the tax assumed to be paid in CP4 on items such as chargeable gains. Our assumptions at this stage are largely

[23] *Approach to the amortisation of Network Rail's regulatory asset base*, Office of Rail Regulation, September 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/pr08-amortisation-let-290906.pdf.

based on Network Rail's tax assumptions but we have not allowed tax on the incentive payments that will be added to the RAB at 1 April 2009.

Other single till income

3.51 We have assessed Network Rail's forecasts of what we term 'other single till income'. This is income from sources other than track access charges paid by franchised passenger operators. It comprises station charges, commercial property income, non-franchised passenger operator and freight operator access charges, depot charges, and other income (such as connection agreements).

3.52 We consider that Network Rail's forecasts of income from stations are a reasonable estimate at this stage. Using our assessment of the efficient costs of sustaining the station portfolio, we have estimated the likely range around station income assuming that charges are cost-reflective. This results in a range of +/- 12% around station income in CP4.

3.53 For commercial property, we have held meetings with Network Rail to clarify and challenge the basis of its forecasts. We have also taken expert advice from Lambert Smith Hampton, who have advised us that they believe that Network Rail's forecasts are broadly reasonable at this stage. Based on our analysis and the advice from Lambert Smith Hampton, we have estimated that there is a range of +/- 15% around Network Rail's estimate of commercial property income.

3.54 Network Rail has assumed that the level of freight income broadly increases in line with the forecast growth in freight traffic over CP4. Chapter 10 discusses our caps on freight charges for CP4. Based on the analysis undertaken to set these caps, Network Rail's forecasts appear to be within the likely range of future charges and so are reasonable at this stage.

3.55 For other categories of single till income, we have met Network Rail to clarify and challenge the basis of its forecasts. There is no basis for amending them at this stage, apart from an adjustment to ensure the income assumptions are cost reflective. Based on our analysis, we have estimated a range of +/-15% around Network Rail's forecasts for other categories of income.

3.56 At this stage we have assumed that the allocation of income between England & Wales and Scotland in the ISBP is appropriate.

Combining financial and expenditure assumptions to produce ranges

3.57 We have estimated a range for the revenue requirement using the same approach as in our initial assessment in December 2005. This involves basing the lower estimate for the net revenue requirement on a combination of our low expenditure projection with the higher rate of return. This illustrates a situation where, in order to manage the increased risk associated with achieving greater efficiencies, a higher return is provided. Our upper estimate is a combination of our high expenditure projection and lower rate of return. This illustrates a situation with reduced risk associated with achieving lower efficiencies and hence a lower return is provided.

3.58 It is important to note that these combinations are purely illustrative. There are no pre-determined relationships between any given level of expenditure and the financial assumptions. The specific levels for all the building blocks of the revenue requirement, their interactions and the effect on incentives, will be determined later in PR08.

Assessment of the possible ranges for the CP4 net revenue requirement

3.59 Tables 3.5 and 3.6 show the total net revenue requirements compared to the ISBP. Figures 3.4 and 3.5 illustrate the annual profiles of our range for the net revenue requirement compared to the levels in the current control period and the ISBP.

Table 3.5: Possible range for total CP4 Baseline net revenue requirement in England & Wales

£million (2005-06 prices)	Low	High	ISBP
Maintenance	3,140	3,980	4,070
Controllable opex	2,810	3,240	3,360
Non-controllable opex	1,580	2,070	1,850
Schedule 4 and 8	420	420	420
Amortisation	4,340	7,220	7,080
Allowed return	6,940	5,870	6,400
Other single till income	(2,780)	(3,650)	(3,260)
Tax	30	50	0
Net revenue requirement	**16,470**	**19,200**	**19,920**

Table 3.6: Possible range for total CP4 Baseline net revenue requirement in Scotland

£million (2005-06 prices)	Low	High	ISBP
Maintenance	370	470	480
Controllable opex	310	350	350
Non-controllable opex	120	160	150
Schedule 4 and 8	50	50	50
Amortisation	520	1,000	860
Allowed return	790	660	780
Other single till income	(210)	(280)	(260)
Tax	0	0	0
Net revenue requirement	**1,950**	**2,400**	**2,410**

3.60 Our ranges for both England & Wales and Scotland lie below Network Rail's ISBP projections. In both cases, the lower bound of our range is approximately 20% less than the ISBP. In particular, this reflects the possible lower levels of expenditure on the infrastructure in CP4 due to greater efficiency, the lower rate of return we have assumed compared to Network Rail's assumption in the ISBP and a possible lower level for the amortisation charge. In addition to this, we have assumed a higher opening RAB than Network Rail.

3.61 One of the important sensitivities in deriving a range for amortisation is the allocation between the two countries. For the purposes of this assessment amortisation is largely based on allocation of the long run steady-state renewals expenditure at the GB level to England & Wales and Scotland.

3.62 In relation to amortisation the Scotland net revenue requirement reflects a range on the allocation of long run steady-state renewals expenditure to Scotland of 10.6% to 12.2%. Network Rail is reviewing renewals levels in England & Wales and Scotland for its SBP.

Figure 3.4: Possible range for the CP4 net revenue requirement – England & Wales

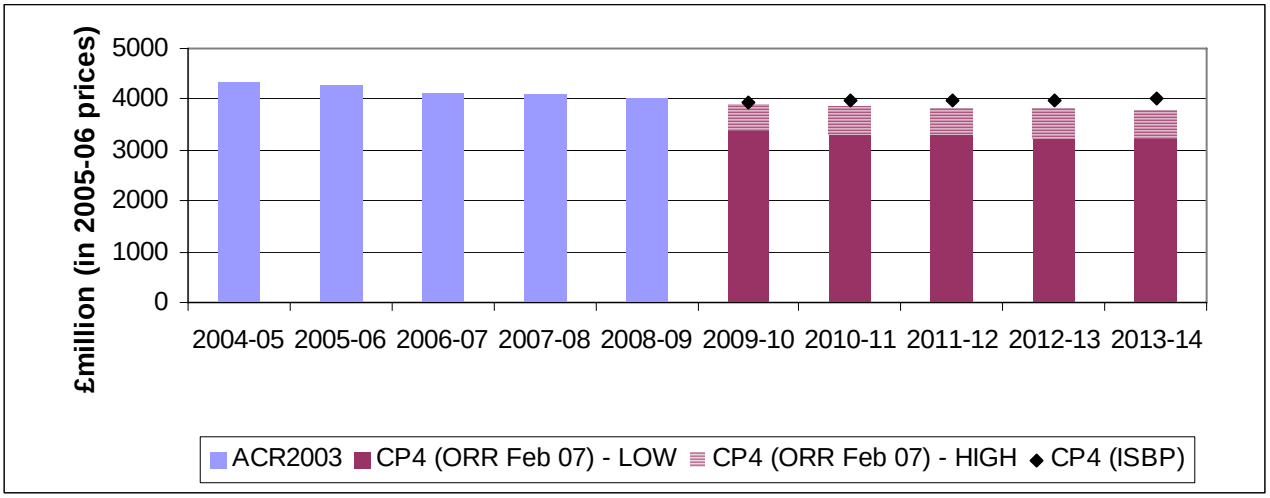
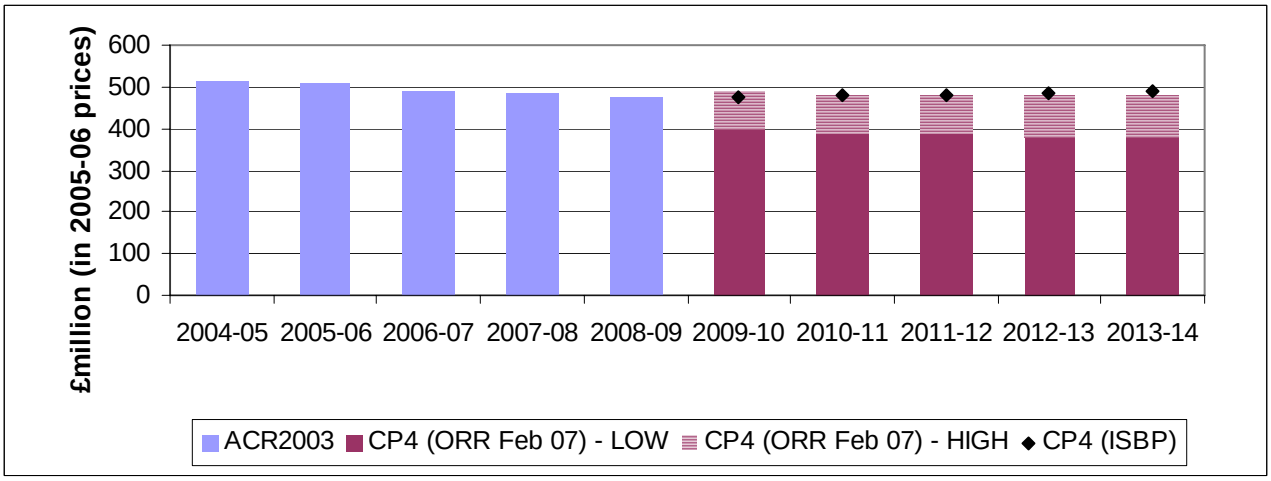


Figure 3.5: Possible range for the CP4 net revenue requirement – Scotland



3.63 Tables 3.7 and 3.8 England & Wales and Scotland show our assessed CP4 ranges for incremental Base Case expenditure for England & Wales and Scotland.

Table 3.7: Possible range for the Base Case enhancement expenditure (incremental impact to CP4 Baseline net revenue requirement) – England & Wales

£million (2005-06 prices)	Our assessed CP4 range
England & Wales	
Incremental enhancement expenditure	3,290 – 5,330
Incremental net revenue requirement	420 – 580
Total net revenue requirement (assuming Baseline OM&R expenditure – see note)	16,890 – 19,780

Note: The Base Case strategy also includes incremental operating, maintenance and renewals (OM&R) expenditure of £280 million during CP4. As the majority of this is additional renewals expenditure, which is capitalised, the effect on the revenue requirement will be significantly less.

Table 3.8: Possible range for the Base Case enhancement expenditure (incremental impact to CP4 Baseline net revenue requirement) – Scotland

£million (2005-06 prices)	Our assessed CP4 range
Scotland	
Incremental enhancement expenditure	730 – 990
Incremental net revenue requirement	130 – 150
Total net revenue requirement (assuming Baseline OM&R expenditure – see note)	2,080 – 2,550

Note: The Base Case strategy also includes incremental operating, maintenance and renewals (OM&R) expenditure of £40 million during CP4. As the majority of this is additional renewals expenditure, which is capitalised, the effect on the revenue requirement will be significantly less.

3.64 The final level for the net revenue requirement will be dependent, as indicated above, on the level of network capacity and performance the Secretary of State and Scottish Ministers include in their HLOSs. The impact on the net revenue requirement will also depend on the decisions that government makes on the balance between funding enhancements through the RAB and direct grant (pay-as-you-go).

Comparison to CP3 and our initial assessment

3.65 Our range for expenditure in CP4 is £17,300 million to £21,650 million for Great Britain. This compares to the range in our December 2005 initial assessment of £16,510 million to £21,350 million (in 2005-06 prices).

3.66 The main reasons for the increase in the low end of the range are an increase in renewals and an increase in non-controllable operating costs. The main

reasons for the increase in the high end of the range are an increase in non-controllable operating costs and an increase in enhancements offset by a reduction in renewals.

3.67 Our range for the net revenue requirement in CP4 is £18,420 million to £21,600 million for Great Britain. This compares to the range in our December 2005 initial assessment of £17,460 million to £20,380 million (in 2005-06 prices). This reflects the changes in the expenditure assessment discussed above, a higher allowed return reflecting a risk-adjusted cost of capital, a higher opening RAB at 1 April 2009 and that we have now included a range for other income whereas the December 2005 initial assessment included the same forecast in both ends of the range.

3.68 The reasons for the changes in the expenditure and revenue requirement ranges are similar at a disaggregated level for England & Wales and Scotland. In addition, they also reflect differences in the allocation of costs between the two countries. Network Rail is doing further work to make these allocations more robust for the SBP.

3.69 Network Rail's forecast expenditure in Great Britain in CP3 (consistent with the ISBP forecast) is £28.7 billion, which is higher than the ACR2003 conclusions for CP3 of £27.2 billion (including the conclusions of the December 2005 signalling review). This is mainly because of higher forecast spend on renewals and enhancements than assumed in ACR2003. Network Rail's forecast revenue requirement in CP3 (consistent with the ISBP forecast) is £23.5 billion compared to the ACR2003 conclusion of £23.3 billion.

3.70 The main reasons our Baseline range, for both the expenditure and net revenue requirement, is lower for CP4 than the forecast for CP3 is that generally renewals activity is forecast to be lower than in CP3, we have assumed further efficiency savings, we have assumed lower allowed returns and a higher RAB. Also, in the low end of the net revenue requirement range the amortisation assumption for CP4 is much lower than in CP3 but in the high end of the range it is higher than the CP3 assumption.

Specific additional investment to enhance safety

3.71 Under the Health and Safety at Work Act 1974, Network Rail has a general duty to control the risks arising from its activities so far as is reasonably

practicable. This requires Network Rail to take action wherever the cost of averting a risk is not grossly disproportionate to benefits of doing so. In addition, Network Rail has safety obligations arising from other general health safety law and more specific rail related legislation. Network Rail must include in its business plan adequate costs to satisfactorily discharge all these safety obligations.

3.72 In addition to this, we asked Network Rail to identify targeted investments to address specific areas of safety risk, which in Network Rail's view went beyond the company's obligations under safety legislation. This was to enable us to advise government on safety options that could be considered for inclusion in the HLOSs and SoFAs.

3.73 Network Rail proposed investments additional to those already included in the ISBP of around £90 million over CP4. In detail these comprised: around £45 million to upgrade 45 automatic half-barrier crossings (AHB); around £25 million to install various upgrades at 5% of user worked crossings (UWCs) on high-speed lines; and around £15 million for replacement of the highest risk foot crossings at stations by footbridges, and the implementation of new solutions at other such crossings where a significant portion of the risk is to vulnerable groups such as children. In the case of the AHB upgrades Network Rail projected in the region of a 50% reduction in the annual numbers of passenger and public fatalities and weighted injuries (FWIs) at AHBs. For the UWC upgrades the projected improvement was around 25% of annual UWC FWIs and for the improvements at station foot crossings the projected reduction in annual FWIs was around 20%.

3.74 We have considered Network Rail's proposals. Subject to the development of obstacle detection technology for use in Great Britain, the AHB conversions have the potential to deliver significant improvements in rail safety without the extended road closure times associated with conversion to a full barrier controlled crossing. The possible improvements in safety at UWCs are smaller and less certain, although the technology involved is more proven. For station foot crossings, the projected spend is much lower but so are the projected safety improvements. However, in some cases those benefiting from the safety improvements will be vulnerable groups such as children.

3.75 Based on its costings and safety investment appraisal criteria, it is Network Rail's view that these proposals fall outside those actions it is obliged to take

under health and safety law, and they do not currently form part of its business plan. However, we believe Ministers should consider these options as part of the funding and outputs they are seeking for the railway. It will be for government to decide whether they represent the best use of available public funds in the light of their priorities as a whole.

4. HLOS and SoFA issues

Introduction

4.1 This chapter outlines the process for conducting PR08 using the new procedures established by the Railways Act 2005. The chapter covers four issues:

- the HLOS/SoFA process and our role in it;
- the current position and our role prior to publication of the HLOS/SoFA in July;
- how we will undertake the role of deciding whether the HLOSs can be delivered for the available public funds and hence what information we require from the Secretary of State and Scottish Ministers; and
- the importance of meeting the timetable and the factors constraining any changes to the timetable.

The process and ORR's role

4.2 Our review initiation notice requires the Secretary of State and Scottish Ministers to publish their respective HLOS and SoFA by 31 July 2007. Following this Network Rail will produce its strategic business plan (SBP) in October. This will be a Network Rail plan but will show how Network Rail will contribute to an efficient whole industry strategy and address the reasonable requirements of its customers. Our guidance to Network Rail on the content of the SBP is summarised in the next chapter.

4.3 Under the provisions of Schedule 4A of the Railways Act 1993 (amended by Schedule 4 of the Railways Act 2005) we have four main roles:

- to determine whether each HLOS and SoFA 'match' (i.e. whether each HLOS can be delivered for the available public funding);
- if necessary, to conduct an 'iterative process' if we find that initially there is a mismatch. If we believe that there is not enough money to fund the outputs, the Secretary of State and/or Scottish Ministers will be given the opportunity to submit a revised HLOS and/or SoFA;

- if, after the iterative process, the HLOS cannot be delivered for the available public funds, to determine what part of the outputs should be delivered; and
- to determine whether the implementation of PR08 would have adverse effects on providers of train services (both passenger and freight).

Current position and the period to July 2007

4.4 The DfT and Transport Scotland are still considering the format and structure of the HLOSs and SoFAs. We currently expect the DfT to submit an HLOS covering three main areas: safety, performance and capacity. The safety metric is currently expected to be expressed as a risk index covering passengers and the workforce. Safety is a matter reserved to the UK government and will be covered for Great Britain by the Secretary of State's HLOS. The performance metric is likely to be presented as a PPM target by railway business sector (long distance services, London & South East services and regional services). The capacity metric is expected to have a number of dimensions including passenger-kms by route and peak passenger journeys into major stations.

4.5 DfT also intend to publish a longer term rail strategy in July which will set the HLOS and SoFA in a wider context.

4.6 The Scottish Executive has published *Scotland's Railways*, as part of the Scottish *National Transport Strategy*, which discusses HLOS issues. Scottish Ministers and Transport Scotland are working up their plans for the form of the Scotland HLOS.[24] The specification published in July is likely to be a core specification setting out contractual commitments and the outputs of major projects for which a ring fenced investment fund will provide funding. Later in the year, when the outcome of the spending review is known, there could be a further specification of incremental enhancements and changes. We are discussing with Transport Scotland and Network Rail how this approach can be accommodated within the timetable.

[24] *Scotland's Railways,* Scottish Executive, December 2006. This can be accessed at http://www.scotland.gov.uk/Resource/Doc/157764/0042650.pdf.

4.7 We understand that both the Secretary of State and Scottish Ministers may also specify in their HLOSs other outputs that they are prepared to fund, e.g. relating to sustainable development or investment in stations.

4.8 We have been working closely with DfT and Transport Scotland as they develop their HLOSs. Network Rail has been providing supporting information and analysis and feeding back views from its passenger and freight customers. The process between ourselves, DfT, Transport Scotland and Network Rail is being conducted in a very open and cooperative manner. All parties recognise that this is essential if the process is to be successful and the timetable met.

4.9 But there is still a considerable amount of work to be done to firm up the HLOSs and all parties will need to work together to ensure the July deadline is met.

4.10 In the period up to July we intend to continue our work on:

- providing advice to DfT and Transport Scotland. We are including commenting on draft templates for the HLOSs and SoFAs as they are developed. We are also providing specific advice to DfT on the performance part of their HLOS;
- ensuring we understand the analytical tools and data being used to develop the HLOSs and SoFAs, have access to these tools and data, and where necessary the capability to use the tools ourselves;
- agreeing with DfT and Transport Scotland what supporting information on policy assumptions, to the extent that it is not part of the HLOS, we will need;
- agreeing with Network Rail what tools/data they need to undertake their role, including what information they need from government;
- planning in more detail how the process will work post July; and
- putting the building blocks of an audit trail in place between government, Network Rail and ourselves. This will be essential to ensuring clarity of assumptions and costs during the process, so we can understand and check any changes.

Analytical tools and data

4.11 As far as possible we intend to base our role in the process on agreed and shared analytical tools. This will minimise duplication, reduce the scope for errors and speed the process through minimising inconsistencies due to differing assumptions.

4.12 DfT, Transport Scotland, Network Rail, the Rail Safety and Standards Board and ourselves have jointly developed a suite of new rail forecasting models (the network modelling framework (NMF)) to provide a basis for forecasting demand growth and the impacts on the rail system. DfT and Transport Scotland have been using the model to help develop their specifications. Network Rail plan to use it in developing their SBP. Network Rail's ICM forms part of the NMF and it is described in more detail in chapter 2.

4.13 We have developed a new financial model that models Network Rail's likely revenue requirements. We are sharing the model with Network Rail, DfT and Transport Scotland. The model uses forecast Network Rail expenditure levels as its main inputs and applies financial assumptions, including Network Rail's required rate of return and amortisation levels to these. Network Rail will provide us with a version of the model containing their assumptions in October 2007. We will update this with our own assumptions as part of the matching process.

4.14 DfT has provided us with its long term forecasting analysis. This sets out contracted franchise payments (for the years where these are known), forecasts TOC revenues and costs, models the impact of revenue share arrangements and produces TOC public sector support levels. Combining this information with Network Rail's requirements will produce total public sector support levels which we can compare to the DfT SoFA. This model will also provide us with the main assumptions underpinning the DfT's HLOS, including passenger demand forecasts and assumptions on regulated fares.

4.15 There is only one franchised passenger operator funded by Transport Scotland hence the position is simpler in Scotland. Transport Scotland will be providing us with the relevant financial data. Transport Scotland also has a specific separate funding stream to provide ring fenced funding for a defined set of major enhancement projects and Transport Scotland will provide us with their financial analysis of the planned use of this funding stream.

Policy assumptions

4.16 Until the HLOSs are finalised we will not know exactly how certain major policy decisions are to be treated. For the DfT they include decisions on whether and how proceed with the Thameslink and Crossrail enhancement schemes. Decisions on the development of the IEP and the strategy for ERTMS are relevant for DfT and Transport Scotland.

Process after July 2007

4.17 From July to October Network Rail will be in the lead in terms of developing a response to the HLOSs and we will want to work closely with them to understand how their analysis is building on the earlier work.

4.18 If an iterative process were to be needed, the approach would depend on how the HLOSs were framed. If there is an element of flexibility and prioritisation in the HLOSs then the process would not need to be based on us formally notifying government of a mismatch – instead we would be guided by preset government priorities.

4.19 As PR08 progresses we will work with the industry to identify any potential adverse effects for train operators that are likely to arise from the implementation of the review. This will enable us to determine whether we should serve a notice under paragraph 1G of Schedule 4A. Adverse effects include material financial effects. We will use our consultation documents to seek views from the industry and wider stakeholders. In the case of freight charges, we have already had extensive discussions with the industry about the possible impact if charges were increased. We have asked Network Rail to identify adverse effects arising from its SBP.

Audit trail

4.20 We have agreed with DfT, Transport Scotland and Network Rail that there will be a formal change control process for certain key parts of the analytical work to ensure consistency of approach and allow us to monitor changes.

4.21 Specifically in the case of enhancement projects to increase capacity in England and Wales, we have jointly agreed templates to describe the projects and their currently projected costs and outputs. DfT and Network Rail are populating these templates and Network Rail will update these during its work on the SBP.

Determining if the HLOSs and SoFAs match

4.22 We must decide if the HLOSs can be delivered for the public funds available. In reaching this decision we must collate all the relevant information and undertake our own analysis as necessary. We consider we must do this taking into account the need to alert government as soon as possible if we believe there may be a mismatch, to allow enough time for government to respond.

4.23 We will draw on the following information in reaching our determination:

- Network Rail's SBP;
- our view of the key assumptions on which Network Rail's required revenue forecast are based, including efficiency assumptions, activity levels (e.g. amount of track to be renewed) and the financial framework. We intend to update our work in November 2007;
- the information on franchise support costs that DfT and Transport Scotland will provide to us;
- an analysis of the risks associated with the forecasts.

4.24 In December 2007 we will draw these sources together as part of our initial assessment of whether the HLOSs and SoFAs match. In the case of Scotland, even if the process outlined above of stating incremental enhancements and changes were to be adopted, we would still need to be in a position to determine whether the overall specification and funds available matched by December. As noted above, we are discussing this with Transport Scotland.

The HLOS/SoFA process and the PR08 timetable

4.25 The timetable for the PR08 from July 2007 onwards (shown in chapter 1) is demanding and it will be essential that all parties play their role in meeting it. The HLOS related aspects of the timetable are constrained by:

- the need to allow Network Rail and the industry time to respond to the HLOS;
- the need to allow sufficient time for us to complete our work;

- consultation periods, as we consult at key stages in the process; and
- possible need for an iterative process.

4.26 After the publication of the HLOSs/SoFAs the main steps are in October when Network Rail's SBP is published, then in December when we reach our initial view on whether the HLOSs and SoFA match.

4.27 We stress that this will be an initial view because we will not reach our conclusions on Network Rail's access charges until June 2008. But we must reach an early view to allow time for any discussion and adjustment that may be necessary. Although we intend to keep to the main milestones in the PR08 process on the draft and final determinations, intermediate milestones after December 2007 will depend on whether an iterative process is necessary.

5. Guidance to Network Rail

Introduction

5.1 This chapter provides our guidance to Network Rail on what we consider it needs to do to develop a robust SBP for submission to us in October 2007.

Context

5.2 Network Rail's ISBP reflects a significant step forward in its planning capability, not least through the application of the ICM. We recognise that it represents work in progress and that there is a great deal more for Network Rail to do in order that it can submit a robust, substantiated SBP.

5.3 The scale of this further work is enormous: the ISBP makes numerous references to initiatives under way or to further work that is to be carried out. This guidance is intended to ensure that, where Network Rail needs to prioritise effort between different areas, we can agree on how this should be done. We will expect Network Rail to demonstrate how it has progressed with the commitments made in the ISBP.

5.4 We need to understand clearly how Network Rail will ensure that the SBP:

- represents Network Rail's contribution to an efficient whole industry strategy which delivers the HLOS outputs, meets customer reasonable requirements, and which commands substantial support from its industry partners;
- shows significant improvements in accuracy and robustness, especially through further development of the ICM and by application of better information than was available to inform the ISBP, both at total network level and when disaggregated on the key dimensions of funder and route type;
- provides fuller justification for the activities and expenditure set out in the plan, in particular demonstrating the effect of the proposed activities upon a full range of key outputs and how the plan represents the interests of customers and funders;

- is firmly based, as far as possible, on fully justified technical strategies and asset policies, reflecting an asset management regime that matches activity and outputs with expected use of the network and demonstrates long-term sustainability; and
- demonstrates how Network Rail is pursuing opportunities for continuing both to increase efficiency and to improve network availability, and how Network Rail has rigorously assessed the scope for this to improve the financial performance of the industry during CP4 and beyond.

Form of SBP and responding to the HLOSs and SOFAs

Form of the SBP

5.5 The SBP will be a Network Rail plan, but it must show how the company will contribute to an efficient whole industry strategy and address the reasonable requirements of its customers. Network Rail has written to its customers setting out how it expects to involve them in the route planning process which underpins this.

5.6 The plan must show how Network Rail's management and development of the network will facilitate delivery of the HLOS outputs. Relevant parts of the analysis must be presented separately to relate directly to the HLOS and SoFA for England & Wales and to those for Scotland.

5.7 It must contain full financial and other projections for Network Rail. It should include physical and, where possible, financial projections for such incremental actions but is not required to contain comprehensive whole industry financial projections.

5.8 As well as addressing the requirements set out in the HLOSs, the SBP must demonstrate how Network Rail will meet the reasonable requirements of all its customers and the needs of the market. It should identify and include self-financing enhancements and projects which are expected to be taken forward under the DfT's transport innovation fund (TIF) arrangements.

5.9 The SBP must set out Network Rail's approach to risk management and identify the main risks the company perceives to delivering its projections.

Responding to the HLOS

5.10 As described in chapter 4, the format and structure of the HLOSs are still evolving. This guidance is based on our current understanding.

5.11 For England & Wales the SBP will need to present safety and performance trajectories consistent with the HLOS. The capacity metric will have dimensions including passenger numbers by route and peak passenger journeys into major stations. The SBP will need to set out:

- how the proposed network capability, including the impact of specific infrastructure schemes, will enable the capacity specifications of the HLOS to be delivered; and
- key assumptions about actions to be taken by parties other than Network Rail, in particular concerning the nature and quantity of rolling stock to be deployed on services.

5.12 Scottish Ministers and Transport Scotland are working up their plans for the form of the Scotland HLOS, and we will discuss these with Network Rail. Network Rail must be allowed sufficient time to address any second part to the Scottish HLOS which would be published later than July. It will need to be aware of emerging thinking and options so that it is able to make a rapid response.

Specific requirements for our matching process

5.13 We understand that both the Secretary of State and Scottish Ministers plan to submit HLOSs which, at the time of submission, they believe will be affordable. However to enable any possible mismatch to be addressed quickly the SBP should also present a range of distinct options which could be adopted, individually or in combination, for reducing the CP4 public funding requirement below that in the core plan. These should be selected to reflect the views of Network Rail and its industry partners about how best to achieve maximum benefits for rail users within a constrained budget.

5.14 Network Rail should identify any adverse material financial effects which may arise for any train operator from any element of the SBP (including any variant scenarios) as it becomes aware of them, so that we can consider them and whether there may be scope for mitigation.

Beyond CP4

5.15 As in the ISBP, the SBP should provide longer term projections for at least 15 years beyond the end of CP4. These projections should:

- demonstrate that sustainable policies are being adopted (in this regard it should also identify any area of expenditure where significant changes are likely in the period beyond that covered explicitly by these projections); and
- demonstrate how proposals for CP4 are consistent with published DfT/ Transport Scotland longer term strategies.

Key assumptions and ICM modelling methodology

5.16 The SBP must clearly identify the main economic and policy assumptions underpinning it and identify what existing policy commitments have been assumed where necessary. At the time of submitting the HLOS/SoFA, DfT and Transport Scotland will provide their assumptions on the main economic inputs: the levels of forecast passenger demand and regulated fares.

5.17 Network Rail will need to use forecasts of passenger demand, for instance to project crowding levels as an input to PPM trajectories. The SBP should set out whether, and why, these demand forecasts differ from those of the DfT and Transport Scotland. It should explain the assumptions made in respect of pricing and demand management measures.

5.18 Respondents to our consultation on the ISBP claim that, on certain parts of the network such as the major metropolitan areas outside London, the ISBP demand forecasts appear to be inconsistent with current trends. Particular attention should be paid to such regional variations where they may be material.

5.19 Network Rail should take account of formal policy statements by DfT or Transport Scotland covering specific projects and programmes, whether or not these are directly incorporated into the HLOSs. Such programmes may include ERTMS and the IEP.

5.20 The ICM needs substantial development beyond the first version that provided input to the ISBP. In particular:

- it needs to show robust linkage between asset policies, work plans, network outputs and the derivation of costs;
- it needs to model geographic disaggregation of costs more accurately, in particular to provide separate and robust activity and cost information for Scotland and for the rest of the network; and
- it needs to model how activity and expenditure vary with traffic levels more accurately, so that charges can be set according to an approach agreed with us.

5.21 Network Rail is improving the model in areas including the modelling of maintenance and the treatment of unit costs, and by adding an income module. We expect shortly to have agreed a timetable and plan for model development during 2007.

Efficiency

5.22 Network Rail has identified efficiency as one of the top priority areas for further work. It is important that the SBP demonstrates how the company is pursuing opportunities for continuing to increase efficiency, and it has rigorously assessed the scope for this during CP4 and beyond.

5.23 The SBP should include a comprehensive explanation of how Network Rail has derived its assumptions on the scope for efficiency savings, covering both the magnitude of, and timing of the efficiencies. We would expect this to include a full, quantitative explanation of how the individual benchmarking and other efficiency studies undertaken by Network Rail has fed into the assumptions.

5.24 Where stakeholders have submitted evidence of efficiency improvements that they consider Network Rail should be able to achieve, the SBP should explain how it has taken these into account. Where Network Rail does not agree with these assessments it should explain fully why this is the case. Similarly, if Network Rail does not believe that it can achieve the efficiency gains implied by the upper end of our range, based on the LEK Consulting and Oxera work (referred to in chapter 3), it should set out the reasons for this.

5.25 EWS has submitted evidence to us based on a joint study with Network Rail and on consultancy work it has commissioned itself, which compare Network

Rail's track maintenance and renewals costs and practices with those in North America. The studies suggest that Network Rail could make significant and sustainable reductions to its track maintenance and renewal costs whilst not impacting on its ability to deliver improvements to performance and safety. We will examine this work in detail before concluding on its implications for efficiency assumptions.

5.26 During the course of PR08, we will continue to conduct our own investigations into the scope for Network Rail to make efficiency savings, to refine the work we commissioned from LEK Consulting and Oxera in 2005. We are undertaking a number of initiatives, including investigations into particular aspects of Network Rail's activities and policies and we are working closely with Network Rail to undertake 'top down' benchmarking of Network Rail with European rail infrastructure companies. An overview of our efficiency work is provided in appendix D.

5.27 Network Rail has argued that we should make an ex ante adjustment to our efficiency assumptions to reflect forecast divergences in its input prices from RPI. Currently, we are not minded to make such an adjustment.[25] However, we will consider this issue further during PR08, and we have asked Network Rail to provide detailed evidence in its SBP on the input price increases it faces during CP4. We will consider any robust evidence that Network Rail puts forward and if appropriate consider how best to take input prices into account in our final determinations.

Operating expenditure

5.28 Operations and operating costs are an important part of Network Rail's plan and a significant element of the overall expenditure requirement. However the ISBP contained little robust justification for the expenditure forecasts. The SBP needs to justify fully operations and operating costs forecasts. We are pleased that Network Rail has acknowledged this need and we intend to work closely with the company to improve our understanding of operating expenditure.

[25] *Periodic Review 2008: The treatment of risk and uncertainty*, Office of Rail Regulation, 28 September 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/pr08-risk-let-280906.pdf.

5.29 While evidence of past practice and expenditures is valid, it cannot be considered as sufficient justification by itself for future levels of expenditure and efficiency. The SBP therefore must be underpinned by:

- a bottom-up analysis that justifies why Network Rail needs to incur the expenditure and where the forecast expenditure is to be incurred; and
- comparison with historic expenditure and external benchmarks.

5.30 Forecasts of 'non-controllable operating costs' should reflect the underlying factors affecting these costs, why they are deemed to be non-controllable and how Network Rail has challenged them.

Other operating income

5.31 As with operating costs these forecasts should be fully justified, supported and reflect the underlying factors affecting the issue. In particular, the assumptions should be consistent with the operating cost and enhancement assumptions.

Asset management

5.32 AMCL's independent evaluation of Network Rail's asset management regime has concluded that its level of development compares well with other major infrastructure owners in the UK, that it is making good progress towards a coherent and holistic asset management regime, and that it appears to be highly motivated and committed to delivering further improvements.

5.33 We place great weight on the AMCL findings. Their report identifies further opportunities to improve Network Rail's asset management regime, potentially leading to significant revision to CP4 activity levels and expenditure as included in the ISBP. We welcome Network Rail's intention to focus on these areas to develop its CP4 plans.

5.34 AMCL advise that 'improvement to asset policies, and in particular policy justifications, is potentially one of the biggest opportunities available to Network Rail'. Although asset policies appear to be increasing consistency of decision making across the network, they do not yet demonstrate sufficiently robust justification for the timing and nature of maintenance and renewal interventions in a manner that demonstrates efficient life-cycle management. Network Rail agrees with us on the importance of this, and has provided

details of its approach to tackling it based on an 'asset criticality rating'. We welcome and support this approach.

5.35 We place particular importance on Network Rail's plans to provide a more robust and rigorously justified basis for the SBP by consideration of:

- whole life cost reduction initiatives, drawing on improved coverage of unit cost information;
- improved understanding of asset degradation and mitigation, including assessment of partial/mid-life refurbishment/heavy maintenance options;
- policy differentiation by route, taking the relevant output specifications into account; and
- a radical route based review to reduce long-term costs and improve network reliability and availability.

5.36 Network Rail should demonstrate how modelling of future activities and expenditure has been corroborated as far as possible by reference to bottom-up workbanks, and how those workbanks demonstrate decision making at all levels of the company that is consistent with the asset policies.

5.37 There also needs to be a more robust demonstration of how activity levels influence and determine the outputs delivered by the assets in terms of asset performance and condition. This is not driven solely by variations in activity volume and expenditure; it is equally influenced by the quality of work delivered. We are aware that Network Rail is taking steps to improve the overall quality of work delivery; it should demonstrate how these improvements feed back into the forecasting tools used to support the SBP. This may be more difficult to model than linking activity and outputs within forecasting models, but we believe it is a significant influence on overall expenditure requirements.

Maintenance vs. renewals

5.38 Network Rail has begun to develop route-specific, bottom-up forecasts of future maintenance activities within the ICM. This analysis needs to be extended to more activities. We also expect to see how the company has reviewed these calculations to reflect explicitly:

- the actual nature and condition of different route segments, so that the ICM models more robustly and accurately at route level;
- improvements that are being delivered in the quality of delivery of asset renewals (especially track renewals); and
- the quality of asset maintenance.

5.39 At this stage we believe there is insufficient accuracy within the modelling of future activities, at least at the levels of disaggregation that are required. Network Rail is aware that discussion of maintenance and renewal expenditure in Scotland is focusing on these very issues, and the company has provided us with its initial analysis of differences between ISBP figures and CP3 expenditure plans.

5.40 We recognise that Network Rail is addressing this, for example by carrying out route-specific reviews of track asset lives and renewals rates. We will be conducting an independent audit of this work using reporter resources.

Risk-based maintenance

5.41 The ISBP also makes important references to developing a more risk-based approach to inspection and maintenance activities. AMCL's report identifies this as 'potentially the biggest opportunity within the maintenance function to deliver more efficient and effective maintenance by eliminating uneconomic maintenance and ensuring that all risks associated with maintenance are managed on the principle of keeping risks as low as reasonably practicable'. We expect Network Rail to make significant progress with examining this, to show how it has been incorporated these into asset policies and how the effects have been quantified in the SBP projections. The company will need to include a reasoned safety assessment, and describe any necessary material changes to safety management practices. Where possible, the SBP should benchmark how these improvements compare with other relevant infrastructure owners and operators.

5.42 We have provided more detailed information to Network Rail on individual asset categories.

Enhancements

5.43 The SBP must cover the portfolio of enhancements in a way which:

- is well documented, with back-up information available on individual schemes consistent with their stage in GRIP;
- is complete, taking account of all relevant stakeholder input and aspirations;
- is consistent between types of schemes and across routes;
- takes account of interactions between schemes and with asset renewals; and
- is clear on its process and programme to develop schemes through the GRIP process.

5.44 The objectives and outputs of some schemes are not made entirely clear in the ISBP. Network Rail must ensure that the SBP takes account of all interactions and present a programme of schemes that is internally consistent and robust as a portfolio.

Delivery

Scheme development

5.45 Comparisons of the ISBP with Network Rail's refresh of its route plans raise the concern that Network Rail may not be progressing sufficient schemes, with sufficient speed, to enable them to be delivered in CP4. This may partly reflect changes in, or consultation on, customer requirements. However, a precondition of completion of enhancement schemes is that Network Rail is able to develop, define and design them in a timely manner.

5.46 Our concern at present therefore relates not only to the selection, prioritisation and cost of proposed enhancement schemes but also to the rate of progress towards clarifying a programme. Unless this accelerates, particularly over the period to the delivery of the SBP in October 2007, there is a serious risk that some parts of the emerging plan become undeliverable within CP4.

5.47 The SBP must demonstrate that Network Rail is developing schemes in a controlled manner to allow delivery of the portfolio in CP4. To this end, the company should produce a development programme showing how schemes are expected to progress through to delivery.

Possessions

5.48 The engineering access regime under which Network Rail and its contractors gain access to the network for planned maintenance, renewal and enhancement works is a key cost driver. At the time of ACR2003 there was a view that changes to this regime could significantly reduce Network Rail's costs by more productive packaging of works in longer possessions. Since then it has become clear that a key challenge is to minimise disruption to the railway's customers, to make more effective use of opportunities for engineering access and to identify the economic balance between engineering costs and the revenue earning potential of the network at route level.

5.49 This could lead to substantial reductions in the availability of engineering access, requiring methods of working faster and smarter (e.g. high output track renewals) and potentially increasing unit costs of certain engineering activities – so long as it can be demonstrated that these are outweighed by other economic benefits.

5.50 Since 2005 an industry possessions review has been examining these fundamental issues and it is beyond the scope of this document to discuss them in detail. Network Rail is leading case studies to establish how the pattern and length of possessions should vary by type of route, taking account of financial and economic impacts across the industry as a whole. It is important that train operators support and contribute to the work in these areas. The SBP will need to explain clearly:

- how Network Rail proposes to optimise the balance of engineering costs within a framework of overall industry costs and benefits, by route;
- how costs are affected by the opportunities for, and constraints upon, engineering access; and
- the implications, in quantified terms, on network availability of its proposed approach.

5.51 Another key factor examined by the industry review is improved efficiency in the utilisation of possessions. Network Rail has identified many initiatives which will contribute to this, and we commissioned international benchmarking work in the area. The SBP needs to demonstrate the projected impact of the

initiatives, and to justify the proposals in the context of international best practice.

Deliverability

5.52 Network Rail should clearly explain the work it has done to satisfy itself that the volumes of work proposed in the SBP:

- are capable of being procured and delivered; and
- represent the optimum timing and phasing of delivery, explaining especially what has been done to examine the effects on cost, operational performance and safety of any smoothing of work volumes where activity deferral is assumed.

Financial

5.53 Financial models for Scotland and England & Wales should be completed and assumptions should be shown separately in each model. The submission should be in 2006-07 prices as defined in the regulatory accounting guidelines. The plan should be prepared on a cash (as distinct from an accruals) basis. Network Rail should also provide reconciliations from the numbers in the ISBP.

5.54 The SBP should include Network Rail's total forecast income and costs. We will consult on the appropriate way of providing for tax in the consultation on detailed financial issues we will publish in August 2007. We will also discuss this with the company in due course.

5.55 Network Rail's assumption for the amortisation charges for England & Wales and Scotland should be in accordance with our decisions on amortisation published in September 2006. The assumptions on steady state renewals should be supported by engineering analysis. If part of the total amortisation charge is due to financial sustainability reasons, the company also needs to justify that assumption.

5.56 We will consult on the RAB roll forward in August 2007. In simple terms the roll forward of the RAB for England & Wales and Scotland should be in accordance with the policies used to determine ACR2003. Network Rail will therefore need to show that the treatment of regulatory issues and the accounting policies it is using to roll forward the RAB are consistent with those

used in calculating the ACR2003 allowance and the separation of access charges between England & Wales and Scotland.

5.57 Network Rail should include its assumptions on the allowed return, interest costs, financial indemnity mechanism (FIM) fee, risk buffer and the resulting ring-fenced fund. The allowed return, and its composition, is discussed further in chapter 7. Network Rail should identify and show the effects of any hedging strategies that it has in place, or intends to put in place, that have an effect after 1 April 2009.

5.58 Network Rail should aim to target the financial indicators that are being discussed as part of the work on unsupported debt. We will discuss this with the company further in due course. We will consult on the principles involved in financeability as part of our August 2007 financial issues consultation.

Form of the determination and outputs

Structure

5.59 By the end of PR08 it is essential that Network Rail and stakeholders are clear on what it is committed to delivering over the course of CP4. Our objective is that, to the greatest extent possible, this commitment should be expressed in terms of outputs rather than inputs. This approach rightly gives Network Rail the responsibility for ensuring that its plans deliver the desired outputs effectively and efficiently.

5.60 The output specification needs to contribute to establishing an appropriate incentive framework on the company and its managers, and the choice of key performance indicators (KPIs) will take this fully into account.

5.61 But the commitments cannot be simply captured by a set of KPIs. In March 2009 Network Rail will be required to submit a business plan which documents in detail how it intends to manage its business during CP4, consistent with our final determination of PR08 which will have been published the previous autumn. Our intention will be to place maximum weight on that plan as an expression of Network Rail's commitments, particularly in areas where KPIs are insufficient. We expect that this would be helpful, in particular, in tackling an area such as the expansion of capacity as required by the HLOSs. During CP4 we will monitor Network Rail's delivery against that plan. We will also agree a suitable regulated change mechanism to allow

Network Rail's plans to develop and respond to changes in its environment, while remaining within the terms of the PR08 determination.

5.62 We will be consulting further on the form of the determination and outputs during 2007-08.

Safety

5.63 The SBP should show how Network Rail plans to meet the safety requirements of the HLOSs, and should state explicitly Network Rail's strategic vision for safety and how it proposes to achieve continuous improvement in safety. It should reflect the commitments made in the ISBP to include

- costed safety-specific initiatives for each area of safety risk, showing the consequent risk reduction; and
- identification of risk reduction that results as a secondary benefit from other activities and output improvements.

5.64 It should demonstrate what assumptions Network Rail has made and how improvements in risk have been extrapolated from recent trends.

5.65 The SBP should identify where it requires or implies any material changes to the management of safety within the company during CP4 and how that will enable it to meet its obligations more effectively.

5.66 Implications for the management and measurement of safety should be included wherever the asset management regime (including policies and overall levels of expenditure) may affect safety. In the ISBP Network Rail commits to provide an SBP update on activity and cost implications in respect of policy developments. We expect this to include commentary on safety implications, showing that risks have been assessed and how they will be controlled in the adoption of any revised policies and processes.

Train service performance

5.67 Network Rail confirms in the ISBP that it is 'working with train operators to develop…plans so that further improvements can be achieved either in terms of improved reliability or additional capacity'. This is important; the industry's continued success in driving performance improvement (as explained in

chapter 2, PPM has reached 88.4%) means that the end-CP3 assumption in the ISBP now looks too conservative. Network Rail and train operators are updating the joint performance improvement plans; this should provide a basis for moving forward. The methodology used in the ISBP to project Base Case performance through CP4 is essentially sound, but the trajectories of individual parameters need to be much better substantiated and should be compared with the recent track record. Explicit consideration should be given to route-specific factors which may cause local departures from the overall trajectory. This is particularly important for Scotland, as it will be subject to its own distinct HLOS.

5.68 Network Rail will need to confirm with us how passenger service PPM should be disaggregated, to be compatible with the form of the HLOSs. We also need to agree suitable measures for freight and open access passenger train service performance.

Other dimensions of output and KPIs

5.69 Network Rail has been working on a robust definition of network capability which we will use as a baseline definition of the network which is being funded by the PR08 determination. This work needs to be completed and agreed with us.

5.70 The SBP must set out how the capacity requirements specified in the HLOSs are to be delivered. It will need to include projections for passenger train service crowding both to demonstrate this, and to identify any crowding-related performance risks.

5.71 The SBP will need to provide quantified projections for a wider range of outputs than were included in the ISBP. We will discuss the specification for these in more detail with Network Rail in the forthcoming weeks, including the level to which disaggregated indicators should be provided. Here we identify the main areas they will need to cover.

5.72 The SBP will need to include output trajectories in the following areas:

- network availability;
- asset condition/quality/reliability; and
- station standards.

5.73 As indicated in our consultation document on sustainable development, we should like Network Rail to propose, in partnership with other industry partners, suitable indicators to demonstrate how the SBP contributes to sustainable development.

5.74 We will also discuss with Network Rail how 'softer' but equally important dimensions of performance, e.g. the satisfaction expressed by its customers, should be taken into account.

Early start

5.75 Our PR08 timetable sets out that we will provide 'early start' decisions on the revenue allowance for Network Rail for the first year of CP4 (2009-10) for certain outputs. Without sufficient clarity on the required deliverables (or the allowed revenue/expenditure) the company may delay investment. We are keen to minimise the risk of this arising, to the potential detriment of customers and funders, which can also heighten uncertainty and hence costs in the supply industry.

5.76 We have asked Network Rail to propose in its SBP expenditure and outputs in the first year of CP4 (2009-10) that it considers should qualify for the early start programme. In order to qualify for consideration for early start funding the investment would have to have a defined (observable/measurable) output, have clear and agreed dates for delivery, have firm cost proposals, and have funder support (if relevant). There will be separate programmes for England & Wales and Scotland. We would closely monitor the delivery of the early start work and address any shortcomings for non-delivery.

5.77 In making any decision on early start we would have to make assumptions on the level of expenditure (including the scope for efficiency), based on our view at the time of the scope for efficiency and our review of Network Rail's proposals. Following review by us and/or the reporters, we would commit to an amount of expenditure that would be factored into the PR08 final determinations, assuming the output was delivered. The level of efficiency would not necessarily be the same as the level we finally determine. Network Rail would benefit from any outperformance and have to bear any cost overruns, within the overall framework/rules for dealing with outperformance or overspend. Because of the importance we attach to incentivising Network Rail to ensure there is no material reduction in work in 2009-10, and because

we would not be in a position to conclude on our final view on efficiency until later in PR08, we plan to adopt a more conservative approach to efficiency improvement than we would envisage doing in our final determinations.

5.78 We intend to bring forward our announcement for early start from April 2008 (in the current PR08 timetable) to February 2008 when we publish our assessment of the SBP. This would allow time to review the SBP and discuss early start proposals with Network Rail, DfT, Transport Scotland and other stakeholders. We are intending to launch a public consultation on the SBP in November 2007, immediately after its publication. We would therefore take into account consultee views on Network Rail's early start proposals in any decisions announced in February 2008.

PART B: FRAMEWORK FOR SETTING ACCESS CHARGES

6. Overall framework for setting access charges

Introduction

6.1 The purpose of part B of this document (chapters 6 – 10) is to set out our approach to setting access charges and outline our emerging views and/or provide an update on progress with work to date. The design of the framework can have a material bearing on the level of funding required, so it is particularly relevant for DfT/Transport Scotland in finalising their HLOSs/SoFAs ahead of July 2007. It is also relevant for Network Rail to understand the framework for its preparation of its SBP.

6.2 In this chapter we outline the overall price control framework. We consulted on a number of aspects of this in our September 2006 letter on the treatment of risk and uncertainty.[26] We set out our decisions on some of these issues here, in particular: the type of control, the expected length of the control period, the inflation index and the treatment of non-controllable costs. We also update the position on indexation of the price control, the use of re-openers, explain our proposal to make decisions on the 'early start' programme and discuss the form of the final determination and outputs.

How we set access charges

6.3 At a periodic review we assess the efficient level of costs that Network Rail needs to run its business (including an allowed return on its regulatory asset base). Access charges are set to recover these costs.

6.4 The company's net revenue requirement is funded through track access charges paid by TOCs and any grants paid to the company by DfT and the Scottish Executive in lieu of access charges.

6.5 The net revenue requirement is the gross requirement less other single till income (principally station charges, property income and charges paid by

[26] *Periodic review 2008: The treatment of risk and uncertainty*, Office of Rail Regulation, September 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/pr08-risk-let-280906.pdf.

open access passenger and freight operators). The calculation of the revenue requirement follows the normal building block approach outlined further below.

6.6 We stated in our September 2006 consultation on the treatment of risk and uncertainty that we will make amendments to the existing framework only where this would improve clarity and/or promote improved incentives in light of the increasing maturity of the rail industry and the financial and incentives frameworks that will be put in place for CP4. This approach received widespread support from consultation respondents.

6.7 We make our determinations based on an assessment of the overall level of efficient expenditure we consider the company requires over the control period. Whilst we derive this from review and challenge of Network Rail's own plans, and may undertake analysis of specific projects or areas of proposed expenditure, we do not decide the detailed level, or pattern, of expenditure or activity that Network Rail may ultimately need to undertake on the railway in order to deliver the required outputs. It is for the company to define and deliver its workbanks consistent with its asset policies, actual asset condition and requirements on the network.

Building block methodology

6.8 As a general approach we will use the standard building block methodology as the basis for determining Network Rail's revenue requirement and access charges. This is the same approach that we used in ACR2003 to determine the access charges for the current control period. It is also generally the approach adopted by other UK economic regulators (e.g. Ofwat and Ofgem). The methodology is illustrated in figure 6.1.

6.9 The key features of the building block methodology are that:

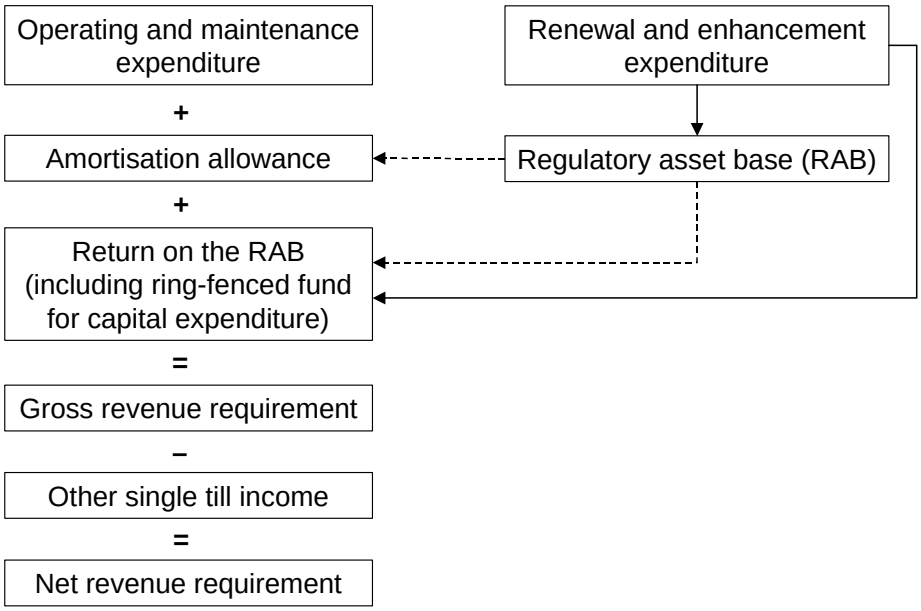
- projected operating and maintenance expenditure is determined for each year of the control period and recovered on a 'pay-as-you-go' basis (i.e. the revenue requirement with respect to operating and maintenance expenditure equals projected expenditure);

- capital expenditure ('capex'), on renewals and enhancements, is either added to the RAB in the year in which it is incurred or, in CP4, remunerated in the year on a pay-as-you-go basis through the ring-fenced fund or risk buffer elements of the allowed return (described further in

chapter 7). Where capex is added to the RAB, the actual expenditure in the control period on renewals and enhancements is financed through the amortisation allowance or, where renewals and enhancements exceed the amortisation allowance, through borrowing for the excess. The company receives the revenue to repay its debt principal and interest charges through, respectively, the amortisation allowance and the allowed return on the RAB; and

- the return on the RAB covers the interest payments that the company needs to make to its creditors, a 'risk buffer' to deal with cost and revenue shocks during the control period, and, in CP4, the ring-fenced fund, as summarised above and explained in more detail in chapter 7.

Figure 6.1: Building block framework



6.10 The above description outlines the standard building block methodology which we have used to derive the net revenue requirement in this document. Whilst we intend to retain this general approach for CP4, we will discuss detailed issues in our August 2007 letter on financial issues.

Form and duration of the price control

6.11 We consulted on the form and duration of the price control as part of our September 2006 risk and uncertainty consultation. We will retain the current

hybrid revenue/price cap form of incentive based regulation. Under this model the larger share of Network Rail's revenue requirement, recovered through the fixed charges (or grants in lieu of charges), is based on a revenue cap, i.e. the revenue that Network Rail can earn is fixed for the duration of the control period (except if there are increments or decrements and subject to the specific approach to the treatment of inflation, discussed further below). The remaining share of the revenue requirement, recovered through variable charges, is subject to a price cap which establishes caps on individual charges (e.g. the individual charges for passenger and freight vehicles in the price lists) but does not impose a limit on the level of revenue that Network Rail can earn: it will fluctuate with actual demand. We consider that this achieves the appropriate balance between providing certainty of funding to the company and appropriate incentives on industry parties. This proposal has received widespread support from stakeholders.

6.12 We intend to retain the current five-year control period, in line with most other UK regulators, on the basis that it is a long enough period to provide appropriate incentives on Network Rail and certainty for customers and funders but also short enough to reflect the difficulties in forecasting costs and revenues over long time horizons. Again, this approach has received strong support from stakeholders.

Dual till versus single till

6.13 In common with other economic regulators we use a 'single till' approach to setting a price control on Network Rail's regulated activities. Under this approach, by netting off the income that the firm is likely to earn on unregulated activities (such as commercial property income), the regulator will then arrive at an estimate of the income that the firm requires from its regulated services if, overall, it is to earn a normal level of return.

6.14 We have reviewed whether or not the current single till model provides the most appropriate incentives on the company. In particular, we have considered:

- whether further disaggregation of the current price cap is warranted, such as greater geographic disaggregation;

- whether separate price controls should be established for different elements of Network Rail's operations, such as commercial property, or a separation of stations and track; and
- whether the current treatment of commercial property income incentivises Network Rail to maximise its revenue from commercial property activities.

6.15 Ensuring cost-reflective charging does not require the creation of separate tills or price controls. However, we consider that there may be situations where separately identifying (and reporting) elements of Network Rail's revenue requirement helps to reinforce our commitment to avoid cross-subsidies in the future, for example in relation to commercial property income.

6.16 We do not consider that there is a case at present for creating separate railway and commercial tills given our statutory duties. There is a risk that such a dual till approach would increase Network Rail's short-term revenue requirement and hence increase the cost to funders, without material benefit to the industry. We believe that our focus should instead be on maximising the benefit that flows to the railway as a result of Network Rail's commercial activities. We therefore intend to consider whether the incentives on Network Rail to maximise its unregulated income from commercial property should be strengthened. This could reduce the call on government funds (subject to the restrictions in its network licence on the disposal of land).

6.17 We believe it is critically important that Network Rail collects accurate, audited information on the costs and revenues attributable to each of its key activities, including stations and commercial property. As well as improving the transparency of each of the current building blocks, this will enable cost-reflective charging (in line with the our charging objectives discussed in chapter 9).

Treatment of inflation and indexation

6.18 Our September 2006 consultation stated that we intended to continue to protect Network Rail from general inflation risk. However, we did acknowledge that indexing Network Rail's revenues in this way does leave government with budgetary uncertainty with regard to the funding it provides each year. Given inherent uncertainty over the future level of inflation it is impossible for government to know what the exact funding requirement will be in each year of CP4.

6.19 One way of reducing government's budgetary uncertainty would be to include an ex ante inflation assumption in our determination of allowed revenue and then log up/down any differences between this assumption and actual inflation. These differences would then be taken into consideration at the next periodic review. However, because of the way in which government protects franchised train operating companies from changes in the real level of charges, such an approach is only likely to provide greater overall budgetary certainty for government in relation to the element of Network Rail revenues paid through direct government grants because government would still receive/pay the difference through the franchise agreements with TOCs.

6.20 The DfT and Transport Scotland responses to our September 2006 consultation indicated that they would prefer us to use the ex ante approach with a logging up/down mechanism. Network Rail has indicated that they would prefer to retain the present arrangement.

6.21 We will be discussing this issue further with government and Network Rail. We will consider the most appropriate balance of risk exposure and base our decision on our statutory duties. We intend to confirm our decision in our letter on financial issues in August 2007.

Inflation index

6.22 We have also considered whether there is merit in indexing Network Rail's allowed revenues to an alternative index to the all items retail price index (RPI) and/or providing the company with greater protection for any specific input price inflation that it may face (over and above the index used).

6.23 Most respondents to our consultation preferred to continue to use RPI to index Network Rail's allowed revenues, although one respondent wanted us to investigate further using the harmonised index of consumer prices (CPI). In our view, the use of the CPI is unlikely to provide a more accurate index for measuring the inflationary effects on Network Rail, while we believe there are a number of advantages to retaining RPI, including regulatory consistency (both over time and across UK regulators), the familiarity of the index and the inherent link between the allowed return and RPI.[27] We therefore propose to

[27] The allowed return is typically calculated as a risk premium over the risk-free rate. The risk-free rate, in turn, tends to be referenced against index-linked gilts, which are linked to RPI.

continue to use RPI to adjust Network Rail's allowed revenues, whether this is in the year concerned or as part of a logging up/down mechanism.

6.24 With regards input price inflation, respondents to our consultation generally agreed with us that Network Rail is best placed to, and should, manage input price inflation. As we outlined in our consultation, in practice it is difficult to separate the management of input price risk from other aspects of the management of a company's cost base. Network Rail is also able, to some extent, to predict and manage inflationary pressures.

6.25 We have asked Network Rail to provide to us, as part of its October 2007 SBP, an up-to-date analysis of the input price pressures they expect to face in CP4. Our final approach to the treatment of input prices will depend on the materiality and controllability of the input price inflation faced. However, our current view is that input price risk (net of general inflation) should remain with Network Rail. The risk would be capped by the general price control re-opener provisions (discussed below).

Separate price controls

6.26 We are providing separate price controls in CP4 for Network Rail's activities in both England & Wales and Scotland. By separate price controls we broadly mean:

- separate determinations of the revenue requirement and outputs for England & Wales and Scotland (in the context of the separate HLOSs and SoFAs);
- separate determination of access charges;
- separate provisions for dealing with risk and uncertainty in the price control, e.g. re-openers;
- separate monitoring and enforcement of Network Rail's overall performance; and
- ensuring that outperformance or underperformance is ultimately retained or borne entirely separately.

6.27 In our December 2005 conclusions document on the approach to regulation in Scotland, we identified that a key principle underpinning the new price control

framework with separate price controls for England & Wales and Scotland is that the funding requirements will be based on Network Rail's financial performance within England & Wales and Scotland respectively.[28] This is consistent with the agreement reached in the devolution for rail strategy and funding in Scotland from the Secretary of State to Scottish Ministers.

6.28 The overall principle was that England & Wales and Scotland should bear the costs/risks, of a separate price control. Therefore, in order to ensure a separate price control, we are using a general principle in CP4 that customers and funders in England & Wales and Scotland should bear the total cost (including financial effects) of the activities that will be proposed for both countries through the HLOSs.

6.29 When applying the above principle to the disaggregation of financial issues between England & Wales and Scotland (e.g. tax), there are three main options for calculating the cost:

- on a GB basis and allocating it between England & Wales and Scotland using a simple metric, e.g. in proportion to the notional separate RABs. This is a simple method but is unlikely to be wholly cost reflective;
- for England & Wales and Scotland on a stand-alone basis. This method may actually produce a sum different to that calculated on a GB only basis; and
- at a GB level but allocating it to England & Wales and Scotland taking account of their notional financial position. This is by definition subjective but would allow a more pragmatic approach to be taken in relation to some issues.

6.30 We consider that the third approach is the best way of disaggregating financial issues. It is more pragmatic than the second approach and avoids the lack of cost reflectivity of the first approach. Adopting this approach will require disaggregated notional information to be produced in relation to financial issues such as debt and tax.

[28] *ORR's approach to regulation in Scotland: Conclusions*, Office of Rail Regulation, December 2005. http://www.rail-reg.gov.uk/upload/pdf/267.pdf.

6.31 Whilst we are establishing separate price controls for Network Rail's activities in England & Wales and Scotland, we recognise that Network Rail is a GB-wide company and finances itself on this basis. It is also important to note that our proposals do not require Network Rail to establish separate finance companies for England & Wales and Scotland.

The use of re-openers

6.32 Our September 2006 consultation considered the issue of the re-openers that can protect Network Rail against exogenous events that result in exceptional changes (either up or down) in costs (or revenue) within the control period. Re-opener provisions are necessary, because providing Network Rail with a surplus within its revenue requirement at the outset of CP4 that is sufficient to cover all possible risk is unlikely to represent value for money.

6.33 There are a number of re-opener provisions in place in CP3, which are included in Part 7 of Schedule 7 of each operator's track access contract. The key re-openers in franchised operators contracts permit an interim access charges review if there has been a 'material change in the circumstances of Network Rail' or if, after April 2006, there has been a deviation in Network Rail's cumulative expenditure (up or down) by more than 15% compared to the ACR2003 final determination. In common with other economic regulators and in line with the existing approach, we will retain re-opener provisions in CP4 to trigger an interim review of access charges in the event of exceptional changes in cost beyond Network Rail's control. Generally, the responses to our consultation were supportive of this general approach and most respondents also favoured retaining both a general re-opener based on a defined level of expenditure (deviation) and one related to a material change in circumstances.

6.34 The intention of introducing both types of re-opener for ACR2003 was to cover risks that had an immediate financial effect on the company and also to cover those risks that possibly did not have such an immediate effect, for example a change in circumstances that affected the ability of Network Rail to raise finance.

6.35 There is a disadvantage of a re-opener based on a specific deviation from the regulatory determination, in that it provides the company with an incentive to either overspend deliberately or hold off on efficiency improvements when it is

close to the re-opener level. However, it may be that this could be overcome with an appropriately structured re-opener. In any case, the re-opener only triggers a possible interim review and if such a review takes place we would consider the impact of the change on efficient expenditure.

6.36 As discussed above, PR08 will establish separate price controls for England & Wales and Scotland. Further to our September 2006 consultation, we will establish separate re-openers for both England & Wales and Scotland in CP4. We intend to base them on the same underlying principles.

6.37 We will conclude later in PR08 whether the general re-opener arrangements should be based on a 'material change of circumstances' type approach, be based on an defined level of expenditure deviation or a combination of the two methods as at present. This will also include the definition of the detailed re-opener provisions. We will do this in conjunction with the development of the overall financial framework since there are close relationships between the level of re-openers and the financial framework, for instance the level of the 'risk buffer' that is built in to the rate of return and the working of the re-opener provisions in England & Wales and Scotland (this is discussed further in chapter 7).

6.38 There are also currently a number of specific re-openers in Schedule 7 of the franchised passenger operators' track access contracts. These generally relate to specific policy initiatives or expenditure items outstanding from ACR2003. We will also review these in PR08.

Non-controllable costs

6.39 Some of Network Rail's operating costs are defined as 'non-controllable', i.e. it is assumed that the company is unable materially to influence the level of the expenditure. In CP3, around 5% of the company's projected expenditure is non-controllable, including traction electricity expenditure, cumulo rates, and British Transport Police costs.

6.40 We discussed the treatment of non-controllable expenditure in our September 2006 consultation. We said that it may not be appropriate for Network Rail to bear the risks where the uncertainty surrounding the level of these costs is material. The consultation suggested different ways of dealing with the risks associated with these costs:

- assuming an ex ante level and then, recognising that there is upside as well as downside risk to Network Rail, leave the risk with the company;
- using an automatic pass-through of the costs to Network Rail's customers and funders; or
- assuming an ex ante forecast in CP4's allowed revenue and log up/down any variations from this level for consideration at the next periodic review.

6.41 In CP3 the first approach was adopted where we made an assumption of the level of these costs and Network Rail bears the impact of higher or lower levels (subject to the re-openers). This applies for all the non-controllable costs apart from traction electricity where a combination of pass through and an ex ante allowance is used. Most respondents favoured the third approach.

6.42 Although we define these costs as being non-controllable, in practice Network Rail has some control over some aspects of these costs. This could for instance be at a point in time, e.g. cumulo rates. Therefore, we need to ensure the right incentives are in place for Network Rail to manage these costs efficiently.

6.43 Our proposed approach to dealing with these costs in CP4 is to use a combination of all the options outlined above, depending on how controllable the cost is. This is a more targeted approach than we used in ACR2003. The detail of this is set out in annex E.

7. Financial framework

Introduction

7.1 In our July 2006 consultation document on the incentive framework we examined the efficacy of incentives currently facing Network Rail and consulted on ways in which these could be strengthened.[29] We focused particularly on strengthening the financial incentives faced at the corporate level. We set out a number of options for amending the high-level financial framework with a view to improving the incentives on the company to strive for continuous improvements in performance and efficiency.

7.2 In this chapter, we set out our decisions on the appropriate high-level financial framework for Network Rail in CP4. These include the methodology for disaggregating the framework for England and Wales and Scotland, and the approach to be used in establishing Network Rail's allowed return.

7.3 In developing our decisions, we have taken into account the views of stakeholders. In particular, we have worked closely with Network Rail, DfT and Transport Scotland in an attempt to establish a financial framework that meets our objectives whilst also considering the requirements of others (for instance government's desire for budgetary certainty over CP4).

Background

7.4 In July 2006 we concluded that, although there remains a role for corporate financial incentives for Network Rail, this role is materially weakened by the current financial structure. The weaknesses stem from, in particular, the company's status as a company limited by guarantee (CLG) and the existence of the full faith and credit government guarantee of Network Rail's debt (the FIM). The importance of incentives on management, in particular the management incentive plan (MIP) and high profile and extensive public reporting of Network Rail's performance, is therefore increased.

[29] *Periodic Review 2008: Enhancing Incentives for Continuous Improvements in Performance: A Consultation Paper*, Office of Rail Regulation, July 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/298.pdf.

7.5 We will be considering with Network Rail, in particular, how the MIP could be strengthened going forward in light of the new financial framework for the company and the need to strengthen further Network Rail's customer responsiveness. However, as we stated in July, we see considerable merit in bolstering financial incentives at the corporate level by Network Rail reducing its reliance on the FIM and raising unsupported debt. We set out various options for doing this in our consultation document, emphasising that the final decision would need to incorporate a full analysis of both the practicalities and value for money.

7.6 On the allowed rate of return, we stated that we believe that providing Network Rail with an allowed return that reflects its risk adjusted cost of capital should encourage it to invest efficiently, achieve the appropriate balance between maintenance and renewals, and ensure a level playing field for the delivery of enhancements. It should also enable the company to maintain financial ratios sufficient for it to raise debt unsupported by government at a reasonable price.

7.7 Following subsequent detailed discussions with Network Rail, DfT and Transport Scotland, together with advice from consultants, we have developed and refined our proposed approach. We believe that our resultant conclusions on the high-level financial framework for Network Rail in CP4, which are set out below, will strengthen the existing incentives on the company to strive for continuous improvements in performance and efficiency.

The high-level financial framework for CP4

7.8 We support Network Rail's intention that the use of the FIM will be restricted so that it can only be used to refinance existing debt. Any additional debt will therefore need to be raised on an unsupported basis. Raising unsupported debt represents a key milestone in Network Rail's progress towards financial independence.

7.9 Network Rail will also be required to pay to DfT, as provider of the FIM, a fee that reflects the value of the credit quality received as a result of the guarantee. Based on recent market evidence on the rates charged for

guaranteeing corporate debt,[30] our current assumption is that this fee should be fixed at around 50 basis points[31] on the value of the nominal value of outstanding FIM-backed debt for the duration of CP4. However, we intend to discuss this issue further with DfT and Network Rail before finalising the appropriate fee.

7.10 Network Rail will be provided with an allowed return that reflects its risk-adjusted cost of capital. On an ex ante basis this will provide Network Rail with a financial surplus (i.e. the return will be greater than the company's financing costs). A key advantage of Network Rail's CLG structure is that any surpluses realised by the company remain in the industry. However, it is crucial that these surpluses are used efficiently and benefit funders and customers. The allowed return over and above Network Rail's financing costs will therefore be split into two components:

- **Risk buffer**: As we stated in our initial consultation on Network Rail's financial framework in December 2005,[32] we believe that Network Rail should be provided with a risk buffer to enable it to manage business risk and normal fluctuations in cash flow effectively. Based on analysis conducted for us by Oxera and preliminary consideration of Network Rail's likely balance sheet buffer, we anticipate that the company will require around £150 million - £250 million per annum for this.[33] To the extent that Network Rail does not use this risk buffer to meet fluctuations in cash flow, it will have discretion over its use, subject to agreed principles. These principles have yet to be fully determined, but will need to take into consideration whole industry benefits.

- **Ring-fenced investment fund**: The residual surplus will then be channelled into a ring-fenced investment fund. In all but instances of

[30] We have relied primarily on the rates that monoline insurers have recently charged to wrap BBB/A debt to AAA corporate, plus data on the margin above AAA corporate that Network Rail's FIM-backed debt tends to trade.

[31] A basis point is one hundredth of a percentage point (0.01%).

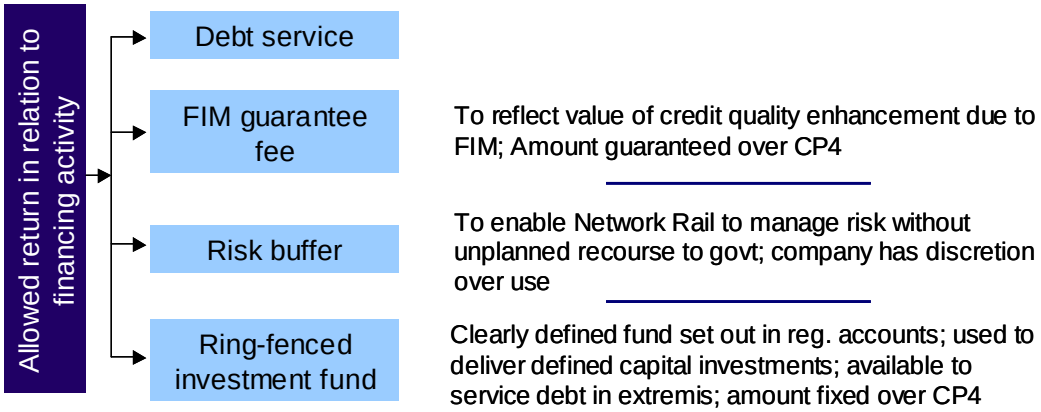
[32] *Periodic Review 2008: Initial assessment of Network Rail's CP4 revenue requirement and consultation on the financial framework*, Office of Rail Regulation, December 2005. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/264.pdf.

[33] *What is the necessary margin for Network Rail to accommodate risk?*, Oxera, October 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/pr08-isbp-oxera.pdf.

extreme underperformance by Network Rail, this fund will be used to deliver defined enhancements or, in some circumstances, renewals. The company would only have the ability to draw on the fund for other purposes 'in extremis'. The criteria here need to be defined carefully if the incentive properties are to provide value for money. However, the key principle is that Network Rail would only be able to draw on the fund for other purposes where underperformance is such that it is unable to service its debt even once the risk buffer (and any accumulated risk buffer / other surpluses) have been drawn down. In addition, flows into and out of the fund and its expected versus actual usage will need to be set out explicitly in the regulatory accounts in order to make any outperformance or underperformance by Network Rail transparent. We will be working up appropriate rules during the course of the next year, considering carefully the interaction with re-opener provisions.

7.11 Figure 7.1 illustrates this approach.

Figure 7.1: Allocation of the allowed return



7.12 Although the capital investments to be funded out of the ring-fenced investment fund are technically at risk of delay or non-delivery in the event of severe underperformance by Network Rail, it is important to recognise that this risk is no greater than under an approach to the financial framework that provides Network Rail with a return that reflects only its debt service costs plus a risk buffer. We consider however, that our intended approach provides better incentives.

Improving incentives

7.13 This approach has been agreed in principle with Network Rail, DfT and Transport Scotland.

7.14 We believe that it will strengthen the transmission mechanism for corporate financial incentives and that Network Rail could therefore be expected to face stronger incentives at least to meet its regulatory targets and assumptions. This is because:

- Network Rail would face a hard budget constraint as the terms on which it is able to access finance – and therefore its ability to do so – will be determined by its performance. Underperformance would reduce the company's reputation and could adversely affect the company's cash flow, making finance more expensive and so reducing its ability to raise funds; and

- the monitoring role of creditors would be restored. Unsupported lenders would stand to lose both their interest and principal in the event that Network Rail's financial performance deteriorated sufficiently. They would therefore face strong incentives to monitor the company's financial performance and, specifically, its ability to service its debt. Credit rating agencies could also increasingly be expected to scrutinise the company's performance as the volume of unsupported debt rises and a secondary market in that debt develops.

7.15 The existence of unsupported debt, and therefore the greater possibility of default, heightens reputational incentives on Network Rail's managers to live within its budget so as to avoid the personal embarrassment associated with default.

7.16 Incentives to outperform the regulatory target, however, would be largely unchanged versus the status quo as lenders have no share, and therefore no interest, in any upside resulting from outperformance. Hence the importance of reputational incentives on management.

Assessing value for money

7.17 Analysis conducted for us by NERA suggests that there is a link between a regulated company's financial structure and the speed at which it achieves

improvements in cost efficiency.[34] In particular, the evidence suggests that the existence of a significant tranche of risk capital (say above £0.5 billion for a company the size of Network Rail) increases the rate at which efficiencies are realised due to the enhanced incentive properties.

7.18 Provided that Network Rail raising unsupported debt really does transfer risk to lenders and that the allowed return is set appropriately, we believe that the approach set out above will improve the incentives the company faces to strive for greater cost efficiency. This will provide us with more confidence that Network Rail would meet any given reasonable efficiency target, enabling us to set a higher efficiency target than under the status quo.

7.19 Even a modest rise in the efficiency target we are able to set for CP4 could be expected to result in savings that would more than offset the additional costs of unsupported debt. We are therefore strongly of the view that our proposals offer value for money, even within CP4.

Dealing with overspend and disaggregating the high-level financial framework

7.20 If Network Rail meets or exceeds the regulatory assumptions in CP4, all specified outputs will be delivered, including those in the ring-fenced investment fund. In addition, Network Rail will have built up a surplus in relation to any unused risk buffer. We will develop with Network Rail, DfT and Transport Scotland proposed criteria for the use of these surpluses, taking into consideration how best whole industry benefits can be achieved.

7.21 In the event that Network Rail underperforms the regulatory assumptions due to inefficiency, it will first use its risk buffer (and any accumulated unspent surpluses, e.g. relating to earlier in the period). Should this be insufficient to accommodate overspend it would then draw on its balance sheet buffer. In other words, we would expect Network Rail to raise additional unsupported debt. However, the extent it is able to do this is likely to be limited as it will depend on the willingness of the financial markets to continue to lend to Network Rail at reasonable rates.

[34] *Corporate Form, Financial Guarantees, and Efficiency Performance: Expectations and Evidence*, NERA, December 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/pr08-isbp-nera.pdf.

7.22 In the event of severe underperformance, where the combination of the risk buffer and balance sheet buffer are insufficient, Network Rail would be able to draw on the ring-fenced investment fund to service debt. This would mean that some or all of the outputs in the ring-fenced fund would be at risk of delay or non-delivery i.e. the investments that the funds were supposed to buy will not be bought.

7.23 The precise circumstances in which the company will be able to do this will be carefully defined and any such drawdown would be fully transparent. We also intend to put in place an 'early warning mechanism', whereby we are alerted to a potential call on the ring-fenced fund to service debt ahead of time. This will enable us to assess the efficiency or otherwise of Network Rail's overspend and, if necessary, require that the company adopts a recovery plan. It does not imply that the company will receive additional funding.

7.24 Importantly, efficiently incurred overspend should not trigger a call on the ring-fenced investment fund to service debt. We stated in our September consultation letter on the treatment of risk and uncertainty that Network Rail should be funded for any efficient overspend, either via logging up mechanisms or via a re-opener provision.

Disaggregation

7.25 Within the framework for dealing with Network Rail overspend outlined above, it is important that the way in which this disaggregates for England & Wales and Scotland is clearly set out and is consistent with our policy framework for disaggregating the regulatory determination as a whole[35]. It is important to be able to account separately for the relative performance in each geographic area. Indeed, this is a fundamental tenet of our policy framework.

7.26 DfT and Transport Scotland have expressed a preference for an approach to this disaggregation that we believe is consistent with our overall policy framework. We have yet to assess fully the practicality of the approach (in particular the separation of the balance sheet buffer that it would require), but intend to adopt the methodology outlined below subject to it being practicable.

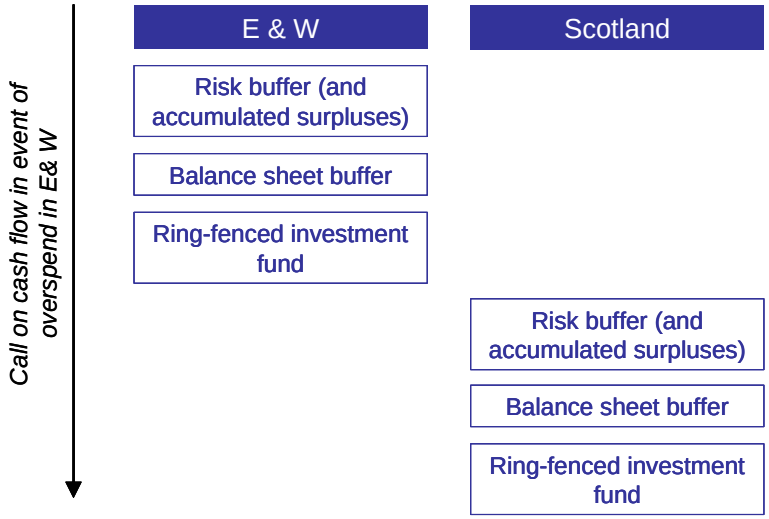
[35] *ORR's approach to regulation in Scotland: Conclusions*, Office of Rail Regulation, December 2005. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/267.pdf.

7.27 Government's preferred approach involves notionally splitting the risk buffer, accumulated surpluses, balance sheet buffer and ring-fenced investment fund into a Scotland portion and an England & Wales portion.

7.28 In the event of overspend in one of the two geographic areas, the funds notionally allocated to the area in which the overspend is occurring would be fully exhausted before any of the funds notionally allocated to the other area are drawn upon. Figure 7.2 illustrates this for the case where Network Rail is overspending in England & Wales but at least meeting the regulatory assumptions in Scotland.

7.29 To the extent that overspend in one area, say England & Wales, results in the notional funds for the other area, here Scotland, being drawn upon, we would expect to take this into account at the next periodic review.

Figure 7.2: Disaggregation of the high-level financial framework – overspend in England & Wales



Establishing Network Rail's allowed return

7.30 As stated above, we intend to provide Network Rail with an allowed return for CP4 that reflects its risk-adjusted cost of capital.

7.31 We have not yet undertaken any detailed analysis of the appropriate allowed return. In assessing the overall revenue allowance we have used a range of 4.0%-4.75% (real, vanilla[36]) based on recent regulatory precedent and

[36] A vanilla return is a pre-tax cost of debt and a post-tax cost of equity (i.e. it excludes any tax adjustment to the cost of debt or cost of equity).

evidence of the rates achieved recently in the debt market by regulated utilities.

7.32 Based on preliminary credit ratings advice, we believe that an allowed return in this range would currently enable Network Rail to achieve a firm investment grade credit rating.

7.33 However, we intend to conduct a full analysis ahead of publishing our draft conclusions in June 2008. In line with regulatory best practice, this will involve examining the market evidence on financing costs for Network Rail based on a notional capital structure, and cross-checking the resultant financial ratios against those required to achieve a firm investment grade credit rating.

7.34 In order to ensure that Network Rail faces a hard budget constraint and is not able to make easy windfall gains by beating the regulatory financial assumptions, we intend to take the following approach to determining the cost of debt within the overall cost of capital. We will take into consideration the type of financing strategy that an efficiently financed regulated utility could be expected to have in place based on historic, present and forward looking market conditions. In particular, we will consider evidence on the extent to which other regulated utilities have taken advantage of the recent bond market conditions.

7.35 In line with our policy for disaggregating the regulatory determination as a whole into a Scotland portion and an England and Wales portion, we will consider whether there is a rationale for the allowed return to be different in the two regions. Any difference would reflect the difference in the risk profile of Network Rail's business in each area. This would not affect the way in which we expect Network Rail to finance itself, i.e. as a single GB-wide business entity.

Indexing the cost of debt

7.36 In our September 2006 consultation on the treatment of risk and uncertainty, we consulted on the possibility of indexing a part of the allowed return to a pre-determined benchmark. This would have the effect of reducing the level of interest rate risk facing Network Rail, and therefore enable us to take a less cautious approach to setting the allowed return. We set out two alternative approaches for doing this.

7.37 The second approach, whereby we provide Network Rail with an allowed return based on a cost of debt towards the bottom end of the estimated range for the cost of debt and then log up/down any differences between this rate and a pre-defined debt market benchmark for consideration at the next periodic review, received support from respondents.[37]

7.38 As noted in our consultation letter, there are a number of practical issues to be addressed if such an approach is to be adopted; not least the definition of the benchmark. However, we believe that there is merit in exploring fully whether the approach is practicable, and intend to conduct a full analysis in the coming months.

Amortisation

7.39 Our letter in September 2006 on the approach to amortisation confirmed that our policy for CP4 is to base the amortisation charge on long-run steady state renewals.[38] The letter also raised the issue of non-capex additions to the RAB that have been made since 1 April 2004.

7.40 We have started to consider how we determine the detailed approach to deriving the amortisation charge using steady state renewals. Some of the issues we need to consider are:

- the period of time that should be used as a proxy for the long-run period;
- the starting point for the cycle – i.e. should we take account of historical expenditure;
- the forecasts that we should use for Network Rail's renewals activity levels – an issue here is how reliable the long term forecasts are; and
- the efficiency assumptions we should use.

7.41 We intend to discuss these issues further in a letter on financial issues that we will publish in August 2007.

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[37] Responses can be accessed at http://www.rail-reg.gov.uk/server/show/ConWebDoc.8512.

[38] *Approach to the amortisation of Network Rail's regulatory asset base*, Office of Rail Regulation, September 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/pr08-amortisation-let-290906.pdf.

8. Incentives framework

Introduction

8.1 This chapter discusses the work to develop the CP4 incentives framework.

Background

8.2 In July 2006, we consulted on the overarching incentives framework for Network Rail for CP4.[39] Our aim is to establish a regulatory framework that reinforces the incentives on Network Rail to perform well each of its wide-ranging roles, to forge partnerships with passenger (both franchised and open access) and freight train operating companies as well as other industry parties to improve whole industry outcomes, and to allow for the appropriate balance between its various objectives to be achieved.[40] As we stated in July, we believe that this can best be achieved if:

- Network Rail and its partners face strong, consistent and continuous incentives that are aligned with the needs of users of the railway, and the objectives and priorities of government and other funders;
- within an overall strategy set by government and other funders, and recognising the benefits of the railway as a network, wherever possible and practical decision making is decentralised to empower the private sector and other local enterprises to make decisions in accordance with market needs;
- industry participants face appropriate price/cost signals;
- market mechanisms and competition are fostered;
- Network Rail and other industry players are subject to effective accountability through safety and economic regulation in the public interest; and

[39] *Enhancing Incentives for Continuous Improvements in Performance*, Office of Rail Regulation, July 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/298.pdf.

[40] Our detailed objectives are set out in chapter 2 of our consultation document.

- the industry takes an active role in developing the arrangements that underpin successful delivery.

8.3 Ensuring Network Rail and its partners face appropriate and well-aligned incentives is therefore at the heart of our regulatory approach. This chapter focuses on how best this can be achieved, recognising that no fundamental changes to the industry structure are envisaged and within the structure set out in *The Future of Rail* White Paper.[41]

8.4 We recognise that, as the regulator, we only have certain levers to facilitate change, and that other parties will have to be persuaded in respect of the desirability of changes where we do not have the levers, if these are considered appropriate.

Constraints identified under the existing framework

8.5 The fundamental issue that we identified in our July consultation is the lack of correspondence between whole industry costs and whole industry revenues, resulting from misalignments in incentives between industry players and the pubic interest. In particular, Network Rail faces only limited exposure to variations in operators' revenues, and franchised TOCs are insulated from changes in Network Rail's cost base and the structure of access charges, at least during the life of their franchise contracts. As a result, we believe that:

- Network Rail faces weak incentives to grow and develop the network even where this would result in revenue growth;
- TOCs face weak financial incentives to exert pressure on Network Rail to reduce its costs; and
- TOCs' incentives and freedom to optimise network usage are limited.

8.6 We therefore consulted on four main issues:

- incentivising Network Rail to grow and develop the network;
- 'fine tuning' the HLOSs;
- increasing TOC pressure on Network Rail to improve efficiency, and

[41] *The Future of Rail*, Cm 6233, DfT, July 2004. This can be accessed at http://www.dft.gov.uk/about/strategy/whitepapers/rail/thefutureofrailwhitepapercm6233.

- encouraging TOCs to innovate in their service delivery;

8.7 We set out and discussed the options we identified for addressing these misalignments within the existing industry structure and regulatory framework. Our initial proposals were generally welcomed by the industry. Below, we set out below our emerging views and intended next steps.

Incentivising Network Rail to grow and develop the network

8.8 As outlined in chapter 5, our intention for CP4 is to specify Network Rail's required outputs in terms of final outputs, such as specific capability and network availability requirements, rather than inputs. Consequently, Network Rail should face strong financial and reputational incentives to accommodate the volume growth envisaged in its regulatory settlement. Nevertheless, we stated in July that there might be a rationale for providing the company with an additional incentive to accommodate volume growth, and potentially to over/under deliver against the level expected in the regulatory settlement in light of emerging demand.

8.9 Consultation respondents generally supported the provision of an additional volume incentive on Network Rail, though there is no consensus on the form that this should take. There also appears to be general agreement with the concept of incentivising Network Rail to meet actual rather than forecast demand, but some had concerns with the practicalities. In particular, there is concern that such an approach may raise risks of over-reaction to temporary surges / dips in demand, potentially resulting in sub-optimal investment in the network. In addition, the long lead time associated with infrastructure schemes means it is difficult to make rapid adjustments to capacity.

8.10 Following the consultation process and subsequent discussions with stakeholders, we believe there is merit in providing Network Rail with a volume incentive in CP4. This should incentivise the company to meet actual rather than forecast volume growth in the most efficient way, which could include non-capital-intensive solutions (such as timetabling) where actual demand exceeds that envisaged in the regulatory settlement. Under-delivery of envisaged demand should not be incentivised; neither should the delivery of enhancements to the network specifically funded through the determination be subject to the incentive mechanism.

8.11 As set out in our consultation document, there are a number of forms that such an incentive could take. We intend to explore the various options further with stakeholders, with a view to developing a detailed proposal for the form of the volume incentive. We will then publish our emerging conclusions on the detailed form of the incentive in our draft determinations in June 2008, providing an update on our thinking in February 2008.

'Fine tuning' the HLOSs

8.12 Related to the issue of a volume incentive is whether Network Rail should be encouraged to engage with its partners to 'fine tune' the regulatory settlement and the delivery of the HLOSs in the light of emerging information. This relates to Network Rail being able to enter into agreements whereby an operator / other party would deliver capacity increases for which Network Rail has been funded (or vice versa) should it subsequently emerge that this would be more efficient.

8.13 The hypothetical example of an agreement between Network Rail and a train operator for the delivery of additional capacity during peak hours, provided by the Association of Train Operating Companies (ATOC) in its consultation response, provides a useful example, which we draw on here.[42] In their example, Network Rail is required to deliver the specified increase in capacity and is funded to do so through its regulatory settlement assuming that it will do this via platform lengthening. However, subsequent discussions and/or changing circumstances mean that it emerges that a more cost effective and practical way of achieving the required capacity from a whole industry perspective is to employ selective door opening. Network Rail and the relevant operator would therefore agree terms on a commercial basis for the operator to deliver this alternative solution.

8.14 To the extent that Network Rail outperforms its regulatory assumptions as a result (as the alternative solution costs less than the originally envisaged solution), the savings would be invested in line with the company's policy for the use of outperformance. Consequently, such an approach could be expected to deliver whole industry cost and performance benefits.

[42] ATOC's response is available at http://www.rail-reg.gov.uk/upload/pdf/perf-incent-pt2-atoc_resp-oct06.pdf.

8.15 There appears to be widespread agreement amongst stakeholders that such an approach would be worthwhile. We recognise, however, that its success hinges on establishing appropriate processes to enable parties to engage effectively. We are working with the industry to understand the processes and mechanisms through which this could work, and intend to hold a workshop jointly with ATOC to explore the practicalities.

Enhancing TOC pressure on Network Rail to improve efficiency

8.16 As discussed in our July consultation document, an implication of the current franchising regime is that TOCs are largely insulated from changes in Network Rail's cost efficiency within the life of a franchise. They therefore face little direct financial incentive to exert pressure on Network Rail to improve either its expenditure decisions or its efficiency, though we recognise that there are examples of TOCs engaging on these issues.

8.17 We therefore suggested that there might be merit in introducing some form of efficiency benefit sharing mechanism, whereby train operators (passenger and freight) would share any Network Rail cost savings achieved as a result of operator engagement. In particular, we raised the possibility of operators sharing in Network Rail scope efficiencies (subject to the company at least achieving its regulatory efficiency assumptions) and/or its Schedule 8 bonuses, as these are the areas of Network Rail's efficiency where we believe operators are best able to bring their expertise to bear.[43]

Scope efficiency

8.18 The consultation process suggests widespread support for a benefit sharing mechanism that provides operators with a share of Network Rail's scope efficiency outperformance, subject to this being transparent and straightforward. Operators believe they can add value in the area of scope efficiency and have provided some examples.

8.19 Network Rail currently provides scope efficiency data on a GB-wide basis and will need to disaggregate this for England & Wales and Scotland in CP4. Consequently, it would be most straightforward to establish a mechanism disaggregated for these two geographic areas. However, we believe there

[43] i.e. savings relating to changes in the mix of activities, or to the overall volume of activity undertaken, that have no adverse impact on network serviceability or sustainability in the short, medium or long term.

would be merit in exploring whether a regionally based scheme would be practicable, as this would enable better targeting (i.e. those operators actively engaging with Network Rail and driving cost reductions would tend to be those that benefit). We therefore intend to explore with Network Rail the practicality of providing robust scope efficiency figures on a regional basis.

8.20 The success of the scheme also depends on establishing appropriate and effective processes for operators to engage with Network Rail. One possibility would be to build on the existing route investment review groups. However, we will consider fully with industry the most appropriate approach(es).

8.21 There is also the question of what happens to the benefit share attributable to operators. One option would be simply to disburse the benefit to operators. (Early discussions with government suggest that the benefit shares would be outside the scope of the revenue clawback mechanisms embedded in franchise contracts with government.) However, another possibility, that would arguably offer greater whole industry benefits in the longer-term, could be to earmark the funds for use on small network enhancements that could provide early customer benefits, e.g. station improvement schemes. Whichever approach is taken, it is clear that the benefits of engagement with Network Rail on efficiency improvement must be tangible to operators.

Schedule 8 bonuses

8.22 The view of respondents on the merit of sharing Network Rail's Schedule 8 bonuses was mixed. This appears to be primarily due to differing views on the likely benefits of such a scheme given the already successful processes in place for joint working on performance.

8.23 We will continue to work with stakeholders to determine the merit and practicality of such a mechanism, taking into account the interactions with our guidance on bonus capping and the review of Schedule 8.[44]

8.24 We will provide an update on our thinking in this area in February 2008 and will set out our proposals on any efficiency benefit sharing mechanism in our draft determinations in June 2008.

[44] *Performance regime review: Caps on Schedule 8 bonus payments,* Office of Rail Regulation, August 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/performance-let-220806.pdf.

Encouraging TOCs to innovate in their delivery of services

8.25 Another implication of the current franchising regime identified in July is the lack of incentives on and the ability of TOCs to optimise their offer, or to innovate in light of changing market conditions. This is a result of their insulation from changes in access charges, as well as the specification of services by government.

8.26 Though we recognise that the design of franchises is a matter for government, we stated in our July incentives consultation document that we believe that it would materially improve the alignment of TOCs' incentives with the public interest if there was a move to a system whereby TOCs always face prevailing charges but are then compensated with respect to core services via fixed sum payments for the financial effects of any changes in those charges since submitting their bid.

8.27 While this proposal received support at the conceptual level, operators were generally opposed on the grounds that it could transfer volume risk from government to operators, threatening value for money.

8.28 To clarify our position, we suggest that only fixed and variable track access charges would be subject to the new arrangements. As such there would be no change in volume risk facing TOCs. The benefit, however, would be that TOCs would face incentives to optimise their offer in response to changes in the structure of charges, encouraging greater efficiency in the use of the network and innovation. The financial impact on government, meanwhile, would be neutral and we believe the approach is consistent with government policy of taking a flexible approach to specifying the services required from franchisees, both in bidding documentation and subsequently.

8.29 Subsequent discussions with stakeholders and clarification of our proposals suggest there may be support for adopting such an approach for future franchises. We intend to work with DfT, Transport Scotland, ATOC and other stakeholders to explore the practicalities of our proposals.

Review of Schedule 4

8.30 Train operators currently receive compensation for possessions through Schedule 4 of their track access agreement and/or, where there has been a network change, through Part G of the Network Code. We understand that the

current compensation mechanisms for possessions are not working as effectively as they should, in particular due to:

- issues around the boundaries between Schedule 4 and Part G;
- an inconsistent approach to compensating train operators for the effects of possessions depending on the cause of the possession;
- concerns over the accuracy of compensation arrangements and the resulting economic signals;
- a lack of transparency in the Part G and Schedule 4 process; and
- unnecessarily high transaction costs.

8.31 We believe that the compensation mechanisms for possessions contained in Schedule 4 and Part G of the Network Code should be reviewed as part of PR08. We consider that there would be significant industry benefit if all compensation for possessions were made through Schedule 4.

8.32 We consider that, in the first instance, a review of Schedule 4 and Part G of the Network Code should be undertaken as an industry review. In January 2007 we asked the Network Code Industry Steering Group (ISG) to undertake a review of these compensation mechanisms in accordance with a remit outlining our key principles for a possessions compensation regime.

8.33 ISG have set up a working group to develop draft proposals to put to the industry for consultation no later than the end of September 2007, with final recommendations to be submitted to us by the end of January 2008. As part of the PR08 process we expect to provide industry stakeholders a further opportunity to comment on any proposals through our draft determinations in June 2008.

Review of Schedule 8

Introduction

8.34 Schedule 8 of both passenger and freight train operators' track access contracts contains a performance regime. This sets the compensation arrangements for each train operator as a result of lateness and cancellations caused to its train services by Network Rail or other train operators. The regime provides certainty about the compensation payable and provides

incentives to Network Rail and train operators to continuously seek improved performance.

8.35 This section sets out the work we propose be carried out on the regime as part of PR08. We expect Network Rail and train operators to lead on the technical work and have held meetings with industry representatives in January 2007 to inform the scope of this work and the workplan. The work involved differs significantly between the freight and passenger regimes, particularly given that many elements of the passenger regime were reviewed in the 2005 performance regime review.[45]

8.36 We intend all the work on the performance regimes to be completed in time for the revised Schedule 8s to be available when we publish our PR08 draft determination in June 2008.

8.37 In addition to the scope of this work identified below, we will consider the implications for Schedule 8 of our conclusions on the incentive framework. In particular, payment rates may need to be revised in support of any revenue sharing mechanism between Network Rail and train operators.

Passenger

8.38 The 2005 performance regime review consulted extensively on a number of elements of the passenger regime including its overall structure and one of the conclusions reached was that the overall structure should be retained. Therefore the work on the passenger regime focuses on those elements that were not addressed in the performance regime review, namely:

- the benchmark (or expected) level of Network Rail and train operators' performance; and
- the modelled impact of one train operator on other train operator's performance which is one component of the train operator payment rate.

8.39 The work will also review any updated research on the impact of very poor performance to inform the level of the sustained poor performance threshold

[45] *Review of the Schedule 8 performance regime: final conclusions*, Office of Rail Regulation, December 2005. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/266.pdf.

established in the 2005 review and consider other issues including the effectiveness of the Schedule 8 dispute procedures.

Freight

8.40 The 2005 review only examined franchised passenger performance regimes and therefore the work on freight regimes is potentially more comprehensive. The industry representatives on the working group agreed that the structure of the regime should be retained and that work should focus on any simplification and standardisation of benchmarks, payment rates and other metrics in the regime.

9. Structure of charges

Introduction

9.1 This chapter sets out our approach to determining the structure of charges in CP4 and updates on progress, following our consultation on the structure of charges in 2006. It does not discuss freight charges in detail, which are covered in chapter 10.

Context

9.2 Ensuring an appropriate structure for access charges forms a key part of PR08. The structure of access charges is important, because of the fundamental role charges play in decision making within the industry. Access charges serve three purposes:

- to enable Network Rail to recover the efficient costs it incurs in providing track and station infrastructure used by train operators;
- to allow those costs to be recovered from those that have caused them to be incurred; and
- to provide signals to train operators, their suppliers and funders to use and develop the infrastructure in an efficient way.

9.3 We have developed our approach to the structure of charges with these purposes in mind. In June 2006, we published our consultation document on the structure of track access and station long term charges[46]. In this, we set out our intention for Network Rail to take responsibility for the development of charges proposals that adhere to our charging objectives, and take account of our charging guidelines. Network Rail's proposals will be subject to our audit and approval. Our charging objectives are set out in annex F.

[46] *Periodic Review 2008: Structure of track access and station long term charges*, Office of Rail Regulation, June 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/291.pdf.

Current track access and station charges

Track access charges

9.4 The current track access charges are:

- variable usage charge – to reflect the wear and tear to track and non-track assets and the associated costs that vary directly with the volume and type of traffic;
- traction electricity charge – to reflect Network Rail's costs of procuring electricity on behalf of train operators (and paid by operators running electrically powered vehicles);
- electrification asset usage charge – to reflect wear and tear on the electrification assets which varies with volume of electrically powered traffic (it is currently calculated as a mark up on the traction electricity charge);
- capacity charge – to reflect the increased performance regime costs (Schedule 8) as a result of additional traffic; and
- fixed charge – to enable Network Rail to recover its residual revenue requirement after deducting variable charge income, other single till income and any grants paid by the DfT and Transport Scotland.

9.5 Franchised passenger train operators pay each category of charge. Non-franchised passenger and freight operators pay all categories of charge except fixed charges.

Enhancements

9.6 Additional charges can be levied to pay for enhancements to the network. Where an enhancement is funded through a periodic review as a determined periodic review output, we expect the enhancement costs to be recovered through franchised passenger train operators' fixed charges (or any grants paid directly by government in lieu of charges). Where an enhancement is not funded through a periodic review and Network Rail is required to deliver the scheme, one approach that can be used is for Network Rail to recover its costs through a project specific supplemental access charge paid by an

operator through its track access contract or through a change in the relevant station long term charge.

Station charges

9.7 The current station long term charge reflects the station landlord's costs (usually Network Rail) for its maintenance, renewal and repair activities at each station. The charge is recovered from all operators whose services stop at the station in proportion to the number of services for each operator.

9.8 These maintenance, renewal and repair activities are defined in the Stations Code and are broadly equivalent to the maintenance and renewal activities that Network Rail undertakes on the rest of its network.[47]

9.9 The station long term charge can also be used to recover enhancement costs at stations where (typically) the station facility owner[48] (SFO) enters into a supplemental agreement with Network Rail in respect of these enhancement charges.

9.10 In addition, operating expenditure at stations (referred to as qualifying expenditure (QX)) is recovered through charges levied on all beneficiaries at the station by the SFO but we do not approve the level of this expenditure.

Reviewing the structure of charges for CP4

9.11 In December 2006, Network Rail provided a submission to us relating to the methodology to be used in generating its structure of charges proposals. This is in response to our consultation document and the company's new responsibilities.[49] In this chapter we give our view on Network Rail's proposals, although in several areas Network Rail needs to complete further work before we can make any firm decisions on its proposed methodology.

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[47] It is currently expected that the industry will enter into the framework agreement for the Stations Code shortly. The Code can be accessed at http://www.rail-reg.gov.uk/upload/pdf/stat_code_operative-v-_100605.pdf.

[48] The Station Facility Owner (SFO) is the train operator who operates the station (usually the train operator with the most number of departures from that station).

[49] This can be accessed at http://www.networkrail.co.uk/browse%20documents/regulatory%20documents/access%20charges%20reviews/consultations%20on%20future%20charging/c%20-%20structure%20of%20charges%20submission%20to%20orr%202%20jan%202007%20l.pdf.

9.12 As noted in our June 2006 consultation document, we are considering two possible new charges: a reservation charge and an environmental charge. We published a consultation document on reservation charges in December 2006,[50] and we consulted on environmental charges as part of our October 2006 sustainable development consultation document.[51] We have assessed the consultation responses we received and have taken them into account in our decisions.[52] Further details are provided below.

Variable usage charges

9.13 In our guidance to Network Rail, we said that variable usage charges should be based on the short run incremental cost (SRIC) incurred. We noted that there are two main options for assessing these costs: a forward-looking bottom up engineering analysis, which would be the ideal approach, and the existing "hybrid" approach, which would be acceptable if Network Rail does not have sufficient time in PR08 to undertake the analysis needed for a full bottom up approach. We also asked Network Rail to consider further the issue of longitudinal and latitudinal forces on the level of variable charges and the balance between different vehicles.

9.14 In its December submission, Network Rail estimated initial variable charges but it has a significant amount of work to do to refine this figure. Network Rail's initial estimate is based upon a combination of a 'bottom up' assessment of variable costs using the current version of the ICM, supplemented by engineering judgement. It plans to expand the coverage of the bottom-up component of its estimate for inclusion in its SBP containing indicative charges proposals.

9.15 Network Rail's overall incremental cost approach is consistent with our objectives and guidelines, and we support the work it is undertaking to expand the coverage of its bottom-up variable cost estimates in the ICM. However,

[50] *Periodic Review 2008: A Reservation Charge: Consultation on Issues and Options*, Office of Rail Regulation, December 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/311.pdf.

[51] *ORR's sustainable development and environmental duties*, Office of Rail Regulation, October 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/304.pdf.

[52] These can be accessed at http://www.rail-reg.gov.uk/server/show/ConWebDoc.8295.

Network Rail's submission raises a number of issues which the company will need to consider further.[53]

9.16 We discuss variable charges in relation to freight further in chapter 10. We also discuss in chapter 10 the issue of the level of network capability and capacity and the interaction with the variable usage charge.

9.17 Network Rail has commissioned work by TTCI on rail surface damage, and we will review the results of this study once it is available.

Route based charges

9.18 Our June 2006 consultation document asked Network Rail to consider how variable costs change with location on the network, to determine the appropriate disaggregation of the variable usage charge by route/geography.

9.19 To date, Network Rail has not produced firm proposals on route based charging, as it has yet to complete its assessment of the extent to which significant differences exist in variable costs between different route categories or across different parts of the network.

9.20 Understanding geographic cost variation is key to considering the case for route based charges, although we agree with Network Rail and consultation respondents who noted that practical considerations (such as the transparency of charges for operators) also need to be taken into account.

9.21 Network Rail has undertaken to do more work to assess whether there are significant differences in the variable costs between different route categories on the network. We have asked Network Rail to provide us with the results of this analysis by the end of May 2007.

Fixed charge

9.22 In our June 2006 consultation document, we stated that we expect Network Rail to build on the work conducted for us, which set out a possible approach to allocate the fixed charge based on an operator's avoidable costs (i.e. the

[53] Key issues for further consideration are set out in *Periodic Review 2008: Consultation on Caps for Freight Track Access Charges*, Office of Rail Regulation, December 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/310.pdf.

infrastructure related costs that could be avoided were its services not present on the network).[54]

9.23 Network Rail considers that the AEA Technology model, which relies on a series of engineering judgements, has a number of shortcomings in terms of transparency, objectivity, and ability to replicate the calculations.

9.24 Network Rail is therefore proposing an alternative method, where fixed charges are allocated between operators by using the infrastructure cost model (ICM) to calculate costs on each strategic route section, and then using traffic metrics to allocate each element of cost on each route section between operators using that section.

9.25 Network Rail's proposal builds on its current approach to allocating the fixed costs, which is based on traffic metrics (for example, train miles and vehicle miles), but seeks to use a greater level of geographical disaggregation which should improve the accuracy of the allocation method, thereby improving cost reflectivity.

9.26 Network Rail has not set out in detail exactly how it proposes to use traffic metrics to allocate costs, and needs to do so in the coming months to allow us to reach a view as to whether Network Rail's proposed allocation method is consistent with our objectives and guidelines.

9.27 In its December submission Network Rail stated that it would develop the principles for its proposed approach to the fixed charge allocation. We have asked Network Rail to provide us with this by the end of May 2007.

Traction electricity charges

9.28 Network Rail and train operators have been considering changes to the basis of traction electricity charges, possibly for implementation before the end of the current control period.

9.29 This work includes considering changes to the price element of the charge (currently based on a price list which is indexed each year by the Department of Trade and Industry published moderately large users index) to bring it more directly in line with Network Rail's actual costs and also considering changes

[54] *Recovery of Fixed Costs*, AEA Technology, October 2005. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/aea_recov_fixed_rep-oct05.pdf.

that might improve the accuracy of measuring the amount of electricity used by train services.

9.30 The improvements could have the dual benefit of improving the cost reflectivity of individual train operators' charges and also, through the more accurate reflection of electricity used, encourage greater energy efficiency. In addition, Network Rail and train operators are extending the capability of network and rolling stock to use regenerative braking.

9.31 We welcome the work being undertaken in this area and will review any proposed changes. We will consider any proposed change to the basis of the charge against our charging objectives, and also particularly how it:

- produces a charge that reflects Network Rail's costs in buying electricity on behalf of train operators;
- maintains the incentive effect of the charge on Network Rail to buy electricity efficiently;
- strengthens the encouragement to greater energy efficiency both for train operators and Network Rail; and
- does not discriminate between current users or potential users of traction electricity.

Station charges

9.32 Network Rail has discussed a number of options for station charges in CP4 with the industry at ISG. These options (set out in its December 2006 submission) include different degrees of simplification compared to the current station charges. As a longer term goal (beyond CP4), Network Rail has raised the possibility of charges being based on a franchisee's portfolio of stations, rather than having station-specific charges. For CP4, Network Rail is considering the option of charges that move some way towards this.

9.33 An important priority for Network Rail's work, regardless of the final charges methodology adopted, should be to produce a more robust and transparent understanding of its costs across different stations, by ensuring that its overall estimate of station costs is as up to date and accurate as possible, and that these costs are allocated between stations using a robust methodology.

9.34 In developing its proposal Network Rail needs to demonstrate that its recommendation is better able to meet our charges objectives including greater cost reflectivity.

9.35 In particular, in proposing its preferred option, Network Rail needs to:

- demonstrate through the revised infrastructure cost model and worked examples how any portfolio-based charge would increase transparency, including the relative indication of work required at different stations;
- make sure that the proposal is consistent with providing sufficient information to train operators (without imposing excessive transaction costs on them) both to make decisions about the appropriate maintenance and renewals responsibilities split between SFOs and Network Rail, and to make decisions about whether to enhance a particular station;
- examine further with train operators whether its proposals provide operators with sufficient transparency about Network Rail's activities at stations, the costs incurred and their relationship with the charge they pay;
- take into account the interrelationship between the charges proposal and the work to improve the stations condition measure;
- explain how the charge provides sufficient certainty to franchise bidders about the station charges that they would face in relation to stations in a remapped franchise where that remapping takes place during a control period;
- provide further confirmation about the application of the proposal to non-franchised passenger operators, particularly the conditions under which the basis of the beneficiary charge would be reviewed if such an operator calls at additional stations or removes stations from its stopping pattern;
- propose specific legal changes to implement the proposal; and
- further examine other issues identified in its submission e.g. stamp duty land tax.

Capacity charge

9.36 In our guidance on capacity charges we noted the limitations of the current charge, which does not vary with time and location. We asked Network Rail to consider the case for greater disaggregation of the charge, based on the extent to which costs vary across the network. We also asked Network Rail to consider whether capacity charges should be constant across CP4, or vary as capacity utilisation varies.

9.37 Network Rail has yet to put forward a firm proposed form for the capacity charge, but it has stated that it plans to have a geographic split of some form, and, provided there is a geographic split, to differentiate the charge by time, splitting into peak and off-peak periods, and weekday and weekend services at a minimum.

9.38 We are satisfied that the broad proposals put forward by Network Rail are consistent with our objectives and guidelines, and we support the decision to move to a more disaggregated charge, whilst balancing the need for practicality and transparency in charging. We agree that the exact form of the charge needs to be based on a more detailed analysis of cost variation, which we will need to understand in greater detail before we could accept Network Rail's capacity charges proposals.

Environmental charges and incentives

9.39 In our sustainable development consultation document we consulted on the use of access charges and incentives to promote better environmental performance.[55]

9.40 We recognised the caution needed in considering changes that would increase costs to rail given its relatively good environmental performance compared to road and some other transport modes.

9.41 We think it important that the rail industry develops a systematic and robust way of identifying, measuring and publishing information on its environmental outputs. The development of key performance indicators (KPIs) should show

[55] *ORR's sustainable development and environmental duties*, Office of Rail Regulation, October 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/304.pdf.

the relative position of rail to other transport modes and encourage positive environmental performance.

9.42 We confirm that we do not propose to introduce an environmental charge before or during CP4. Respondents were almost unanimous in support of this. We have reached this decision based on the fact that equivalent charges do not currently exist for other transport modes, and given that rail is relatively environmentally friendly, we would not wish to encourage demand to shift to less environmentally friendly modes of transport. Even if environmental charges were neutral for the industry as a whole, the impact on particular operators could still risk a shift to less environmentally friendly modes. If environmental charges are introduced for other transport modes we will re-examine the case for an equivalent charge for rail.

9.43 We consider that financial incentives may be useful at some point in the future to increase the power of incentives for improvement in environmental performance across the industry. A number of respondents on this issue agreed that any financial incentive should not be introduced until any KPIs underpinning them have been fully developed and tested.

9.44 Changes to the traction electricity charges to promote greater energy efficiency are discussed above.

Reservation charge

9.45 Our December consultation document on reservation charges put forward two models for comment. One model proposed a ‘flat rate’ reservation charge for capacity that is reserved but not used on all parts of the network, charged on a per right reserved basis. The other model proposed a charge applied only to ‘congested’ parts of the network. We consulted on whether any such charge should apply to freight operators only, or to all operators, and on other key features, such as the level of the charge; whether there should be allowances for factors outside the control of operators; and our proposal that the charge be revenue neutral for operators as a whole.

9.46 The vast majority of respondents to the consultation agreed that the problem of holding unused rights beyond those required for efficient headroom needed to be resolved, so as to encourage the most efficient use of existing capacity. Many respondents felt that existing administrative arrangements were insufficient to ensure that unused rights were made available for others to

use, and almost all respondents agreed that there was scope to improve existing administrative arrangements.[56]

9.47 A significant number of respondents favoured delaying a decision on the introduction of a reservation charge until the potential to improve administrative arrangements had been exhausted, while others favoured a tightening-up of administrative arrangements in tandem with the introduction of a reservation charge.

9.48 Many (but not all) respondents were supportive of the principle of a reservation charge, provided that it could be implemented simply, without excessive administrative cost. Respondents provided some useful, practical suggestions for the form that the charge should take. Network Rail noted that there are significant practical issues that would need to be resolved if a charge were to be implemented, and identified some charging options for further exploration.

9.49 Given the high level of interest among stakeholders in improving administrative mechanisms to encourage the efficient holding of rights, we have decided to take a dual approach to strengthening incentives for the efficient holding of rights:

- to investigate further with the industry the scope for tightening administrative measures – these will include options for tightening Part J of the Network Code, both in terms of its provisions, and in terms of how it is enforced, and further investigation of other measures, including the provision of information on unused rights and timetable 'white space'; and

- to work, with Network Rail and other stakeholders, to develop a specific reservation charge proposal. We intend to consult on the features of such a charge during 2007-08.

9.50 A key concern raised by freight operators was that if they were to give up rights that they do not regularly use, these could be taken up by passenger operators, and lost to freight permanently. While this demonstrates that freight

[56] Shortening, or otherwise tightening, the threshold period that defines 'used' under the 'use it or lose it' mechanism under Part J of the Network Code was the most frequently quoted example of how arrangements could be improved. A number of respondents also suggested that rights review meetings should be held more regularly, and Network Rail has noted that this is now happening.

operators believe there to be an opportunity cost associated with rights that they hold but do not use regularly, we are mindful of our objective to promote the use of rail, including its use by freight. We will therefore work with the industry to investigate possible initiatives to address this issue.[57]

9.51 The majority of respondents could see little benefit in applying a reservation charge to franchised passenger operators (except, perhaps to improve efficiency in the use of rights for empty coaching stock) as the requirements of the franchise effectively ensure that franchised passenger operators use the vast majority of rights that they hold. However, other respondents pointed out that the same arguments would not apply to passenger open access operators, and we are sympathetic to this view.

9.52 In the main, respondents expressed strong support for our view that the charge should be revenue-neutral rather than creating an enhancement fund. Respondents generally supported the idea that freight operators should be charged and rebated under a separate "fund", to avoid rebates being transferred from freight to passenger due to the fact that freight operators need more headroom. We will explore ways in which this could work practically.

9.53 Respondents rightly pointed out that the adoption of separate 'funds' for passenger and freight alone would not avoid the scope for substantial transfers within freight, arising from the fact that freight companies differ in terms of the commodity make-up of their business. We will explore further options for incorporating a commodity-specific headroom allowance into a reservation charge, provided this would not create undue complexity.

9.54 The views of respondents on the appropriate level for a reservation charge were mixed. While affordability concerns were cited as a key reason to keep the unit charge low, others pointed out that a low charge would be unlikely to encourage operators to give up unused rights in areas where the opportunity cost was particularly high. We accept the latter point, and consider that our proposed dual approach of increasing the effectiveness of administrative means, and developing a detailed reservation charge model presents the best

[57] Options discussed by the industry in the past include a 'RightsCo' which would hold rights/paths on behalf of freight operators, but initiatives in this area could take a number of forms.

way of ensuring that we provide as strong an incentive as possible for the freeing-up of unused rights, given constraints of simplicity, practicality and cost.

Non-franchised passenger operator charging

9.55 Non-franchised passenger operators pay variable track access charges and any other costs directly incurred from operating on the network that are identified. Our approach to non-franchised passenger operator charges is equivalent to that for freight operators.

9.56 The calculation of the variable track access charges are the same as those for franchised passenger operators (and effectively equivalent for freight operators, though there are some technical differences, e.g. due to different vehicle characteristics reflected in the model and the existence of a 'coal spillage factor' for freight vehicles carrying coal) and currently reflect the variable costs determined at the time of the 2000 periodic review (PR2000).

9.57 Non-franchised passenger operators do not pay the fixed charge as it is currently defined. The fixed charge is only paid by franchised passenger operators, although in chapter 10 we discuss proposals for freight operators to cover fixed costs associated with certain freight only lines.

9.58 We stated in the structure of charges consultation document in June that we are open to alternative frameworks for future application, if consultees' felt that these were better able to meet our charging objectives and were also compliant with the relevant legislation. GNER suggested that we should look again at the 'ORCATS' ticket revenue allocation system, though we do not think this is necessary given that there is already a mechanism for GNER to challenge allocations. Merseytravel and Transport for London (TfL) suggested that DfT could pay the fixed charge for all operators. We understand that under current government accounting rules DfT/Transport Scotland are precluded from paying the full fixed charge and this would also raise concerns about the relationship/accountability between train operators and Network Rail. First Group (owner of Hull Trains) suggested that dramatic changes to variable charges would make business planning difficult. Transport Scotland stated that the same principles should apply to non-franchised passenger and freight services. DfT did not respond to the consultation.

9.59 We consider that this current charging framework is consistent with our statutory duties and with EU and domestic law, in particular Directive 2001/14/EC and UK Railways Infrastructure (Access and Management) Regulations 2005. We intend to continue with the current approach for CP4.[58]

Increments and decrements

9.60 Both in *The Future of Rail* White Paper and in its July 2006 document on the role of English PTEs in the franchise process,[59] government has set out its intention that English PTEs (and possibly other local funders) will be able to make increments to rail services (while bearing the full costs of the decision) and make decrements to rail services, receiving the resulting savings. In paragraph 5.3.7 of the White Paper, government stated that it would work with us 'to develop a method for basing local decisions on accurate information about both the infrastructure and operating costs that additional train services would incur, to ensure that local and regional bodies bear the full costs of their decisions'.

9.61 These increments and decrements to rail services could lead to changes to Network Rail's costs, both those recovered through the variable track access charges and, where a significant change in level of services requires or enables changes to network capability, those currently recovered by Network Rail through fixed track access charges from franchised passenger operators (and potentially from direct government grant). Variable track access charges are calculated by volume and adjust automatically to increments or decrements in services. The fixed track access charges however, currently tend to remain as determined throughout the control period.[60]

9.62 There are a number of detailed issues that we have started to consider and will need to consider further before concluding on the approach to reflect

[58] We note that on 1 December 2006 GNER submitted a complaint to the European Commission asking it to investigate the open access charging regime.

[59] *The new system for the role of English PTEs in the rail franchising process*, DfT, July 2006. This can be accessed at http://www.dft.gov.uk/pgr/rail/passenger/franchises/thenewsystemfortheroleofengl3353.

[60] The only major exception is franchise re-mapping, where the total income to Network Rail from fixed charges remains unchanged but the allocation between operators changes based on the re-allocation of franchised services.

increments and decrements of rail services in the track access charges payable. These include:

- the approach to identify the impact on Network Rail's costs resulting from the increment/decrement in service;
- possible approaches to enable changes in the fixed charge payable in response to increments/decrements, which can then be passed on to PTEs;
- whether there should be a minimum threshold below which the impact of a change on Network Rail's costs in excess of those recovered through the variable charge are not examined; and
- the timing of any changes to Network Rail's RAB.

9.63 We intend to consult on these issues further in April 2007 but outline our initial thoughts below.

9.64 The approach to allocating the fixed track access charge between franchised passenger operators could impact on the way in which the change in costs resulting from a particular increment or decrement is identified. Network Rail's submission proposes to use more accurate and disaggregate information than the current approach and this could provide an improved basis for identifying the effects of increments or decrements of rail services. However, more detailed assessment of the avoidable costs on a case-by-case basis may provide a more appropriate basis for calculating the cost effects of locally sponsored changes to services.

9.65 There are a number of different possible processes that could be used to enable and record the changes in fixed charge resulting from increments/decrements so that this change could be passed on to PTEs where applicable:

- changes to Part 2 of Schedule 7;
- inclusion of the addition or reduction in fixed charge in Part 5 of Schedule 7; or
- Part G of the Network Code.

9.66 Our initial preference is to make changes to Part 2 of Schedule 7 so that the resulting changes are transparent and isolated from changes made for other reasons.

9.67 We consider that there should be a materiality threshold below which the additional costs (in excess of those covered in the automatic change to variable charges), should not be calculated. This is because the costs involved in the calculation and other transaction costs would outweigh the benefits from the adjustment.

9.68 An increment or decrement may result in a change in Network Rail's RAB. We will need to consider the form and timing of such changes and whether to apply the materiality threshold identified above.

10. Caps for freight track access charges

Introduction

10.1 This chapter sets out our decisions on caps (the maximum level of increase of freight charges) for certain freight track access charges for CP4. It follows consultation on our proposals in December 2006, and further work to assess Network Rail's costs and work to consider how these costs should be reflected in charges.[61,62]

10.2 Our decisions cover:

- freight variable usage charges. These charges reflect the costs of wear and tear to track and non-track assets associated with the volume and type of freight traffic (excluding wear and tear of the assets associated with the provision of traction electricity); and

- charges for freight only lines. The costs of freight operating on lines that are used only by freight trains are currently paid by government as part of the grants paid to Network Rail. DfT stated in its *The Future of Rail* White Paper in 2004 that: 'Where lines carry only freight, and no passenger services, the freight operators will pay its full costs.' In accordance with the Railways Infrastructure (Access and Management) Regulations 2005 (the Regulations)[63] that implement Directive 2001/14/EC,[64] this charge would only be levied where the market can bear this cost.

[61] *Periodic Review 2008: Consultation on caps for freight track access charges*, Office of Rail Regulation, December 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/310.pdf.

[62] The consultation responses can be accessed at http://www.rail-reg.gov.uk/server/show/ConWebDoc.8519.

[63] *Railways Infrastructure (Access and Management) Regulations 2005*. The text of the Regulations can be accessed at http://www.opsi.gov.uk/si/si2005/20053049.htm - 1.

[64] Directive 2001/14/EC of the European Parliament and of the Council of 26 February 2001 on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification. The text of the Directive can be accessed at http://www.rail-reg.gov.uk/upload/pdf/directive-2001-14-ec.pdf.

10.3 Our decisions on caps are presented in the context of possible ranges for freight charges in CP4, given the uncertainty at this stage in PR08 of key elements of Network Rail's cost base. The specific charges and associated price lists will be determined later in PR08. It is important to note that whilst we are establishing caps above which charges will not rise (based on current levels of traffic) we expect the charges to be lower than the level of the cap. We consider there is a strong possibility that the final level of the variable usage charges could be lower than existing levels.

10.4 The chapter describes:

- the context for our review of freight charges;
- Network Rail's estimates of freight (and passenger) variable costs and the costs of freight only lines, including further work after the publication of our consultation document; and
- our decisions on freight charge caps in the context of a possible range of charge levels. This includes consideration of the level of capability to which charges apply, our assessment of the freight market and the ability to bear the costs of freight only lines, and our decisions on the mechanism for allocating costs and charging for freight only lines.

Context

Current structure of freight track access charges

10.5 The current structure of freight track access charges was established by the 2001 freight charges review (FCR2001). Freight operators currently pay only variable charges and do not contribute to fixed or common (shared) costs. The current structure of freight charges is explained in more detail in paragraphs 2.10 and 2.11 of our consultation document.

Material change in circumstances

10.6 FCR2001 stated that the charges should apply until 2007 and saw considerable merit in leaving charges in place until 2012 unless there was a material change in circumstances. In our consultation document we discussed the material change in circumstances in more detail and outlined two particular changes that we considered constituted a material change in circumstances:

- the changes to Network Rail's approach to the operation, maintenance and renewals following the rail accident at Hatfield in October 2000; and
- the grants which cover Network Rail's fixed costs attributable to freight cease in 2009, with DfT stating in *The Future of Rail* White Paper in 2004 that it expects freight operators to pay the full costs of freight only lines.

10.7 A number of consultees questioned whether there had been a material change in circumstances. After considering these responses we still consider that there has been. This issue is considered further in annex G.

Freight costs

Long term steady-state costs

10.8 As set out in our structure of charges guidance to Network Rail published in June 2006 we believe that variable usage charges should be based on long term steady-state efficient costs.[65] Long term steady-state efficient costs relate to the activity levels to operate, maintain and renew the network and the cost of this activity. Network Rail's variable usage and freight only line cost estimates (discussed below) represent long-term costs over the 35 year period from the start of CP4 to the end of CP10 (CP9 for renewals variability).

10.9 Some consultees have raised concerns that Network Rail's cost estimates reflect backlog and peaks in investment cycles. However, averaging costs over a long time period should smooth out any peaks or troughs in renewals activity including any bias due to a backlog in activity. As we stated in our consultation document we are concerned that the renewals backlog addressed in CP2 and CP3 may lead to a similar peak in renewals beyond CP9 that are therefore excluded from Network Rail's calculations. The 35-year period may also not reflect the long term costs of long-lived assets. We have asked Network Rail to consider further whether their cost assessment accurately reflects long term costs when they are developing their initial charge proposals in October 2007.

[65] *Periodic Review 2008: Structure of track access and station long term charges*, Office of Rail Regulation, June 2006. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/291.pdf.

Treatment of efficiency

10.10 Network Rail did not included any efficiency gain in its variable usage cost estimates after the end of CP3. It assumes that it will achieve the 31% efficiency improvement by the end of 2008-09 that we considered was attainable in ACR2003.

10.11 The caps proposed in our consultation document used Network Rail's CP4 efficiency assumptions included in its ISBP (excluding any adjustments for input price inflation). This gave an overall efficiency improvement of 17.6% by the end of CP4 (equivalent to 3.8% per annum). The final level of steady-state efficient freight costs may include a higher level of efficiency in CP4 and possible further catch-up efficiency in CP5. As we discuss in chapter 3 of this document we consider that Network Rail could make efficiency improvements up to 8% per annum in CP4. For CP5 our consultants LEK Consulting and Oxera suggested efficiency improvements of up to 5% per annum. This includes ongoing improvements in the efficiency frontier as well as catch-up efficiency. We will make our final decisions on the scope for efficiency improvement in CP4 and CP5 to include in charge calculations later in PR08.

10.12 A number of consultees have argued that the scope for Network Rail to make efficiency gains greatly exceeds that assumed in our consultation document. EWS submitted evidence to us based on studies that they have commissioned (including one undertaken jointly with Network Rail), which compare Network Rail track maintenance and renewals costs and practices with those observed in North America. These suggest that Network Rail could make significant reductions to its track maintenance and renewal costs.[66]

10.13 EWS have provided a significant amount of analysis, which we wish to examine in detail before concluding on its implications for efficiency assumptions. We will assess the analysis during PR08 as part of our wider assessment of Network Rail's cost base, and we have asked Network Rail to consider the findings in its SBP.

10.14 For the purposes of calculating the upper bound on charges and therefore for setting caps, we have assumed the same scope for efficiency savings as in

[66] Summaries of the work commissioned by EWS are included in their consultation response. This can be accessed at: http://www.rail-reg.gov.uk/upload/pdf/310-EWS-290107.pdf

our consultation document, pending further work in PR08. For the lower bound of our charge range we have assumed our upper estimate of efficiency of 8% per annum over CP4, with further catch-up efficiency of 3.5% per annum over CP5. As we are setting caps for CP4 we have not allowed for efficiency frontier shift in CP5.[67] It should be emphasised that this assumes Network Rail's current possessions strategy is continued in CP4.

Freight variable usage costs

10.15 Network Rail provided initial cost estimates of freight (and passenger) variable costs to our work to establish caps.[68] Network Rail estimated total steady state variable costs (at the current level of traffic) of £323 million per annum. Network Rail stated that all of its initial cost estimates were uncertain at this stage and proposed a confidence limit of +/-20%, hence overall variable costs range from £259 million to £388 million per annum. All Network Rail's cost estimates are based on the efficiency level at the end of CP3.

10.16 Network Rail shared total variable costs across passenger, freight and engineering traffic, according to the proportion of gross tonnage (freight accounts for 30%) for non-electrification asset usage costs. In its update of its freight costs in February 2007[69] Network Rail suggest that using equivalent tonne miles instead of gross tonne miles would increase freight's share of costs from £92 million to £96 million per annum. Work by consultants TTCI on behalf of Network Rail on the impact of the longitudinal and latitudinal forces of freight vehicles on maintenance and renewal cost causation suggests that the share attributable to freight might be lower at £84 million per annum. We have not yet received and reviewed this and hence we have not taken it into

[67] We have taken the LEK Consulting and Oxera upper estimate for CP5 of 5%, and subtracted an assumed 1.5% per annum for frontier shift occurring during CP5 (again, based on LEK Consulting and Oxera's work). The allowance for CP5 frontier shift has been removed as this represents the estimate of efficiencies that can only be gained over time in CP5 and would not be attainable by a fully efficient Network Rail during CP4.

[68] Further details on Network Rails cost estimates can be accessed at http://www.networkrail.co.uk/browseDirectory.aspx?dir=\Regulatory%20Documents\Access%20Charges%20Reviews\Consultations%20on%20Future%20Charging&pageid=2893&root.

[69] *Infrastructure costs for freight update*, Network Rail, February 2007. This can be accessed at http://www.networkrail.co.uk/browse%20documents/regulatory%20documents/access%20charges%20reviews/consultations%20on%20future%20charging/a%20-%20freight%20costs%20update%202%20february%202007.pdf.

account in our range or caps. For the purposes of our decisions on caps we have retained Network Rail's gross tonnage allocation. We expect Network Rail to take account of the work on longitudinal and latitudinal damage in its indicative charges that it will include in its SBP submission.

10.17 Our consultation document highlighted that the reporters, Halcrow, had a number of concerns with Network Rail's initial cost estimates. In particular they were concerned that Network Rail's estimate of track renewal variability was too low. Drawing on this assessment, we considered that Network Rail's estimates for track renewals were not yet sufficiently justified and instead used the higher estimate of plain line track renewal variability from PR2000 (and the current basis for variable costs and charges) in the calculation of the proposed caps on freight charges.

10.18 Some consultees have questioned our use of the higher estimate of plain line track renewal variability. In particular EWS have provided two studies that suggest that track renewal variability could be lower than estimated in PR2000.[70] We will assess this evidence carefully over the coming months. Network Rail has not provided additional justification for its estimates. We still consider that Network Rail's plain line track renewals variability estimates are not yet sufficiently justified to include in charging. We have asked the reporters Halcrow to undertake a review of Network Rail's asset and service life assumptions and we expect Network Rail to provide robust evidence to support its initial charge proposals in its SBP. Network Rail is undertaking its own review of service life assumptions.

10.19 Some consultees suggested that Network Rail's variable cost estimates are too high, in particular compared to other Western European countries, and questioned whether we can draw conclusions at this stage given the amount of work to be carried out. We believe that Network Rail has further work to justify and refines its cost estimates. This should include reviewing the evidence put forward by EWS. However we do consider that, with the exception of plain line track renewals, Network Rail's estimates are sufficient for the purpose of setting caps and indicating the possible range of charges in CP4.

[70] The studies undertaken by TTCI and Capita Symonds examined cost variability. Summaries of these studies are included in the EWS consultation response. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/310-EWS-290107.pdf.

10.20 Some consultees stated that we have followed an overly cautious approach in assessing costs for the purposes of setting caps, in particular highlighting the compound impact of a number of cautious assumptions. We have reviewed our assumptions. We still believe that we should be prudent and that caps should be set at the upper end of Network Rail's declared uncertainty band around its costs. However we have decided that it is not necessary to apply Network Rail's 20% uncertainty factor in addition to the plain line track renewals costs as the alternative variability estimates have been taken directly from PR2000 (and current charges). We have assumed that the 36% plain line track renewals variability from PR2000 would occur only at the upper confidence band. For the lower bound we have assumed Network Rail's estimate of plain line track variability, together with our upper estimate of efficiency improvement. This lowers the range of freight variable usage costs to between £41 million and £99 million per annum (at current levels of traffic), i.e. between 54% lower and 13% higher than the current variable usage charge. If Network Rail's track renewals variability can be substantiated then the upper end of the cost range would reduce to £91 million. Table 10.1 summarises our assessment of freight variable usage costs.

Table 10.1: Freight variable usage costs

£million (2005-06 prices)	**Freight variable usage costs**
Low	41
High	99

Freight only line costs

10.21 We are implementing a new charge for freight only lines, in accordance with the statement in *The Future of Rail* White Paper that freight operators should pay the full costs of freight only lines. We asked Network Rail to separately identify the costs of:

- terminal lines – lines that provide links between the main network and facilities; and
- through lines – lines that are part of the main network but are in practice used solely by freight, for example freight passing loops. The existence of these lines provides operational benefits to the mixed use network.

10.22 As stated in our consultation document we are only considering charges for terminal freight only lines.[71] DfT and Transport Scotland support this approach and have confirmed that they would continue to support Network Rail's costs of through freight only lines.

10.23 As part of its February 2007 freight costs update Network Rail has revised its estimates of freight only line costs, in particular to reflect changes in the length of freight only lines and signalling costs. Network Rail's revised costs are shown in Table 10.2.

Table 10.2: Network Rail's revised freight only line costs (end of CP3 efficiency and +/- 20% confidence limits)

£million (2005-06 prices)	Attributable cost	Related cost	Allocatable cost	Total cost
Terminal (agreed only)	28	9	9	46
Through and possible terminal lines	11	4	4	19
Total	39	12	13	64

10.24 Network Rail's revised list of freight only lines reduces the length of terminal freight only lines by 75km. Network Rail still identifies some 20km of possible terminal freight only lines. For the purposes of setting caps we have included these lines in the costs of terminal freight only lines but expect Network Rail to review these to produce a final agreed list of freight only lines by the time it submits its SBP. Table 10.3 summarises the lengths of the different categories of freight only line.

[71] The latest list of freight only lines can be accessed at http://www.networkrail.co.uk/browse%20documents/regulatory%20documents/access%20charges%20reviews/consultations%20on%20future%20charging/b%20-%20register%20of%20freight-only%20lines%202%20february%202007.pdf.

Table 10.3: Network Rail's categorisation of freight only lines

Freight only line category	Track length in consultation document (km)	Current track length (km)
Terminal lines	657	582
Possible terminal lines	24	20
Through lines	149	214
Total	829	816

10.25 Network Rail has provided its cost estimates based on:

- identifying operating, maintenance and renewal costs of strategic route sections classified as freight only lines in the ICM (some 1,361km);
- factoring these costs (using track-km) to take account of the 816 track-km in the final list of freight only lines; and
- reducing S&C renewals costs by 20% and other renewals costs by 10% to reflect the lower unit cost of work on freight only lines.

10.26 As part of its freight cost update Network Rail has reviewed the use of track-km as a metric to factor ICM costs to provide the costs of freight only lines. Network Rail believes that this is a reasonable approach for setting charge caps.

10.27 Although not explained in their February freight cost update Network Rail has reduced the costs of signalling renewals by £7 million, or 45%, presumably following a review of the allocation of individual interlockings to freight only lines. Signalling operations costs have been reduced by the same percentage, giving a total cost reduction of around £11 million per annum.

10.28 Network Rail has given further consideration to the relative unit costs of maintenance and renewals on freight only lines in the light of the reporters' comments. It has reviewed actual data for individual plain line track renewals work and found that actual unit renewal costs may be around 20% higher on single track lines than the network average because of the logistics of site access. Network Rail concludes that they do not have any robust basis for adjusting the unit cost factors used in their initial assessment.

10.29 The reporters have reviewed Network Rail's analysis and have concluded that actual plain line renewal costs might be around 20% lower on freight only lines than the network average.[72] We have therefore revised our adjustment to plain line track renewal costs to 80% of the network average. We have continued to apply a 70% adjustment to track maintenance costs.

10.30 Network Rail are yet to review the evidence provided by EWS on the possible costs of freight only lines. In preparing its indicative charge proposals Network Rail should take account of EWS's evidence, where appropriate, and the actual costs of freight only lines. If EWS's cost estimates can be substantiated then track maintenance and renewal costs would be towards the lower end of our cost range.

10.31 Some consultees have suggested that related costs (costs associated with a route section but not contained within it) should be excluded from the costs of freight only lines as these do not directly reflect the costs of operating services. We consider that freight only line costs should only include those costs that are avoidable if the freight only line was removed. A similar approach is used for freight connection agreements where freight companies pay for the costs of connecting infrastructure such as junctions. We have asked Network Rail to review related costs so that its indicative charge proposals only include the avoidable costs of freight only lines, which are the costs that could be saved if freight only lines were removed.

10.32 For charge capping purposes we have adjusted Network Rail's costs to:

- take account of efficiency;[73]
- apply an 80% rather than 90% factor to plain line track renewals;
- apply a 70% factor to track maintenance; and

[72] *Further Assessment of Network Rail's Freight Variable Usage Costs and Freight Only Line Costs*, Halcrow Group Limited, February 2007. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/halcrow-freight-260207.pdf.

[73] The upper bound of costs assumes our lower estimate of CP4 efficiency, the lower bound of costs assumes our upper bound of CP4 efficiency with further catch-up efficiency of 3.5% per annum in CP5.

- add the costs of terminal freight only lines where the traffic status is uncertain to terminal rather than through line costs (costs have simply been increased in proportion to track length).

10.33 Table 10.4 summarises annual freight only line costs.

Table 10.4: Annual freight only line costs, lower estimate of CP4 efficiency (+/- 20% confidence limits)

£million (2005-06 prices)	Attributed cost	Related cost	Total cost	Variable cost	Total (excluding variable cost)
Terminal	22	7	29	3	26
Through	8	3	11	1	10
Total	29	10	40	4	36

Freight charges

Capability

10.34 Operators require clarity about the level of capability of the network that they can expect for the charges that they pay.

10.35 Network Rail considers that there are economic arguments for not setting charges based on the full avoidable costs of providing capability or capacity if it may not be economic to maintain that capability or capacity in the long term. This may arise in two areas:

- the incremental costs of meeting unanticipated increases in demand; and
- the costs of major renewals, where it may be uneconomic to sustain existing capability.

10.36 To allow for unanticipated step changes in freight or indeed passenger traffic Network Rail has suggested that the definition of capability should be extended to include a measure of cumulative usage based on gross tonnes and the case for enhancing capability is appraised in conjunction with freight operators to determine whether this should be accommodated. In our consultation document we stated that we believed that this was a sensible proposal, although we also believed that the process should work in reverse

and where unanticipated reductions in traffic lead to lower costs, freight operators should benefit.

10.37 Government raised concerns over the complexity of Network Rail's proposals and suggested that Network Rail should manage costs within a control period, with any adjustments made at the next charging review. A number of consultees did not support Network Rail's proposals and expressed concerns over the practical application of Network Rail's proposal. EWS, in particular, stated that clarity is needed over the capability that Network Rail has been already funded for and care was needed to ensure that freight was not bearing the costs of neglect of this infrastructure by Network Rail's predecessors.

10.38 While we continue to support Network Rail's approach in principle, with the caveat that the approach should work in reverse, we have concerns with the implementation of the approach. For instance there could be potential for Network Rail to gain at the expense of funders and operators. There is merit in many of the comments made by consultees. We are not making any decisions on this issue at this stage. We will continue to explore the options with Network Rail, government and operators and make decisions on any changes to the mechanism for charging later in PR08. In particular, we would need clarity on the capability that Network Rail is funded for, the traffic growth that Network Rail has assumed can be accommodated, the costs of sustaining existing capability and the scope of additional costs that Network Rail would seek to recover.

10.39 Network Rail suggests that it is reasonable not to recover the full long-term avoidable costs of maintaining capability as long as this capability can be sustained without the need for major renewals. Network Rail therefore suggests that freight only line charges should exclude the costs of major renewals, and when a major renewal is required, Network Rail should assess with operators whether it is uneconomic to continue to sustain existing capability (although in most cases it would not expect this to lead to any change).

10.40 Network Rail proposes that there should be a mechanism to enable it to share the benefits of any rationalisation with train operators where this is economically sensible, for example through a ring-fenced freight investment

fund and consideration should be given to a mechanism to allow Network Rail to impose modifications to access rights under specific circumstances.

10.41 In our caps on freight charges consultation document we stated that we had reservations over Network Rail's approach due to the uncertainty it would create for freight operators. Our view was that proposed reductions in capability should continue to be dealt with using the network change process, with the benefits of any reduction shared with operators.

10.42 There was support from respondents for our proposed approach. We therefore continue to believe that reductions in capability should be dealt with as part of the network change, with the process amended to ensure that benefits are shared between Network Rail and train operators.

10.43 In its December 2006 structure of charges proposal and methodology, Network Rail stated that there is a case for electricity supply industry (ESI) coal to pay its full costs of maintaining capability across the whole network (through an uplift on the variable charge). Government have stated that they do not support such a proposal and are willing to continue to fund the costs of maintaining capability for freight on the mixed use network. Given this, and the potential impact this could have on the freight market, we do not see the need to introduce an additional charge.

Duration and phasing of freight charges

10.44 In our consultation document we proposed that freight charge caps were phased in over CP4 and applied for CP4 only. Government has stated that it is willing to support the phasing in of charges over CP4. Consultees who responded to this point supported the phasing in of charges.

10.45 Some consultees stated, that to provide the freight industry with certainty, freight charges should be fixed for CP4 and CP5. We consider that the costs of the railway appear to be on a downward trend and so fixing charges now could lock freight operators into higher charges than maybe necessary. We therefore believe that caps and charges should be set for CP4, with charges reviewed again for CP5.

10.46 GB Railfreight has asked that we bring forward our conclusions on freight vehicle charges from December 2008. Given the linkages with passenger vehicle charges we do not believe that this is appropriate. If there are any

material changes over the next year, ahead of our assessment of Network Rail's SBP (and indicative charges) in February 2008, due to the results of continuing technical work, we will update our published range and caps.

Freight variable usage charge caps

10.47 In our caps on freight charges consultation document, we proposed a cap on freight variable usage charges of £105 million (at current traffic levels), at the upper end of the range of £70 million to £105 million.

10.48 The revised treatment of uncertainty associated with plain line track renewals expenditure and CP4 and CP5 efficiency (discussed above) reduces the range of freight variable usage charges to between £41 million and £99 million and the cap to £99 million (at current traffic levels).

10.49 Based on a cap of £99 million freight variable usage charge increases would be phased in over CP4 with annual increases capped at RPI +2.4% per annum. As we explained in annex D of our consultation document, since rail environmental benefit procurement scheme (REPS) grants are fixed until 2010 we propose that the charge increase for intermodal traffic is phased in over the four years from 2010-11 to 2014-15. Government supports this approach. We consider that charges should come in below this cap and could be below current levels.

10.50 Table 10.5 summarises freight variable usage charge caps, which are applied as cumulative increases on the average 2008-09 charge per gross tonne-km.

Table 10.5: Freight variable usage charge caps (cumulative increase over

	2009-10	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Cap on average variable charge per gross tonne-km	RPI +2.4%	RPI +4.9%	RPI +7.4%	RPI +10.0%	RPI +12.6%

Note: Intermodal traffic would be phased in from 2010-11.

Coal dust spillage factor

10.51 There is currently a uniform 20% uplift on variable charges for vehicles carrying coal to reflect the cost impact of spilt coal dust on Network Rail's maintenance and renewal costs. We stated in our caps on freight charges consultation document that we would not expect the coal dust spillage factor

to remain in its current form without robust evidence of the impact on maintenance and renewal costs. This should reflect the impact of new wagons designed to prevent coal dust spillage. We have asked Network Rail to confirm whether they propose to continue with the charge.

Relevant costs for freight only lines

10.52 The revised costs of terminal freight only lines for cap setting purposes range from £13 million to £28 million per annum (2005-06 prices) (after removing income from freight connection agreements, variable charges on freight only lines and efficiency). Our cap on freight only line charges is set at the upper end of this range at £28 million. This is £11 million lower than our original proposed cap of £39 million, largely reflecting the lower signalling costs in Network Rail's estimates. Although we are setting a cap it is important to emphasise two factors:

- that we would expect charges to be below the maximum levels; and
- charges would only be levied where the relevant criteria in the Regulations can be satisfied, in particular where they are associated with a market segment and can be borne by that market segment.

10.53 We do not consider that a freight only line charge, if properly designed and targeted, should necessarily increase transaction costs, distort incentives or price traffic off the network. As we stated in our consultation document, as well as being consistent with government objectives (as set out in *The Future of Rail* White Paper), a freight only line charge would also increase consistency with the treatment of freight only lines that are not part of the Network Rail network.

10.54 EWS have suggested that the management and maintenance of freight only lines could be taken over by a regulated consortium of freight operators. We will be discussing this issue with Network Rail, government and freight operators.

Allocation of freight only line costs

10.55 Levying a charge on terminal freight only lines would represent an additional charge to the variable charge (the cost directly incurred). The Regulations allow additional charges above the costs directly incurred to be levied in the form of a mark-up only if a market segment can bear them and the other

criteria in the Regulations are satisfied. To be able to assess the ability of a market segment to bear the costs of freight only lines these costs need to be allocated across market segments. We consider that the new freight only line charge should only be levied on a market segment to reflect the costs of freight only lines that it uses (subject to the ability to pay).

10.56 In our consultation document we set out three alternative methods of allocating freight only line costs:

- taking costs of each freight only line directly from the ICM, with these costs allocated across market segments using each line by gross tonne km or train-km (this cannot be done at present as not all freight only lines are in the ICM);
- at an aggregate level where the total cost of all freight only lines is allocated across market segments by total gross tonne-km or train-km on all freight only lines;
- at a more disaggregate level where the total cost of freight only lines is allocated across freight only lines by track length, with the costs of each line allocated across market segments by gross tonne-km or train-km on that line.

10.57 Consultees were divided between support for an aggregate level allocation due to simplicity and a disaggregate level allocation, which would be more cost reflective.

10.58 Table 10.6 shows the allocation of revised freight only line costs for ESI coal and spent nuclear fuel, the two sectors that we consider can bear a mark-up (this is discussed below).

Table 10.6: Allocation of freight only line costs to selected market segments (current traffic levels)

£million (2005-06 prices)	Variable usage charge 2005-06	Aggregate gross tonnage based allocation		Disaggregate track length based allocation	
		Freight only line charge	Freight only line charge as % of variable charge	Freight only line charge	Freight only line charge as % of variable charge
ESI coal	34.9	13.9	40%	8.8	25%
Spent nuclear fuel	0.2	<0.1	6%	1.4	694%

10.59 We will undertake further work on the appropriateness of the allocation metric during PR08. While we believe that there is merit in allocating costs at a disaggregate level, any such allocation must be practical and not lead to perverse incentives.

Assessment of what the market can bear

10.60 Levying a charge on terminal freight only lines would represent an additional charge to the variable charge (the cost directly incurred). The Regulations allow additional charges above the cost directly incurred to be levied in the form of a mark-up only if a market segment can bear them.

10.61 In our consultation document we set out our four-part test to assess what the market can bear. This covered the:

- impact on the rail freight market;
- impact on future growth;
- impact on operator profitability; and
- other impacts such as the impact on the environment.

10.62 In our consultation document we proposed that only ESI coal, spent nuclear fuel and possibly iron ore could bear an increase in track access charges to cover their share of the cost of freight only lines.

10.63 Some consultees have questioned our assessment of the impact on operator profitability. We acknowledge that forecasting the impact of a change in track access charges on freight operator profits is complex and, due to a lack of information, we have not been able to identify the profitability of individual market segments or the portfolio effects of serving a range of markets. In the absence of additional information from operators, we continue to believe that the approach we have taken to assessing the impact on operator profitability is appropriate.

10.64 Some consultees have questioned our assessment of the environmental impacts in our four-part test. The assessment of environmental impacts is based on the impact on ‘sensitive lorry miles’, a standard measure of the

impact of road transport that is used in DfT scheme appraisal.[74] We believe that our approach to assessing what the market can bear and the relative weight we have attached to each of the impacts, in particular the weight placed on the transfer to road, is consistent with our section 4 duties and broader government objectives.

10.65 Some consultees have suggested that the imposition of mark-ups for particular market segments may be discriminatory. We do not consider this to be the case. As stated in our consultation document we have identified market segments using three criteria:

- definition of market segments should be practical, comprehensive and objective;
- market segments should, as far as possible, have common characteristics of some kind that place them, as a class, in a different commercial position against another identifiable class; and
- choice of market segments should not distort incentives.

10.66 As the decision to use rail freight and the ability to bear a mark-up is largely based on product characteristics we consider that market segments in the freight sector should be based on the products transported by rail, rather than the operators that transport them. We have not received compelling evidence to suggest that this interpretation is incorrect.

10.67 Some consultees questioned our consultants MDS Transmodal's assessment of the impact of an increase in charges on the electricity generation market. In particular International Power stated that their modelling suggested a 50% increase in track access charges could reduce coal demand by 3.75%, much larger than forecast by MDS Transmodal. We commissioned NERA to assess the impact of a charge increase on the electricity generation market.[75] NERA estimate that a 50% increase in variable charges would reduce demand for ESI coal by between 1 and 2%, slightly above the MDS estimate but below

[74] Information on sensitive lorry miles can be accessed on DfT's website at http://www.dft.gov.uk/pgr/freight/railfreight/slmp/.

[75] *Impact of Proposed New Charge for Freight Only Lines on Demand for ESI Coal*, NERA Economic Consulting, February 2007. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/nera-esicoal-feb07.pdf.

that of International Power. Considering the evidence we now have, we still consider it appropriate to levy a mark-up on ESI coal to cover the cost of freight only lines.

10.68 Scottish Resource Group have suggested that indigenous coal should be in a different market segment to coal imports as any charge would have a disproportionate effect on domestic producers. NERA indicate that while, on average, the cost increase might be higher for domestic producers, this would not be the case in all circumstances. We therefore do not consider it appropriate to identify indigenous coal as a separate market segment.

10.69 International Power has suggested that the definition of the ESI and industrial coal market segments means that a freight only line charge might discriminate between customers of rail borne coal as some large industrial users regularly export excess power to the national grid and are therefore direct competitors of the coal-fired 'ESI' generators. Analysis by NERA indicates that electricity exports from industrial coal users are small, with exports from the only plant to export with any significance, the Alcan Lynemouth site (for aluminium production), estimated to account for 0.4% of total national grid power generation in 2005-06. Given this scale of impact we do not consider it appropriate to change the definition of ESI coal or to reconsider a charge on the industrial coal market segment, although we will keep this under review.

10.70 We have considered further whether the iron ore market should bear a mark-up for freight only lines and have received confidential consultation responses from Corus and EWS on the impact of a freight only line charge on the iron ore market. We now consider that it would not be appropriate to levy a charge for freight only lines on iron ore due to concerns the impact a potential charge could have on this market.

10.71 We do acknowledge that, with any assessments of this type, there are uncertainties, however we continue to believe that both the ESI coal and spent nuclear fuel markets can both bear a mark-up to reflect the costs of freight only lines.

Caps for freight only charges

10.72 As we are yet to conclude on an allocation metric we have set the caps based on the higher of the gross tonnage and track length based allocations. Freight only line charges for ESI coal range from £6.2 million to £13.9 million per

annum based on a gross tonnage allocation and £3.9 and £8.8 million per annum based on a track length based allocation. Caps have been set at the maximum of these charges, £13.9 million per annum, equivalent to a charge increase of around £2.8 million per annum when phased in over CP4.

10.73 Charges for spent nuclear fuel are only significant if a track length based allocation metric is used, with charges ranging from £0.6 million to £1.4 million per annum. As spent nuclear traffic makes up only a small proportion of traffic on freight only lines using a gross tonnage based allocation gives a maximum potential charge of around £12,000 per annum. Caps have been set at the maximum of these charges at £1.4 million per annum, equivalent to a charge increase of around £0.3 million per annum.

10.74 Table 10.7 summarises freight only line caps for ESI coal and spent nuclear fuel.

Table 10.7: Maximum freight only line charges for ESI coal and spent nuclear fuel

£million (2005-06 prices)	2009-10	2010-11	2011-12	2012-13	2013-14
Caps on ESI coal freight only line charge	2.8	5.6	8.4	11.2	13.9
Caps on spent nuclear fuel freight only line charge	0.3	0.6	0.8	1.1	1.4

Charging mechanism

10.75 In our consultation document we proposed three alternative mechanisms for charging for freight only lines:

- a fixed charge on freight only lines – where a fixed charge is levied on each relevant market segment;
- a variable charge applied on freight only lines – costs could be allocated as a mark-up on variable charges incurred on freight only lines; or
- a variable charge across the network – costs could be allocated on the variable charge across the entire network.

10.76 There was some support from consultees for both a variable charge levied across the whole network, due to its simplicity, and a fixed charge applying to freight only lines, as it was more cost reflective.

10.77 We will consider further the impact of different charging mechanisms during PR08, including how they might work in practice and the impacts that they might have on incentives.

Next steps

10.78 We have asked Network Rail to include a full set of indicative charges in its SBP. As part of this we have asked Network Rail to improve its initial cost estimates for both freight only lines and freight variable usage. The key aspects that we expect Network Rail to cover in its indicative charge proposals include:

- the relative unit costs of maintaining and renewing freight only lines compared to the mixed use network (this should draw on actual costs);
- calculation of costs for freight only lines not currently in the ICM;
- the assessment of long term costs for assets with a life greater than 35 years;
- the allocation of related costs to freight only lines (particularly signalling costs);
- further identification of traffic on freight only lines;
- identification of costs of freight only lines covered by connection agreements;
- the allocation of variable costs between freight and passenger traffic; and
- the variability of track renewals and other costs.

10.79 We will be undertaking further work on:

- the mechanism for allocating freight only line costs across market segments;
- the freight only line charging mechanism;
- Network Rail's proposals for a tonnage capability measure and appraising the case for enhancing capability to accommodate unanticipated step changes in traffic.

10.80 To allow Network Rail to develop its indicative charge proposals we intend to conclude on the charging and allocation mechanism by August 2007. We therefore intend to publish a consultation letter on freight only line cost allocation and charging in May 2007. Network Rail is developing its proposals for a tonnage capability measure. By September 2007 Network Rail intend to have fully developed proposals for the measure as well as identifying tonnage capability across the network. We will continue to discuss with Network Rail and operators as these proposals develop.

Annex A: Specific objectives for PR08

Our specific objectives for the Periodic Review 2008 (PR08) are:

- To set Network Rail's access charges such that they are:
    - So far as practicable, cost reflective and therefore provide good signals to users and funders; and
    - Neither higher nor lower than they need to be to enable the high-level outputs to be delivered on an efficient and sustainable basis, and to provide value for money.
- To set Network Rail's outputs:
    - With improved definition (e.g. capability, availability, reliability), to focus Network Rail planning/management, and to facilitate measurement of outcomes;
    - So that they are targeted on what users and funders want from the railway and, wherever practicable, are based on final outputs rather than inputs; and
    - On a forward-looking basis, with a trajectory set in the short, medium and long term, to an appropriate level of disaggregation that challenges Network Rail to better understand the drivers of good performance in all time frames.
- To improve incentives, to:
    - Deliver continuous improvement in operations and maintenance and renewal/enhancement procurement efficiency;
    - Optimise cost/quality trade-offs, based on evidence of what railway users value;
    - Balance outputs in different time frames (e.g. performance in the short and longer term);

- Challenge Network Rail to improve its knowledge/understanding of assets, especially its ability to predict the impact of changing patterns of usage and ways of working to optimise the extent/cost of accommodating forecast/emerging demand;
- Develop Network Rail's planning framework and asset knowledge; and
- Promote continuous improvement in health and safety.

Annex B: Review initiation notice

1. It is the first time we have served a notice under paragraph 1C of Schedule 4A. This annex therefore explains our approach to certain issues in connection with this notice.

2. Paragraph 1C specifies the persons individually or by class to whom we must send this notice. One class of person to whom we must send the notice are parties to the access agreement which will be the subject of the access charges review. We are therefore sending this notice to all persons who are currently a party to a track or station access agreement which we consider fall within the scope of PR08.

3. Because this notice informs persons of our proposal to undertake a review it is being served in February 2007 following the preparatory work that has been on-going for some time. Between the date upon which this notice is being served and the date on which we intend to publish our review notice there are access agreements that will expire, it is also likely that parties who are not currently party to an access agreement will enter in access agreements. For example, it is envisaged that the transition to the Station Code will take place during this period. We also need to cater for those persons who are not currently a party to an access contract by who may become a party before the date on which we serve the review notice implementing the conclusions of the access charges review.

4. Paragraph 1C(1)(e) includes a residual category permitting us to send the notice to such other persons as we consider are appropriate. Under this provision we are sending the notice to any person that we are aware has recently expressed an interest in entering into an access agreement. If we subsequently receive an application under Section 17 or 18 of the Act from any such person, or even someone who is not included in this category, in respect of an access agreement that would otherwise come within the scope of PR08 we would expect that access agreement to include a bespoke provision. Broadly, this provision would acknowledge that the beneficiary was aware of the notice we had served and agrees that for the purposes of ORR initiating and implementing the PR08 final determinations the fact that it had not received a copy of the notice as a party to an access agreement would not

prevent ORR implementing a review of its access agreement. We also intend to adopt a similar approach in respect of any new (i.e. additional or replacement) access contracts which fall with the scope of PR08 which are entered into by parties who receive this notice under paragraph 1C(1)(d).

Annex C: Detail of expenditure assessment

1. This annex provides more detail on our assessment of Network Rail's OM&R and enhancement expenditure, further to chapters 2 and 3.

Maintenance and renewals expenditure

2. Our assessment of the maintenance and renewal expenditure plans in the ISBP has concentrated upon both the underlying policy assumptions that define the CP4 asset management regime and the methods used to forecast future levels of activity and expenditure. We have used the ICM to test the effects on expenditure of varying input assumptions, and this has been invaluable as we have developed our analysis into the existing range of expenditure.

3. The assessment process itself was built around a challenge process that was developed (a) from our review of the ISBP documents and the questions that this generated, and (b) from our ongoing monitoring of Network Rail's asset management processes, including its various decision support tools and the quality of its asset knowledge as it continues to improve its asset information.

4. Although the ICM is a newly constructed model, many of the key principles and underpinning algorithms remain largely unchanged from the forecasting tools that were used by Network Rail to inform ACR2003. The track renewals model (T-SPA) and civil engineering model (SACP) are both examples of how aspects of previous work have been carried into the new framework, although as we describe below, forecasting of track renewal volumes has actually been simplified from the T-SPA model.

5. In other areas the ICM framework has extended forecasting methods to cover activities and expenditure that were not modelled at all, or only very simplistically, in 2003. For example, the first version of the ICM has begun to generate 'bottom-up' route based forecasts for a number of core maintenance activities. This is an important step forward.

6. This annex does not discuss every aspect of our technical review and challenge process. We explain what are the main considerations that we have

factored into the derivation of a plausible range of maintenance and renewal expenditure, given that many issues and uncertainties remain to be resolved.

7. Essentially, this has been done by considering the basis of Network Rail's own ISBP figures, and then applying adjustments above and below them to reflect our assessment of (a) the risks that could feasibly dictate a higher level of expenditure, and (b) the opportunities for reducing levels of activity and/or expenditure without adversely affecting the network outputs, including safety.

Track renewals

8. Track renewals are the largest single area of expenditure in the ISBP, amounting to £3.3 billion for the whole network in CP4 in the Baseline strategy – one third of all proposed renewals spending. Scotland's share is a little over 13% of this sum.

9. In terms of activity, these figures reflect a steady volume of work throughout CP4, in a range between 2.7% - 3.0% of the total network renewed each year. Our assessment has sought to understand the justification for this level.

10. The ISBP plans for CP4 are much in line with activity levels in CP3, although this is not a justification in itself. However, it does show that the plans should be deliverable. Against this there are a number of issues that remain to be resolved. For example:

- the ISBP forecasts activities in Scotland that rise above those of the current control period – particularly towards the end of CP4. The need for this is not evident at this stage, and the issue is discussed in more detail below

- some limited international benchmarking conducted recently, jointly sponsored by Network Rail and EWS, has called into question the justification for the renewals that were seen. The study suggests that much of the work was being carried out well before what might be expected to be life expiry. Network Rail has not yet provided its response to this study.

11. Questions therefore remain about the robustness of the ISBP volumes, and there is more work to do as PR08 progresses. At this stage, it is worth noting that the forecasting tools used to underpin ACR2003 are not fully replicated in

the ISBP. Some of the T-SPA modelling process has been incorporated into the ICM, but in a more simplified form that relies primarily upon basic service life criteria.

12. Service life assumptions exist for rail, sleepers, ballast and switches and crossings, and the model records and adds a renewal for any section of track if any of these assets exceed the appropriate threshold for a particular track form and level of use. Such an approach inevitably requires accurate asset data and it involves a considerable degree of averaging, but it can still produce a forecast of future activity levels with a reasonable degree of tolerance at the network level where the asset population is large. However, in practice the condition, performance and behaviour in service of track can vary widely between routes. Thus at lower levels of disaggregation where the total asset volumes are smaller, the errors in forecasts based on network-average service lives are potentially much larger.

13. We consider that this effect is significant in generating the apparently high volume of track renewals in Scotland compared to previous work undertaken as part of the devolution of responsibility for railway funding from DfT to the Scottish Executive during 2004 and 2005. Our present hypothesis is based upon a view that much of the track mileage in Scotland has been consistently well maintained over time – a fact that when considered together with the relatively low annual tonnages on many of the routes in question, mean that a national average service life for key track components is likely to be too conservative, with the result that renewals forecasts are over-estimated. This is currently being investigated in more depth, although we are also continuing to examine whether there is any evidence of a more significant bow-wave of renewal in Scotland during CP4.

14. It is also important to emphasise that the track asset policy tends only to codify existing practice; this is not to deny its value, but it does mean that there are many policy developments under consideration by Network Rail for which the potential effect on future activity levels and expenditure have not yet been quantified. These have all been factored into the development of our expenditure range by considering both risks and opportunities as described above. Key examples of this are:

- further development of differentiated outputs by route, leading to changes in activity levels. In this regard, the further work we are doing to examine the lessons from the ISBP forecasts for Scotland is a key part of this;
- consideration of the most appropriate standards and the development of a regime that aligns the maintenance and renewal regimes more closely with the way in which risks vary across the network;
- improvements in technology (e.g. installation of more reliable components) and delivery methods. For example, we expect Network Rail to have implemented its modular approach to S&C renewals by the beginning of CP4;
- the planned balance between 'conventional' and high output track renewals. These require very different possessions regimes and the unit costs may also be quite different; and
- the possibility of moving towards a cyclic renewals strategy for track on the primary routes, rather than the current piecemeal approach. Initially at least, this could generate higher levels of activity on certain routes, and some premature renewals, but it could also generate a significant shift in the performance and reliability of a route. We have not yet seen an economic analysis of cyclic renewal options.

Track maintenance

15. The overall figure for maintenance expenditure in the ISBP across the whole network in CP4 is £4.1 billion in England & Wales and £480 million Scotland. The ICM calculation of overall maintenance expenditure includes non-track assets such as signalling and electrification equipment, but it is expenditure on track maintenance that constitutes the largest element of these total figures.

16. At the time of ACR2003, and still in our initial assessment in December 2005, there was very little information available about the required level of maintenance activity. This is beginning to change, and the ICM now models a range of core maintenance activities on a route by route basis. Even so, a significant element of maintenance expenditure continues to be distributed to route level by top-down allocation metrics. Once again this methodology appears to have created a significant discrepancy in Scotland, where the

ISBP forecasts that maintenance expenditure in the first year of CP4 should be 14% higher than the last year of CP3. There is no apparent justification for this, and hence it also forms part of our ongoing analysis of the expenditure requirements in Scotland. We believe this further demonstrates the need for the ICM to be developed to provide much more robust forecasts of maintenance and renewals expenditure at route level.

17. We also note that the profile of maintenance expenditure reduces through CP4 with efficiency assumptions built in, but it does not appear that there is any change in forecast levels of activity. We will continue to challenge this, because we would expect that with recent relatively high levels of track renewal and the projection of these through CP4, there should be benefits in terms of lower levels of maintenance intervention (without affecting safety). This effect should be enhanced by steps Network Rail is taking to improve the quality of track renewals work.

The maintenance – renewal trade-off

18. The ISBP does not yet demonstrate a convincing or robust linkage between maintenance activity, underlying route conditions and asset condition and the projected volume of track renewals. Although the asset policies are intended to be based upon the minimisation of whole life costs, the amount of actual information about the cost and location of maintenance interventions impairs the analysis to the extent that we cannot be confident that the ISBP's mix of maintenance and renewal activities is the correct one for optimum management of the track assets.

19. Some circumstantial evidence for this caution is provided by the joint EWS/Network Rail benchmarking study mentioned above. Even though the sample size was small, it did suggest that some track renewal work may be being carried out too early, when ongoing maintenance may still be the optimum solution.

20. We have to factor these uncertainties into the generation of our activity and expenditure range. Development of economic analysis to inform the optimum point on a whole life cost basis for a renewals intervention must be a key priority for Network Rail.

Civils

21. The ISBP figures for the maintenance and renewal of civil engineering structures and earthworks (some £1770 million for CP4 across the whole network) are much in line with budgeted expenditure in CP3. The figures have been generated using the basic SACP statistical model, which was used to inform the ACR2003. This model has been undergoing significant development since 2003 and the new version, CECASE (Civil Engineering Cost and Strategy Evaluation) will be used to inform the SBP. Unlike the track module however, where algorithms have been imported directly into the ICM, SACP continues to function independently of the ICM. Civils activities and expenditure are therefore modelled outside the ICM framework, which simply imports the SACP forecasts. Development of CECASE continues to lag behind the ICM although we understand it will be included in the SBP.

22. This separation between the two modelling processes means that AMCL's audit of the ICM could not evaluate the generation of civils activity volumes. However, we have been closely observing the ongoing development of SACP and CECASE since 2003, so our assessment of the ISBP is based upon a detailed understanding of the forecasting methods.

23. Generally we are satisfied with the way in which the modelling methodology examines a number of different asset management options for bridges, based upon varying scopes and timing of interventions on different types of structure. Superficially, it might therefore appear that the forecasting of structures activity and expenditure is further forward than for other asset types.

24. Unfortunately this is not the position. For the ACR2003 SACP was very weak in its ability to predict outputs. Whilst CECASE is expected to improve on this, the evidence is not yet available. It should also be noted that there are a number of exclusions from the SACP analysis, for example major structures (12% of the civils budget and tunnels (3%). These exclusions are added in as bottom up assessments for each structure and full justification of these separate assessments has not yet been provided.

25. In this case it is not the basis for deciding upon the interventions that is in question so much as the linkage between forecast activity and its outcome. Whereas track modelling is able to predict specific asset condition and

performance for a given set of activities on a route, the same cannot be said of the SACP model in which output measures are much more subjective and long term.

26. As with other areas of expenditure, the ability to model route level activity and expenditure also needs to be developed further. At present, CECASE is being developed to identify a number of different policy options for managing structures, but although Network Rail is carrying out work to refine its modelling to individual types of structure, the ISBP still contains a significant degree of averaging within its route forecasts. Perhaps even more importantly, we have yet to see real evidence that the planning of actual workbanks for structures maintenance and repair is truly guided by the stated policy.

27. The development of our expenditure range has taken such issues into account, with particular opportunities to reduce the ISBP civils expenditure being attributed to:

- better alignment of activity plans at route level with the high level policies;
- challenge to Network Rail's assumptions about how it applies particular asset management policies to types of route. For example, does every structure on a primary route actually need to be managed to the highest category of policy as is currently modelled?
- refinement of the CECASE model; and
- the possibility of adopting a more risk-based inspection regime, leading to an overall reduction in the total volume of inspections carried out.

Signalling

28. At a total of almost £2.3 billion across the network, the ISBP's forecast of signalling expenditure is second only to track in its share of the total renewals spend in CP4.

29. Our assessment has continued with the same approach that we used to undertake the medium term review of signalling renewals activity and expenditure for the remainder of CP3.[76] This means that there is substantial

[76] *Signalling Review: final conclusions of the medium-term* review, Office of Rail Regulation, December 2005. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/269.pdf.

detail of the schemes within the plan. What is included within the ISBP may be clear, but our assessment has challenged some of the assumptions that are built into the ICM and is based on emerging experience of actual delivery in CP3.

30. The ICM calculates a resignalling volume by estimating renewal dates based upon an assessment of condition and remaining service life. Calculated volumes imply a service life of 35 years, which we recognise is not an unrealistic figure. However, since many interlockings are not being renewed until beyond a 35 year life we have examined how a slightly longer service life assumption of 40 years would reduce the total volume of renewals modelled within the ICM.

31. In terms of activity levels, the ISBP forecasts a very high level of commissioning (measured as signalling equivalent units) in 2009-10, falling in 2010-11 and rising again for the following two years. Inevitably the profile of actual commissionings of new schemes will vary, but we note that the higher levels proposed in the ISBP have not yet been delivered by Network Rail. Emerging experience to date shows that Network Rail has been significantly over-optimistic about its ability to deliver forecast volumes of signalling renewal, and we have to factor this performance into any assessment of a plausible range of activity and expenditure.

32. While the future of ERTMS remains under review by the industry, the ISBP has obviously not been able to take into account any effects on CP4 activities should the decision be taken to proceed with ERTMS. In reality, the CP4 effects may not be that significant, although it could influence the proposed timing of renewals schemes and lead to more life extension works. Network Rail has not yet produced any assessment of the volume effects of a positive decision on ERTMS, and we have not made any such adjustments in the estimation of our range for signalling renewals.

33. The estimation of this range is also strongly dependent upon assumptions about the unit cost of renewing each signalling equivalent unit (SEU). Network Rail's estimates are based upon emerging unit costs from recent renewals schemes, and we are awaiting the finalisation of a study to benchmark these costs against signalling renewal costs on comparable European networks. Again, we have not included any unit cost adjustments within our estimated range.

34. We have therefore established our estimated range of signalling renewals by:

- taking Network Rail's own ISBP activity and expenditure levels as the upper limit, with no further adjustment; and
- defining a lower limit by reducing activity levels to reflect a longer service life of 40 years. This equates to a level of renewals of approximately 1600 SEUs per annum and addresses our concerns about the deliverability of the higher volumes (e.g. 2355 SEUs in 2009-10) proposed by the ISBP. We have also made a marginal adjustment to the expenditure on minor works schemes.

35. Our current estimated range for expenditure on signalling renewals in CP4 is therefore between £2.0 billion and £2.3 billion.

Telecoms

36. Activity in this area is dominated by the major project to install the GSM-R mobile communications system for the railway network and to renew the fixed telephone network (FTN). Expenditure on this project has been high in CP3 and is projected to run at a similar level at the beginning of CP4, but ramping down rapidly through the control period. The emerging costs of this work may be reduced to some extent as new franchise agreements require train operators to fund cab fitment.

37. With the advent of GSM-R, the scope of work on fixed lineside communications (including signal post telephones) is under review and may lead to lower levels of expenditure than currently forecast.

Electrification

38. The ISBP forecasts a total expenditure on electrification assets of a little over £500 million in CP4, at an annual rate of spend that is very similar to the current control period. It is apportioned between AC overhead electrification (42%), third rail DC systems (53%) and system control (5%).

39. The ICM models maintenance and renewal activities by combining standard inspection frequencies with an assumed level of interventions that is based upon existing fault rectification and route cost data. System components such as switchgear and transformers are planned for renewal on an individual age basis, reflecting a widely accepted industry approach to managing safety

critical assets for which condition monitoring is difficult. This continues the approach that was used in ACR2003.

40. Network Rail is developing improved tools for monitoring the condition of both overhead line and third rail electrification systems. In the future we expect these to provide more accurate assessments of the interventions required, but at this stage we do not have any evidence that would suggest any significant variance on the activity volumes and expenditure forecast in the ISBP.

Plant and machinery

41. The ISBP forecasts expenditure of £250 million on plant and machinery in CP4, representing relatively modest levels of spending across a diverse asset base. Of this figure approximately £100 million is apportioned to equipment that can have a significant influence upon the reliability of the infrastructure, such as points heaters, power supplies and remote condition monitoring systems.

42. There is a substantial provision for the procurement of further high output track renewals equipment in the early part of CP4. The justification for this expenditure is clearly tied both to the overall level of track renewals activity and the strategy for delivering it – including the CP4 possessions strategy.

Operational property

43. The forecast level of expenditure on operational property in CP4 is £1.2 billion, comprising £328 million on Network Rail's 17 directly managed stations, £725 million on franchised stations, £67 million on light maintenance depots and £121 million on other depots and lineside buildings. The projected element of operational property expenditure in Scotland is 15%.

44. Overall, the ISBP forecasts a significant increase on present levels of expenditure – the first year of CP4 shows a 50% increase on the last year of CP3. While the expenditure on the managed stations is reasonably well supported by detailed work plans, that for the franchised stations is based upon modelling a range of key activities on the main elements of buildings and platform fabric. The ICM forecasts activity volumes based upon a sample of stations and can reflect different asset management policies for different types of station ('policy 1' focuses on planned preventative maintenance with minimum levels of reactive maintenance for the higher category stations,

while ‘policy 2’ assumes higher levels of reactive maintenance and longer asset lives for individual elements of lower category stations).

45. The CP4 forecasts represent Network Rail’s contention that existing levels of expenditure are insufficient to sustain good stewardship of stations in the long term. While ORR recognises the force of this argument, we cannot yet accept it as a full justification for the proposed CP4 expenditure. The key problem is that the knowledge and measurement of station asset condition is not as robust as it needs to be. This means that the link between proposed activities and their outcome in terms of asset condition is particularly tenuous.

46. We will continue to review how Network Rail is applying its asset management policies to its operational property portfolio, and how its improving asset condition knowledge influences its expenditure forecasts in the forthcoming SBP.

Enhancements

Overview

47. We have assessed both the ISBP and Network Rail’s November 2006 ‘refresh of the route plans’, which updates the ISBP Base Case strategy. Since summer 2006, we have held several useful meetings with Network Rail, DfT and Transport Scotland to ensure a consistent understanding across the portfolio of enhancements. We recognise that Network Rail has made considerable progress over the last year in pulling together the plans and aspirations of its funders and customers, and developing these into a portfolio of Base Case schemes.

48. Our objective in assessing Network Rail’s portfolio of enhancements is to determine whether or not the enhancement schemes proposed by Network Rail in the ISBP are going to deliver the incremental outputs described in the ISBP, and if so, whether or not the schemes are likely to deliver the specified outputs for an efficient price.

49. As well as assessing Network Rail’s cost estimates for the schemes, we have assessed the arrangements proposed by Network Rail and Government (or other sponsors) for delivery of schemes, particularly the proposed risk allocation. This is important as the risk allocation (including the basis of pricing) has a direct impact on the outturn costs of schemes as the risk

allocation largely determines the incentives for efficient delivery. This in turn affects the allowance we make for schemes.

50. We have applied the approach set out in our March 2006 investment guidelines to assessing proposed enhancement schemes, depending on the type and materiality of the schemes, primarily estimated scheme costs.[77] Our assessment has used top-down benchmarking of schemes as well as detailed, bottom-up cost analysis for a sample of schemes. In our assessment we have also drawn on expert advice from our strategic advisors Steer Davies Gleave and our engineering advisors Scott Wilson Railways.[78]

51. We note that both the ISBP and refresh scenarios represent snapshots of an enhancement portfolio that will continue to change as schemes are developed. The actual schemes delivered during CP4 will depend on the outputs specified by government. Given a complex portfolio of developing schemes, any snapshot such as the ISBP or the refresh needs to be both up-to-date when prepared, and comprehensive.

52. In contrast to our assessment of OM&R expenditure, potential efficiencies for enhancements can be assessed on a scheme-by-scheme basis as each scheme (or group of schemes) has its own risk profile and hence different potential efficiencies.

Information in the ISBP

53. Network Rail's ISBP contained the following information on enhancement schemes, which is also summarised in Table C.1 below:

- details of committed enhancements in the Baseline, 20 schemes with an estimated cost of £1.0 billion in CP4; and
- details of a further 162 proposed schemes for the Base Case, totalling £7.9 bn in CP4 (including the £1.0 billion in the Baseline and £0.5 billion for NRDF and safety and environmental plan overlays).

[77] More detail on the assessment methodology is set out in chapter 4 of our investment guidelines. These can be accessed at http://www.rail-reg.gov.uk/upload/pdf/277.pdf.

Table C.1: Enhancement schemes in the ISBP

£million (2005-06 prices)	Number of schemes	CP4 expenditure
Baseline (GB) (see note)	20	1,040
Base Case		
England	133	5,530
Scotland	29	870
Sub-total	162	6,400
Overlays (NRDF and S&E plan)	--	500
Total	162	6,900

Note: All the Baseline schemes are assumed to be funded through the England & Wales RAB, except for the Scottish element of the 'access for all' programme.

54. In the Baseline, the seven major schemes (each valued at over £50 million) comprise 97% of forecast expenditure, while in the Base Case there are an additional 25 major schemes which comprise 86% of additional forecast spend. In line with our published investment framework, our assessment has focused on the major schemes.

Refresh of the route plans

55. In its refresh of the route plans, Network Rail updated the ISBP Baseline and Base Case scenarios in the light of:

- further analysis of demand;
- discussions with customers and funders;
- further input from the programme of RUSs; and
- our initial assessment of the ISBP.

56. There are significant changes in the refresh (both additions and exclusions) from the set of schemes included in the ISBP, and spend for the West Coast main line schemes and Thameslink programme has been deferred. The net effect of these changes is that:

- the estimated cost for Baseline schemes has increased by £110 million to £1,150 million; and

- the estimated CP4 cost of Base Case schemes in the refresh has reduced by £1.22 billion relative to the ISBP from £6.45 billion to £5.23 billion[79].

The variances between the ISBP and the refresh are summarised in Table C.2 below.

Table C.2: Variance in estimated enhancement costs between NR ISBP (June 2006) and route strategies refresh (Nov 2006)

£million (2005-06 prices)	ISBP	Refresh	Variance
Baseline	1,040	1,150	110
Base Case			
Priority 1 schemes	6,450	5,230	-1,220
Low priority schemes	0	880	880
Total	6,450	6,110	-340

57. In the refresh scenario, the total expenditure on major schemes, expressed as a proportion of total spend, is very similar to the ISBP for both the Baseline and the Base Case.

Baseline

58. The four major schemes on the west coast main line[80] account for around 70% of Network Rail's estimated Baseline spend. We have therefore drawn extensively on ongoing work to monitor the WCRM programme and other schemes on the route during our assessment. As well as analysing information provided as part of the ISBP and refresh, we have asked the independent reporter, Halcrow, to carry out a comprehensive review of other relevant information available in Network Rail's programme funding summary document for the West Coast Route Modernisation (WCRM).

59. We have reduced the allowance for Baseline schemes by some £250 million for expenditure on the West Coast main line which we consider represents

[79] Excluding low priority schemes, see table below. Also this figure is before a £50m adjustment for Thameslink renewals avoided.

[80] Stafford remodelling, Power Supply Upgrade, Bletchley – Milton Keynes and Colwich-Armitage.

work which has already been funded in CP3. We will discuss this issue further with DfT and Network Rail before finalising our allowance for these schemes.

60. We consider that Network Rail's estimates for other Baseline schemes are reasonable, primarily the redevelopment of Kings Cross station and the Access for All programme of accessibility improvements at stations.

61. Our overall assessment of the Baseline for England & Wales gives a lower range estimate that is 35% lower than Network Rail's estimate at £0.68 billion while our upper range estimate is some 5% higher than Network Rail's estimate at £1.13 billion.[81] For the Baseline, we have calculated that only £20 million of the total expenditure is related to enhancement schemes in Scotland: this estimate covers Scottish elements of the 'access for all' programme.

Base Case

62. The Base Case can be broken down into three broad elements, each of which we have assessed:

- the Thameslink Programme, which accounts for half of Network Rail's estimated enhancement expenditure in CP4 (£2.6 billion) in the Base Case;
- six major schemes promoted by Transport Scotland[82] , which account for around 14% of estimated enhancement expenditure in CP4 (£0.7 billion); and
- other schemes, including 18 major schemes (all with cost estimates greater than £50 million), which together account for 36% of estimated enhancement expenditure in CP4 (£1.9 billion[83], of which £0.15 billion relates to Scottish schemes).

[81] All figures are net of 3rd party funding & take account of the revised WCRM profile in the refresh.

[82] Airdrie-Bathgate, Edinburgh Airport Rail Link (EARL), Glasgow Airport Rail Link (GARL), Waverley Rail, Edinburgh/Glasgow Electrification and Glasgow Queen Street Remodelling.

[83] Based on our analysis of this expenditure.

63. In order to carry out consistent analysis of the Base Case, we have used the ISBP figures and adjusted Network Rail's expenditure estimates to allow for the re-profiling of Thameslink spend and the removal of TIF funding. The result of these adjustments is to reduce Network Rail's estimate (excluding overlays and low priority schemes) from £6.4 billion to £5.7 billion.

64. In general we have assumed that scheme estimates will include a 10% contingency at GRIP stage 5. Schemes at earlier GRIP stages are assumed to be developed so that risks are priced in/managed out to generally reduce the level of contingency to 10% by GRIP stage 5. This assumption does not affect our overall allowance for schemes, just the contingency assumed (and also the ranges). For the largest schemes – such as Thameslink and the largest Scottish schemes – the actual contingency we allow at GRIP stage 5 could be up to 25%, which drives our estimate for the upper end of our range. We have also carried out further variability analysis on the portfolio of Base Case schemes, discussed below.

65. The means of paying for schemes may vary. As well as possible grant funding for some schemes (which will reduce the amount to be funded through access charges in CP4 as part of the HLOS/SoFA process), some £110 million of schemes in the Base Case are assumed to be funded outside the HLOS/SoFA process: the majority of this is assumed to be third party funding from TfL.

Assessment of Base Case: England & Wales

66. Thameslink: Network Rail estimates delivery will cost £2.6 billion in CP4. We are broadly content at this stage with the current cost estimates. We note that the programme has been under intensive development for over five years and has already been subject to extensive analysis by Government: as well as several DfT reviews of the cost estimates, we understand that the Office of Government Commerce (OGC) has recently carried out a review of the business case and concluded that it is robust. However, there are some issues which we will continue to explore with Network Rail and DfT, including:

- the risk allocation currently proposed for the programme, where Network Rail appears to be insulated from much delivery and output risk; and
- the estimated level of TOC compensation, which appears high.

67. Thameslink currently has an overall allowance for risk of 23% of the total programme cost (or approximately £0.8 billion, with almost all of this in CP4). The majority of this is unquantified risk allowance, of one kind or another. If anything this is lower than we might expect at this stage (GRIP stage 3).

68. The set of other Base Case schemes in England and Wales includes 20 major schemes, such as the Waterloo Masterplan, the West Anglia Route Development and the Felixstowe to Nuneaton scheme. Our assessment is that the costs for many of these schemes appear high: we have applied reductions of up to 50% to the cost estimates for several schemes, and also removed estimated expenditure for some schemes whose outputs may not be required in our view.

69. We have concerns over the degree of volatility of the portfolio of Base Case schemes in England and Wales, primarily that:

- the scope and cost of the schemes changed substantially between the ISBP and the refresh;
- the refresh does not take account of interactions between schemes, even where scheme objectives and outputs appear to overlap; and
- it is a considerable challenge for Network Rail to make sufficient progress in developing schemes to enable delivery of the portfolio of schemes in CP4. Network Rail has agreed to provide us with its proposed plan for developing schemes through the GRIP process.

70. Given these issues, we have assessed the range around the Base Case portfolio and schemes and concluded that there is significant variability in the costs of the other Base Case schemes. This conclusion is based on an asset-by-asset analysis of scheme costs, applied to the portfolio.

71. Our overall assessment leads to a lower range allowance of £3.3 billion for Base Case schemes in England and Wales (31% below Network Rail's estimate), and an upper range allowance of £5.3 billion (12% above Network Rail's estimate)[84].

[84] All these figures exclude low priority schemes and overlays for the Network Rail Discretionary Fund or the Safety & Environment Plan schemes – of £500 million in total for Great Britain.

Scotland

72. We have assessed each of the major Base Case schemes in Scotland, primarily by using existing information on the schemes including documents presented to the Scottish Parliament.

73. These major schemes have been under intensive development for several years and have generally been subject to Parliamentary scrutiny. We are continuing to work with Network Rail and Transport Scotland to discuss the proposed funding and governance arrangements for these schemes, particularly to clarify the proposed role and risks that Network Rail will take.

74. We are broadly content at this stage with Network Rail's cost estimates for the six major schemes. Network Rail also estimates that other Base Case schemes in Scotland will cost around £0.15 billion in CP4, including 7 medium schemes (with cost estimates between £5 million and £50 million). Our assessment is that the costs for these schemes appear reasonable. We have therefore made only minor adjustments to Network Rail's estimate of total Base Case expenditure in Scotland of £0.86 billion. We consider that there is an excessive level of risk allowance in the costs for the EARL scheme given the stage of scheme development. Conversely the risk allowance for the Waverley Rail scheme in the ISBP looks low given its development stage. Our lower range estimate for Scotland is £0.73 billion, which is 16% lower than Network Rail's estimate, while our upper range estimate is £0.99 billion, some 14% higher than Network Rail's estimate.

Summary of our assessment

75. Tables 3 and 4 below summarises our assessment of the Baseline and Base Case scenarios.

Table C.3: Summary of Baseline analysis

£billion (2005-06 prices)	England & Wales	Scotland	GB
ISBP	1.12	0.02	1.14
Our upper estimate	1.18	0.02	1.2
Our lower estimate	0.73	0.02	0.75

Table C.4: Summary of Base Case analysis[85]

£billion (2005-06 prices)	England & Wales	Scotland	GB
ISBP	4.76	0.87	5.63
Our upper estimate	5.33	0.99	6.32
Our lower estimate	3.29	0.73	4.01

Treatment of contingencies – the risk buffer and ring-fenced fund

76. As noted above, the scheme contingencies quoted above are scheme-specific, i.e. the level of contingency we have allowed varies between schemes, depending on the risk profile of the scheme. Therefore we consider it is reasonable to assume at this stage that there is no overlap between these contingencies and the overall risk buffer for Network Rail. This issue is discussed in more detail in chapter 7.

Renewals avoided due to Base Case enhancements

77. We have examined further how Base Case enhancements may affect renewals. While it is possible from the ICM to flag the enhancement activity planned to coincide with renewals on particular strategic route sections, it is not (in most cases) possible to determine whether the enhancement and renewal apply to the same assets. More information is needed specifying renewals and understanding flexibility in phasing to determine the extent of saving possible from combining work; this required level of detail lends itself to a sampling, case-study based approach. We intend to develop this approach further during 2007, by modelling the impact using the ICM or other additional information.

[85] All figures are net of third party funding.

Annex D: Efficiency assessment

Our efficiency assessment work programme includes the following initiatives.

- Work to benchmark Network Rail with European rail infrastructure comparators, using “top down” econometric and data envelopment analysis (DEA) techniques. The results of this work are expected to be available later in PR08.
- Work to examine the efficiency of specific Network Rail activities/policies such as possessions.
- Work commissioned from AMCL to assess Network Rail’s “whole life” asset management practices.
- Further work to asses the scope for “frontier shift” efficiency savings, including lessons to be learned from total factor productivity analysis (for the economy as a whole, industries similar to rail infrastructure, and rail infrastructure itself).
- Careful consideration of evidence submitted by Network Rail, and ongoing involvement in a selection of Network Rail’s own efficiency workstreams (for example, commenting on terms of reference and reviewing outputs).
- Careful consideration of evidence submitted by stakeholders, including further internal work to confirm assumptions where considered necessary.
- Ongoing close monitoring of Network Rail progress in producing a full and robust set of maintenance unit costs (MUCs) and cost analysis frameworks (CAFs) for the measurement of renewals unit costs. Internal work to consider efficient levels of unit costs (particularly for track maintenance and renewals costs, electrification and plant, and operational property).
- It is possible we may wish to update studies undertaken/ commissioned early-on in the review to take into account more recent data. We will keep this issue under consideration throughout PR08.
- Ongoing assessment of input prices evidence.

Annex E: Treatment of non-controllable expenditure

1. Further to the discussion in chapter 6, our approach to the treatment of the 'non-controllable' operating expenditure items in CP4 is:

   - Rail Safety and Standards Board levy – (referred to in chapter 3), with the risk taken by Network Rail;
   - regulator's fee – pass through;
   - BT Police – ex ante, with the risk taken by Network Rail; and
   - cumulo rates – use a flexible approach (discussed below).

2. The industry wide traction electricity working group has been discussing the possibility of altering the approach to traction electricity charging and considering the feasibility to make changes from April 2007. The current proposals would entail changing the basis of the charge from a published price list indexed each year to one based on the actual costs Network Rail incurs. We will consider the treatment of traction electricity further when the work of the working group is complete.

3. Where we are using an ex ante allowance without a logging up mechanism it is also useful to provide pass through protection/a logging up/down mechanism for any fundamental changes made by us to the way an issue is handled within a control period that significantly changes the cost that Network Rail bears.

4. DfT and Transport Scotland would prefer that, for the costs where we propose to protect Network Rail from risk, we should use a logging up/down mechanism instead of pass through protection. We will be considering our approach to this in parallel with further consideration on the indexation of allowed revenues discussed in chapter 6.

5. Cumulo rates are controllable when Network Rail is negotiating the valuation of the network with the Valuation Office Agency. The valuation of Network Rail's network will be completed in 2009 after our PR08 final determinations

are published. Therefore, we will assume an ex ante forecast in Network Rail's CP4 allowed revenue and log up/down any variations from this level for consideration at the next periodic review. The main issue that will determine how we treat any variations from the ex ante forecast will be whether Network Rail has handled its negotiations efficiently.

Annex F: Charging objectives

Our charging objectives are to:

- promote the objectives of our duties under section 4 of the Railways Act 1993 and be consistent with the wider objectives of funders;
- incentivise network Rail, train operators, train manufacturers, rolling stock companies and funders to ensure the efficient utilisation and development of the network and the optimisation of whole industry costs;
- not discriminate between users of the network;
- be practical, cost effective, comprehensible and objective in operation;
- be consistent with relevant legislation, including the EU Directive 2001/14/EC;
- reflect the efficient costs caused by use of the infrastructure (to Network Rail or otherwise);
- ensure that Network Rail recovers its allowed revenue requirement.

Annex G: Material change in circumstances

Overview

1. Annex B of our caps on freight track access charges consultation document[86] explained in detail why we were assuming that we are entitled to carry out a review of freight access charges in freight access contracts which contain a re-opener.[87] FCR2001[88] and the Model Freight Track Access Contract: Final Conclusions[89] set out the policy background to this re-opener. FCR2001 stated that the former Regulator considered that the charges regime should apply until 2007 and saw considerable merit in leaving charges in place until 2012 unless there was a material change in circumstances.

2. In summary, our consultation document identified two particular changes since October 2001 that we considered constituted a material change in circumstances:

   - the changes to Network Rail's approach to operation, maintenance and renewals following the rail accident at Hatfield on 17 October 2000; and
   - the expiry in 2009 of the grants which cover Network Rail's fixed costs attributable to freight.

[86] Caps on freight track access charges, Office of Rail Regulation, December 2006. This can be accessed at: http://www.rail-reg.gov.uk/upload/pdf/310.pdf

[87] The model freight track access contract provides: "ORR may at any time and from time to time carry out an access charges review in relation to all or part of this contract if ORR considers that…(c) there has been a material change in circumstances since ORR published its conclusions on its review of freight charging policy in October 2001 and in consequence ORR considers that an access charges review is appropriate having due regard to its duties under section 4 of the [Railways] Act [1993]."

[88] Paragraph 5.5, Review of freight charging policy, Office of the Rail Regulator, October 2001. This can be accessed at: http://www.rail-reg.gov.uk/upload/pdf/136-fchargfincon.pdf.

[89] Paragraph 2.63 to 2.65, Model freight track access contract: final conclusions, Office of Rail Regulation, May 2004. This can be accessed at: http://www.rail-reg.gov.uk/upload/pdf/191.pdf.

3. Certain consultees have argued that there has not been a material change in circumstances since October 2001. In particular, that:

   - the Hatfield accident and the change to Network Rail's policies occurred before the 2001 conclusions on freight charges;
   - there has not been a material change with regard to freight; and
   - the end of government grants and the *The Future of Rail* White Paper statement does not constitute a material change.

4. For the reasons set out below we consider that there has been a material change in circumstances since October 2001 and as a consequence it is appropriate, having regard to our statutory duties, to review freight charges. We have also explained below why we consider that these material changes in circumstances are relevant to freight.

5. Table G.1 sets out the timeline of events relevant to the consideration of a material change in circumstances.

Table G.1: Time line of events

Date	**Event**
26 May 2000	Freight Charging Policy: A consultation document
17 October 2000	**Hatfield accident**
27 October 2000	Final determination of Railtrack's access charges
15 January 2001	Statement on the implications of Hatfield by the Rail Regulator
5 April 2001	Freight Charging Review: Provisional Conclusions
7 October 2001	**Railtrack PLC goes into railway administration**
18 October 2001	Freight Charging Review: Final Conclusions
15 July 2002	Consultation on Interim Review of Access Charges
25 September 2002	Statement by the Regulator stating intention to undertake an Interim Review of passenger access charges
3 October 2002	**Network Rail Limited (a company limited by guarantee) acquires Railtrack PLC**
12 December 2003	Access Charges Review 2003: Final Conclusions

Note: Items that are not in bold are ORR publications.

6. Although the Hatfield derailment occurred a year before the publication of the final conclusions of the review of freight charging policy, the impact on Railtrack's, and subsequently Network Rail's, efficient expenditures, policies and outputs was far from clear at the time (i.e. in October 2001). The Regulator concluded in September 2002 that, information provided to ORR *over the previous 12 months* as well as detailed work undertaken by ORR demonstrated that there was a sustained material change in Railtrack's approach to operating, maintaining and renewing the network. This evidence demonstrated that Railtrack's expenditure, asset stewardship and engineering policies had changed materially since Hatfield. The Regulator concluded that these changes amounted to a material change in circumstances for the purposes set out in the franchised passenger track access agreements to allow him to conduct an interim review of charges.

7. GB Railfreight's response intimates that the former Regulator had decided that there had been a material change in circumstances in January 2001 when the Periodic Review: Statement on the implications of Hatfield (the Hatfield statement) was published.[90] GB Railfreight quote selectively from this Hatfield statement. This statement did not conclude that at this date there had been a material change in circumstances. For example paragraph 5 of this statement says "Once the immediate recovery from the aftermath of Hatfield has been completed, it is likely that there will be ongoing implications for the rail network, both direct and indirect, which may influence the efficient levels of activity or outputs and hence expenditure during the second control period. These ongoing implications **may** constitute a material change… which could bring forward the need for an interim review" (emphasis added). The former Regulator made this clear in the consultations he undertook in the summer of 2002. For example, his letter of 15 July 2002 referred to this very paragraph.[91]

8. As we explain below we consider that there has been a material change in circumstances that are relevant for freight since October 2001. Although it may be possible to link some of the changes to events that occurred before

[90] Periodic Review: Statement on the implications of Hatfield, Office of the Rail Regulator, January 2001. This can be accessed at: http://www.rail-reg.gov.uk/upload/pdf/prhatfield.pdf.

[91] Network Rail: Interim review of access charges, Office of the Rail Regulator, July 2002. This can be accessed at: http://www.rail-reg.gov.uk/upload/pdf/nr-intrev.pdf.

October 2001, the changes themselves have either occurred or their impact has become apparent after October 2001. The impact of these changes has if anything become more marked since Network Rail took over ownership and management of the railway infrastructure from Railtrack.

9. Before considering the evidence that demonstrates that a material change in circumstances relevant to freight occurred since October 2001, it is worth contrasting the position in October 2001 with that now. In October 2001, the infrastructure manager had, following the aftermath of the accident at Hatfield, just been placed in special railway administration. Today, the infrastructure manager is no longer a PLC but is a company limited by guarantee. Since October 2001 Railtrack, and then subsequently Network Rail, has made material changes to expenditure, renewals rates, asset stewardship and asset policies.

Changes to OM&R since October 2001

10. In the following paragraphs we provide evidence of various changes in circumstances that we consider together constitute a material change in circumstances. It is our view that these changes are clearly relevant to freight. These are changes in engineering practice and resulting costs consequences across the entire rail network and potentially affect both passenger and freight traffic.

Expenditure

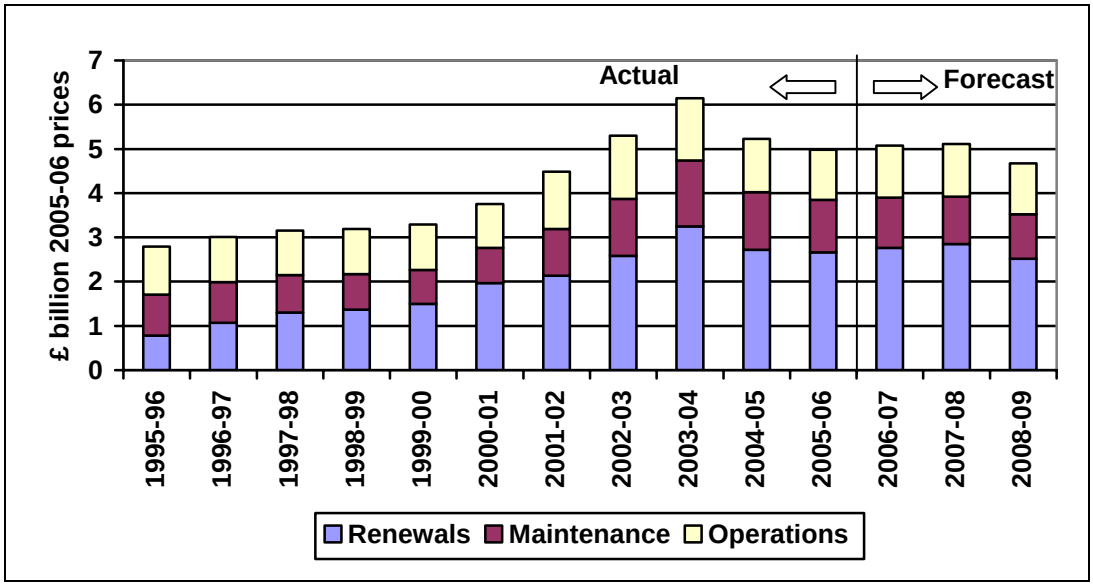
11. In October 2001 the on-going implications of the changes triggered by Hatfield were far from clear:

- actual expenditure changed significantly after October 2001; and
- the best available Railtrack forecasts at the time did not accurately predict the subsequent increase in expenditure.

12. Actual expenditure levels on operations, maintenance and renewals across the rail network (i.e. both the mixed use network and freight only lines) have changed significantly since October 2001. Figure G.1 shows Railtrack's and Network Rail's annual operating, maintenance and renewal expenditure. In October 2001 the full effects of Hatfield were yet to be reflected in expenditure, with expenditure for 2001-02 some 27% below the peak of expenditure that was reached in 2003-04 (with even the scale of expenditure

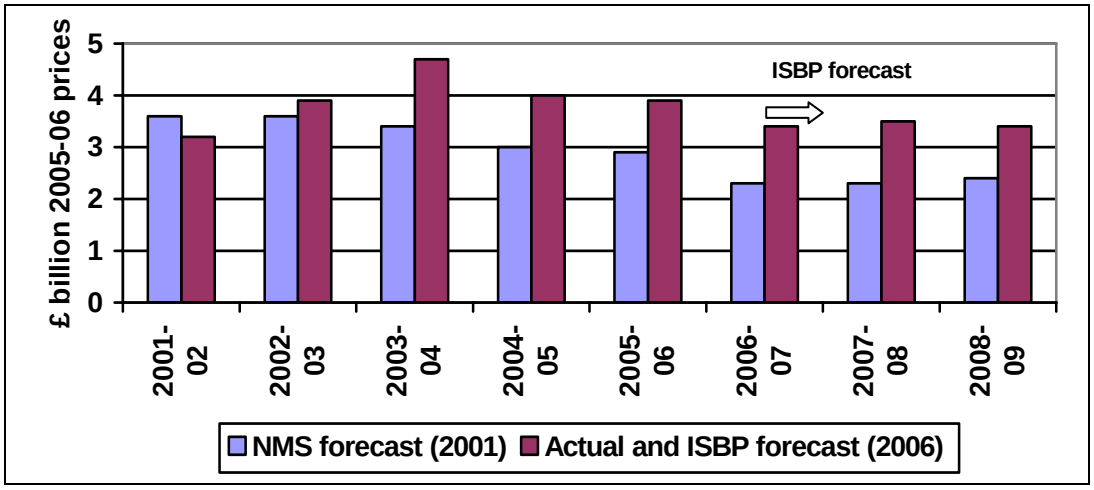
increase for 2001-02 unknown in October 2001). In their ISBP, Network Rail forecast that this much higher level of expenditure will continue and by the end of CP4 expenditure is expected to be around 25% higher in real terms than in 2000-01.

Figure G.1: Railtrack and Network Rail's operating, maintenance and renewal expenditure



13. In October 2001 the best available Railtrack forecasts, those provided in the 2001 Network Management Statement (NMS) (produced seven months after Hatfield) did not accurately predict the subsequent increase in expenditure. Figure G.2 compares the 2001 NMS with actual expenditure and Network Rail's ISBP forecasts. This shows that, at the time of the 2001 NMS, Railtrack did not forecast the growth in expenditure over the period to 2003-04, instead expenditure was forecast to be some 30% lower by the end of CP3 (2008-09).

Figure G.2: Comparison of Railtrack/Network Rail's actual and forecast expenditure for the entire network



Maintenance and renewal levels

14. In the period after Hatfield it became clear that previous levels of maintenance and renewals were not sufficient to sustain the network in an appropriate condition. The rapid increase in expenditure after Hatfield (see, for example, figure G.1) partly reflects a large increase in renewals and maintenance expenditure as the backlog in expenditure began to be addressed. The scale of this backlog and levels of expenditure required to sustain the network was far from clear in October 2001.

Asset stewardship and engineering policies

15. Since October 2001 there have been material changes to the infrastructure manager's approach to asset stewardship and engineering policies. This change has become even more apparent following the acquisition of Railtrack by Network Rail.

16. A key change in approach by the infrastructure manager since October 2001 has been a shift in approach from "find and fix" towards one of "predict and prevent"[92]. This change in approach has become particularly marked since Network Rail acquired Railtrack. In particular, it is illustrated by:

[92] Network Rail Business Plan, Network Rail, 2003. This can be accessed at http://www.networkrail.co.uk/aspx/3168.aspx. Network Rail Business Plan, Network Rail, 2004. This can be accessed at: http://www.networkrail.co.uk/aspx/3155.aspx.

- the movement to "in house" track maintenance, which Network Rail has described as the "most fundamental change to the railway since privatisation"[93]
- the development of decision support and planning tools such as T-SPA (Track Strategic Planning Application) and the ICM.
- a substantial shift in the policy for structures management away from the largely reactive historic approach, towards a more pro-active policy aimed at minimising life-cycle costs[94]; and
- increased frequency of monitoring and inspections, for example geometry and ultrasonic inspection frequencies on primary routes increasing from 12 weekly to 2 weekly and from 12 weekly to 8 weekly respectively.

17. This change in approach has contributed to a marked improvement in asset stewardship. Figure g.3 shows an improvement in the asset stewardship index, a composite measure that covers the quality of a range of infrastructure assets, since 2004 when the measure was introduced. An indication of earlier asset condition is given by Figure G.4 which shows the number of broken rails over the last decade. The number of broken rails has reduced by 41% since 2001-02 and 55% since 2000-01.

[93] Annual Report and Accounts, Network Rail Infrastructure Limited, 2004. This can be accessed at: http://www.networkrail.co.uk/browse documents/annual report and accounts/2004/2004networkrailinfrastructurelimitedannual report.pdf

[94] Network Rail Business Plan, Network Rail, 2003, This can be accessed at: http://www.networkrail.co.uk/aspx/3168.aspx

Figure G.3: Asset stewardship index[95]

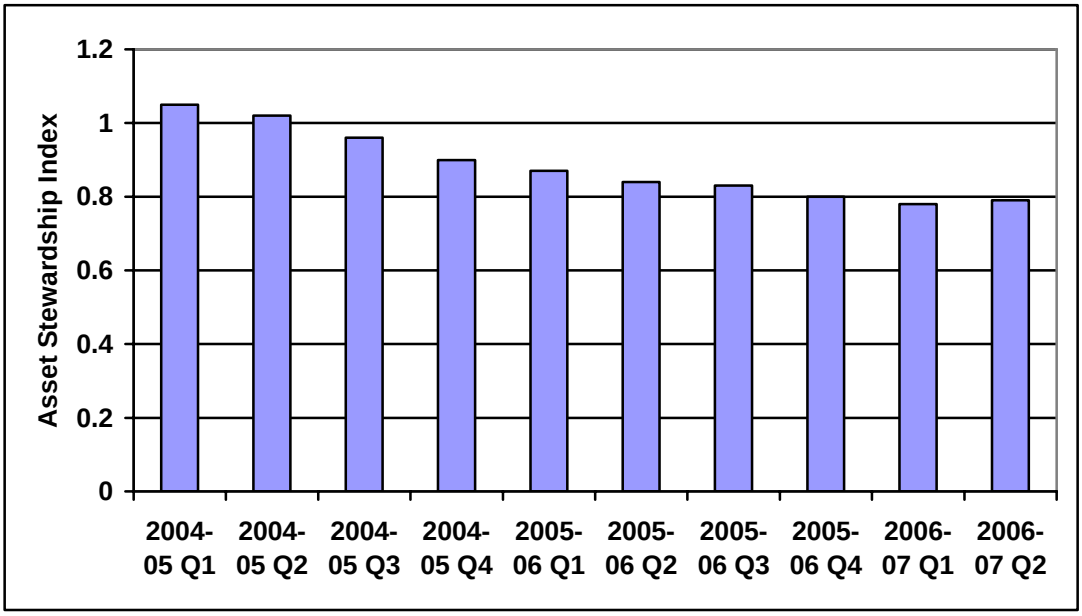
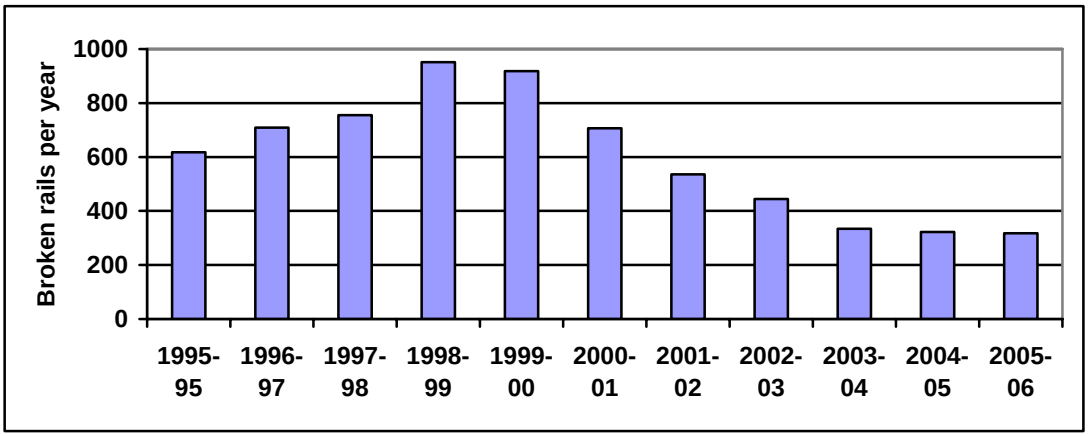


Figure G.4: Broken rails per year



Other relevant factors

18. There are two further issues we consider are relevant factors in considering whether there has been a material change in circumstances:

- first that while the freight charging policy was set in October 2001 when the Final Conclusions were published, the cost information underpinning those charges had been provided at an earlier stage. In particular the

[95] The asset stewardship is Asset Stewardship Index (ASI) – this is a composite index that covers the quality of a range of infrastructure assets including track, signalling, structures and power supply.

Booz, Allen and Hamilton usage costs study, which was used to assess variable costs and charges, was published in October 2000[96]; and

- second that since October 2001 there has been an improved understanding of cost drivers, for example through the understanding of rolling contact fatigue caused by vehicles on rail (and not currently reflected in variable charges)[97] and variability, for example through Network Rail's development of decision support tools such as T-SPA and asset management planning tools such as the ICM.

Government funding

19. A further change that we believe constitutes a material change in circumstances relevant to freight relates to the grant to Network Rail formerly paid by the Strategic Rail Authority and now paid by DfT and Transport Scotland to cover the fixed costs of the network attributable to freight.

20. At the time of the Model Freight Track Access Contract: Final Conclusions,[98] these grants were only assured until 2007 and as the former Regulator noted it would be "unreasonable to simply to assume that this" would be extended.[99] They have subsequently been extended until 2009 (in conjunction with ACR2003). However, grant funding to cover these costs is not guaranteed beyond that date. In fact, DfT has indicated in its White Paper that freight should pay the full costs of freight only lines. We have an obligation under the 2005 Regulations to ensure that Network Rail, under normal business conditions and over a reasonable time, balances income and expenditure.[100] In their responses to our consultation document[101] DfT and Transport

[96] Usage costs, Booz Allen and Hamilton, October 2000. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/bah-usage.pdf.

[97] Recent work by Network Rail suggests that if charges reflected rolling contact fatigue there could be a material shift in variable charges from freight to passenger traffic.

[98] Freight Model Contract: Final Conclusions, May 2004, Office of the Rail Regulator. This can be accessed at http://www.rail-reg.gov.uk/upload/pdf/191.pdf.

[99] Paragraph 2.63.

[100] This is also consistent with our duty under Section 4 (5) (b) to act in a manner which it considers will not render it unduly difficult for Network Rail to finance any activities or proposed activities.

[101] Responses to our consultation document on caps on freight track access charges can be accessed at: http://www.rail-reg.gov.uk/server/show/ConWebDoc.8519

Scotland have indicated that they would agree to fund freight only lines costs for market segments that cannot bear the additional costs, but they consider that other market segments that can bear these costs, should pay the costs of freight only lines.

21. At least one consultee would appear to accept that this constitutes a material change in circumstances. EWS' consultation response suggests that ORR could have chosen to limits its review to freight only lines[102]. We consider that government support for freight charges is broader than freight only lines and therefore the end of grant arrangements constitutes a material change across all freight costs and charges.

22. GB Railfreight has argued that we could chose to fund this shortfall through the fixed charge paid by franchised passenger operators. We do not agree that this approach is necessarily available because of the complex interaction between government funding, the fixed charge paid by franchised operators and the HLOS/SoFA process under Schedule 4A. Government has indicated that it is willing to fund the costs of freight only lines for market segments that cannot bear these costs. As we consider that other markets segments can bear these costs, as we explain in chapter 10 we consider it appropriate to levy these costs via a mark up.

Appropriateness with regard to our section 4 duties

23. We set out in our consultation document[103] why we considered that as a consequence of the material change in circumstances since October 2001 that an access charges review was appropriate. It has been suggested by EWS that we have been somewhat selective in balancing our duties in deciding that they support a review of access charges. EWS considered that a review would be contrary to our duties under section 4(1)(a), (b), (bb), (c), (d) and (g).

24. Our duties under section 4 are not in any order of priority and it is for us to decide how to balance our duties in reaching a decision. In considering whether an access charges review is appropriate we have had regard to all

[102] Although it subsequently stated that any freight only line charge would be inconsistent with our charging objectives.

[103] Paragraphs 24 to 26 of Annex B.

our statutory duties. In this context, we underline the fact that freight charges were last reviewed in October 2001 and PR08 should be implemented on 1 April 2009. Nonetheless, in balancing our section 4 duties we have taken into account the issues that have been raised on behalf of freight users and recognise the issues that any changes to access charges raise for freight operators. We continue to consider that the issues that we set out in sub-paragraphs 25(a) to (g) of our consultation document are relevant. In particular:

Section 4 (1) (b) to promote the use of the railway network in Great Britain for the carriage of goods to the greatest extent that ORR considers economically practicable; and

Section 4 (1) (c) to promote efficiency and economy on the part of persons providing railway services.

25. If variable charges do not reflect the marginal costs then operators may be making too much or too little use of the railway network. Reviewing charges and ensuring that variable charges reflect marginal costs will maximise the economic use of the network. Where we have proposed an additional freight only line charge it is only on those market segments which we consider can bear this charge and where we are content that it should have little impact on marginal incentives and use of the network.

Section (5) (b) to act in a manner which it considers will not render it unduly difficult for Network Rail to finance any activities or proposed activities; and

Section (5) (c) to have regard to the funds available to the Secretary of State for the purposes of his functions in relation to railways and railways services.

26. If charges do not reflect costs then this could impose additional costs on Network Rail and/or the Secretary of State and Scottish Ministers. By ensuring that variable charges reflect variable costs ensures that Network Rail is adequately compensated for the additional use of the network.

27. In *The Future of Rail* White Paper DfT stated that freight operators should pay the costs of freight only lines. Taking into consideration the Regulations and our duty under section 4 (1) (b) we stated that we would be unwilling to levy the costs of freight only lines on market segments that could not bear this cost. Department for Transport /Transport Scotland have subsequently

agreed to fund the costs of freight only lines used by market segments that we determine cannot bear this cost.

28. We have also had regard to all our other duties under section 4 when undertaking our review of freight charges, in particular:

Section 4 (1) (g) to enable persons providing railway services to plan the future of their businesses with a reasonable degree of assurance.

29. Our decision to agree with the Department for Transport, Transport Scotland, the Rail Freight Operators Association (RFOA) and Network Rail to provide decisions on caps in February 2007 will assist operators to plan their businesses with a degree of assurance.

30. Our decision to phase in any increase in charges will also assist operators to plan their businesses, as well as promoting efficiency and economy on the part of persons providing railway services;

Section 4 (1) (bb) to contribute to the achievement of sustainable development;

31. We have explicitly taken account of the impact on the environment when considering which market segments may be able to bear the costs of freight only lines.

32. We also consider that reviewing charges at this time is consistent with the Regulations. In particular if we were not to review charges following a material change in circumstances variable charges may not reflect the costs directly incurred.