



OFFICE *of the*  
RAIL REGULATOR

**ACCESS CHARGES REVIEW 2003:**

**FINAL CONCLUSIONS**

**December 2003**

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# EXECUTIVE SUMMARY



# *Executive summary*

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## **Introduction**

1. This document contains the Rail Regulator's final conclusions in his review of Network Rail's revenue requirements and his determination of the charges which franchised passenger train operators will pay to Network Rail from 1 April 2004, and the baseline national outputs which Network Rail is expected to deliver for those charges.
2. This Executive Summary provides an overall description of the Regulator's main conclusions, running, in turn, through:
  - (a) the Regulator's approach to the assessment of Network Rail's revenue requirements;
  - (b) the Regulator's conclusions on the sums Network Rail will need to spend over the next five years and the outputs it must deliver (including in relation to performance, asset condition, the quality of maintenance and renewals, and other stewardship measures);
  - (c) the Regulator's conclusions on performance incentives;
  - (d) the financial framework for Network Rail, the Regulator's conclusions on the company's revenue requirements and on track access charges;
  - (e) the Regulator's response to points raised by consultees on his draft conclusions;
  - (f) the arrangements for implementation; and
  - (g) provision for future access charges reviews.
3. Subsequent chapters set out a more detailed explanation of the reasons for his conclusions, together with the analysis that the Regulator has undertaken during the course of this review.

## **The assessment of Network Rail's revenue requirements**

4. In assessing Network Rail's revenue requirements for the five years between April 2004 and March 2009, the Regulator has adopted a standard 'building block' methodology used by other economic regulators and the Competition Commission. Under this approach, the total amount of money that Network Rail should receive in income is calculated as the sum of forecast operating and maintenance expenditure plus an allowance for amortisation of past investment plus an overall return.
5. This methodology differs from that adopted by the Regulator in his October 2000 access charges review in one important respect. Whereas expenditure on renewals was previously funded pound-for-pound in the year that the expenditure was to be incurred, Network Rail's financial structure enables it to finance a proportion of new investment in the renewal and improvement of the network through borrowing. The Regulator has therefore added renewals expenditure to the regulatory asset base and included an allowance for amortisation (*i.e.* wear and tear of the assets) in his calculation of Network Rail's revenue requirement. The amount that Network Rail needs to borrow each year is the difference between Network Rail's expenditure and this amortisation allowance.

## **The assessment of Network Rail's expenditure**

6. In financial terms, the Regulator's allowances for expenditure incurred in operating, maintaining and renewing the network are by far the most significant determinants of Network Rail's revenue requirement. The conclusions from the Regulator's assessment of Network Rail's expenditure plans are as follows:
  - (a) Network Rail will through this review receive sufficient funding to enable it to improve the punctuality and reliability of railway services. In return for this funding package, Network Rail must increase the volume of maintenance and renewal work that it carries out and deliver improvements in the overall condition of the country's rail infrastructure;
  - (b) independent reviews of Network Rail's March 2003 maintenance and renewal plans have, however, identified work costing on average more than £1 billion per annum<sup>1</sup> that the company does not need to do during the next five years. Network Rail can capture these savings by adopting clear, objective criteria in

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<sup>1</sup> All figures in this document are in 2002/03 prices unless otherwise stated.

determining its future renewals plans, to ensure that all renewals are prioritised on a consistent basis, and that unjustified or premature work is not undertaken; and

- (c) by better managing its contractors and its own activities, and by eliminating waste and inefficiency within the company, Network Rail is able to reduce its remaining costs by just over 30% (equivalent to £1.5 billion per annum) within a five-year period. Many of the steps that are necessary to achieve these savings can be implemented relatively quickly and at little financial cost to the business.

7. In relation to the West Coast route modernisation project, the Regulator has concluded that the Strategic Rail Authority's (SRA's) June 2003 strategy document should be the basis of the outputs to be delivered by Network Rail on the West Coast Main Line, and his focus should be on providing for their efficient delivery to a realistic timescale. He has therefore concluded that Network Rail should be funded to deliver improved journey times between London and Glasgow and other major cities on the route such as Manchester, Birmingham and Liverpool by September 2004, as set out in the SRA June 2003 document. He has also concluded that there should be no delay to the further journey time improvements to Liverpool and Preston, sought for June 2005, and to Cumbria and Glasgow, sought for December 2005. Beyond these specific improvements, however, the Regulator has concluded that in order to reduce the risk of cost escalation and non-delivery, and to ensure delivery at an acceptable level of cost, it is necessary to extend the timescale for their delivery by 18-24 months. This affects in particular the capacity enhancement work between Rugby and Stafford on the Trent Valley route. To a large extent, it reflects rephrasing options suggested by Network Rail.
8. The Regulator considers that, with this slightly longer timescale, the prospects for delivery of the required outputs will be materially greater than would otherwise be the case, and a sound basis is established for achieving significant improvements in the efficiency of their delivery. As a result of the savings that this will enable the company to make, together with greater efficiency in the overall management of the project, the Regulator's assessment of the cost that a competent and well-managed company would incur in delivering the West Coast route modernisation project is approximately 22% less than the estimates made by Network Rail in its September

2003 cost submission. The Regulator has, accordingly reduced his allowances for expenditure by a further £640m beyond the savings sought in his draft conclusions.

9. Taken together, the Regulator's analysis has led him to conclude that it is appropriate for him to allow for Network Rail to spend £22.2 billion on the operation, maintenance and renewal (OM&R) of the network during the next five years. For 2004/05, the Regulator's allowance is £5.2 billion, around £1 billion less than Network Rail identified in its March 2003 business plan. Improved efficiency, combined with a slower increase in the volume of renewals that Network Rail undertakes, will mean that spending should fall below £4 billion per annum within five years.
10. The figure of £22.2 billion compares with £22.7 billion in the Regulator's draft conclusions, reflecting a number of changes the Regulator has made to his October 2003 draft conclusions in the light of responses made by consultees and his own analysis. The main changes are as follows:
  - (a) *West Coast Main Line*: the Regulator has reduced his allowances for expenditure on the project to modernise the West Coast route by just over £640m over five years. This is a result of further analysis of the efficiencies that Network Rail can introduce to the management of the project and a rephrasing of some outputs;
  - (b) *Telecoms*: the Regulator has reduced his allowances for expenditure on telecoms renewals. This reflects the conclusions reached by a joint working group comprising the Regulator, Network Rail, the SRA and the HSE which has identified several areas in which the scope of projects to upgrade Network Rail's fixed telecom network can be reduced without compromising the integrity of the network's performance;
  - (c) *Operational property*: the Regulator has allowed Network Rail a small amount of additional money during the next five years to ensure that the company has sufficient funding to enable it to finance its expenditure resulting from reactive maintenance and new legislative requirements;
  - (d) *Enhancement expenditure*: after undertaking a review of the spending forecasts contained in his draft conclusions, the Regulator has reduced his assessment of costs of certain health and safety related enhancements to

include additional savings. Three weeks before the publication of this document, the SRA also requested that certain enhancement schemes which it had previously asked to take forward under separate contracts with Network Rail should be included in the RAB. The Regulator has agreed to this request because the SRA has told him that delivery of the projects to the required timescales would otherwise be jeopardised; and

- (e) *Other income:* the Regulator has corrected an inconsistency in his draft conclusions in which income generated from investment in Network Rail's commercial property portfolio was deducted from Network Rail's gross revenue requirement, without any corresponding allowance having been made for the original investment costs.
11. The combined effect of the changes that the Regulator has made since his draft conclusions is relatively small. The Regulator's overall assessment of revenue requirements has increased from £24.8 billion in October 2003 to £24.9 billion, primarily as a result of the inclusion of additional enhancement expenditure in the RAB.
  12. In total, the Regulator has concluded that it is appropriate to allow for Network Rail to spend significantly more than he allowed Railtrack in his October 2000 access charges review, because this will enable Network Rail safely and effectively to tackle the legacy it inherited from Railtrack: a legacy of poor planning and project delivery; inadequate arrangements for managing suppliers and subcontractors; inadequate levels of maintenance and renewal activity; poor customer focus; and an insufficient grasp of the causes of and cures for poor day-to-day performance. The Regulator will, however, expect Network Rail to identify and deliver considerable savings on the forecasts set out in its own business plan by addressing the inefficiencies introduced into the business after the derailment at Hatfield and during the period in administration. Investment programmes must be properly planned and prioritised. Projects must be scoped, designed and delivered more efficiently than at present. New contracts will need to be negotiated and new relationships developed.

### **Performance incentives**

13. Improving network performance is a key priority. As part of this access charges review, the Regulator has concluded that several changes should be made to the

incentive regimes in Schedules 4 and 8 of franchised passenger operators' track access agreements. They are as follows:

- (a) *Schedule 8*. In return for an increase in the funding that it receives from its customers, the Regulator will expect Network Rail to reduce significantly the delay that it causes to all train operators. To achieve this outcome, the incentive regime in Schedule 8 needs to be calibrated around a trajectory that is challenging but achievable. Hence, the Regulator has concluded that he should adjust the performance points in Schedule 8 so that Network Rail is incentivised to meet challenging year-on-year reductions in delay as set out in Table 1 below.
- (b) At the same time, the payment rates in Schedule 8 will be reduced so as to eliminate a proportion of the money that currently flows between Network Rail and train operators - the 'societal rate' – because the Regulator has concluded that to do so results in payments being better calibrated so as to be sufficient to incentivise performance whilst minimising the amounts that routinely changes hands between Network Rail and its franchised passenger train operator customers.

Table 1, below, sets out the aggregate reduction in delay minutes that the Regulator requires Network Rail to deliver:

**Table 1: Network Rail's performance trajectory**

	<b>Delay minutes affecting all operators</b>	<b>Year on year reduction</b>
2004/05	12,300,000	-
2005/06	11,300,000	8.1%
2006/07	10,600,000	6.2%
2007/08	9,800,000	7.5%
2008/09	9,100,000	7.1%

- (c) *Schedule 4*: Network Rail pays compensation to franchised passenger train operators for the disruption caused to services by possessions (*i.e.* temporary restrictions applied to the use of the network), required to undertake maintenance and renewal work. The Regulator has concluded that Network

Rail will incur efficient Schedule 4 costs of £373 million over the five-year control period. However, there is large degree of uncertainty around this figure, particularly in later years of the control period, and the Regulator therefore intends to conduct a further review of these costs before April 2006.

A number of minor changes have been made to the structure of Schedule 4, in particular in relation to compensation payable for Significant Restrictions of Use (possessions longer than a weekend). These changes have been made to improve the incentive properties of Schedule 4 so that Network Rail can make the appropriate decision on which type and length of possession is optimal in particular circumstances when trading off the disruption to train operators and their passengers against potential engineering efficiencies.

The Regulator intends to review the structure of Schedule 4 in the event that Network Rail proposes a material change in its possessions strategy. The current Schedule 4 may not adequately compensate operators if, for example, Network Rail were to propose taking significantly more midweek daytime possessions or far more longer possessions than it currently takes.

### **Financial framework**

14. The Regulator's existing financial framework for the infrastructure provider (Railtrack) was designed for a company owned by shareholders, whereas Network Rail is a wholly debt-financed company limited by guarantee. As a consequence of the new corporate and ownership structure, the Regulator has decided to make the following changes as part of this access charges review:
  - (a) *Regulatory asset base (RAB)*: the value of Network Rail's RAB will approximately double to £17.7 billion in April 2004, in line with the principles set out by the Regulator at the last access charges review and in previous regulatory statements. In particular, the Regulator will make a one-off addition to the RAB of £5.66 billion to reflect the additional debt that the network business has accumulated over the three years since April 2001 through its overspending;
  - (b) *Amortisation*: under the building block methodology described above, expenditure on renewals and enhancements will be added to the RAB. The Regulator has also calculated an annual allowance for amortisation (or depreciation) to reflect the wear and tear on Network Rail's assets over time

and has each year deducted this amount from the value of the RAB. For expenditure incurred after April 2004, this allowance is calculated by amortising Network Rail's investment on a straight-line basis over 30 years. For investment undertaken before April 2004, amortisation is calculated by decreasing the value of the RAB by 7% per annum on a reducing balance basis. Added together, the overall allowance for amortisation provides Network Rail with funding for approximately half of its expenditure on renewal and enhancement. Network Rail will finance the remainder of its investment programme through borrowing; and

- (c) *Returns:* Network Rail's overall revenue requirement must include an allowed return to enable it to pay interest to lenders and to provide a small buffer against unanticipated cost shocks. Because Network Rail's debts have increased over the last three years and the business therefore faces higher interest payments, this return will need to be approximately £700m higher in 2004/05 than the level that the Regulator allowed Railtrack. However, as a percentage return on the RAB, the return that the Regulator will allow Network Rail over the full five-year period translates to a rate of return of between 6.5% and 7.0% per annum, a lower figure than that allowed for Railtrack.

*Revenue requirement and track access charges*

15. The charging arrangements established by the Regulator in October 2000 were set on the basis that Railtrack required less than £4 billion in gross revenues in 2004/05. The Regulator's assessment of Network Rail's overall revenue requirement in this review, calculated using the building block methodology set out above, is set out in Table 2.

**Table 2: The Regulator's final conclusions on Network Rail's revenue requirement**

	<b>2004/05</b>	<b>2005/06</b>	<b>2006/07</b>	<b>2007/08</b>	<b>2008/09</b>
OPEX	1,178	1,101	1,031	991	953
Maintenance	1,222	1,124	1,034	951	875
Schedule 4 & 8 costs	78	85	91	92	93
Amortisation	1,367	1,383	1,383	1,388	1,391
Return	1,281	1,422	1,410	1,475	1,531
<b>Gross revenue requirement</b>	<b>5,125</b>	<b>5,114</b>	<b>4,949</b>	<b>4,898</b>	<b>4,843</b>
Other income (e.g. property; freight access charges etc)	(682)	(703)	(707)	(699)	(706)
<b>Revenue requirement</b>	<b>4,443</b>	<b>4,411</b>	<b>4,242</b>	<b>4,199</b>	<b>4,137</b>

16. In determining the level of track access charges paid by franchised passenger train operators, the Regulator must satisfy himself that Network Rail can expect to receive in full the amounts set out in the last line of Table 2. At present, the company receives the revenue requirement established by the Regulator from two sources:
- (a) track access charges; and
  - (b) grants paid directly to the company by the SRA under section 211 of the Transport Act 2000.
17. The SRA is currently obliged, by virtue of a deed of grant entered into with Network Rail, to make unconditional payments to the company at six-monthly intervals until April 2006. Deducting these amounts from the revenue requirement shown in Table 2 (and allowing for financing benefits caused by the timing of these grants in two lump sums, rather than being paid throughout the year) means that access charges need to increase to the levels shown in Table 3 below.

**Table 3: Network Rail's revenues (£ million)**

	Expected revenue from track access charges (fixed + variable)	Grants paid by the SRA	Total revenues
2004/05	3,164	1,279	4,443
2005/06	3,759	652	4,411
2006/07	3,690	552	4,242
2007/08	4,199	0	4,199
2008/09	4,137	0	4,137

18. Ten days before the publication of this document, the DfT and the SRA made a joint submission to the Regulator in which they explained that for accounting reasons<sup>2</sup> it would be desirable for the SRA in future to increase the amount of money that it pays in grant to Network Rail, allowing access charges to be set at a lower level than in Table 3. By virtue of an obligation in clause 18.1 of all franchise agreements, the SRA is required to indemnify train operators against the consequences of higher access charges and the DfT and the SRA explained that allowing the SRA to pay more

<sup>2</sup> Specifically the fact that, although higher access charges would be used to support capital expenditure by Network Rail, an increase in franchise support would be classified as current expenditure and the Government's rules prohibit borrowing to cover current expenditure over the economic cycle.

directly to Network Rail in grant would reduce the pressure on the SRA's overall franchise support budget at a time when the cost to the SRA of subsidies paid to franchise holders had already risen sharply and was likely to cause the SRA to incur expenditure beyond that which has been allocated to it.

19. The Regulator considers it regrettable that such fundamental issues should be raised at such a late stage in the review, given the considerable efforts he has made to establish the SRA's financial position, in accordance with his statutory duties. In considering the proposal that has been put to him, the Regulator has placed considerable weight on the need for Network Rail to focus on meeting the requirements of its train operator customers (passenger and freight). It is this imperative which has driven the Regulator's reform programme: to reform the contracts Network Rail holds with its customers, to make them stronger, simpler and streamlined; substantially to strengthen Network Rail's network licence; and to lead the development of local output commitments, through which Network Rail will give contractually binding annual commitments on the level of performance it will deliver - operator-by-operator - and supply the plans which underpin these commitments. The Regulator firmly believes that the nature of the relationship between Network Rail and its train operator customers should be that of a joint-endeavour focused on delivering a quality service to the end-user: passengers and freight customers. For these reasons, the Regulator must be extremely wary of any changes to Network Rail's financial structure that risk diluting this essential supplier-customer relationship.
  
20. Nevertheless, the Regulator understands the implications of the Government's accounting conventions and the broad extent of the financial position of the SRA. He considers it appropriate that he should facilitate accounting treatment that accurately records funding provided for capital expenditure. Because he is satisfied that this is an issue of accounting treatment and not of accountability (which is protected through the elements of his regulatory reform programme described in paragraph 1.19 above), he has therefore decided that it would be appropriate for him to allow for a higher proportion of Network Rail's income to be funded through grants so long as:
  - (a) there are no conditions attached to the payment of the grants, because any such conditions could dilute Network Rail's focus on its contractual obligations to its customers, and its broader network licence obligations;

- (b) there is certainty that the grant will be paid, evidenced by Network Rail and the SRA agreeing changes to the sums payable under the existing deed of grant;
  - (c) that this certainty is delivered swiftly; and
  - (d) there is a mechanism in track access agreements that will cause track access charges automatically to rise in the event of any default on grant payments or *the attaching of any conditions* to their payment.
21. Because the SRA and DfT made their request to increase grant payments at such a late stage, it has not been possible for the SRA to finalise the legal instrument which provides for additional grants to be paid to Network Rail, nor has it been possible for the Regulator to verify that Network Rail is content with the SRA's proposition. One of the main objectives from the beginning of this access charges review has been to ensure that Network Rail has sufficient income to enable it to finance its activities. In the circumstances, the Regulator has concluded that he has no choice at the present time but to increase access charges to provide Network Rail in full with the amounts shown in Table 3. However, the Regulator will include a mechanism in Schedule 7 of franchised passenger train operators' track access agreements which allows Network Rail, by no later than 29 February 2004, to submit to the Regulator a new schedule of grant payments. On receiving this submission, the mechanism will provide the Regulator with the power to reduce the amount paid in access charges to a lower level to be determined at his discretion, with the balance being taken up in grants. He would only be prepared to make such a reduction if he was satisfied that to do so would be consistent with the discharge of his statutory duties, and met the conditions in paragraph 1.20 above.
22. Existing franchise holders will be unaffected by such an adjustment since clause 18.1 of the franchise agreement contains an indemnity mechanism which enables them to pass through the financial consequences of changes in charges to the SRA on a no-net-loss, no-net-gain basis, so long as the changes arise by virtue of an access charges review, as is the case for these adjustments. In order to ensure train operators do not experience short term cash flow difficulties, if access charges need at some point in the future to increase as a result of a reduction in grant payments (for any reason), higher access charges will be profiled over time with a lag of three months between non-payment by the SRA and any offsetting increases in track access charges. This

will give operators time to invoke the indemnities in clause 18.1 of their franchise agreements with the SRA.

23. In order to ensure his decision on the operation of the mechanism described in paragraph 1.21 above is properly informed, the Regulator wishes to invite further views from the rail industry on the narrow issue of the appropriate balance between track access charges and direct grants. The Regulator would be grateful for views on the conditions he has set out in paragraph 1.20, and on any other specific considerations that he might appropriately weigh in discharging his statutory duties in this respect. **The Regulator invites comments to be sent to him by the end of January 2004, so as to allow time for him to consider and, as necessary, discuss them with rail industry parties and stakeholders in good time before the 29 February 2004 deadline for Network Rail's submission.**
24. Subject to the Regulator's use of the mechanism to reflect a changed proportion of grant income, he has concluded that he should also allow Network Rail the flexibility to propose its own profiling of these grant payments over time, which may involve the company borrowing more in the short term than the Regulator has assumed is possible in these final conclusions. This, in turn, would reduce the pressure on the SRA's budget in the short term. In such circumstances, the Regulator would need to assess carefully any proposition that is put to him in accordance with his statutory duties and Network Rail's network licence obligations. His decision will be subject to four key tests:
  - (a) given that additional borrowing is a transitional measure, by no later than April 2006 Network Rail must be in a position where it is receiving the full revenues that the Regulator has established in this review that it requires;
  - (b) whether the level of borrowing which the company would incur makes it unduly difficult for the company to finance its relevant activities during the next five years;
  - (c) whether the amount of debt thus built up threatens the long-term viability of the company, and thus prejudices the interests of the users of railway services; and
  - (d) whether all parties accept that any additional short term borrowing must be reflected in the Regulator's calculation of the RAB.

25. In reaching these decisions, the Regulator has, so far as practicable, sought to discharge all of his statutory duties under section 4 of the Railways Act 1993. In particular, he is satisfied that his conclusions will not render it unduly difficult for Network Rail to finance its relevant activities. He is also satisfied that it is not in the public interest (as expressed by section 4 of the Act) to set access charges at some lower level. This is because:
- (a) it is not realistic to assume that Network Rail can reduce its expenditure by more than the amounts set out above while delivering the outputs that are reasonably required by customers and funders;
  - (b) any downward adjustment to the Regulator's allowances for amortisation and returns will, on the information currently available to him, make it unduly difficult for Network Rail to finance the delivery of these outputs; and
  - (c) to require Network Rail to deliver less onerous targets for delay minutes or other outputs would be to the detriment of users of the railway, to the detriment of the use and development of the network and would obstruct the furtherance by the SRA of the strategies that it has formulated with respect to its purposes.

### **Consultation**

26. The Regulator has adopted a transparent and open approach throughout the review and has reached the conclusions contained in this document after extensive consultation with the industry. During the last 14 months, he has published four consultation papers and received responses to the issues raised in these documents from more than 35 organisations. Network Rail, in particular, has contributed constructively to the challenge of identifying ways to reduce costs while improving performance, and the company's latest plans incorporate a number of plans which have been developed jointly as part of the review process.
27. Paragraph 1.10, above, sets out the main changes that the Regulator has made to his October 2003 draft conclusions in the light of consultees' responses.
28. A number of the changes that were sought by respondents are not reflected in the Regulator's conclusions. They are as follows:

- (a) *Scope for unit cost reductions:* Network Rail argued that the Regulator should adjust his efficiency target to the bottom-end of the 6% to 10% per annum range that he identified in his third consultation document. The Regulator has not made this change because he considers that the evidence produced jointly with Network Rail indicates that there is much higher scope for efficiency savings than Network Rail suggests. Even allowing for certain increases in wages and materials costs, the Regulator considers that his assumption that Network Rail will make savings of just over 30% over the next five years represents a challenging but achievable target;
- (b) *Alternative approaches to possessions:* the SRA asked the Regulator to reduce his allowances for maintenance and renewals expenditure in the last three years of the five-year control period in line with the savings that it expects to result from use of alternative approaches to possessions. While the Regulator considers that the changes that the SRA has said it will facilitate through amendments to franchise agreements should lead to lower costs, he has concluded that it would be premature to include a fixed allowance for these savings in this review, given the significant uncertainties that exist over the extent of savings achievable. However, this issue should be examined in a further review of compensation for possessions and the Regulator has made specific provision for this to be carried out within the next two years;
- (c) *Track renewals:* Network Rail identified what it said were inconsistencies between the volume of track renewal that the Regulator considers it is necessary for the company to do and the funding that he proposed to allow in his draft conclusions. This was based on a misinterpretation of the text in the draft conclusions and the Regulator has concluded that it is not necessary to increase his expenditure allowances. He has, however, clarified the reasons for his conclusions in volume 2 of this document;
- (d) *Maintenance:* Network Rail argued that the Regulator had mistakenly omitted additional maintenance expenditure in his draft conclusions despite cutting significantly the volume of renewals that he is funding Network Rail to undertake during the next five-year period. The Regulator believes that the level of maintenance expenditure that is funded by this review is already at a high level, and that together with the provision he is making for a significant increase in the level of renewals activity, it is adequate for the volume of

activity that Network Rail will need to carry out. He does not accept that Network Rail has made a compelling case for additional funding for maintenance activity. The allowances he is making for renewals expenditure in this review enable Network Rail to increase considerably the volume of work that it undertakes and to deliver significant improvements in the underlying condition of the network. Although Network Rail currently has a very poor understanding of the link between renewals and maintenance expenditure, the Regulator does not consider that there is any compelling reason to believe that there is a need for Network Rail to increase the volume of maintenance work that it undertakes at a time when the volume of renewals is ramping up to a much higher level than has been achieved in recent years; and

- (e) *Other income:* Network Rail reiterated concerns that had been expressed in its response to the third consultation document about the Regulator's projections of income from the company's commercial property portfolio. The Regulator's view remains that these forecasts represent challenging but achievable targets and he notes that this position is supported by the recommendations made by the independent consultants that he commissioned to assess Network Rail's income projections.

## **Implementation**

- 29. In accordance with the process set out in Schedule 4A of the Act, the Regulator will next week be issuing a review notice to make the relevant changes to the track access agreements between Network Rail and franchised passenger train operators.
- 30. Network Rail must then decide, by 30 January 2004 whether it wishes to make any objections to the relevant changes or the date on which it is proposed that the relevant changes should take effect.
- 31. If objections were to be made, the Regulator may either issue a new review notice or make a reference to the Competition Commission. This would require the Competition Commission to investigate and report on:
  - (a) whether the matters considered in the access charges review which are specified in the reference operate, or may be expected to operate, against the public interest; and

- (b) if so, whether the effects adverse to the public interest which those matters have or may be expected to have could be remedied or prevented by the making of changes to the access agreements between Network Rail and franchised passenger train operators.

### **Future access charges reviews**

32. If Network Rail accepts the Regulator's conclusions, the company will need to make immediate changes to its activity plans, its asset management policies and its procurement arrangements in order to meet the lower expenditure allowances that are established in the review. It is not the Regulator's job to micro-manage the changes that the company makes, but rather to stand back at the conclusion of the review and let Network Rail's management determine the actions that they must take within the constraints of the business's contractual and licence obligations, the company's safety case and the overall financial framework that this review provides. The company's accountabilities to its commercial customers (the train operators) and the Regulator (as proxy for the public interest) remain, and they, of course, retain their ability to hold Network Rail to account for any failures in its performance of obligations owed to them.
33. A key principle underpinning incentive regulation in the UK is that the company makes profits if it is as efficient or more efficient than its regulator assumes, and bears financial consequences if it is unable to match the regulator's efficiency targets. The railways are no different. As a company limited by guarantee, increased efficiency on Network Rail's part will translate into higher annual surpluses which, at least in the first instance, will be used by the company to build up reserves as a protection against future shocks. Cost overruns, by contrast, will mean lower surpluses and may lead to financial losses if the root causes of inefficiency are not addressed.
34. All regulators do, however, recognise that circumstances can change due to factors that are outside a company's control and that customers of monopoly network businesses or relevant authorities might make new requirements which were not foreseen at the time at which charges were set. The regulatory framework which the Regulator established in the October 2000 access charges review allows the efficiently-incurred costs of additional obligations to be logged up and included in the RAB at the next access charges review. The Regulator proposes to leave these arrangements in place.

35. Equally, regulated companies might try to make cost savings by not delivering outputs that are required by a regulator at the time it sets charges. Schedule 8 of franchised passenger train operators' track access agreements provides a safeguard against this type of behaviour by providing Network Rail with a financial incentive to meet annual performance targets. In addition, the Regulator is putting in place two further incentives to encourage Network Rail to deliver improvement in outputs over time:
- (a) a volume incentive, which provides Network Rail with additional income at the next access charges review if it accommodates predicted growth in traffic during the next five years; and
  - (b) an asset stewardship incentive, which provides Network Rail with additional income at the next access charges review if it improves the underlying condition and serviceability of its asset base.
36. In extreme cases, where Network Rail has not delivered the outputs set by the Regulator and the company has deliberately not sought to carry out the work that is necessary to deliver those outputs (and assuming that appropriate effective enforcement action either by its commercial customers or the Regulator has not been taken and led to a remedying of the failure), the Regulator may also take money away at the next review to compensate customers and funders for Network Rail's under-delivery. The Regulator will therefore monitor carefully the volumes of activity that the company undertakes along with movements in unit costs so that he can establish in future how the company has performed against the targets set in this review. The Regulator will publish three-monthly progress reports in this respect.
37. While the Regulator considers that this strong emphasis on incentives is the most effective way to bring about sustainable improvements in efficiency and performance, he must also take account of the fact that Network Rail, as a company limited by guarantee, is not in a strong position to bear the financial consequences of major deviations in costs from the levels assumed in these final conclusions. In two specific areas, namely the expenditure associated with signalling renewals and possessions compensation, there is currently considerable uncertainty around the costs that Network Rail will incur during the next five years. For these items of expenditure alone, the Regulator expects to carry out a further review of costs during the next two years. Similarly, on the West Coast Main Line, the Regulator has decided to make provision to conduct a further review if Network Rail's expenditure exceeds (or in his

opinion is likely to exceed) by 15% or more Network Rail's total expected West Coast Main Line expenditure and also in respect of liabilities that might arise. More generally, the Regulator would expect to review access charges if Network Rail's cumulative out-turn expenditure on the operation, maintenance and renewal of the network during the next five-year period begins to exceed the allowances set in this review by more than 15%. The purpose of such a review would then be to identify and address the causes of cost escalation and thereby stabilise Network Rail's financial position.

38. Except in these extreme circumstances, the Regulator does not intend to conduct a full review of the overall level of access charges again until 2009. After a difficult three years for the industry, Network Rail needs more than anything to have a degree of stability and certainty in the income it receives and the outputs that it must deliver in return.
39. The Regulator now expects Network Rail's management to build on their positive and constructive response to the issues identified during this review and to address quickly and effectively the legacy of inefficiency and poor performance that the company inherited from its predecessor. He considers his conclusions provide a firm foundation for Network Rail to succeed in providing the safe, well-maintained and reliable rail network the country needs.

# **PART 1: INTRODUCTION AND METHODOLOGY**



# ***1. Introduction***

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- 1.1 This document contains the Regulator's final conclusions in his review of the track access charges paid to Network Rail Infrastructure Limited (Network Rail) by franchised passenger train operators. The document is structured into five parts as follows:
- (a) Part 1 contains an overview of the approach that the Regulator has adopted in formulating his final conclusions and explains the methodology that the Regulator has used to set access charges;
  - (b) Part 2 deals with the Regulator's expenditure assessment, the scope for cost savings in the five-year period from April 2004 and the outputs that the Regulator expects Network Rail to deliver;
  - (c) Part 3 deals with financing and describes each of the building blocks in the new financial framework;
  - (d) Part 4 sets out the Regulator's determination of the level of access charges; and
  - (e) Part 5 provides an overview of the Regulator's incentive framework and the adjustments he is making to existing contractual and regulatory incentives.
- 1.2 Copies of this document can be seen on ORR's website ([www.rail-reg.gov.uk](http://www.rail-reg.gov.uk)) and in the ORR library.



## 2. *Approach and objectives*

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- 2.1 On 25 September 2002, following consultation with the industry, the Regulator announced that he would conduct an early review of the access charges paid to Network Rail by franchised passenger train operators. In the period since the beginning of this review, the Regulator has carried out a thorough investigation into the causes of recent increases in Network Rail's expenditure and he has assessed the scope of available cost savings and the timing in which they can be made. He has also examined the incentive and financial framework within which Network Rail currently operates and has sought to identify whether changes to this framework might enable the company better to meet the needs of its customers and funders. This document sets out his final conclusions in relation to all of these matters.
- 2.2 The Regulator's objectives in producing these final conclusions are identical to the objectives that he set out at the very beginning of the review:
- (a) to define the baseline outputs which Network Rail will be expected to deliver in operating, maintaining and renewing the network;
  - (b) to provide an assessment of the expenditure that a well-managed and competent company would incur in delivering the baseline outputs;
  - (c) to incentivise the company and its management to improve efficiency, thereby controlling and reducing the cost of the railway;
  - (d) to incentivise management to deliver its output obligations, thereby improving the performance of the railway;
  - (e) to allow Network Rail sufficient revenue to finance its expenditure in these respects; and
  - (f) to enable customers and funders to plan their businesses with a reasonable degree of certainty.
- 2.3 In establishing his objectives, in approaching the work of this access charges review and in reaching his final conclusions in these areas, the Regulator has had careful regard to Network Rail's contractual obligations, the company's obligations under its network licence and all relevant EU and human rights legislation. He has borne in mind the entirety of his duties under section 21 of the Channel Tunnel Rail Link Act

1996 and section 4 of the Railways Act 1993 and he has approached this review with a predisposition to fulfil all of them so far as is practicable.

- 2.4 These duties, which are listed in Annex A, relate very directly to the concerns that have been expressed by all consultees from the outset of this review: the current standards of punctuality and reliability across the network; the efficiency with which Network Rail is operating, maintaining and renewing its infrastructure; and the consequences of the company's overspending before, during and after the period that Railtrack was in railway administration. However, the Regulator's duties do not always point in the same direction and may conflict and he has had to weigh competing considerations, giving priority to some duties over others.
- 2.5 Throughout the review, the Regulator has placed considerable emphasis on his duty to promote efficiency and economy on the part of Network Rail and has made it clear to the company's management that it must ensure that it does not waste the funding that it receives. This has involved extensive examination of Network Rail's procurement strategy, its engineering policies and standards, and its approach to asset management. Detailed comparisons have also been made between Network Rail and other companies, both inside and outside the rail industry, and Network Rail's seven regions have been benchmarked against one another to identify best practice within the company.
- 2.6 When combined together, this work has enabled the Regulator to arrive at an overall assessment of the funding that a well-managed and competent company requires to maintain and renew the network to the standards that its customers and funders – and through them passengers and freight users – reasonably demand. Several of the Regulator's duties have had particular influence on this assessment, notably his duties to protect users of the railway, to facilitate the furtherance by the SRA of its strategies and to promote the use and development of the network. In each and every case, these duties have led the Regulator to conclude that Network Rail must be in a position after this review to reduce significantly and quickly the amount of delay that it is responsible for causing passenger and freight train operators.
- 2.7 This improvement will, however, only materialise if the amount of funding that Network Rail receives through track access charges is sufficient to enable Network Rail to finance its investment over the five years covered by this review. The Regulator has a duty to act in a manner that will not make it unduly difficult for Network Rail to raise this finance and he continues to regard the stabilisation of Network Rail's finances as an essential outcome from this review.

- 2.8 As the financial consequences of any change in access charges are ultimately borne by the SRA, the Regulator has also considered carefully the SRA's financial position and has had regard to the general guidance issued to him by the Secretary of State in September 2002, including by notifying the SRA as soon as it became apparent that access charges might need to rise. On the basis of the information that has been made available to him, the Regulator understands that the conclusions set out in this document may cause the SRA to incur expenditure beyond that which can be accommodated within its existing budget from the Secretary of State. He does not consider that there is any realistic alternative to this outcome given the full range and weight of statutory duties that he must discharge in this review.
- 2.9 In this context, it is important to note that these final conclusions have been produced following extensive consultation during which the Regulator has sought to develop a degree of consensus with Network Rail and within the industry more widely. He has published four formal consultation documents, accompanied by almost 20 studies undertaken by consultants, and he has received written responses to this work from more than 30 different organisations. He has also hosted fortnightly meetings with Network Rail, the SRA and the Health and Safety Executive (HSE), met regularly with officials of the Department for Transport (DfT) and the Treasury, and held seminars with train operators and the industry's contractors and suppliers.
- 2.10 Network Rail, for its part, has adopted an open and transparent approach to the review and has provided extensive information relating to its costs and business planning tools. The company has also responded constructively to the challenge of identifying ways to reduce expenditure while improving performance, a challenge which the Regulator recognises is a considerable but achievable one, and it is already making progress in addressing many of the issues which are identified in this document. Further work has been undertaken in some areas since the draft final conclusions were published in October 2003 and Network Rail and other stakeholders have continued to contribute to the final stages of the review over the past few weeks.
- 2.11 The views that have been put to him through the review process have been a key input into the proposals that are set out in this document. As the Regulator has made clear throughout the review, however, under the Railways Act 1993 it is the Regulator and he alone who determines the track access charges that Network Rail, acting as an efficient and economic provider of the infrastructure, may charge its train operator customers. That decision, together with the enhancements specified and funded by the SRA, determines the overall size, quality and cost of the network.

- 2.12 In many areas, Network Rail and the Regulator have reached reasonably consistent views after considering the analysis that has been produced during the review. Elsewhere, it has become apparent that the Regulator and Network Rail have arrived at different conclusions. This document sets out clearly the reasons for the Regulator's final conclusions and the reasons why he does not consider it appropriate to provide the level of funding that Network Rail has asked for.
- 2.13 After almost three years of uncertainty, the conclusions to this review will provide Network Rail with a clear, transparent and robust framework within which to carry on with the operation, maintenance and renewal of the network. It is essential that Network Rail responds to this challenge and that it is able to work with its customers and suppliers to demonstrate that increased investment in the railways delivers real benefits to customers, funders and to the economy as a whole.

## 3. *Methodology*

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### Introduction

3.1 This chapter sets out the Regulator's framework for calculating access charges. It confirms the methodology that the Regulator proposed in his previous consultation documents and sets out the approach that he will take to allow him flexibility to adjust certain components of allowed revenues during the next control period. The key principles are as follows:

- (a) the Regulator's methodology for calculating access charges is based upon a standard building block approach. The only major refinement to the framework adopted at the last access charges review will be a change to the treatment of renewals expenditure to allow scope for Network Rail to finance a proportion of this type of activity through borrowing; and
- (b) on the basis of this building block analysis, the Regulator is setting access charges for a five-year period. However, he is allowing flexibility to adjust either access charges or the quality of infrastructure that Network Rail is required to provide (or both) after April 2006 if there have been material departures from the assumptions that the Regulator has made in reaching these final conclusions. Assessing both the quality of infrastructure and the price to be paid for that level of quality is no different from the approach which the Regulator takes in any access charges review he undertakes.

### The financial framework

3.2 As explained in Chapter 2, one of the principal objectives in this access charges review is to ensure that Network Rail has sufficient revenues to enable it to carry on with the operation, maintenance and renewal of the network. The amount the business is allowed to spend is a key input into these calculations, but it is not the only determinant of access charges. In addition, the Regulator has to take account of the amounts the business pays in interest to its lenders, the scale of any annual operating surplus it requires, other sources of income and the extent to which it can borrow from the capital markets.

3.3 At the last access charges review in October 2000, the Regulator used a standard building block approach to calculate access charges, in which Railtrack's revenue requirements were built up piece by piece by assessing each individual component of

cost, revenue and financing in turn. This was consistent with the approach used when Railtrack's first price control was set in 1995 and with the methodology that Ofwat and Ofgem have used in periodic reviews in the water and energy industries.

3.4 The Regulator has concluded that his methodology for calculating access charges in this review should again be based on a building block approach, since this remains the most robust basis for calculating a regulated business's revenue requirements. The key steps are as follows:

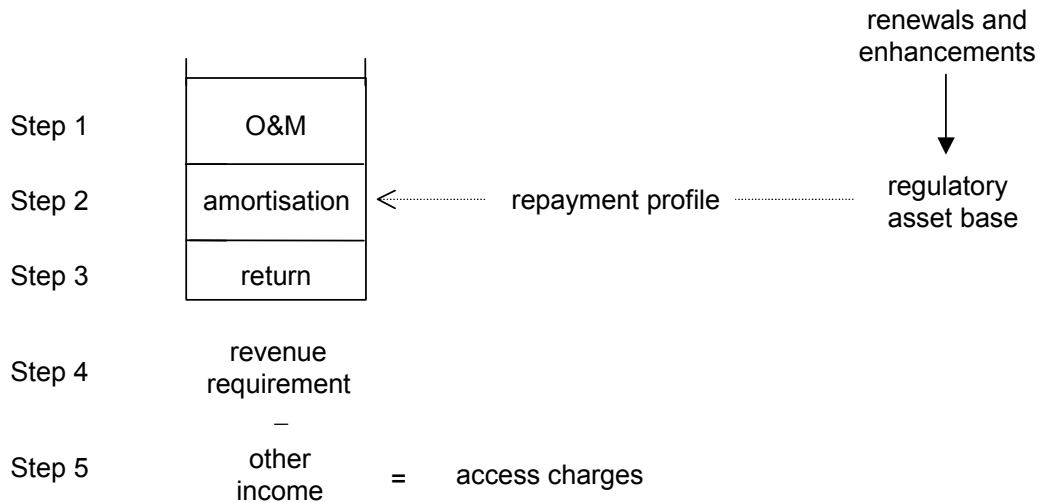
- (a) *Step one:* Projected expenditure on the operation and maintenance (O&M) of Network Rail's infrastructure is remunerated on a pay-as-you-go basis (that is, anticipated expenditure is matched pound-for-pound by allowed revenues);
- (b) *Step two:* Projected expenditure on renewals and enhancements is added to the regulatory asset base (RAB). The RAB is the Regulator's valuation of Network Rail's assets, and adding to the RAB should enable the company to borrow money from private investors to finance renewals and enhancement expenditure. The Regulator allows Network Rail additional revenue so that it can pay back this debt over time and amortises the RAB by an equivalent amount in doing so. This means that the amount of new money that the company is expected to borrow in any given year is actually the difference between the spend on renewals and enhancement and the allowance for amortisation;
- (c) *Step three:* A further allowance is made for the return that Network Rail should earn. This return must cover the interest that the company is required to pay to lenders and provide for an operating surplus, so that the business can cover additional costs that it had not previously anticipated incurring or otherwise build up reserves as a protection against future cost shocks;
- (d) *Step four:* For the purposes of this review, Network Rail's overall revenue requirement is calculated as the sum of the three components in steps one to three: allowed O&M expenditure; amortisation; and a return;
- (e) *Step five:* Network Rail's other income from open access operators, stations and depots, and from property and other commercial activities, is then deducted from this requirement; and

(f) *Step six:* The remaining revenue requirement is then paid for by franchised passenger operators through the charges in Schedule 7 to their track access agreements and by the SRA through grant payments.

3.5 The only difference compared to the approach adopted at the last access charges review is in the treatment of renewals expenditure. At the last review, renewals were remunerated on a pay-as-you-go basis on the grounds that Railtrack was constrained from borrowing to finance such investment. Network Rail has a very different financial structure from that of its predecessor and the Regulator has concluded that the company is now in a position to finance expenditure on renewals through the RAB. This is consistent with the approach that all other UK regulators have adopted towards network monopoly operators.

3.6 The methodology is set out diagrammatically in Figure 3.1, below.

**Figure 3.1: Methodology for calculating access charges**



3.7 Further explanation of each of the building blocks in Figure 3.1 is set out below.

*Allowed expenditure*

3.8 The process for determining Network Rail’s allowed expenditure is discussed in detail in Part 2 of this document. The Regulator has determined an allowance for expenditure over the period 2004/05 to 2008/09, based on an assessment of the activities the business will need to undertake and the cost of those activities, including efficiency gains that the business can reasonably be expected to make over time. Any overspending against the allowances made by the Regulator will be borne by the company, while efficiency improvements over and above those projected by the

Regulator will constitute additional profit and are expected to go in to Network Rail's reserves.

### *The RAB and amortisation*

- 3.9 While maintenance and operating expenditure is remunerated pound-for-pound as it is expected to be incurred, projections of expenditure on renewals and enhancements will be added to Network Rail's RAB from 2004/05 onwards. The principles for calculating the value of the RAB at the start of this period were established in the October 2000 access charges review final conclusions and developed further in the Regulator's statement on the Network Rail acquisition of Railtrack, published on 23 June 2002. These rules are set out again in Part 3 of this document and serve to ensure that the opening value of the RAB exceeds the debt that Network Rail owes to its lenders.
- 3.10 The period over which customers and funders are asked to pay back the debts that the company incurs, through an allowance in Network Rail's revenue requirements for amortisation, has been a key issue in the review. Because the difference between the allowance for amortisation in any one year and the Regulator's allowances for renewals and enhancement expenditure determines the additional amount that Network Rail will need to borrow each year, the appropriate rule for amortising the RAB must be determined through an assessment of the constraints on Network Rail's ability to borrow, the sustainability of any increase in the RAB over time and the extent to which it is fair to ask customers and funders today and in the future to pay for investment.
- 3.11 These issues are examined in more detail in Part 3 of this consultation document.

### *Returns*

- 3.12 The return that the Regulator is allowing Network Rail is made up of two components:
- (a) an estimate of the amount that Network Rail must pay in interest to its lenders (provided that the debt it has taken on has been prudently incurred); and
  - (b) an additional pre-tax operating surplus, which will act as a buffer against unexpected cost shocks.
- 3.13 Financing costs may be estimated empirically, but the size of the operating surplus will require the Regulator to exercise a certain amount of judgment. During this

review, the Regulator has looked carefully at the impact of alternative levels of surplus on financeability and on Network Rail's incentives to control costs, and at the returns that other regulators allow similar network industries. This analysis is set out in Part 3 of this document.

#### *Other income*

3.14 The Regulator's task in this review has been to determine the charges which will be paid by franchised passenger train operators under Schedule 7 to their track access agreements with Network Rail. The company does, however, have other sources of income which the Regulator has deducted from Network Rail's funding requirement when setting access charges. This is primarily revenue from:

- (a) charges paid by non-franchised train operators, including freight operators;
- (b) depot and station access charges; and
- (c) income from Network Rail's property and commercial activities.

3.15 Part 3 explains that it should be possible for Network Rail to generate more income from some of these sources than had previously been thought possible. Other things being equal, this will serve to reduce access charges.

#### *Access charges*

3.16 The sum of allowed O&M expenditure, the allowed return, and amortisation of the RAB, less projected income from other sources, produces Network Rail's annual revenue requirement. As a first approximation, this constitutes the amount that franchised passenger train operators should, in aggregate, pay through their access charges. However, at the last review of access charges in October 2000, the Regulator allowed the SRA to pay Railtrack a series of lump-sum grants rather than subsidise an increase in access charges through clause 18.1 of passenger operators' franchise agreements. These grant payments continue until April 2006 and when calculating access charges it is necessary to deduct the relevant amounts from the Regulator's assessment of Network Rail's revenue requirements in order to ensure that the company is not paid twice for the same work.

#### *Financeability*

3.17 As a final step in the calculations, the Regulator needs to check again that the level of access charges he is proposing does not make it unduly difficult for Network Rail to finance its relevant activities. In practice, this means that he must be confident that

Network Rail has continued access to the debt markets and a sufficiently strong credit rating to enable it to borrow additional money at a reasonable cost.

- 3.18 This is determined by a range of factors, some of which are determined as part of the review (*e.g.* Network Rail's overall risk profile), and others which are inputs into the Regulator's conclusions (for example, the scale of any credit facilities provided by the SRA). The framework for assessing Network Rail's ongoing financeability is explored in more detail in Part 4 of this document.

## **The charging framework**

### *Background*

- 3.19 Most of the other UK economic regulators set charges for a period of five years on the basis of their assessment of a business's revenue requirements. There are, however, important features of the rail industry at the present time which suggest that the Regulator should be cautious about his projections for the later years of this period, most notably:
- (a) the significant uncertainty surrounding medium to long-term forecasts of expenditure following three years of upheaval in the industry; and
  - (b) Network Rail's reliance on debt financing, which leaves it in a relatively weak position to bear the financial risk associated with this uncertainty.
- 3.20 Balanced against these considerations, the Regulator has also said it is part of his objectives in this review to enable Network Rail, its customers and its funders to plan their businesses with a reasonable degree of certainty and to incentivise improvements in efficiency and delivery of outputs. He has argued consistently that focusing in this review only on the business's short-term revenue requirements would not provide sufficient assurance for customers or funders, and may even make it unduly difficult for Network Rail to refinance its relevant activities, contrary to his statutory duty in that respect.
- 3.21 He has therefore concluded that access charges and outputs will be established by this review for a full five-year period, with the next periodic review then scheduled to take place in 2008/09. However, the Regulator wishes to allow for some flexibility to re-examine elements of his determination after 1 April 2006 if there have been material departures from the assumptions that he made in setting these charges. In practice this would mean that he has an opportunity to check that the funding he allows as part of this review remains appropriate in light of the circumstances that the business faces.

*Amendments to access agreements*

3.22 The arrangements which enable the Regulator to review access charges are set out in Schedule 7 to the track access agreements between Network Rail and franchised passenger operators. As part of the implementation of this review, the Regulator will issue directions for the amendment of the existing provisions and the establishment of new arrangements which include:

- (a) *Review of specific activities:* During the Regulator's assessment of signalling renewals and compensation for possessions (including the benefits of alternative possessions patterns), it has become apparent that there is still significant uncertainty about the level of costs that Network Rail will incur. The Regulator considers that it would be inappropriate to fix his expenditure allowances for these items for a period of five years. Instead, he will allow for a further review of both types of expenditure within the next two years. This may lead either to an adjustment to the expenditure allowances set by the Regulator at the conclusion of this review, or a reduction in the outputs which that expenditure is intended to deliver, or the Regulator may conclude that no change is required; and
- (b) *Exceptional circumstances.* The Regulator expects to initiate a more thorough review of Network Rail's overall revenue requirements if it becomes apparent two years or later from now<sup>3</sup> that Network Rail's cumulative expenditure is more than 15% higher or lower than the cumulative level he has assumed in setting access charges. In such circumstances, it is likely that the assumptions that the Regulator made in this review will have proven to be incorrect and it will therefore be appropriate that they should be reassessed. Depending on the outcome of his review, the Regulator would be able to adjust access charges (either up or down), adjust outputs (either up or down) or leave the existing charges and outputs in place.

3.23 By adopting this approach, the Regulator is departing slightly from the standard, five-year, fixed-price regulatory settlement adopted by most other UK economic regulators. While the regulatory regimes for some other network industries do provide regulators with an opportunity to reopen price controls in the period between periodic

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<sup>3</sup> The Regulator does not believe that provision for an interim review is appropriate before this date. Network Rail's financial position should be robust to overspending in the first two years because the Regulator has allowed a considerable margin between expected levels of debt and the value of the RAB.

reviews, the tests which are applied to determine whether such a course of action is appropriate almost always involve identifying an external shock to the business which is found to be outside management control. In Network Rail's case, the Regulator is to allow a more general interim review provision which could be triggered whenever the performance of the regulated business departs materially from the assumptions made at the time of the most recent review of access charges.

- 3.24 The Regulator's approach is therefore similar to the approach adopted by economic regulators in the US, where the period between regulatory reviews is determined endogenously according to whether costs remain close to the levels assumed when prices were last reset. If Network Rail's improvement in efficiency tracks closely the assumptions made by the Regulator in this review, there will not be a need to re-examine access charges for five years. If, however, Network Rail begins significantly to exceed the Regulator's expenditure allowances or if it is able to improve efficiency materially faster than assumed, the Regulator would expect to initiate a review and examine the appropriate forward-looking adjustment to the outputs the business is required to deliver or the funding it receives in future. There would, however, be no retrospective adjustment to the expenditure allowances set by the Regulator for earlier years.
- 3.25 In not fixing irrevocably Network Rail's funding requirement from year 3 and beyond as part of this review, the Regulator recognises that he is explicitly transferring financial risk away from Network Rail and its investors to funders and customers. He considers that this is entirely appropriate in a situation in which the regulated business is financed entirely by debt and is not in a strong position to bear the risk associated with cost uncertainty. However, the Regulator also considers that customers and funders gain considerable benefit from this new flexibility. In particular, the incentives that encourage management to reduce costs and improve performance work most effectively if Network Rail has a sound financial basis on which to run its business. By providing for the possibility of future interim reviews to deal with both existing uncertainties around expenditure and future shocks, the Regulator considers that he is promoting efficiency and economy on Network Rail's part and better enabling providers of railway services to plan their businesses with a reasonable degree of assurance that the product they require will be delivered.

# **PART 2: EXPENDITURE ASSESSMENT**



## 4. *Expenditure assessment: overview*

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### Introduction

- 4.1 In financial terms, the Regulator's allowances for expenditure incurred in operating, maintaining and renewing the network are by far the most significant determinants of the track access charges that train operators pay Network Rail. Part 2 of this document sets out the Regulator's final conclusions on the appropriate level of spending in the five-year period from April 2004.

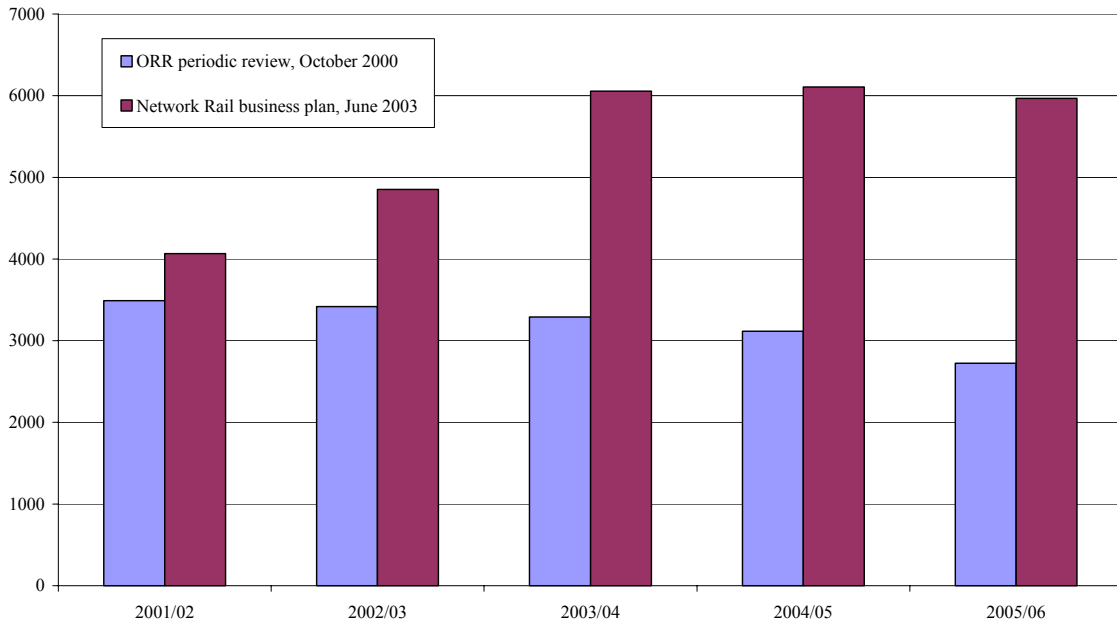
### Background

- 4.2 The existing level of charges was set on the assumption that expenditure would fall by approximately 20% over the course of the second control period, from £3.5 billion in 2001/02 to £2.7 billion in 2005/06.<sup>4</sup> However, immediately after the publication of the Regulator's periodic review conclusions in October 2000, investigations following the cause of the derailment at Hatfield made clear that Railtrack's understanding of the condition of its assets was not as robust as it ought to have been. The Regulator therefore acknowledged that an interim review of both costs and revenues might be necessary if it became clear that the company would need to increase the volume of maintenance and renewal activity it was then undertaking beyond the levels assumed at the time of the October 2000 access charges review, and it could be shown that this increase would have a material impact on the business's financial position.
- 4.3 Following consultation with the industry, the review was initiated by the Regulator in September 2002 and, as soon as Network Rail acquired Railtrack, the new owner of Britain's railway infrastructure began assessing exactly how far spending might need to increase. Network Rail's first annual business plan was published on 31 March 2003 and updated in June 2003. The revised plan contains forecasts of a significant increase in expenditure to £6.0 billion per annum by 2005/06. A comparison between the June 2003 forecasts and the assumptions made at the time of the last access charges review is set out in Figure 4.1.

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<sup>4</sup> All figures in this document are in 2002/03 prices unless otherwise stated.

**Figure 4.1: Comparison of OM&R expenditure forecasts (£ million)**



Source: ORR.

4.4 Over the full five-year period from April 2001, Network Rail’s business plan forecast that the company would overspend by almost £11 billion against the allowances for OM&R expenditure set by the Regulator at his last review. Significant increases are seen in all categories of activity, as shown in table 4.2, but particularly in maintenance, track renewals, and work on structures.

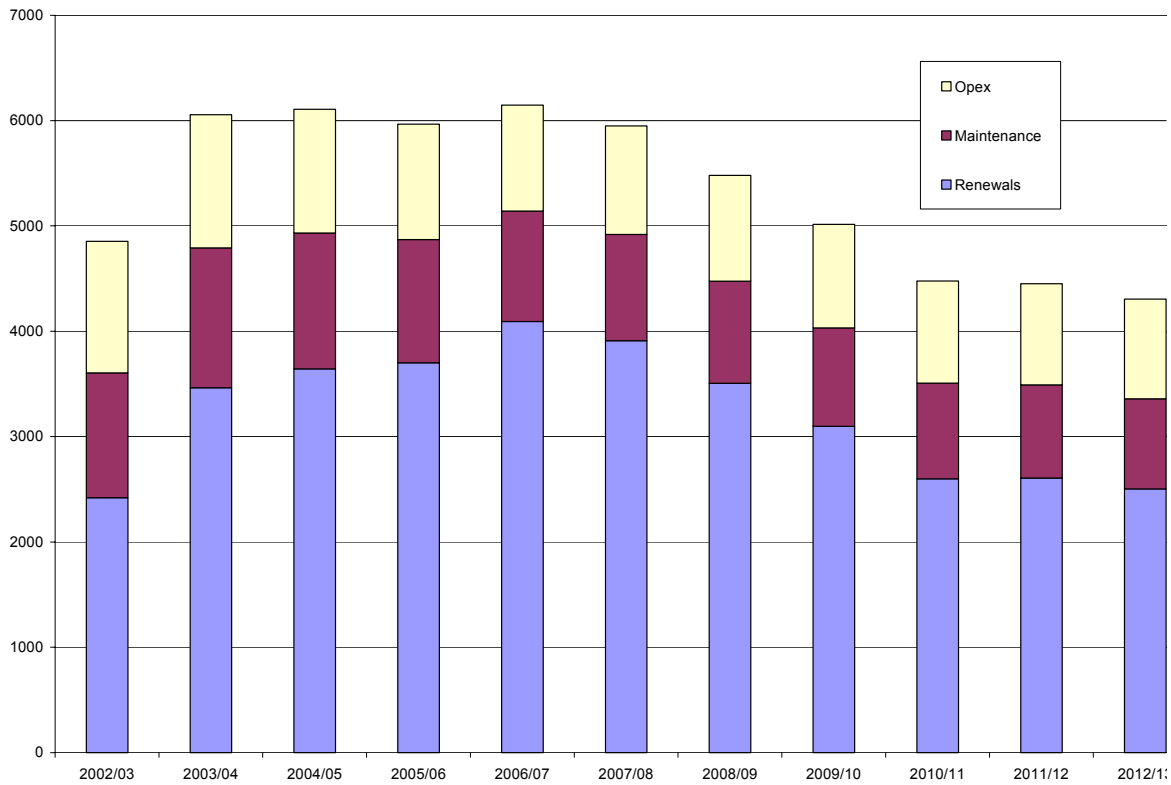
**Table 4.2: Network Rail's forecasts of increases in OM&R expenditure by type over the period 2001/02 to 2005/06 (£ million)**

	ORR access charges review, October 2000	Network Rail business plan, June 2003	Forecast variance	Forecast overspending
Renewals				
- track	2,161	5,215	3,054	141%
- structures	929	2,171	1,242	134%
- signalling	3,190	3,312	122	4%
- electrification	413	975	562	136%
- plant and machinery	99	656	557	563%
- telecoms	729	1,455	726	100%
- stations and depots	697	699	2	0%
- other (incl. IT)	352	608	256	73%
Maintenance	3,284	5,922	2,638	80%
Sub-total: Maintenance and renewal	11,854	21,013	9,159	77%
Operating expenditure	4,588	6,009	1,421	31%
<b>TOTAL</b>	<b>16,442</b>	<b>27,022</b>	<b>10,580</b>	<b>64%</b>

*Source:* Network Rail's June 2003 business plan. All figures include expenditure on renewal of the West Coast route.

4.5 The figures in Network Rail's June 2003 business plan for a longer, ten-year period are set out in Figure 4.3, below. The company said that it believed it is necessary after April 2006 to increase further the amount of maintenance and renewal activity it undertakes. Although improved efficiency offsets some of this additional spending, Network Rail predicted that expenditure will remain above the levels previously assumed by the Regulator throughout the five-year period covered by this review.

**Figure 4.3: Network Rail’s June 2003 ten-year projections of expenditure (£ million)**



Source: Network Rail’s June 2003 business plan.

4.6 In his third consultation document, the Regulator said that he believed Network Rail’s business plan overstated the amount of maintenance and renewal activity that the company needed to undertake and understated the speed at which efficiency improvements could be achieved. Network Rail responded with a cost submission in September 2003 in which it stated that the reductions in expenditure that the Regulator had indicated in this third consultation document could not be delivered in full without adversely affecting punctuality, reliability and the underlying condition of the railway infrastructure. However, Network Rail did identify some further cost savings of its own, mainly as a result of the problems it foresaw in delivering very rapid increases in volumes of renewal activity.

**The Regulator’s approach**

4.7 As the industry’s economic regulator, the Regulator must take an independent and impartial view of the expenditure that a competent and well-managed company would incur in the period after April 2004 and set his allowances for expenditure in this review on the basis of that assessment. Network Rail’s own forecasts provide the starting point for this analysis, and the Regulator has carried out a detailed,

quantitative analysis of the savings that he believes Network Rail should be able to achieve beyond its business plan forecasts.

- 4.8 In the first instance, this means looking both at the activities and unit costs that are incurred in delivering the October 2000 access charges review outputs in the most efficient manner. The Regulator has used a number of different techniques as part of this assessment:
- (a) bottom-up, engineering-led analysis of the scope for identifiable cost savings;
  - (b) benchmarking, in which Network Rail's approach to operating, maintaining and renewing the network is compared against best practice from both inside and outside the company; and
  - (c) top-down analysis, which compares Network Rail's forecasts of cost reduction against the recent achievements of other, similar businesses.
- 4.9 From the outset of the review, the Regulator has recognised that none of these techniques provides a 'perfect' answer in its own right, and each requires the Regulator to exercise a considerable degree of judgment and discretion. However, by approaching the efficiency assessment from a number of different directions, the Regulator does not need to place undue weight on any one piece of analysis. Rather, he can look at a broad range of analysis and set allowances for expenditure on the basis of the overall picture that emerges from this work. This should help to minimise the degree to which his assessment will be subject to error.
- 4.10 Chapter 5 examines planned *volumes* of work and activity levels. Since the publication of the Network Rail business plan in March 2003, the Regulator has asked Network Rail to justify the individual jobs that appear in its workbanks for 2003/04, 2004/05 and 2005/06 and to explain the basis for its longer-term projections of spending over a ten-year period. He has asked Network Rail to make a compelling and robust case for all of the work on the network that it wishes to undertake. Where it appears that work is unnecessary, or where it appears that Network Rail intends to undertake maintenance or renewal activity well before a strong business case for that investment has been made, the Regulator's view is that Network Rail should not be funded for that activity.
- 4.11 Chapter 6 examines the underlying *cost* of any given volume of maintenance and renewal activity and the scope for Network Rail to reduce this cost over time. It sets out the conclusions which the Regulator has drawn from the studies he commissioned

to benchmark Network Rail's costs against best demonstrated practice in other, similar companies and quantifies the scale of cost savings that Network Rail would be able to achieve by adopting these best practices more widely within the company.

- 4.12 Chapter 7 summarises the conclusions that the Regulator has reached in his separate review of the West Coast route modernisation project. It sets out how much he is allowing for expenditure which improves the West Coast route from London to Birmingham, Manchester, Liverpool, Preston and Glasgow.
- 4.13 Chapter 8 combines the analysis in the previous three chapters to determine the appropriate annual expenditure allowances for the period 2004/05 to 2008/09. The figures set out in this chapter form the basis for the Regulator's calculation of access charges (using the methodology set out in Chapter 3).
- 4.14 Chapter 9 sets out in clear and unambiguous terms the baseline outputs that Network Rail is required to deliver in return for these expenditure allowances. These outputs, most of which are to be monitored on a network-wide basis, comprise detailed assumptions about Network Rail-caused delay, the underlying condition and serviceability of the railway infrastructure, and the capability of the network.
- 4.15 Finally, a common theme in all the chapters in this volume is the safety implications of Network Rail's proposed activities and spending. Chapter 10 of this document explains the steps that the Regulator has taken to assure himself that his review conclusions are consistent with Network Rail being able to meet its safety obligations in full.

## 5. *Activity levels*

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### Introduction

- 5.1 This chapter sets out the Regulator's final conclusions on the volume of maintenance and renewal activity that Network Rail needs to undertake in the period after April 2004. It excludes expenditure on the West Coast route modernisation (WCRM) project, *i.e.* renewals that are being undertaken by the West Coast Modernisation Unit (WCMU) within Network Rail, which is dealt with in Chapter 7.
- 5.2 The starting point is one in which the company has put forward plans to carry out more maintenance and renewal activity than its predecessor Railtrack argued was necessary at the time of the last access charges review. If Network Rail's plans were implemented, this would mean that more of the rail network would be repaired or replaced over the next five years than the Regulator assumed in his October 2000 access charges review final conclusions.
- 5.3 In order to determine whether these higher levels of activity are necessary and justified, the Regulator has carried out a detailed review of the assumptions underpinning Network Rail's business plan. This has comprised the following work:
- (a) for the years 2004/05 and 2005/06, Network Rail's plans are based to a large extent on regionally generated proposals for actual physical work. The Regulator has therefore conducted a detailed bottom-up review of the current maintenance and renewal workbanks and has sought to assess whether the individual jobs that Network Rail is planning to undertake are justified; and
  - (b) for the period 2006/07 to 2008/09, Network Rail's projections are based more upon generic volumes of renewal activity derived from forecasting models that use asset condition and usage data, with assumed service lives for the key assets, in order to determine future maintenance and renewal intervention requirements. Here the Regulator's work has focused on assessing the robustness of Network Rail's modelling and the validity of the assumptions which the business has made in these models.
- 5.4 From the outset of the review, the Regulator has made it clear to Network Rail that it must make a robust and compelling case for any expenditure over and above the allowances set by him at the last access charges review. In a number of areas, it is the

Regulator's view that Network Rail has fallen short of these requirements. This means that the Regulator has taken his own view as to the amount of activity that a well-managed and competent company would undertake. His findings and the reasons for these findings are set out below.

## Final conclusions

5.5 Table 5.1 sets out the Regulator's final conclusions on the rate at which he considers it is appropriate for Network Rail to increase or reduce, relative to the business's actual spend in 2002/03, the volume of maintenance and renewal that it carries out in the next five years.

**Table 5.1: The Regulator's final conclusions on future changes to volumes of maintenance and renewal activity from 2002/03 levels**

Asset type/activity	2002/03 actual spend (£ million)	2004/05	2005/06	2006/07	2007/08	2008/09
Track	613	+6%	+32%	+39%	+45%	+52%
Structures	320	0%	0%	+23%	+47%	+47%
Signalling	285	+12%	+52%	+52%	+52%	+52%
Electrification	25	+100%	+180%	+340%	+380%	+380%
Telecommunications	75	+201%	+163%	+291%	+287%	+24%
Operational property	154	+22%	+23%	+44%	+65%	+76%
Plant and machinery	39	+385%	+128%	+90%	+85%	+77%
Other (incl. IT)	144	-6%	+4%	-13%	-13%	-7%
Maintenance	1,184	+12%	+12%	+12%	+12%	+12%
<b>TOTAL</b>	<b>2,839</b>	<b>+19%</b>	<b>+26%</b>	<b>+34%</b>	<b>+39%</b>	<b>+34%</b>

*Note:* all figures exclude renewals that will be undertaken by the WCMU.

5.6 The main conclusions from the Regulator's assessment of Network Rail's maintenance and renewal plans are as follows:

- (a) *Track:* The Regulator considers it is appropriate for Network Rail to increase significantly above historic levels the quantity of track that it renews each year. However, he believes that Network Rail's own forecasts overstate the scale of the increase that is required. In particular, work undertaken by his

consultants TTCI has identified that Network Rail plans during the next two years to increase the scope of a significant proportion of its renewals work in a manner that leads to parts of the track which are in good condition being replaced. After April 2006, the Regulator considers that overall volumes of plain line track renewals should continue at broadly the same level as in 2005/06, but he is making additional provision for an increase in the volume of switch and crossing (S&C) replacement.

- (b) *Structures*: In the next two years, Network Rail can maintain the condition of its structures while holding the amount of work that it undertakes constant at 2002/03 levels. After April 2006, there is a need for a small increase in the volume of work that it carries out, but the Regulator considers that the scale of this increase should not be as great as that which was set out in Network Rail's March 2003 business plan.
- (c) *Signalling*: In 2002/03, Network Rail underspent and underdelivered on the volume of signalling renewals that the Regulator had assumed Railtrack would undertake in his October 2000 review of access charges. In the next two years, Network Rail will need to increase the amount of renewals to approximately the levels that had previously been established. Thereafter, there is uncertainty about the volume of work Network Rail will need to carry out and the strategy that it should have in place for its signalling equipment. The Regulator is aware that Network Rail is addressing these issues and will be producing a national signalling strategy by next year. He has therefore decided it is necessary to conduct a further review of signalling before April 2006 in order to determine Network Rail's funding requirements for the last three years of the period.
- (d) *Electrification*: Network Rail and Railtrack have also underspent and underdelivered on electrification renewals since October 2000. In the next two years, Network Rail will need to make up for this shortfall in expenditure by increasing the amount of renewal it undertakes. Thereafter, the Regulator has concluded that it is necessary for Network Rail to increase the volume of work that it carries out to offset a significant deterioration in the residual age of the asset base.
- (e) *Telecommunications*: Network Rail has begun to make major improvements to its fixed and mobile telecoms networks. A joint industry working group comprising Network Rail, the Regulator, the SRA and the HSE has concluded

that some of the work that the company had intended to carry out in 2004/05 and 2005/06 can be rephased and rescope.

- (f) *Operational property*: Over the course of the next five years, Network Rail can maintain the condition of its stations, depots and lineside buildings in a steady state by carrying out a similar amount of maintenance and renewal activity to that which it undertook in 2002/03. He will, however, allow some money for additional expenditure at major stations. In reaching this conclusion, the Regulator has rejected Network Rail's arguments for a four-fold increase in expenditure and considers that the company's methodology for forecasting future volumes of maintenance and renewal in this area requires considerable development.
- (g) *Plant and machinery*: Network Rail has developed plans to purchase a number of new pieces of equipment to facilitate the maintenance and renewal of the network. The Regulator considers that these purchases should reduce costs over the medium- to long-term and has concluded that he should allow the majority of this expenditure. In doing so, he has also adjusted Network Rail's efficiency assumptions to ensure that the benefits of this expenditure are captured in full.
- (h) *Maintenance*: In the last three years, Network Rail has increased significantly the volume of maintenance activity that it undertakes. The Regulator's view is that there is considerable scope for improvements in the quality of the work that Network Rail and its contractors carry out, but that there is not currently a case for assuming that Network Rail will be able to reduce the overall volume of maintenance activity.

5.7 Table 5.2 calculates the savings that the Regulator is assuming that Network Rail can make against its June 2003 business plan as a consequence of these findings. The figures in Table 5.2 do not include the benefits of any efficiency savings (*i.e.* reductions in unit costs), which are considered separately in Chapter 6.

**Table 5.2: The Regulator's final conclusions on potential savings from Network Rail's June 2003 business plan resulting from reduced activity levels (£ million)**

Asset type/activity	2004/05	2005/06	2006/07	2007/08	2008/09
Track	162	203	433	547	630
Structures	146	259	317	242	242
Signalling	48	249	551	533	448
Electrification	29	30	9	8	7
Telecommunications	212	202	31	(242)	(42)
Operational property	13	15	311	371	222
Plant and machinery	15	15	-	-	-
Other (incl. IT)	-	-	-	-	-
Maintenance	15	(28)	(15)	(20)	(23)
<b>TOTAL</b>	<b>640</b>	<b>945</b>	<b>1,637</b>	<b>1,439</b>	<b>1,484</b>

*Notes:* all figures exclude renewals that will be undertaken by the WCMU. Figures in brackets denote an increase in expenditure above the level set out in Network Rail's business plan.

## Reasons for final conclusions

### *Background*

5.8 A key part of Network Rail's submissions from the outset of this review has been based around its argument that Railtrack systematically underestimated the volume of maintenance and renewal activity that is necessary in order to deliver acceptable and sustainable levels of performance. The company's case has three main elements:

- (a) the argument that under-investment in the 1980s and 1990s has created a backlog of renewals expenditure which must be dealt with in the next five years;
- (b) the argument that there is a further renewals 'bow wave' caused by assets that were last replaced in the 1960s wearing out; and
- (c) the argument that increases in traffic volumes and traffic tonnage in the last ten years has made it necessary to replace assets more quickly and more frequently than in the past.

5.9 The Regulator considers that each of these arguments has at least some justification. The key questions for this review have been about the size and timing of any

increases in activity, the asset categories in which they should take place and the extent to which asset degradation can be managed by more effective maintenance.

- 5.10 In order to understand Network Rail's views on the precise extent to which activity levels had previously been underestimated, the Regulator asked Network Rail to prepare detailed forecasts of its planned expenditure over the period 2003/04 to 2012/13 as part of its 2003 annual business plan. His requirements in respect of this plan were set out in a notice issued to the company on 13 December 2002, a copy of which was placed on the ORR website. It contained the following elements:
- (a) a requirement to set out, as far as possible, activities and expenditure arising from specifically identified work at given locations for 2003/04, 2004/05 and 2005/06;
  - (b) for 2006/07 to 2012/13, a requirement to explain the assumptions that the company was using to compile long-term forecasts of activities and expenditure; and
  - (c) in all years, a requirement to state explicitly the extent to which Network Rail departs from the levels of network capability, asset condition and asset serviceability that were established at the October 2000 access charges review and Railtrack's 2002 targets for delay.
- 5.11 Network Rail told the Regulator on 4 March 2003 that it intended to undertake significant further work after the publication of its March 2003 business plan to improve the robustness of the long-term forecasts of maintenance and renewal volumes. It therefore requested that it should be allowed to publish its business plan in two parts: a first instalment, to be published on 31 March 2003 which would include the business's projections of expenditure for the three years between 2003/04 and 2005/06; and a second volume, to be published by 30 June 2003, which would contain expenditure forecasts for a full ten-year period. The Regulator agreed to this.
- 5.12 Before allowing for improvements in efficiency which Network Rail plans to introduce over the next six years, the company's June 2003 estimates of the amounts that it must spend on the maintenance and renewal of the network are set out in Table 5.3, below.

**Table 5.3: Network Rail's June 2003 projections of maintenance and renewal expenditure, pre-efficiency (£ million)**

Asset type/activity	2004/05	2005/06	2006/07	2007/08	2008/09
Track	809	1,015	1,283	1,437	1,560
Structures	466	579	712	712	712
Signalling	368	683	985	967	882
Electrification	79	100	119	128	127
Telecommunications	438	399	324	48	51
Operational property	201	205	533	625	493
Plant and machinery	204	104	74	72	69
Other (incl. IT)	135	149	126	126	134
Maintenance	1,343	1,300	1,313	1,308	1,305
<b>TOTAL</b>	<b>4,043</b>	<b>4,534</b>	<b>5,469</b>	<b>5,423</b>	<b>5,333</b>

*Source:* Network Rail's June 2003 business plan.

*Note:* all figures exclude renewals that Network Rail currently anticipates will be undertaken by the WCMU. They include some reallocation of the spend from the West Coast project since the publication of the June 2003 business plan.

- 5.13 In compiling its business plans, Network Rail said that it did not believe it would be possible to reduce the delay it causes to trains as quickly as Railtrack had predicted and that any substantial improvements in performance would need to be delivered, at least in part, through improvements in the condition and serviceability of the network beyond the levels that were allowed for in the October 2000 review of access charges.
- 5.14 This means that the Regulator in this review has had to establish both the extent to which planned improvements in network condition and serviceability are justified and the robustness of Network Rail's estimates of the costs that it would incur in delivering the desired outputs. In a business in which there is only an incomplete understanding of the link between expenditure and outputs and in the very limited timescales for the review, this has been a very considerable challenge. The Regulator has approached this task in the following way:
- (a) in assessing the root causes of deteriorating operational performance during the last three years, it is apparent that the number of incidents causing delay which are caused by asset failures has not been the major contributory factor to worsening performance. Instead, the number of minutes delay per incident has increased by around 70% in this time and accounts for a large proportion of the increase in delay minutes. This indicates that the condition of the

infrastructure has been of secondary importance in causing the increase in delay;

- (b) the Regulator has therefore sought to assess the extent to which the volumes of work that Network Rail plans to carry out on the network are justified by sound engineering judgment, the need to ensure that the overall condition and capability of the network does not decline over time, and the importance of minimising the whole life cost of maintaining safe and reliable infrastructure; and
- (c) the Regulator has not sought explicitly to ensure that Network Rail can deliver a specific level of improvement in asset condition, asset serviceability and delay because he considers that improved operational performance and reductions in delay caused by infrastructure failures can best be delivered through better operational management of the railway and initiatives which tackle the recent increase in delay per incident. However, in several instances it is apparent that asset condition is likely to improve as a consequence of better asset management, a higher quality of maintenance and the renewals work that Network Rail undertakes and this has been factored into the Regulator's trajectory for delay minutes (which is discussed in more detail in Chapter 9).

5.15 This approach is necessarily one which requires the Regulator and the consultants that have examined Network Rail's business plan to exercise their own judgment in order to determine what work is required. The views that have been put to the Regulator by his consultants are set out in detailed reports which are available on the ORR website. Each of these reports sets out clear reasons for the judgments that have been made and Network Rail has had an opportunity to comment on the consultants' analysis as it was being produced.

5.16 The final assessment is one that considers how much work Network Rail needs to undertake across the network as a whole. This chapter therefore sets out the Regulator's assessment on the *aggregate* expenditure that Network Rail would undertake to ensure that the overall condition of the network does not deteriorate over time. It has not been the Regulator's intention in this review to determine when, how and where Network Rail maintains and renews its infrastructure – these are matters which the company must itself determine, in line with its obligations under its network licence and its contracts with users.

## Reasons for final conclusions: track

5.17 Network Rail's submissions to the Regulator have all contained plans for significant increases in volumes of track renewals over the five-year period covered by this review. Table 5.4 presents the volumes underpinning Network Rail's June 2003 business plan. If this level of activity were to be carried out, the volumes of sleeper, ballast and switch and crossing renewals would be much higher than those delivered in recent years by Railtrack and Network Rail, and considerably greater than the volumes predicted that Railtrack claimed was necessary at the time of the October 2000 access charges review.

**Table 5.4: Network Rail's June 2003 business plan for track renewal volumes**

Activity	2002/03 (actual)	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Rail renewal (km)	941	833	912	1,276	1,431	1,435	1,433
Sleeper renewal (km)	529	545	732	903	1,085	1,221	1,313
Ballast renewal (km)	575	645	873	1,039	1,230	1,400	1,497
S&C renewal (no. of units)	204	295	407	499	645	795	945

*Note:* all figures exclude renewals that Network Rail has since said will be undertaken by the WCMU.

### *Short-term plans, 2003/04 to 2005/06*

5.18 In his third consultation paper, the Regulator set out the findings from work undertaken by his consultants, L.E.K./Halcrow/TTCI, to assess the justification for Network Rail's planned renewals volumes in the three years between 2003/04 and 2005/06. The consultants examined the documentation for 798 renewal jobs (413 plain line and 385 S&C proposals) across all seven Network Rail regions. Of these, almost half (378) were inspected on site, comprising 205 of the plain line and 173 of the S&C proposals. Each job for which documentary evidence or site data was available was placed in one of the following four categories:

- (a) Category 1: work is considered to be fully justified;
- (b) Category 2: work is considered to be partially justified, but some reduction in the extent of the work that Network Rail plans is possible;

- (c) Category 3: work is considered to be partially justified, but scope is not optimal and alternative options may exist; and
- (d) Category 4: work is not considered to be justified.

5.19 Table 5.5 sets out the consultants' findings.

**Table 5.5: Conclusion on overall justification for track renewals proposals**

Renewal	Category 1: fully justified	Category 2: partially justified extent	Category 3: partially justified scope	Category 4 Unjustified
Plain line	57 %	10 %	17 %	16 %
S&C	70 %	4 %	20 %	6 %

Source: L.E.K./Halcrow/TTCI

5.20 The consultants concluded that 57% of plain line renewals work and 70% of S&C renewals were fully justified, principally on the grounds that the deterioration in the condition of the infrastructure that has been identified for renewal presents a significant safety risk which would require action such as a temporary speed restriction if not replaced according to the timescales and in the manner that Network Rail plans. However, a significant proportion of the jobs fell into categories 2, 3 and 4 and were found to be no better than partially justified. In particular, L.E.K./Halcrow/TTCI advised that:

- (a) the extent and/or scope of one quarter of plain line renewals and one quarter of S&C renewals in workbanks for the next three years should be re-examined and are likely to require less work than Network Rail has proposed; and
- (b) almost one fifth of the plain line renewals in workbanks for the three-year period do not need to be undertaken, with some work better suited to maintenance rather than renewal.

5.21 The main reasons for this conclusion were as follows:

- (a) in category 2, proposals for two fully justifiable lengths of work in close proximity to one another have frequently been combined, adding unnecessarily to the total job length and leading to the replacement of track where there is no apparent renewal justification;

- (b) in category 2, a requirement to renew S&C units with the new design known as RT60 in certain lines means that the extent of work may be considerably greater than that which is actually required;
- (c) in category 3, there are a significant number of cases of plain line renewal where the driving requirement is to replace rail, but the scope of the work has increased to include sleeper renewal with steel sleepers;
- (d) in category 3, the scope of renewal of formation, ballast and drainage is often extended to include the replacement of the sleepers and rail as well, even though these appear to be in good condition; and
- (e) also in category 3, the consultants have found that in many S&C renewal jobs, where the primary requirement is driven by ballast or formation and drainage problems, company policy guides towards the selection of complete renewal of the entire layout, even if the rail and timbers/bearers are in good condition.

5.22 Based on this evidence, the Regulator concluded in his third consultation document that Network Rail should be able spend between 15% and 25% less than the amounts for track renewal that are set out in its March 2003 business plan by reducing the amount of the activity that it undertakes.

5.23 In September 2003, Network Rail said that it had reviewed the deliverability of proposed increases in S&C renewals and was revising downwards the amount of work that it planned to undertake in this area. However, it also said that it disputed L.E.K./Halcrow/TTCI's conclusions and that it disagreed that a large number of jobs within the workbanks are not fully justified. In particular, Network Rail asserted that the replacement of additional track components in conjunction with a necessary renewal job is often justified by reductions in overall costs. It did, however, accept in November 2003 that it is possible to identify savings of approximately 10% per annum from the extent or scope of individual jobs, albeit at the expense of higher unit costs.

5.24 While the Regulator agrees that there may be economies of scale and scope in increasing the extent and scope of track renewal jobs, he has not received any robust or compelling evidence from Network Rail to suggest that the composition of its workbanks for the three years from 2003/04 to 2005/06 leads to any reduction in the overall, long-term cost of the railway. Until the company has made demonstrable progress in addressing Railtrack's failings, including the very poor standard of documentation for track renewals jobs, the considerable inefficiencies within unit

costs, and the inadequacies in project management and delivery, the Regulator does not consider that it is appropriate to provide Network Rail with a level of funding that allows it to increase the scope of the work that it does beyond that which is strictly necessary on engineering grounds.

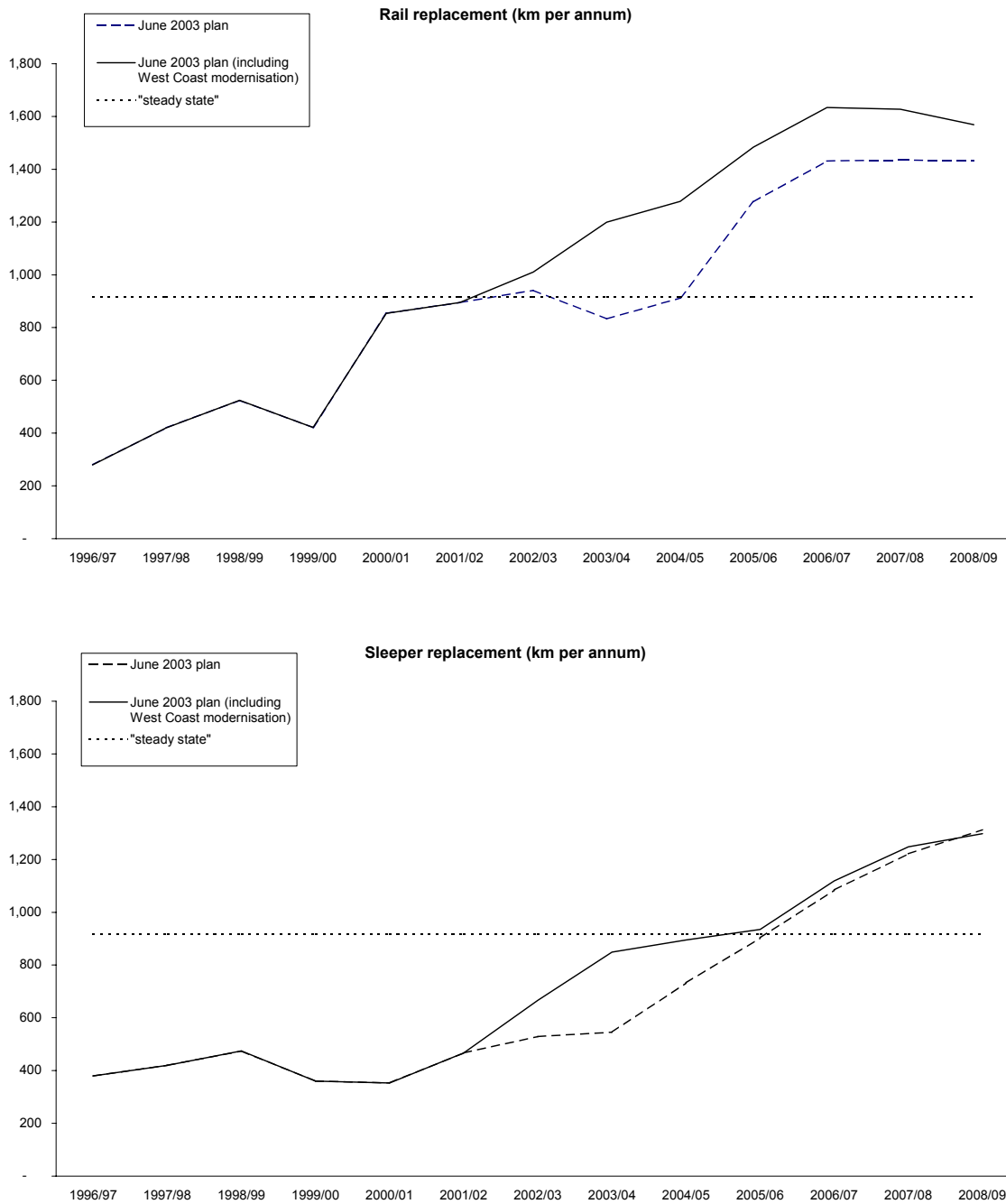
- 5.25 The Regulator's final conclusion, therefore, is that Network Rail should be able to increase activity levels less quickly than currently planned so as to spend 20% less than the amounts for track renewal than it set out in its June 2003 business plan (equivalent to savings of approximately £160 million in 2004/05 and approximately £200 million in 2005/06). In achieving these savings, the Regulator would expect Network Rail to implement the findings from its review of the packaging of work within the 2004/05 and 2005/06 workbanks rather than reduce the total number of maintenance and renewal interventions that it carries out, except insofar as those reductions relate to concerns about the deliverability of S&C volumes. He will monitor closely the condition of the track to ensure that the planned increase in activity translates to immediate and sustained improvements in all of the key output measures (including broken rails, Level 2 exceedences and poor track geometry).

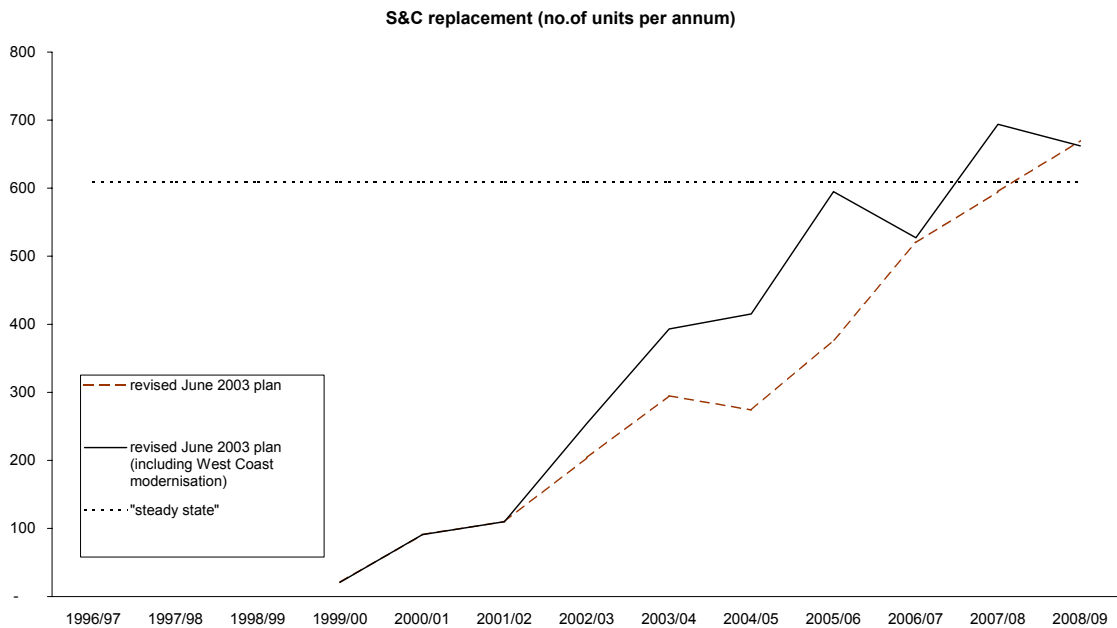
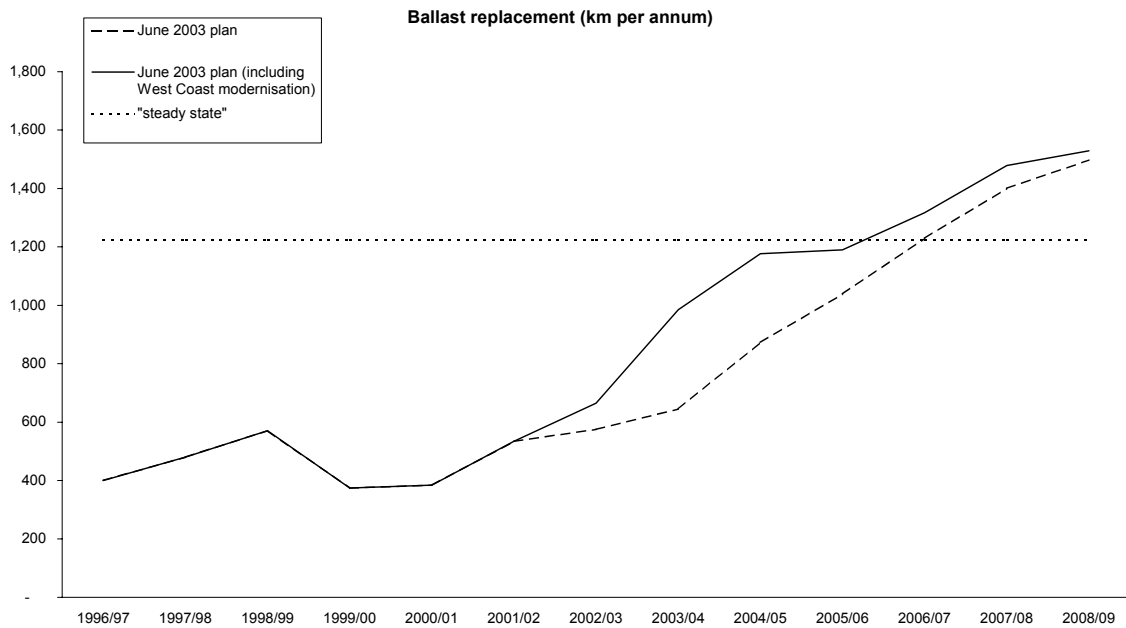
*Long-term plans, 2006/07 onwards*

- 5.26 As Table 5.4 demonstrates, Network Rail said in its June 2003 business plan that it intends to increase further the amount of track renewals that it undertakes after 2006. Unlike the review of the short-term workbanks for 2004/05 and 2005/06, the Regulator's assessment of these plans has concentrated upon the means by which Network Rail has attempted to forecast when it is that assets are likely to have degraded to the point when an intervention by renewal is more cost effective than the continuation of maintenance interventions.
- 5.27 In its March 2003 business plan, and at a hearing with the Regulator on 8 September 2003, Network Rail explained that management had taken an overall view that it is necessary to increase the rate of renewal to a level that is consistent with 'steady state'. For rail, sleepers and S&C units, Network Rail said that this steady state is the replacement of 3% of the total asset base each year; for ballast, the figure is 4%.
- 5.28 As Figure 5.6 demonstrates, these rates are actually achieved in the period before 2006 for all asset types except S&C. Network Rail's business plan then envisages further increases in the amount of renewal activity that it undertakes to levels that are well above its own definition of steady state. The Regulator therefore concludes that evidence on which Network Rail has placed considerable weight during this review

cannot by itself support its plans for increased work *after* 2006 in any area except S&C replacement; rather, the analysis set out in Figure 5.6 tends to support the increase in renewals activity that the Regulator is allowing for in the period *before* April 2006.

**Figure 5.6: Track renewal volumes**





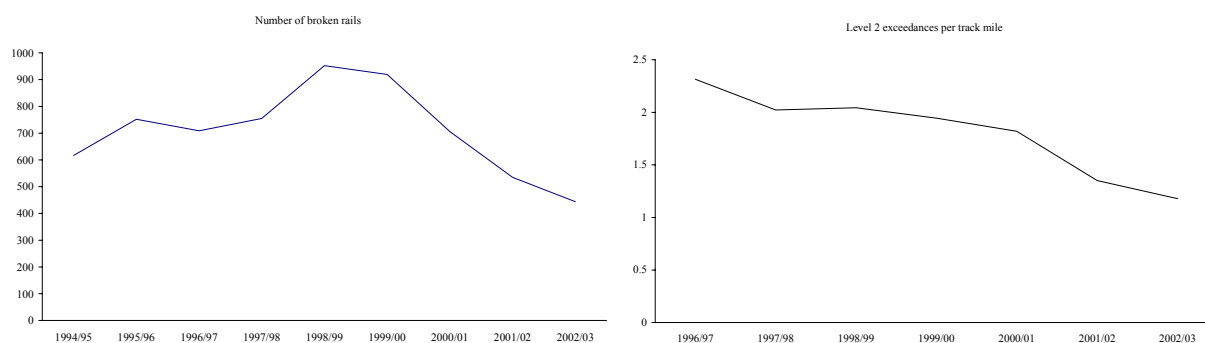
5.29 For this reason, the Regulator has required from Network Rail some other explanation of why it is that the volumes of activity set out in Figure 5.6 are necessary. Network Rail has made three arguments:

- (a) increased volumes of replacement are necessary if delay minutes are to be reduced from their current, very high level;

- (b) Network Rail's projections are justified by improved statistical modelling, the quality of which surpasses anything that has been available to the company in recent years; and
- (c) analysis of the residual life of the track indicates that a significant proportion of the network has already reached the end of its useful service life.

5.30 For the reasons that were set out at the beginning of this chapter, the Regulator does not accept that increased volumes of renewals activity can be justified by potential improvements in operational performance. As its own figures demonstrate, Network Rail has already succeeded in reducing significantly the number of rail breaks and level 2 exceedences that occur each year and has improved the standard of track geometry. Despite such improvements, overall delay has increased and if it is to be reduced in future Network Rail must address poor operational management and the rising trend in delay per incident, rather than attempt to use arguments about track condition to support its case for additional renewals activity.

**Figure 5.7: Improving track output measures**



5.31 In relation to Network Rail's statistical modelling, a key part of the Regulator's work in this review has been an in-depth review of Network Rail's 'top-down' T-SPA model, which has been used by Network Rail to calculate volumes of rail and ballast replacement. In particular, the Regulator has examined the reasons why it is generating much higher projections of track renewals than the previous AMP 98 model.

5.32 The scale of this change is so significant that it is essential that the Regulator be satisfied that T-SPA is a robust and reliable tool, and his consultants have undertaken a rigorous assessment of the construction and operation of the model. In his July 2003 consultation document, the Regulator set out a number of issues that led him to believe that the model may not be generating sufficiently accurate renewals volumes that could be considered as the robust and compelling case that he is seeking.

- 5.33 Since July 2003, Network Rail has worked hard to explain the issues and allay the Regulator's concerns, and some useful progress has been made. Some adjustments have been made to the model, which have had the effect of reducing certain types of renewals activity. At this stage, the Regulator has concluded that:
- (a) T-SPA is a significant improvement on the AMP 98 model, not least because it models the entire network and attempts to make the important linkage between activities and outputs;
  - (b) T-SPA has the potential to become a valuable tool for predicting future track renewals volumes, and it should have an increasingly important role as it is developed and refined. He intends to continue to work closely with Network Rail to monitor that development and further satisfy himself as to the accuracy of its forecasts; however,
  - (c) it has not proved possible to deal fully with all of the Regulator's concerns in sufficient time and depth that would allow him to rely solely upon T-SPA outputs for this review, and therefore give unqualified acceptance of the activity volumes that it generates.
- 5.34 This is not a rejection of T-SPA as a decision support tool. On the contrary, it has played an important role in generating Network Rail's post-2006 renewals activities, both in:
- (a) quantifying the volumes that the company set out in its June 2003 business plan as those which it believes would be required to deliver a high performance, high quality railway; and
  - (b) quantifying the lower volumes that were set out in its September 2003 submissions to the Regulator as those which the company believes would deliver a railway with a greater degree of differentiation between outputs and condition in accordance with traffic patterns and usage.
- 5.35 However, the Regulator has always made it clear that he intends to reach his conclusions in this access charges review by drawing as much information from as many possible sources and types of analysis as possible. The Regulator therefore appointed TTCI to undertake an independent engineering analysis to check planned volumes of track renewals, and compare them with the predictions that Network Rail has put forward for the years between 2006/07 and 2008/09.

- 5.36 Although there are no detailed workbanks of specific job proposals, as there were for the short-term analysis, TTCI was able to undertake a desk-top study using asset age, usage and condition data to assess the extent of condition-led renewal requirements for a selection of routes totalling 3,500 track kilometres – approximately 11% of the network. The routes samples covered a full cross-section of the network, ranging from the primary high speed main lines through to rural and freight only lines.
- 5.37 TTCI's analysis concentrated upon identifying the track assets which are considered to have reached the end of their useful service lives in the three years between 2006/07 and 2008/09. Useful service life is defined in a number of ways, depending on the type of track asset that is considered:
- (a) *rail* is considered to need replacing either when it has worn to well specified dimensional limits or when its overall usage is causing an increasing rate of fatigue defect growth within the metal;
  - (b) *sleepers* will generally reach the end of their lives when they lose their structural integrity (cracked, loss of section, split, rotten etc.) and/or where they lose their ability to hold rail to the correct gauge;
  - (c) *ballast* is the primary medium by which track geometry and stability is maintained, the track drained and through which load distribution occurs. When ballast degrades, the material breaks down and it becomes incapable of fulfilling one or more of these functions, it will fail to respond to maintenance treatment and it then needs replacement; and
  - (d) *S&C*: life expiry can occur by any of the above means, *i.e.* through rail, timber or concrete sleeper (bearer) or ballast failure.
- 5.38 The principal output from TTCI's work was an assessment of the quantity of plain line track across all of the network (including West Coast) that could be considered on the basis of its sample to have reached the end of its useful service life by March 2009. The consultants also recommended how much of the network Network Rail would need to replace each year after April 2006 in order to maintain the condition of the network in a steady state. The Regulator considers that this provides a robust basis for challenging and verifying Network Rail's own plans and has placed considerable emphasis on this work in reaching his conclusions.
- 5.39 Table 5.8 sets out TTCI's conclusions.

**Table 5.8: TTCI assessment of annual renewal percentages post 2006**

Route category	Extent (km)	Annual % renewal		
		Rail	Sleepers	Ballast
Primary	10271 km	3.0 – 4.0 %	4%	3.6 – 4.1 %
L&SE	4129 km	3.0 – 4.0 %	4.3%	2.6 – 3.3 %
Secondary	10776 km	2.0 – 2.5 %	1.4%	1.9 – 2.5 %
Rural	3763 km	1 %	0%	1 %
Freight	2469 km	2.5 %	2.5%	0 %

Source: TTCI.

Note: when figures are shown as 0%, TTCI is not recommending that no work is required, but that work can be done in other ways (*i.e.* maintenance).

- 5.40 For *rail*, TTCI's conclusions imply a rate of renewal that is below the levels that Network Rail plans to reach by 2005/06. By itself, this would indicate that volumes of rail replacement should fall after April 2006. However, the Regulator notes that only around two thirds of Network Rail's planned volumes are for the replacement of rail that has reached the end of its natural service life; the remainder is an assumed 'overlay' for the replacement of rolling contact fatigue (RCF) defects.
- 5.41 The Regulator considers that it is appropriate to make some allowance for premature life expiry through RCF, and he accepts that some of Network Rail's forecast is associated with forthcoming introduction of new, heavier rolling stock onto parts of the network. However, he believes that Network's Rail's forecasts are unduly pessimistic. In 2002/03, some 330 km of rail was reported as replaced as an 'RCF overlay', and given the increasing level of rail lubrication, rail grinding and amendment of rules for the management of RCF since that time, the Regulator considers that rail replacement driven by RCF ought to be reducing, particularly on the heavily used, high speed primary network.
- 5.42 The Regulator has therefore concluded that Network Rail does not need after April 2006 to increase the amount of rail that it replaces each year (relative to the volume of activity in 2005/06).
- 5.43 For *sleeper* renewals, TTCI's analysis identified some significant volumes of work on some of its selected sample of routes, especially on the more heavily trafficked routes where there is a preponderance of wooden sleepers and some of the older types of concrete sleeper.

- 5.44 The Regulator accepts that certain routes are likely to require quite high volumes of sleeper renewal in the coming years and, in reaching this decision, the Regulator has:
- (a) recognised that Network Rail has recently lowered its own projected renewal volumes by adjusting its own sleeper service life assumptions for older concrete sleepers to be less conservative than its earlier assessments. This adjustment reflects the fact that engineering inspections of specific routes tended to show that fewer sleepers were actually near life-expiry than modelling had initially indicated; and
  - (b) concluded that no compelling evidence has been offered that would support an assumption that any backlog of sleeper renewals would need to be eliminated as early as the end of the new control period in 2008/09. In reaching this view, he has taken into account that an independent study by consultants working for the SRA in 2002 concluded that a track renewals backlog on the Great Eastern main line (one of the routes sampled by TTCI) would require a minimum of 10 years to clear.
- 5.45 Network Rail's most recent submission to the Regulator stated that its own view was that a little over 2.5% of sleepers (approximately 800 km) would need to be renewed each year after 2006/07 – a figure that is consistent with the amount of work that he is funding Network Rail to undertake in 2005/06. The Regulator notes that this assessment is based upon a combination of forecasting using modified service life analysis on the more heavily used routes, and a 'bottom-up' assessment of the sleeper renewals that will be required to maintain the condition and capability of the less intensely used routes. He notes that TTCI's work indicated that a much lower amount of track on such routes may need to be re-sleepered each year, a conclusion that corroborates well with Network Rail's own assessment.
- 5.46 The Regulator therefore considered in his draft conclusions that it would be appropriate to assume that Network Rail does not need to increase the amount of sleeper renewal that it undertakes after April 2006.
- 5.47 TTCI's analysis of *ballast* renewal requirements used track geometry software to extrapolate recent data about track behaviour to predict those sections of the network where poor geometry and high deterioration rates could be expected to occur. Where high deterioration rates are predicted, it is likely that frequent maintenance interventions would be required to maintain an acceptable track geometry, and it is

these areas where TTCI assumed that ballast renewal is most likely to be required beyond 2006/07.

- 5.48 TTCI's range of ballast renewal requirements indicated that the highest level of activity is expected to occur on the heavily used, high speed main lines, with less work being required on the more lightly used and lower speed parts of the network. This is in full accordance with the Regulator's expectation that sleeper renewals on the latter routes will frequently be carried out with steel sleepers and will often require less than a full ballast replacement. Overall, TTCI's analysis implies rates of renewal that are approximately equal to the levels that the Regulator has funded Network Rail for in 2005/06.
- 5.49 The Regulator has therefore concluded that he should assume a constant amount of renewal activity between 2005/06 and 2008/09.
- 5.50 TTCI was unable to complete any analysis of *S&C* renewals due to the limited amount of time and comparative lack of equivalent data with which to make an alternative assessment. In reaching his conclusion, the Regulator has therefore conducted his own assessment of Network Rail's projections of future *S&C* activities, which are based on the argument that the age, very low historic rates of replacement, and often a lack of adequate maintenance as traffic volumes have increased, have led to a greater deterioration of *S&C* than plain line. The Regulator accepts that there is evidence of much poorer track geometry at some *S&C*, and that recent research has confirmed that such conditions are often associated with the initiation of RCF, which can lead to potentially very expensive and relatively ineffective remedial actions.
- 5.51 He therefore accepts that there should be a ramping up of *S&C* volumes from the relatively low levels of recent years. However, in reaching this conclusion, he considers that an efficient network operator should be capable of improving the quality of its maintenance interventions on *S&C* installations. The Regulator believes that the work of the Network Rail 'parachute teams' and its 'Critical 100 junctions' project demonstrates that better maintenance can extend the life of *S&C*, improve performance and limit the volume of renewals in the next few years.
- 5.52 His conclusion is that he should fund Network Rail for an increase in *S&C* volumes, but that the rate at which activity ramps up should be lower than that contained within Network Rail's June 2003 business plan. He notes that the company's latest forecasts were reduced by approximately 20% in September 2003 to reflect concerns about resource constraints deliverability and he considers that the company's revised plans

for 2006/07 onwards amount to a challenging but achievable programme of work. The starting position is one in which the funding allowed for 2005/06 is sufficient for the replacement of between 400 and 500 S&C units per annum<sup>5</sup> and the Regulator considers that it is appropriate to provide Network Rail with sufficient funding to enable the company to replace an additional 75 units per annum.

### *Summary*

- 5.53 Taken together, this analysis means that the funding that the Regulator makes available to Network Rail after April 2006 should be sufficient only to enable it to increase the volume of S&C units that it replaces each year. The volume of work that Network Rail carries out on plain line track should not need to increase after this date.
- 5.54 In its response to the draft conclusions, Network Rail stated that unit costs in the period after April 2006 are likely to be higher than in the previous two years and that it will not be possible to deliver the same volume of plain line renewals after this date without an increase in its expenditure allowances. The Regulator does not accept this argument. He sees no reason why the company should not be able to deliver the same amount of work in 2006/07 as it does in 2005/06 for any given level of expenditure and he expects the company to decide on the scope and extent of the work that it undertakes with this constraint in mind.
- 5.55 He is therefore providing an additional allowance in his expenditure projections only for an increase in the number of S&C units that are replaced each year. In monetary terms, this amounts to an increase in funding of £40 million per annum in each year from 2006/07 to 2008/09 (a figure that has been calculated using Network Rail's own estimates of the unit cost of S&C renewal). Table 5.9 compares the Regulator's expenditure allowances for the full-five year period with the projections contained in Network Rail's June 2003 business plan.

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<sup>5</sup> Depending on how far the company responds to the Regulator's conclusion that it can reduce by 20% its expenditure on track in this year relative to the June 2003 business plan by reducing the scope of S&C work rather than the number of units it replaces. Network Rail is incorrect to state in its response to the draft conclusions that funding has only been provided for the replacement of 377 S&C units in 2005/06 and, therefore, that there is a gap between the activity levels assumed by the Regulator and his expenditure allowances.

**Table 5.9: The Regulator's final conclusions on track (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR, December 2003	647	812	850	890	930	4,129
Network Rail, June 2003	809	1,015	1,283	1,437	1,560	6,104

5.56 Overall, the Regulator considers that his conclusions provide for sufficient activity and expenditure so that the execution of work can be planned in accordance with safety and performance priorities by a well managed and efficient company in such a way that will allow the whole network to be maintained *at least* at the current overall condition, performance and capability on each route.

#### **Reasons for final conclusions: structures**

##### *Short-term plans, 2003/04 to 2005/06*

5.57 In his third consultation document, the Regulator described the two options that he was considering for the funding of structures maintenance and renewals in the short-term. These were:

- (a) making the minimum allowance for work that Network Rail needs to do in 2004/05 and 2005/06 to maintain a safe and reliable railway during the next five years; and
- (b) allowing some additional expenditure, either at the level proposed by Network Rail or at some different level, so that more preventative maintenance and renewal can be carried out in the short-term, thus avoiding more, and potentially costlier, work from 2009 onwards.

5.58 At that stage, the Regulator considered that the potential for significant reductions in Network Rail's unit costs meant that it would be inappropriate to fund additional levels of activity in the next 2–3 years, and he proposed that the level of expenditure in 2004/05 and 2005/06 should be no higher than expenditure in 2002/03.

5.59 In its response, Network Rail stressed that a key driver for its proposed expenditure increase in the short-term is the need to increase work to cuttings and embankments. The Regulator acknowledges this factor, but considers that recent expenditure already reflects an increase in earthworks activity. Network Rail has, nonetheless, accepted

that, with careful targeting of resources, the adoption of the Regulator's proposed levels of short-term expenditure should not have a significant impact upon outputs.

- 5.60 The Regulator has therefore concluded that the amount of work Network Rail carries out on its structures in the period up to 2005/06 should remain at 2002/03 levels. This involves expenditure of £320 million per annum.

*Long-term plans, 2006/07 onwards*

- 5.61 In the longer term, Network Rail has said that a continuation of a least first-cost approach to structures maintenance will result in future unsustainable levels of expenditure and, potentially, very serious implications for network outputs in future years.

- 5.62 The Regulator recognises the force of this argument, and has taken it into account in reaching his final conclusions. In his third consultation document, the Regulator described the work that was being done to review the process for modelling future structures activity and expenditure, and he summarised the three different policy options that had been put forward by Network Rail, as follows:

- (a) Policy A, which improves the overall condition and performance of structures by applying a whole-life intervention strategy;
- (b) Policy B, which delays such interventions until repair or replacement become absolutely necessary to maintain the safety and operational capability of the network; however, when an intervention is undertaken, it is then carried out as comprehensively as possible to maximise residual life and thus minimise future whole-life costs; and
- (c) Policy C, which is a continuation of the minimum intervention approach.

- 5.63 After July 2003, the Regulator continued to review Network Rail's decision support tool process (the Structures Asset Management Process, STAMP and the Structures Annual Cost Profile, SACP) with the company and the consultants Mouchel. This assessment process has continued to be constructive and useful, and Mouchel has confirmed that SACP is an appropriate and robust tool for assessing the structures expenditure requirements, and that its outputs present a fair view of the policies modelled.

- 5.64 However, in the practical application of the modelling of specific structures policies, the Regulator considers that a number of issues remain to be resolved:

- (a) the unit costs that have been used to assess different intervention options do not reflect the Regulator's view that there is scope for significant efficiencies in the short-term. He believes that the unit costs are based upon an average figure across the regions, but that there is wide variation across the regions;
- (b) the calibration of the model has relied upon a very small sample of structures (e.g. some 140 bridges have been used out of a total population of 40,000). The outcome of this sampling has then been statistically extrapolated across the whole population of structures; and
- (c) Network Rail has only explained in limited detail its assessed requirements for 'interventions', and how these translate into total expenditure requirements and outputs.

5.65 Given these issues, the Regulator considers that it is not appropriate to conclude that policy A (the most expensive option) should be funded within the next five years. In reaching this conclusion, he has been particularly guided by the work that Mouchel has undertaken, which demonstrates that the policy B approach will still deliver the same network outputs over the next ten years as the more expensive policy A.

5.66 The Regulator has also concluded that the continuation of a minimum first cost intervention policy would not be appropriate for the period beyond 2006 for the reasons expressed by Network Rail, and he has therefore concluded that he should accept Network Rail's latest structures submission, which proposes a level of activity and structures funding that is based upon the gradual implementation of policy B during 2006/07 and 2007/08.

5.67 Network Rail's September 2003 cost submission to the Regulator sets out its expenditure requirements for policy B as £470 million per annum, and it has stated that this level of funding should not result in any change to its performance projections.

### *Summary*

5.68 Table 5.10 compares the Regulator's expenditure allowances for the full-five year period with the projections contained in Network Rail's June 2003 business plan.

**Table 5.10: The Regulator's final conclusions on structures (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR, December 2003	320	320	395	470	470	1,975
Network Rail, June 2003	466	579	712	712	712	3,181

**Reasons for final conclusions: signalling**

5.69 During 2001/02 and 2002/03, Railtrack and Network Rail underspent against the Regulator's allowances for expenditure on signalling. This has led to a decrease in the overall residual life of the signalling asset base and may have been a factor in a recent increase in the delay caused by signalling failures. Looking forward, Network Rail's March 2003 business plan contains plans to increase the amount of condition-based renewals activity in 2004/05 and 2005/06. Network Rail's business plan also envisages two major changes in the business's signalling strategy over the next two years:

- (a) a move from the current policy of spot renewals of individual interlockings back to plans for wider-scale, route-based renewals; and
- (b) the development of a long-term national signalling plan that takes into account the demands of condition-based renewals and known enhancements to produce a smoothed profile to form a route-based strategy.

5.70 In themselves, none of these changes affect the engineering decisions that need to be taken about when to renew signalling assets. However, they do affect the extent and scope of the work that Network Rail might need to undertake and the cost of that work.

*Short-term plans, 2003/04 to 2005/06*

5.71 In Network Rail's June 2003 business plan, the company said that it believed expenditure on signalling renewals would need to increase from £264 million in 2003/04 to £368 million in 2004/05 and £683 million in 2005/06. The increase in 2005/06 related to an assumption that a new route-based renewal strategy can be implemented in two years' time. Expenditure then increases further between 2006/07 and 2008/09 to reflect increased volumes of route-based renewal.

5.72 Planned signalling renewals between 2003/04 and 2005/06 were examined by L.E.K./Halcrow/TTCI in order to establish the degree of justification for their inclusion within the business plan. As with track, L.E.K./Halcrow/TTCI sampled a

large number of signalling renewal items (415), spread across each region and all three years. Generally, it appeared that these proposals have been developed as part of the policy of undertaking spot renewals, and that the workbanks do not yet reflect any transition towards the longer-term route-based strategy.

- 5.73 Table 5.11 shows the conclusions that were reached by the Regulator's consultants, using the same justification categories that were applied to track renewals.

**Table 5.11: Conclusion on overall justification for signalling renewals work**

Category 1 (fully justified)	Category 1 (fully justified)/Category 2 (partially justified extent)	Category 1 (fully justified)/Category 3 (partially justified scope)	Category 4 (not justified)
61%	30%	7%	0.3%

Source: L.E.K./Halcrow/TTCI

- 5.74 In the short-term, 61% of workbank proposals were considered to be fully justified by asset condition knowledge, although some variation was found in the quality of documentation across the regions. The justification for a very high proportion of schemes in category 1 (95% of the total) was safety, where continuing with maintenance was considered to be no longer viable.
- 5.75 A further 37% of signalling renewal schemes were found to be partially justified. The main reason for this conclusion was many of the schemes in the regional workbanks had not yet been fully developed and the consultants could not be certain of the extent and scope of the work that Network Rail planned to undertake. This does not mean to say that the consultants found the work to be unjustified, only that there was insufficient detail at the relevant time.
- 5.76 Only very limited examples were found where work was not considered necessary. These were restricted to minor works and allowances for unspecified projects. The Regulator therefore concludes that the signalling renewal work contained in Network Rail's workbanks for 2004/05 and 2005/06 is, on the basis of the evidence that is available to him, likely to represent an appropriate volume of activity for these two years.
- 5.77 In examining the £270 million overlay for the costs associated with a move to route-based renewals in 2005/06, L.E.K./Halcrow/TTCI found that the case for increased activity is much weaker. The consultants identified a shortage of resources for the design, manufacture, installation and commissioning of renewals and conclude that it would be premature of Network Rail to implement a new approach to renewing

signalling assets in as little as two years' time. They also note that Network Rail is currently scaling back the work that it is commissioning in 2004/05 as a result of these shortages.

- 5.78 The Regulator therefore proposed in his third consultation document that he should assume that Network Rail does not have, and cannot have by 2005/06, a robust technology or delivery strategy for the increase in activity that it is proposing. He said that Network Rail should delay the implementation of a new signalling strategy and that savings of up to £100 million in 2004/05 and £300 million in 2005/06 can be achieved in doing so.
- 5.79 In response, Network Rail said that it agreed it was necessary to reconsider the timing at which a new approach to signalling renewals should be implemented. However, the company has continually stressed that it is essential for the Regulator to allow the company sufficient funding to enable it to continue the development work on all future signalling schemes. On this basis, it informed the Regulator that it was reducing its own forecasts of expenditure by a further £50 million in 2004/05 and £250 million in 2005/06 relative to the June 2003 business plan.
- 5.80 Other respondents said they broadly agreed with the approach that the Regulator had adopted, but cast doubt on whether the shortage of skilled resources identified by L.E.K./Halcrow/TTCI really existed. Several consultees pointed out that several signalling suppliers are currently laying off staff and said that this indicated that deliverability concerns had been overstated.
- 5.81 The Regulator recognises these concerns and now considers that there is capacity within the signalling supply industry to accommodate increased volumes of work. However, he still does not believe that Network Rail's route-based renewals strategy is capable of being implemented in 2005/06, not least because Network Rail is itself acknowledging that a considerable amount of planning and development work has still to begin.
- 5.82 He has therefore concluded that he should set his expenditure allowances for the next two years in line with Network Rail's latest forecasts. This allows for a significant increase over historic levels of expenditure during the last five years, but to a lower level of activity than had been originally set out in Network Rail's March 2003 and June 2003 business plans.

*Long-term plans, 2006/07 onwards*

- 5.83 The Regulator said in his third consultation document that he would consider further the timing at which any additional increase in the volume of signalling renewal activity can or should take place before determining his expenditure allowances for the period after April 2006.
- 5.84 Since July 2003, Network Rail has reduced its own forecasts of signalling renewal volumes in the period from 2006/07 to 2008/09 and has made progress in establishing a Signalling New Works Project Team (SNWPT). When fully established, this team will manage the development of Network Rail's signalling renewals to the point of contract award, taking into account the requirements of both internal Network Rail stakeholders and external stakeholders including the train operators, the SRA and the signalling supply industry.
- 5.85 One of the main issues that must be addressed by the SNWPT is the production and publication of a national signalling plan. Until such a plan is developed and the SNWPT has established itself to manage signalling scheme development, a degree of uncertainty will remain on the signalling renewal volumes that can and should be delivered. The Regulator has therefore concluded that he should undertake a further review of signalling expenditure in two years' time under the interim review mechanism referred to in Chapter 3.
- 5.86 For the purposes of this review, the Regulator will assume that Network Rail's expenditure in the period after April 2006 remains at the level he is allowing for 2005/06, *i.e.* £435 million. In order that the further review can take place as quickly as possible, he proposes to establish a Signalling Development Group, comprising Network Rail, ORR, the SRA and the HSE, which would collectively drive forward a review of the strategy for signalling renewals from 2006/07 onwards. He would not anticipate beginning his review of future expenditure until such time as Network Rail had provided to this group a robust and deliverable national signalling strategy.

*Summary*

- 5.87 Table 5.12 compares the Regulator's expenditure allowances for the full five-year period with the projections contained in Network Rail's June 2003 business plan.

**Table 5.12: The Regulator's final conclusions on signalling (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR, December 2003	320	434	434	434	434	2,056
Network Rail, June 2003	368	683	985	967	882	3,886

**Reasons for final conclusions: electrification**

5.88 The electrification group of assets comprises a wide variety of equipment. It includes all the power supply, distribution and contact systems (conductor rail and overhead line) for the 40% of the network that is electrified.

*Short-term plans 2003 - 2006*

5.89 Network Rail's business plan for expenditure on electrification assets contains plans for significant annual increases in expenditure during the next three years. From actual expenditure of £25 million in 2002/03, the annual renewal of electrification assets is forecast to quadruple to £100 million in 2005/06. Enhancements to the power supply in the Southern region are being funded separately through additions to the RAB and are not included in these figures.

5.90 In order to assess whether this increase is necessary, L.E.K./Halcrow/TTCI examined 93 electrification workbank items over the three years between 2003/04 and 2005/06, representing almost 18% of the total work volume and expenditure of £115 million. Table 5.13 shows the results of their assessment, using the same justification categories that were applied to track and signalling proposals.

**Table 5.13: Conclusions on overall justification for electrification renewals work**

Category 1 (fully justified)	Category 2 (partially justified extent)	Category 3 (partially justified scope)	Category 4 (not justified)
70%	13%	8%	8%

Source: L.E.K./Halcrow/TTCI

5.91 The consultants' conclusions may be summarised as follows:

- (a) 91% of jobs in Network Rail's workbanks were found to be at least partially justified (categories 1 to 3) on the grounds of safety and performance and were well supported by appropriate documentation, including condition reports;

- (b) in 21% of all jobs, the consultants were unable to determine whether the proposed work is fully justified, primarily because the scope of the work that Network Rail proposes to undertake has not yet been fully developed; and
- (c) just under 10% of proposed renewal jobs were deemed to be unjustified, mainly because the consultants found that Network Rail was allowing contingencies for as yet unspecified work.

5.92 While this analysis suggests that much of the renewal activity Network Rail is proposing is well justified (largely on the grounds of the impact of non-replacement on the operation of the network), L.E.K./Halcrow/TTCI also expressed concerns about the deliverability of what are very substantial annual increases in the volume of activity that Network Rail is proposing between 2003/04 and 2005/06. In particular, the consultants identified that there is a severe shortage in the number of development engineers who are available to scope and design renewal schemes. These shortages are exacerbated by the call that the West Coast upgrade and Southern power supply enhancement is making on this scarce resource.

5.93 Network Rail's response to the Regulator's third consultation document recognised that the Regulator was right to be concerned about the deliverability of increases in volumes of work in the next two years and said that it was not unreasonable for the Regulator to assume that the company would spend up to £40 million less than it had set out in its business plan.

5.94 Having considered the consultants' analysis and Network Rail's responses, the Regulator's conclusion is that his expenditure allowance for E&P should reflect a much more gradual increase in spend compared to that which is set out in Network Rail's original business plan. He therefore assumes that Network Rail will spend £50 million in 2004/05 and £70 million in 2005/06 (approximately £30 million per annum less than its business plan forecasts).

*Long-term plans, 2006/07 onwards*

5.95 Over the long term, Network Rail has said that it needs to replace an increasing volume of ageing asset stock in order to maintain the integrity of the network and plans to increase its expenditure to £130 million as quickly as deliverability constraints allow it to.

5.96 The Regulator commissioned MVA/Systra to examine whether Network Rail's plans are justified. Their report concludes that Network Rail's plans are backed by good

supporting documentation and generally represent an appropriate volume of work. This is primarily because:

- (a) a significant deterioration in the age profile of the asset base requires Network Rail to increase the volume of renewals that it undertakes in order to maintain the age and condition of its electrification equipment in a steady state; and
- (b) the adverse consequences for the safety and performance of the network of not replacing assets that are coming to the end of their useful lives appear to be very serious.

5.97 However, the consultants also identified a number of areas in which Network Rail has overstated its expenditure projections by using inconsistent unit rates to arrive at costings for individual schemes. The Regulator has therefore included some small savings, in line with MVA/Systra's estimates, in his forecasts of the amounts that Network Rail will spend on renewal of its electrification equipment. His conclusion is that Network Rail's expenditure will be £110 million to £120 million in each of the last three years of the period covered by this review (excluding expenditure on the Southern power supply upgrade).

### *Summary*

5.98 Table 5.14 compares the Regulator's expenditure allowances for the full five-year period with the projections contained in Network Rail's June 2003 business plan.

**Table 5.14: The Regulator's final conclusions on electrification (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR, December 2003	50	70	110	120	120	470
Network Rail, June 2003	79	100	119	128	127	553

### **Reasons for final conclusions: telecommunications**

5.99 For several years now, Railtrack and Network Rail have been developing the scope of two major telecommunications projects: the renewal of the Fixed Telecommunications Network (FTN) and introduction of a new digital radio system known as Global System for Mobile Communications for Railways (GSM-R).

5.100 FTN is the basic telecommunications network that supports Network Rail's operational and business requirements. Its renewals requirements are driven by

system condition, reliability and equipment obsolescence. In addition to these renewals, Network Rail also plans to install a digital radio network that will provide secure voice and data communication across the entire rail network and replace its existing radio networks, including the National Radio Network (NRN) and Cab Secure Radio (CSR).

- 5.101 In his October 2000 access charges review conclusions, the Regulator assumed that Railtrack would spend just over £600 million during the five years from April 2001 on telecoms renewals. He did, however, acknowledge that there was a considerable amount of uncertainty about the costs that Railtrack would incur and he said that he would include any additional expenditure in the regulatory asset base if Railtrack could demonstrate that the costs had been efficiently incurred.
- 5.102 Network Rail's June 2003 business plan said that in the five years from April 2001 it intends to spend £1,335 million in this respect, an increase over the allowance made by the Regulator at the time of the October 2000 review of more than £700 million. This was driven largely by bringing forward the date of GSM-R implementation to enable commissioning by December 2006. The levels of renewal activity were therefore expected to be significantly higher in the short-term up to 2005/06 than were envisaged at the time of the October 2000 review. In addition, expenditure on all cable route work was deemed to be part of the signalling costs. This item is now included within the scope of the FTN project, with the effect of increasing the estimates for FTN renewal.

*Review of the justification for the existing plans*

- 5.103 The FTN and GSM-R projects represent very considerable expenditure, with large volumes of installation activity on the network and complex issues of fitment of equipment on trains. In the light of these complexities, and the short-term expenditure increases projected in Network Rail's business plan, the Regulator undertook a review of the case for the reprofiling of communication system renewals (and thus reducing the short-term expenditure) as part of the review. He has also commissioned independent reviews of the technical design and capacity of the FTN and GSM-R networks, which have broadly endorsed Network Rail's approach. Unlike other asset types, where the Regulator asked consultants to assess the degree of justification for the proposed work in the short-term and long-term, this work was carried out jointly with Network Rail, the SRA and the HSE within an industry review group.

5.104 The industry review group examined the scope and timing of the projects, with particular regard to:

- (a) the options for, and implications of, rephasing of the GSM-R and/or FTN projects to reduce the proposed capital spending in 2004/05 and 2005/06;
- (b) the appropriate prioritisation of expenditure, taking account of the existing asset condition and the potential implementation of a more advanced ERTMS system;
- (c) the potential for de-scoping (*i.e.* doing less work), for example through the inclusion of existing assets into the new network and thus reducing the volumes of activities such as installation of new cabling everywhere;
- (d) the extent to which the projects are enhancing the present network rather than renewing an existing facility (*e.g.* full coverage in tunnels); and
- (e) the assessment of Network Rail's estimates of residual life of existing equipment, where this may have influenced the project timescales.

5.105 The review group also considered the costs of refurbishing the cable routes alongside the railway.

### *Conclusions*

5.106 The Regulator has concluded that the upgrading of the radio and telecommunications systems are projects that are key to the continued operation of the existing rail network. Existing and further planned European Directives will increase the reliance placed on the telecommunications systems by effectively requiring their use as key components of the signalling system as well as for voice communications. In this respect it is of paramount importance that Network Rail assures itself that the systems it procures are secure, reliable and able to support the demands being placed on them. The Regulator is satisfied that Network Rail's plans are robust in respect of the technical solutions proposed.

5.107 The review group have concluded, however, that some degree of rephasing of the telecommunication renewal and project works, together with some rescoping, will permit the reduction of Network Rail's planned activities and expenditure in the period to 2006/07. The main findings were as follows:

- (a) discussions with the Radiocommunications Agency have allowed the reversion date for existing radio frequencies to be moved back from 2008 to 2010. This has allowed for some rephasing of the project and a more even profile of spend over the next few years;
- (b) while the introduction of GSM-R will provide certain enhancements above existing systems, some aspects of the original project specification were identified as offering relatively poor value for money and have been removed;
- (c) an asset condition audit commissioned by the review group revealed that the assets are in better condition than had previously been assumed;
- (d) reduced scope can be achieved with the installation of cable protection measures; and
- (e) Network Rail should now take responsibility for the installation of necessary equipment into train cabs and reimburse operators under the network code for the costs that they incur.

5.108 Taken together, these findings have led the Regulator to conclude that a significant proportion of the work that was originally planned for 2004/05 and 2005/06 can be carried out at later dates and that the re-scoping of the project enables him to set a lower overall allowance for expenditure than that which was contained in Network Rail's June 2003 business plan.

5.109 As a result of the analysis carried out by the industry review group, the Regulator has also concluded that Network Rail's latest costing of the FTN and GSM-R projects demonstrates a level of efficiency which he expects from a well-managed and competent company. In particular, he notes that the scope of the works that are to be carried out are now well defined and that the company has or is putting in place contracts with suppliers that provide for efficient unit rates and an optimal allocation of risk.

5.110 He is not therefore making any further adjustment for efficiency savings in Chapter 6 in respect of the FTN or GSM-R projects.

### *Summary*

5.111 Table 5.15 compares the Regulator's expenditure allowance with the projections contained in Network Rail's June 2003 business plan.

**Table 5.15: The Regulator's final conclusions on telecoms (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR, December 2003						
- FTN and GSM-R projects	194	165	216	212	12	800
- cab fitment	5	10	30	36	36	117
- other renewals	27	22	47	42	45	182
Network Rail, June 2003 <sup>6</sup>	438	399	324	48	51	1,260

5.112 In relation to cab fitment costs, it was not possible to undertake a detailed analysis of the expenditure that Network Rail will incur within the timescales of the review. The Regulator has therefore included Network Rail's latest estimates in Table 5.15 and intends to conduct a review of the efficient costs of the project in 2004. Depending on the results of this work, it may be necessary to make an adjustment to the 2009 RAB to reflect savings that Network Rail can deliver on its current forecasts.

#### **Reasons for final conclusions: plant and machinery**

5.113 Network Rail's expenditure on plant and machinery differs slightly from spending on other assets. Rather than investing in the network, these items of expenditure generally relate to the purchase by Network Rail of new assets which will be used in the process of maintaining and renewing the network. It also includes fixed plant, such as points heating, pumping stations, building services and depot equipment.

5.114 Network Rail's June 2003 business plan forecasts a significant increase in expenditure on plant and machinery to more than £200 million in 2004/05 (from £89 million in 2002/03). Thereafter, expenditure falls gradually but remains well above the levels that the Regulator considered necessary at the October 2000 review.

5.115 Because of the scale of the increase in expenditure, the Regulator requested from Network Rail robust and compelling justification for the proposed expenditure, particularly in the areas of maintenance and inspection equipment and high output track renewals equipment. Further analysis of the data supplied by Network Rail provided the summary breakdown of expenditure between 2004/05 and 2008/09 contained in Table 5.16:

<sup>6</sup> Updated by the review group, of which Network Rail was a part.

**Table 5.16: planned expenditure on plant and machinery (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09
Fixed plant renewals programme	34.2	25.0	35.0	35.0	35.0
Maintenance and inspection equipment	61.0	41.4	30.5	32.3	30.4
High output track renewal and associated equipment	91.0	20.4			
Condition monitoring systems and equipment	15.7	15.4	6.7	7.2	5.0

- 5.116 The figures presented for 2004/05 and 2005/06 are based on workbanks for specifically identified activities and purchases. Those presented for subsequent years are based on high-level forecasting assumptions. The method of forecasting expenditure differs between asset type: for instance, a majority of the equipment related to track renewals has been forecast using historical spend as a guide; whereas the expenditure on condition monitoring systems is arrived at on the basis of a renewal plan for the asset.
- 5.117 The justification put forward by Network Rail for this investment is that the upfront cost of new plant and machinery will be outweighed by future savings on the cost of maintenance and renewal activity. However, Network Rail has not produced a detailed cost benefit analysis for its proposals and did not factor all such efficiency gains into the expenditure projections contained in its business plans.
- 5.118 The Regulator has therefore undertaken his own assessment of the justification for the proposed expenditure, comparing the cost of the new plant and machinery with the likely benefits in terms of relationship to asset renewal. He accepts that the short term expenditure is dominated by the investment in new machinery required for inspection and maintenance of the network, and this investment is at the core of improving network stewardship. However, there is a fundamental relationship between the volume of track renewals, the pattern of possessions and the plant and machinery needed efficiently and effectively to deliver that level. Network Rail has not proposed any further reduction in the expenditure on this type of equipment since it compiled its March 2003 business plan, although track renewal volumes, on the whole, have reduced.
- 5.119 His analysis suggests that only some of Network Rail's proposals are therefore justified on economic grounds. His conclusion is that Network Rail can reduce by 10% (approximately £30 million) the amount of money that it plans to spend on maintenance and inspection equipment and high output track renewal equipment

without adversely affecting the volume of work that it is able to deliver during the five-year period.

5.120 In addition, the Regulator also concludes that the proposed expenditure will generate offsetting efficiency savings over the five-year period. These savings are factored into his overall assessment of the potential for efficiency improvements (which is set out in Chapter 6).

### *Summary*

5.121 Table 5.17 compares the Regulator's expenditure allowances for the full five-year period with the projections contained in Network Rail's June 2003 business plan.

**Table 5.17: The Regulator's final conclusions on plant and machinery (£million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR, December 2003	189	89	74	72	69	493
Network Rail, June 2003	204	104	74	72	69	523

### **Reasons for final conclusions: operational property**

5.122 The assets within this group are the network's stations (almost 2500 franchised stations and Network Rail's 17 major stations), light maintenance depots and lineside buildings (*e.g.* signal boxes).

#### *Short-term plans, 2003/04 – 2005/06*

5.123 Network Rail's business plan has projected a relatively small increase in expenditure on operational property in the next three years. In 2003/04, the company actually expects to spend less than it did in 2002/03, although it does then plan to increase significantly its expenditure on stations during 2004/05 and 2005/06. Despite this, it is forecasting some decline in overall station and depot condition in the short-term.

5.124 In order to assess the justification for Network Rail's plans, L.E.K./Halcrow/TTCI examined 329 items in the operational property workbanks, representing 11% of the total work planned for 2003/04 to 2005/06, with a total expenditure of £71 million. Examples of the work sampled include repairs to platforms, station building and roof repairs and repairs to installed equipment such as lifts. The consultants did not look at work required at major stations, which has been the subject of separate analysis.

5.125 Table 5.18 summarises the consultants' conclusions on the justification for planned short-term activities.

**Table 5.18: Findings on overall justification for operational property maintenance and renewals**

Category 1 (fully justified)	Category 2 (partially justified extent)	Category 3 (partially justified scope)	Category 4 (not justified)
42%	26%	28%	3%

Source: L.E.K./Halcrow/TTCI

5.126 The consultants' key findings were that:

- (a) almost 97% of the planned work was at least partially justified, of which 42% was found to be fully justified; however,
- (b) 54% of this was assigned to categories 2 and 3, and was thus only partially justified; and
- (c) a very small percentage of work was found not to be justified at all.

5.127 In the vast majority of cases, the consultants determined work was required for safety reasons. However, a further key finding was that even where some work was fully justified, the scope of the proposed work had often grown to include lower priority activities. In a number of cases, Network Rail said that this was because there are economies of scale and economies of scope in carrying out additional work at the same time as the original job. The consultants concluded that such additional work should be allocated to either category 2 or 3 and therefore re-examined.

5.128 The Regulator's view, as set out at the beginning of this chapter, is that Network Rail should not currently be extending the scope of the work that it undertakes. The company's argument for additional funding assumes that unit costs are at an efficient level and are not expected to decline over time. As Chapter 6 explains, this is not the case and the Regulator does not consider it is appropriate for Network Rail to expand the scope and extent of the work it is planning to undertake until such time as it has achieved significant efficiency savings and improved the delivery of its projects.

5.129 In his draft conclusions, the Regulator therefore proposed to assume that Network Rail can reduce the amount of renewal of operational property in 2004/05 and 2005/06 by one quarter, in line with the lower end of the range that he proposed in his third consultation document. Network Rail correctly pointed out in its response to the

third consultation document that it would, however, be inappropriate to apply these savings to expenditure on reactive maintenance and inspections (which accounts for expenditure of approximately £40 million per annum) or to the work that Network Rail intends to carry out at major stations (which accounts for one eighth of total spend in these two years). In a separate study of the workbanks at major stations, the Regulator's consultants have determined that the work that Network Rail has planned in 2004/05 and 2005/06 is fully justified (*i.e.* category 1 above) and should be funded in full.

- 5.130 The Regulator has therefore concluded that Network Rail's overall expenditure on operational property should be 10% lower than set out in its June 2003 business plan for 2004/05 and 2005/06, to reflect the savings that are possible on renewals of franchised stations, depots and lineside buildings. This equates to savings of approximately £20 million per annum against Network Rail's June 2003 business plan.

*Long-term plans, 2006/07 onwards*

- 5.131 The Regulator received Network Rail's long-term plans for operational property at the end of June 2003. In these plans, Network Rail projects a very significant increase in the volume of work that it undertakes during 2006/07 and 2007/08, amounting to 137% and 168% more spending than in 2005/06, and in all groups of operational property – close to a trebling of stations and lineside building expenditure, and a doubling of depots expenditure.
- 5.132 The Regulator commissioned two studies to examine whether these increases were justified:
- (a) CM Needleman and Partners (Needlemans) were asked to look at the work Network Rail is planning at major stations; and
  - (b) L.E.K./Halcrow assessed Network Rail's plans for franchised stations, depots and lineside buildings.
- 5.133 In relation to major stations, Network Rail identified a large number of what it describes as 'strategic renewals' to these stations. The largest of these projects is at Kings Cross station in London. Shortly before the publication of Needlemans' report, a large proportion of the expenditure relating to this project became classified as enhancement expenditure to be funded outside of the review and, as a result, only the renewal elements have been included in the assessment.

5.134 Needlemans were asked to assess the justification for the work at major stations for the period between 2004/05 and 2013/14. The consultants made a detailed assessment of documentation and made site visits to the five London stations that account for 75% of the planned expenditure (Euston, Kings Cross, London Bridge, Paddington and Victoria). In conducting their analysis, Needlemans considered the priority rating that Network Rail had itself allocated to each item of work.

5.135 The consultants concluded that Network Rail's plans were not yet well developed and recommended that Network Rail should only be funded to spend on works that falls within priority 1 to 4 between 2004/05 and 2008/09. This covers those items that relate to health and safety, works where Network Rail is currently experiencing a financial loss, works to avoid such a loss in future, and statutory and contractual obligations. The resulting expenditure is approximately two thirds of Network Rail's original forecasts.

**Table 5.19: Needlemans' assessment of expenditure at major stations (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09
June 2003 business plan	23.1	23.6	81.5	137.4	147.1
Needlemans' conclusions	18.9	18.9	60.8	99.3	115.7

5.136 L.E.K./Halcrow found that increases in the volume of work in the other asset categories (franchised stations, depots and lineside buildings) had four main drivers:

- (a) implementation of plans to enhance significantly the facilities available in lineside buildings;
- (b) an increase in the amount of reactive maintenance that Network Rail undertakes;
- (c) the argument that the annual volumes of renewals at stations, depots and lineside buildings should be constant in steady state – therefore, if, say, a particular type of asset has a life of 20 years, Network Rail should always plan to renew 5% of the asset base each year; and
- (d) a perceived need to clear a backlog of work that would build up between 2003/04 and 2005/06.

5.137 L.E.K./Halcrow conclude that Network Rail has not justified its plans for increased expenditure in any of these areas. Their report contains the following conclusions:

- (a) Network Rail was not able to provide a detailed breakdown of the additional work that it intends to carry out at lineside buildings. It was therefore not possible for the consultants to identify the extent of the additional expenditure or assess whether the additional activity is justified. In any case, the Regulator considers that the work Network Rail proposes represents enhancement of the network and should not be funded as part of this review. If a customer or funder wishes to pay for these enhancements, it is open for them and Network Rail to agree separately for the work to be carried out within the Regulator's enhancement framework;
- (b) Network Rail has not demonstrated why it is inappropriate to assume that the volume of reactive maintenance it carries out should not remain at the same level as in the first three years of the plan. The consultants therefore recommend that funding for this type of activity should be based on the historic level;
- (c) the argument that Network Rail should replace a constant proportion of the asset base each year is not robust and does not represent a compelling case for additional funding. L.E.K./Halcrow conclude that such an approach is only justified if past spending has been constant over an extended period of time, if the condition of the asset is directly related to the asset life and if Network Rail has correctly assessed the lives of the assets in question. On all three counts, the consultants find that these conditions had not been met. For this reason, they conclude that the volume of work in the bottom-up workbanks for 2003/04 to 2005/06 should form the basis for identifying the level of steady state maintenance and renewal expenditure in each year; and
- (d) in the short time available for the study, L.E.K./Halcrow were unable to verify Network Rail's claims that the volume of activity that it plans to carry out between 2003/04 and 2005/06 is below that which is necessary to maintain the condition of the assets in steady state, thereby creating a backlog of work to be carried out from 2006/07 onwards. They also note that Network Rail's assertions are not informed by any detailed analysis of the link between activity levels and asset condition and that Network Rail has not identified a backlog of work dating from before April 2003 in its business plan. The

consultants recommend that the Regulator should form his own view on the extent to which there is a backlog.

5.138 Having considered carefully the findings that L.E.K./Halcrow had reached, the Regulator's draft conclusion was that it is clear that Network Rail has fallen well short of the compelling and robust case that he said he requires if he is to allow the company additional funding. Many of the company's arguments are simplistic and are not supported by proper evidence.

5.139 The Regulator's draft conclusion was therefore that it is inappropriate to allow for an increase in maintenance and renewal at franchised stations, depot and lineside buildings when setting access charges and that Network Rail will not need to increase the volume of work that it undertakes beyond the levels that it has planned for 2004/05 and 2005/06.

5.140 When combined with an increase in the work that Network Rail carries out at major stations, this means that the overall funding for the operational property assets will rise after April 2006 to an average of approximately £250 million over the final three years of the period covered by this review.

### *Summary*

5.141 Table 5.20 compares the Regulator's expenditure allowances for the full five-year period with the projections contained in Network Rail's June 2003 business plan.

**Table 5.20: The Regulator's final conclusions on operational property (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR, December 2003	188	190	222	254	271	1,124
Network Rail, June 2003	201	205	533	625	493	2,057

5.142 The Regulator's allowance is slightly higher than the figures used in the draft conclusions and corrects for the computational errors that Network Rail identified in its response to this document.

### **Reasons for final conclusions: maintenance**

5.143 In formulating its business plan, Network Rail has been largely reliant upon its contractors' estimates of maintenance volumes, and it appears that future projections

continue to be based upon extrapolation of current short-term plans. The Regulator is unable to place much reliance upon such figures, because:

- (a) he has no evidence that Network Rail has yet undertaken a meaningful assessment of the value for money it is receiving from its contractor-driven maintenance spending;
- (b) Network Rail has repeatedly asserted that the quality of work being achieved by its contractors (in maintenance and renewal) is not always to the levels and standards that are required; poor quality workmanship is inevitably driving inefficient spending on repeated maintenance activities; and
- (c) there is no real evidence that long-term maintenance plans are being reduced to reflect plans for increased levels of renewal and better quality of work content delivered.

5.144 The industry's failure to understand and quantify objectively its future maintenance requirements is serious. The Regulator does, however, recognise that Network Rail is taking significant and positive steps to address these deficiencies, notably the taking in-house of all maintenance contracts, together with the increasing application of a work management tool known as MIMS. All these are giving, and will give, much improved information to Network Rail and should enable the company to increase the volume of *effective* maintenance that it carries out for any given level of funding.

5.145 In its response to the Regulator's draft conclusions, Network Rail argued strongly that it would need to increase the total volume of maintenance work that it carries out to counter-balance the perceived reduction in renewals volumes below the levels it had sought. In particular, Network Rail has suggested that there is a 'rule of thumb' whereby an increase in maintenance of around 10% of any deferred track renewals is required in order to sustain the outputs in these circumstances.

5.146 In reviewing his position in the light of Network Rail's arguments, the Regulator has made the following considerations:

- (a) he agrees that there is a theoretical connection between the level of renewals activity, the volume of maintenance inputs and the consequent outputs. This relationship is likely to vary widely across the network, depending on the nature of the traffic using a particular piece of track, and the age, condition and maintenance history of that track; however,

- (b) he notes that Network Rail has not provided any evidence to support its 'rule of thumb' calculation; and therefore,
- (c) the trade off between the input activities (maintenance/renewal) and outputs is not currently quantifiable. Indeed, it continues to be a matter of particular concern to the Regulator that Network Rail's track renewal forecasting model (T-SPA) takes no account of the underlying maintenance regime in attempting to model a link between outputs and renewals; and
- (d) in the absence of more robust information, any consideration of the appropriate level of maintenance activity in the conclusion of this review of access charges must, inevitably, be a matter of judgment rather than objective calculation.

5.147 In reaching his conclusions, the Regulator notes that Network Rail's treatment of the trade off between renewals and maintenance in this access charges review has not been consistent. Its June 2003 business plan, which proposed a very significant increase in the volume of renewals the company carries out, did not make the same maintenance/renewal trade-off that the company is now seeking to justify. For example, despite proposing to roughly double the amount of track renewals that it undertakes, the June 2003 business plan only projected a reduction of just £38 million in maintenance spending across the entire network (from £1343 million to £1305 million) in the same period.

5.148 The Regulator believes that such a high volume of renewals should have been reflected by a much lower level of maintenance activity. Thus, in considering Network Rail's case for funding additional maintenance, the Regulator considers that his draft conclusions were already very generous to the company, in two key respects:

- (a) they were based on the assumption that the 2002/03 level of maintenance activity (representing an annual expenditure of £1328 million) would not reduce, but be carried through the full five-year period between 2004/05 and 2008/09. His conclusions have therefore already provided £71 million more than Network Rail's own June 2003 estimates of maintenance requirements; and
- (b) it did not reduce maintenance activities to the lower level that should be commensurate with the level of renewals activity.

- 5.149 It is important to consider the Regulator's conclusions in the context of the overall levels of maintenance and renewal activity. Whilst he acknowledges that his conclusions have reduced the volume of track renewals to a level that is less than set out in Network Rail's June 2003 business plan, his conclusions in this access charges review still provide for a significant increase in the overall volume of renewals when compared with the already rising volumes that were achieved in 2002/03. His conclusions provide funding for annual levels of track renewal that remain at similarly high levels in respect of rail replacement, and that are very considerably higher in respect of sleeper, ballast and S&C renewal.
- 5.150 The Regulator has therefore concluded that he cannot accept Network Rail's case for additional maintenance activity and expenditure, and he confirms that his final conclusions in respect of infrastructure maintenance are as set out in the draft conclusions.



## 6. *Efficiency*

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### Introduction

- 6.1 Chapter 5 of this document considers only the *volumes* of maintenance and renewal activity that Network Rail should undertake in the five-year period from April 2004. In order to arrive at a determination of the funding that should be made available to the company, the Regulator must also make an assessment of the *cost* that Network Rail will incur in carrying out these activities.
- 6.2 The starting position is one in which unit costs have risen significantly during the last three years. Network Rail recognises that there is scope for substantial efficiency savings within all areas of its business and has argued during the review that its own target, which assumes it can achieve a 28% reduction in unit costs over the period 2004/05 to 2009/10, represents a realistic and demanding challenge for the company.

### Conclusions

- 6.3 As the industry's independent economic regulator, the Regulator must reach his own view on the scale of potential savings and the speed at which a competent and well-managed company would be able to achieve efficiencies. His final conclusions are as follows:
- (a) Network Rail's target understates the current scale of inefficiency within the company. The Regulator considers that it should be possible for Network Rail to reduce its unit costs by between 30% and 35% (higher in the case of expenditure on WCRM as discussed in Chapter 7) within the five-year period covered by this review; and
  - (b) many of the initiatives that Network Rail can take to generate savings can be implemented quickly and at relatively little cost to the business. It is therefore appropriate for the Regulator to assume that annual reductions in unit costs will be highest in 2004/05, 2005/06 and 2006/07.
- 6.4 In calculating the allowances that he makes for expenditure on the operation, maintenance and renewal of the network, the Regulator has made the assumptions about reductions in unit costs set out in Table 6.1.

**Table 6.1: Final conclusions on annual reduction in unit costs**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
Maintenance	8%	8%	8%	8%	8%	35%
Renewals	8%	8%	8%	5%	5%	30%
Controllable OPEX	8%	8%	8%	5%	5%	30%
<b>Total</b>	<b>8%</b>	<b>8%</b>	<b>8%</b>	<b>6%</b>	<b>6%</b>	<b>31%</b>

**Reasons for conclusions: scale of overall savings***The third consultation document*

6.5 The third consultation document set out the results of four studies that the Regulator had undertaken jointly with Network Rail to quantify the overall size of the efficiency savings that a well-managed and competent company would be able to achieve. The objective of all of these studies was to identify where Network Rail currently falls short of best practice for a company of its type and size and to quantify the savings that would be possible if the new management were to introduce best practice across the company. The work included:

- (a) *Intra-company (or regional) benchmarking.* Network Rail is currently organised into seven regions and it is apparent that some are more efficient than others in operating, maintaining and renewing the network. Savings can therefore be achieved by requiring the least efficient parts of Network Rail to reduce their costs to levels that are comparable (allowing for regional variations in costs that are beyond management's control) to those achieved by the best performing regions within the company.
- (b) *Analysis of Network Rail's procurement strategy.* Until recently, Network Rail's bought in most of its maintenance and renewal work from outside firms. The Regulator examined whether Network Rail adopts best practices in managing its contractors and has sought to quantify the savings that could be generated if the business were to improve the way in which it organises the maintenance and renewal of the network.
- (c) *International benchmarking.* By comparing the manner in which Network Rail maintains and renews its network with equivalent processes in railways in other countries, the Regulator is able to determine whether there is any scope for Network Rail to reduce its costs by adopting best practice from overseas. Comparisons of this kind may be particularly helpful in assessing the extent to

which alternative engineering strategies and/or alternative methods of undertaking specific work would improve efficiency.

- (d) *Process benchmarking.* Where Network Rail is undertaking activities and processes that are carried out by many other (non-railway) companies, cross-industry comparisons may reveal certain areas in which Network Rail is incurring higher costs than it ought to. By identifying and quantifying external benchmarks for a wide range of activities, the Regulator is able to assess the potential efficiency savings that Network Rail would achieve by adopting best practices from elsewhere.

6.6 Most of these studies indicated considerable scope for Network Rail to save costs. The exception was the international benchmarking work, where it was possible to find obvious differences in specific practices adopted by overseas railways, but it was far less clear that the adoption of these practices by Network Rail would lead to cost savings in the short or medium term. A summary of the conclusions from each study is set out in Tables 6.2 and 6.3.

**Table 6.2: Results of benchmarking analysis**

Benchmarking technique	Potential efficiency savings
Intra-company benchmarking (conducted by L.E.K.)	
plain line track renewals	up to 13%
maintenance	up to 24%
operating expenditure	up to 19%
Analysis of procurement strategy (Accenture)	
procurement of renewals	17%
procurement of maintenance	18%
International benchmarking (L.E.K./Halcrow/TTCI)	No immediate savings indicated
OPEX process benchmarking (OXERA)	18% to 20%

**Table 6.3: Main sources of potential efficiency savings identified by consultancy studies**

<b>Regional benchmarking (L.E.K.)</b>
Improvements in regional management structures and staffing patterns
Better planning of maintenance and renewals work
Increases in the duration of possessions
<b>Procurement strategy (Accenture)</b>
More accurate specification and quantification of what Network Rail wishes to purchase through maintenance and renewals contracts
Fewer changes to job scope, specification and standards after contracts have been agreed
More efficient allocation of risk between Network Rail and contractors
More focused negotiations with contractors to attack inefficiencies and reduce costs
Better management of contractors' work by regional engineering teams
More work alongside contractors to improve the quality of their work and to lower costs over time
Greater centralisation of materials purchases and management
<b>Process benchmarking (OXERA)</b>
Reductions in headcount and expenditure within HR, legal, regulatory, corporate planning, major stations and property functions

6.7 Having considered carefully the extent to which these studies overlap, the Regulator said in his third consultation document that his emerging conclusion was that the efficiencies he had identified so far amount to approximately 30% across the business as a whole, with relatively higher scope for savings in maintenance and relatively lower scope for savings in renewals work. However, the Regulator also acknowledged that this estimate was, if anything, on the conservative side of the possible conclusions which he could have drawn from the evidence presented to him, noting, in particular, that there were a number of areas in which Network Rail should be able to improve efficiency which are not captured by the benchmarking studies commissioned by the Regulator.

#### *Subsequent analysis*

6.8 After publication of his third consultation document, the Regulator focused his attention on a number of areas within the business where he believed there was scope for efficiency, but where possible savings may not have been fully captured by the studies previously undertaken. These were as follows:

- (a) *The scope for improvements in productivity within the company's existing possession patterns.* A report compiled by Network Rail identified that labour

utilisation in possessions across all regions is currently very low, with productive time in maintenance possessions estimated to be only 30% to 40% of the hours available. Network Rail said that more optimal possessions patterns combined with improvements in travel time, set-up and take-down times, working methods and planning could increase this figure significantly across all regions. This in turn should produce reductions in unit costs which had not been fully captured in the studies carried out to date.

- (b) *The benefits associated with the introduction of new technology.* Chapter 5 explained that Network Rail plans to undertake significant investment in new plant and machinery, with much of the spending justified by the resulting savings in the future cost of maintenance or renewal activities. Having included an allowance for the upfront capital cost of this investment in his assessment of Network Rail's expenditure, it is important for the Regulator to take account of the cost savings which the company can be expected to generate within his overall efficiency target. He considers that it is reasonable to expect Network Rail to capture savings that are equivalent to approximately half of the expenditure on high output track renewal plant and maintenance equipment within a period of five years.
- (c) *Review of standards.* Chapter 10 of this document explains that Network Rail has committed to undertake a fundamental review of the standards regime to ensure efficient, value for money and effective delivery of its safety obligations. Whilst it is not possible at this stage to quantify the savings that this review might deliver, the Regulator considers that it is reasonable to expect efficiencies beyond those which have been identified in other studies.

6.9 Network Rail also submitted to the Regulator a piece of work which deals with labour and materials price trends. This work indicates that input price inflation may place upward pressure on unit costs in the next two to three years, reducing the impact of efficiency savings. These cost pressures are said to be greatest in areas where Network Rail is dependent on a scarce supply of skilled labour, but are offset to some extent by likely reductions in the cost of most materials. The Regulator has taken account of this factor in his overall assessment of the scope for cost reductions through improvements in efficiency.

6.10 Finally, the SRA's specification of network outputs, published in September 2003, said that the SRA would facilitate, through changes to franchise agreements, the implementation of alternative approaches to possessions, such as longer midweek

weeknight possessions, longer weekend possessions and the use of midweek daytime possessions on certain categories of route. In his third consultation document, the Regulator recognised that such changes might generate significant savings. However, because any major changes to the way in which Network Rail takes possessions are likely to have a major impact on passengers and freight users and because this will require changes to certain agreements and industry processes, the Regulator considers that it would be premature to include any such additional savings within his efficiency target in this review. However, he will return to this issue in his further review of compensation for possessions, which will be carried out under the interim review provisions outlined in Chapter 3.

### *Views of consultees*

- 6.11 In its response to the third consultation document, Network Rail pointed out what it considered to be some of the weaknesses in the individual pieces of analysis which the Regulator had drawn upon in order to arrive at his 30% figure, but stated that they had reached a very similar view on the scale of potential efficiency savings. Network Rail said in its response to the Regulator's draft final conclusions that the scale of the savings required by the Regulator, when combined with the timescales for achieving them would be extremely challenging.
- 6.12 Most of the other respondents to the third consultation document did not comment in detail on the Regulator's analysis, although many said that they supported the emerging conclusions. Some train operators, most notably EWS, said that they believed that the 30% figure understated the extent of inefficiency within Network Rail and asked the Regulator to ensure that his analysis amounted to a comprehensive assessment of all possible efficiency savings. By contrast, the National Rail Contractors Group said that its members believed the Regulator and Network Rail had overstated the potential for efficiencies to be introduced to the business and that it would not be possible to achieve the savings. However, the contractors did indicate that they believed some efficiencies were possible, for instance through better planning of work.

### *The Regulator's final conclusions*

- 6.13 In reaching an overall judgment about the medium to long-term scope for efficiencies, the Regulator considered carefully the full range of evidence that has been presented to him. Some caution must be applied when arriving at a single efficiency target because there are certain areas in which the individual components in the analysis set out above overlap. For example, in the work on regional benchmarking, the

consultants include contractor management, contractor pricing, and contract structures as part of the explanation for differences in unit costs between different regions—matters which are also considered in the review of procurement strategy. It would therefore be inappropriate simply to add the results of the two types of analysis together to arrive at an overall efficiency target.

6.14 Based on the evidence set out in the benchmarking studies, his further examination of certain efficiency factors which were not fully captured by these studies and the views put to him by consultees, the Regulator has concluded that Network Rail should be able to deliver unit cost reductions of between 30% and 35% over the five-year period covered by this review, with relatively higher scope for savings in maintenance activities and relatively lower savings for renewals work and in OPEX. He has arrived at this conclusion because:

- (a) for *maintenance*, Accenture's analysis of Network Rail's approach to contracting concluded that ineffective procurement arrangements had inflated costs and that Network Rail should be able to reduce its maintenance expenditure by 18% below the amounts set out in the company's March 2003 business plan (a conclusion that remains robust in the context of Network Rail's plan to bring maintenance work in house). Further savings would result from properly addressing the other inefficiencies, such as those relating to engineering access and planning, that L.E.K. identified in their regional benchmarking and the low productivity within maintenance possessions. While there is some overlap with savings which are already captured in the Accenture study, the Regulator's view is that further savings of at least 15% could be achieved. He therefore proposes to assume that Network Rail will be able to reduce the unit costs of maintenance activity by 35% from current levels.
- (b) for *controllable OPEX*, Network Rail's own business plan includes a 30% reduction in expenditure by the end of a five-year period. This figure is given considerable support by L.E.K.'s regional benchmarking study, which concluded that Network Rail would spend on average 20% less on operational activities if all parts of the business improved their efficiency to the levels achieved by the lowest cost business units within Network Rail. It is also supported by OXERA's process benchmarking, which found that a competent and well-managed company of Network Rail's size and type would spend considerably less on controllable OPEX than the amounts set out in Network Rail's March 2003 business plan. The OXERA work is important because it

strongly indicates that even the most efficient parts of Network Rail are incurring higher OPEX than is strictly necessary or appropriate. He therefore concludes Network Rail's own target of reducing controllable OPEX by 30% is fair and reasonable.

- (c) for *renewals*, Accenture's analysis of Network Rail's approach to contracting concluded that more effective procurement arrangements would enable Network Rail to reduce its renewals expenditure by approximately 17% below the amounts set out in the company's March 2003 business plan. Further savings would result from properly addressing those inefficiencies relating to variations in job length, possessions patterns and working methods that L.E.K. identified in their regional benchmarking of plain-line track renewals, from the planned introduction of new plant and machinery, and from the Network Rail initiatives on safety and assurance processes. The Regulator therefore concludes that it is reasonable to assume that Network Rail can reduce its renewals costs by 30% from their current levels.

### **Reasons for final conclusions: profile of savings**

- 6.15 The Regulator has said throughout the review that it is essential for him to have regard to a wide range of evidence before reaching his conclusions on the rate at which Network Rail can make progress towards achieving his efficiency targets. In particular, he considers it helpful to draw on the advice provided by the consultants who have undertaken the benchmarking analysis, on evidence of the achievements of other network industries, and on the assumptions made by other regulators when setting efficiency targets.
- 6.16 All three types of evidence indicate that it is appropriate for the Regulator to assume that Network Rail will make rapid progress towards improving its efficiency at the beginning of the five-year period.
- (a) *Advice provided by consultants.* In its regional benchmarking analysis, L.E.K. state that almost all of the factors which it has identified as having the largest impact on differences in efficiency between regions can be dealt with individually within a 1–2 or 3–5 year timescale, with a roughly equal split between the two. Similarly, in its analysis of Network Rail's procurement strategy, Accenture concludes explicitly that approximately two thirds of the savings they have identified can be captured within a period of two years. The consultants also state that the full benefits of more effective management of its

contractors may be realised within five years, provided that Network Rail is able to work closely with other industry parties in addressing the issues raised in its report.

- (b) *Achievements of other network industries.* OXERA concluded that other inefficient monopoly network businesses have been able to reduce their unit operating costs by between 5% and 6% per annum over an extended period of time. OXERA's analysis also demonstrated that similar network industries, when in a position to generate significant reductions in costs, have achieved most of the available savings within two years of efficiencies being identified.
- (c) *Assumptions made by other regulators.* Other regulators of monopoly network industries have typically assumed that between half and three quarters of any efficiency gap they identify can be closed by companies between the second and third years of a control period. Almost without exception, companies have gone on to deliver these savings in full.

#### *Views of consultees*

- 6.17 In its response to the third consultation document and again in replying to the draft conclusions, Network Rail said that it faced a major challenge in delivering such a large efficiency programme. In particular, it identified obstacles to rapid change in the amount of time it would take to amend the Network Rail safety case and in the difficulties it faced in changing contractual arrangements. It also disagreed with the validity of comparisons with other regulated industries and argued that L.E.K. and Accenture had been optimistic about the extent to which it is possible to deliver early savings.
- 6.18 The National Rail Contractors Group broadly supported Network Rail's arguments but other respondents questioned why it should take Network Rail more than seven years from the date of its acquisition of Railtrack to eliminate fully the inefficiencies that are currently present within the business. Several train operators said that they would usually expect to implement all relevant cost saving measures in full within 12 months of acquiring a new company, and one said that it did not believe that savings are deliverable if there is a significant gap between a change in management and the introduction of new working practices.

*The Regulator's position*

6.19 Having considered the evidence that has been put to him, the Regulator considers that Network Rail should be required to make large steps towards improving its efficiency within the next two years. He therefore proposes to set efficiency targets which demand the highest savings in 2004/05, 2005/06 and 2006/07, with lower, but nevertheless challenging, improvements in efficiency in the remaining two years. He has reached this conclusion because:

- (a) the advice provided by the independent consultants in their reports is that two thirds of the savings identified by their studies should be achievable within two years;
- (b) many of the early savings can be delivered simply by eliminating easily identified waste within the company;
- (c) the majority of Network Rail's maintenance and renewals contracts expire within the next three years, providing Network Rail with an immediate window of opportunity in which either to introduce the contractual changes which are necessary in order to enable costs to fall or, in relation to maintenance where no contract is to be let, to make the necessary improvements itself;
- (d) the experience of other regulated network business indicates that companies which are similar to Network Rail have been able to deliver substantial savings when challenged to do so by their regulators; and
- (e) more generally, it is now more than twelve months since Network Rail acquired Railtrack and it is reasonable to expect the benefits of any turnaround exercise to materialise within an 18 months to two year timetable.

6.20 In recognition of Network Rail's arguments that some of the initiatives which it is currently putting in place will take several months to deliver the maximum possible savings, particularly at a time when it faces unit cost pressures in certain labour markets, the Regulator proposes to assume that annual savings over the first three years will be flat at 8% per annum. In each of the last two years, Network Rail will need to improve efficiency by 6% per annum in order to achieve the full 30% to 35% target.

## **Monitoring**

6.21 The Regulator expects Network Rail to measure future reductions in its unit costs and to monitor carefully progress against the Regulator's targets. Since acquiring Railtrack in October 2002, Network Rail has made significant progress in collecting unit cost data and in comparing unit costs across regions. He expects the company to build on this good work and to extend its scope to activities where it has not so far been possible to obtain meaningful unit cost information. He will also require Network Rail to report a range of information on activities and unit costs as part of its annual return to the Regulator and expects to develop his requirements in this area in the coming months.



## 7. *West Coast route modernisation*

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### Introduction

- 7.1 The work to modernise the West Coast Main Line (WCML) from London to Glasgow, known as the West Coast Route Modernisation (WCRM), is of major national and regional importance. The WCML route is a key transport artery and its effective renewal and enhancement is critical to a very wide range of interests. The scale of the work, its significance in cost terms, and its history, have meant that it forms an important part of this access charges review. In his final conclusions, the Regulator has therefore established specific expenditure allowances for Network Rail to deliver specific outputs on the route.
- 7.2 In his draft conclusions, the Regulator based his assessment of West Coast expenditure on Network Rail's September 2003 cost submission, which included significant savings from its March and June 2003 submissions. He did, however, incorporate an additional £170 million efficiency saving on WCRM renewals from 2005/06 onwards to reflect high unit costs and efficiencies being sought elsewhere on the network. The Regulator has considered further evidence since the publication of his draft conclusions, including responses from Network Rail, the SRA and other consultees, a final report from his reporters, Mouchel Parkman (MP), and a further report from his consultants, Booz Allen Hamilton (BAH). In arriving at his conclusions, the Regulator must act in accordance with the entirety of his section 4 duties. In doing so, he has borne in mind, in particular:
- (a) the reasonable requirements of train operators and funders (in particular the SRA), having regard to the duty imposed on Network Rail by Condition 7 of its network licence<sup>7</sup>;
  - (b) Network Rail's contractual obligations to freight and passenger train operators; and

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<sup>7</sup> Condition 7 imposes on Network Rail a duty to take such steps as are necessary or expedient to achieve "the purpose" to the greatest extent reasonably practicable, having regard to all relevant circumstances including the ability of Network Rail to finance its licensed activities. The purpose is to secure the operation, maintenance, renewal, replacement, improvement, enhancement and development of the network in each case in accordance with best practice and in a timely, efficient and economical manner so as to satisfy the reasonable requirements of persons providing services relating to railways and funders in respect of the quality and capability of the network.

- (c) the efficient cost of meeting these requirements and how it should be reflected in track access charges.

## Conclusions

- 7.3 The Regulator has concluded that Network Rail should be allowed the expenditure shown in Table 7.1 for the WCRM project to deliver the reasonable requirements of its customers and funders. The total expenditure allowed for the project over the period of this review is £2,803 million, 22% lower than the £3,613 million proposed in Network Rail's September 2003 cost submission. This reflects a mixture of efficiencies and limited deferrals, many of which have been identified by Network Rail during the course of this review. It represents a challenging target for Network Rail to keep costs down and to manage and programme the work more efficiently. In his draft conclusions the Regulator allowed £2,630 million for renewals and it was assumed that a further £813 million (pre-efficiency) enhancement expenditure would be funded separately by the SRA.

**Table 7.1: Final conclusions on WCRM expenditure (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
<b>ORR WCRM final conclusions</b>	1,136	889	278	240	259	<b>2,803</b>

- 7.4 The Regulator has concluded that the SRA's June 2003 West Coast document<sup>8</sup> (the SRA June 2003 document) should be the basis for the outputs to be taken as the reasonable requirements of Network Rail's customers, with delivery of significantly improved journey times between London and Glasgow and other major cities en route such as Liverpool, Manchester, Birmingham and Coventry by September 2004. He considers that some rephasing of outputs after September 2004 (including rephasing the Rugby, Nuneaton stage 2 and Trent Valley works by 18 months) is necessary to reduce to acceptable levels the risks of non-delivery and cost overruns and reduce materially the overall cost of the project. He has concluded, however, that there should not be any delay to further improvements to services to Cumbria and Glasgow envisaged by the SRA for December 2005 (and linked incremental improvements to services to Liverpool and Preston in June 2005).

<sup>8</sup> *West Coast Main Line Strategy*, Strategic Rail Authority, London, June 2003.

- 7.5 The Regulator has considered the regulatory mechanism by which delivery of the reasonable requirements is secured, so as to give clarity to train operators and funders, to Network Rail and to investors. He has concluded that he should monitor and enforce delivery of all aspects of operation, maintenance, renewal and enhancement in accordance with Condition 7 of Network Rail's network licence.
- 7.6 The Regulator has also concluded, for the reasons set out in paragraphs 7.62 to 7.63 below, that provision should be made in this review for a specific interim access charges review in the event that cumulative expenditure by Network Rail on renewal and enhancement of the WCML exceeds, or is likely (in the Regulator's opinion) to exceed, the amount assumed in this access charges review by 15% or more.

### **Reasons for conclusions - summary**

- 7.7 The Regulator must act in accordance with his duties in reaching his final conclusions. Where these duties conflict, he may decide priorities between them, while bearing in mind the entirety of his duties with a predisposition to fulfil all of them so far as practicable. In respect of West Coast, this involves in particular weighing his duties to protect the interests of users of railway services and to promote the use and development of the railway network with his duty to promote efficiency and economy in the provision of railway services, his duty to have regard to the financial position of the SRA, and his duty to facilitate the furtherance by the SRA of any strategies it has formulated with respect to its purposes. This entails considering the improved journey times, capacity and performance which the SRA, train operators, passengers and freight customers wish to see, alongside the delivery risks and need to control costs and increase efficiency and economy in the delivery of these improvements and in the delivery of acceptable levels of efficient and economical operation, maintenance and renewal of the network as a whole.

#### *Reasonable requirements of Network Rail's customers*

- 7.8 In the context of his decision making, the Regulator has considered whether the reasonable requirements of train operators and funders under Condition 7 of Network Rail's network licence are now different from those previously established in 1998 and 2000. The Regulator has taken into account the general support from consultees for the approach set out in the SRA's June 2003 document and the fact that the SRA is the only organisation currently indicating a willingness to fund significant enhancements on the route. For these reasons, he has concluded that the SRA June 2003 document should be the basis for the outputs to be taken as the reasonable requirements of train operators and funders.

- 7.9 This includes delivery in September 2004 of the outputs listed in the SRA June 2003 document for that date (for instance, significantly faster journey times between Euston and Birmingham, Manchester, Liverpool, Preston and Glasgow), of further improvements in December 2005, and of remaining improvements in outputs (including capacity for up to 60-70% more freight paths than at present) by March 2009, rather than by 2007/08 as envisaged in the SRA June 2003 document. The journey time improvements are summarised in Table 7.2. However, for the reasons set out below in paragraphs 7.20 to 7.31, the Regulator has concluded that requiring Network Rail to deliver all of the outputs for the project beyond September 2004 to the precise timescales and by the precise schemes set out in the SRA June 2003 document would not be consistent with acceptable levels of efficiency and economy in the provision of railway services, and that in any event there is a significant risk that Network Rail would be unable to deliver the outputs within those timescales.

**Table 7.2: Key WCRM project journey time outputs**

<b>London Euston to / from</b>	<b>Now</b>	<b>Winter 2004</b>	<b>2005</b>	<b>2007-08</b>
<b>Birmingham New Street (fast)</b>	1h 39m	1h 23m	1h 22m	1h 18m
<b>Birmingham New Street</b>	1h 43m	1h 28m	1hr 26m	1h 23m
<b>Coventry</b>	1h 11m	1h 05m	1h 04m	59m
<b>Manchester peak (fastest)</b>	n/a	2h 04m	2h 03m	1h 57m
<b>Manchester fast via Stoke</b>	n/a	2h 08m	2h 06m	2h 02m
<b>Manchester via Stoke</b>	2h 41m	2h 15m	2h 14m	2h 10m
<b>Stoke</b>	1h 51m	1h 32m	1h 31m	1h 28m
<b>Liverpool (fast)</b>	n/a	2h 14m	2h 12m	2h 08m
<b>Liverpool</b>	2h 53m	2h 27m	2h 24m	2h 21m
<b>Crewe</b>	2h 08m	1h 46m	1h 45m	1h 42m
<b>Preston (fast)</b>	2h 25m	2h 13m	2h 11m	2h 06m
<b>Preston</b>	3h 01m	2h 35m	2h 32m	2h 26m
<b>Carlisle (fast)</b>	3h 41m	3h 20m	3h 12m	3h 07m
<b>Carlisle</b>	4h 04m	3h 48m	3h 39m	3h 34m
<b>Glasgow (fast)</b>	5h 06m	4h 35m	4h 25m	4h 18m
<b>Glasgow / Edinburgh</b>	5h 35m	5h 05m	4h 53m	4h 48m
<b>Holyhead</b>	4h 28m	3h 50m	3h 50m	3h 48m

*Source: SRA West Coast Main Line Strategy document - June 2003*

7.10 As stated in his July 2003 WCRM consultation document and October 2003 draft conclusions, the Regulator is aware that the Passenger Upgrade 2 (PUG 2) commitment to West Coast Trains is still in place. However, he has been informed by the SRA, Network Rail and West Coast Trains that arrangements are in place under which, for the time being, West Coast Trains has agreed to suspend its rights in relation to enforcement of PUG 2 obligations against Network Rail (and the SRA has agreed to suspend enforcement of the corresponding obligations in the franchise agreement with West Coast Trains). The Regulator has seen the terms of an agreement giving effect to this, which envisages that the West Coast Trains franchise agreement and the track access agreement will be renegotiated.

7.11 The Regulator considers that, because of the existence of these arrangements between the SRA and West Coast Trains, in establishing access charges he should assume that the negotiations for a new or amended franchise and for the amendment or replacement of the PUG 2 contract are reasonably likely to lead to a reduction in

Network Rail's contractual obligations in this respect, broadly in line with the SRA June 2003 document, and the removal of West Coast Trains' contractual ability to secure financial compensation for non-delivery of the PUG 2 outputs. However, the Regulator recognises that he needs to allow for alternative possibilities. The negotiations may break down and the current suspension of West Coast Trains' enforcement rights in respect of delivery of the PUG 2 outputs may be brought to an end; if that were to happen, there could be new or increased liabilities for compensation or damages may arise. West Coast Trains could obtain other legal relief. It is of course impossible to envisage all the circumstances in which the moratorium may be terminated or the consequences. For these reasons, the Regulator has included in these final conclusions a mechanism which would enable track access charges for franchised passenger train operators to be reassessed in a further, specific, access charges review if:

- (a) Network Rail were to be required to pay compensation to West Coast Trains for non-performance of the PUG 2 contract or of other obligations owed to West Coast Trains (including as a result of West Coast Trains' liability to third parties); or
- (b) if Network Rail were to be obliged to expend more than assumed in this review on discharging its obligations to West Coast Trains on the WCRM project and the acceptance into service of any rolling stock used or to be used on the WCML (*e.g.* by having to perform its original PUG 2 obligations).

Without prejudice to the outcome of such a review, the Regulator would expect to initiate one if the circumstances set out above arose and had, or would be likely to have a material impact on Network Rail's financial position.

- 7.12 Virgin Trains has said that it is broadly content with the approach taken in the Regulator's October 2003 draft conclusions, as set out in paragraphs 7.10 and 7.11 above. In the event that the mechanism referred to in paragraph 7.11 were to be triggered, the Regulator would of course have full regard to the applicable legal duties, including the statutory duties set out in section 4 of the Railways Act 1993, in assessing the reasonable requirements of West Coast Trains at that time. That judgment would need to be made taking into account the circumstances of the time, having regard to any changes in circumstances since PUG 2 was signed in 1998. The Regulator does not consider that it would be appropriate to prejudice that judgment by expressing a view on the issue at this stage (as has been suggested by Virgin Trains -

see paragraph 7.17 below), or that it is necessary to do so in the context of the current access charges review.

- 7.13 The Regulator's approach set out above concerns the amount of capacity, not its allocation. When approving or directing track access agreements for the route under sections 17-22A of the Railways Act 1993, the Regulator would expect to adopt the principles set out in his criteria documents (for passenger services, published in June 2003<sup>9</sup>; for freight services published in December 2003<sup>10</sup>). These principles recognise the points made by the Scottish Executive, Strathclyde Passenger Transport and Centro about the involvement of other stakeholders. Nor does the Regulator's proposed approach preclude the possibility of further enhancements funded, for instance, by a Passenger Transport Executive.

### **Reasons for final conclusions – efficient cost and access charges**

#### *The Regulator's consultation document*

- 7.14 The Regulator stated in his July 2003 WCRM consultation document that Network Rail should proceed with delivery of the outputs set out in the SRA June 2003 document for September 2004 (including 125 mph operation between London and Birmingham and Manchester). However, he identified three broad options for the way forward beyond September 2004. These were:
- (a) the "base option" of work agreed by Network Rail and the SRA ("Baseline 5 minus");
  - (b) the "minimum initial cost option" - involving the minimum necessary renewals from September 2004 until it can be established that cost savings are being achieved; and
  - (c) the "radical restructuring option" - involving the delivery of post-September 2004 outputs set out in the SRA June 2003 document, possibly over a longer timescale, based on radical restructuring of the established arrangements for delivery of the project.

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<sup>9</sup> *Criteria and procedures for the approval of passenger track access contracts: third edition*, Office of the Rail Regulator, London, June 2003.

<sup>10</sup> *Criteria and procedures for the approval of freight track access contracts: second edition: a consultation document*, Office of the Rail Regulator, London, December 2003

7.15 In response to this document, there was a large degree of support for requiring greater efficiency in the delivery of the project and concern over the inefficiencies identified by BAH. For example, EWS supported a challenge to Network Rail's future forecasts of renewals activity. The majority of consultees were, however, strongly opposed to the prospect of any delay in delivery of the outputs set out in the SRA June 2003 document. Specific concerns were expressed about:

- (a) the negative effects of potential delay to improved services to Scotland, Cumbria and Liverpool and capacity for freight services, arising from any delay in delivery of the post-September 2004 outputs;
- (b) the level of savings from a rephasing strategy, which might not be as high as anticipated, having regard to costs which might be incurred by demobilisation and remobilisation, loss of opportunity to maximise efficiency of possession arrangements and the effect of any delay on future income for operators on the route;
- (c) stop-go implications of a rephasing strategy, which could lead to a loss of momentum of delivery and loss of expertise and resources needed to implement the project;
- (d) uncertainty over the timing and outputs for the project arising from the minimum initial cost and radical restructuring options, which could make it difficult for operators and funders to plan their businesses, and lead to uncertainty in the financial markets; and
- (e) the effect of any delay in renewal activity on future performance and reliability of the route.

7.16 In his draft conclusions, the Regulator included the reduced expenditure (consistent with delivery of the outputs set out in the SRA June 2003 document) which Network Rail had identified following his July 2003 document and applied efficiency savings which were broadly comparable to those expected on the rest of the network. The Regulator concluded that further efficiency savings should be achievable as the project becomes less schedule-driven after 2004/05, and therefore considered it appropriate to apply the same efficiency profile as for the rest of the network to WCRM renewals (and implicitly enhancement) from 2005/06 onwards (*i.e.* one year later than on the rest of the network). He also stated, however, that he was minded to apply a rephased profile of expenditure which would require Network Rail to improve

efficiency and reduce risks if he was not satisfied that the current phasing was the most efficient overall approach.

*Changes since the Regulator's draft conclusions*

7.17 Since his draft conclusions, the Regulator has considered the following additional factors which have informed his final conclusions:

- (a) an SRA request (just before publication of the draft conclusions) that enhancements for the West Coast should be paid for through track access charges and funded through this review;
- (b) Network Rail's response to the draft conclusions dated 21 November 2003 in which it:
  - (i) identified a number of options for rephasing the post-2004 outputs compared with the SRA June 2003 document, which would result in significant savings and potential for further future efficiencies;
  - (ii) stated that it has implemented a number of changes to the organisation of the West Coast project team which should increase efficiency of delivery of the project, including increased involvement of professional asset heads;
  - (iii) expressed doubts that the scheme at Rugby could, in practice, be completed within the timescale envisaged in the SRA June 2003 document and suggested that, since the capacity benefits of the Trent Valley scheme are reliant on completion of the scheme at Rugby, that that scheme could also be deferred by 18 months; and
  - (iv) claimed that the further efficiency savings assumed by the Regulator in his draft conclusions were unrealistic and should not be overlaid on those identified by Network Rail;
- (c) the final report from MP, dated December 2003 (published on the ORR website), which considered that the outputs in the SRA June 2003 document are at risk of not being realised, and expressed concern about the deliverability of Network Rail's cost savings under current plans. Separate assessments from the regulatory reporters on the deliverability of the September 2004 outputs and other information about the project have indicated that there are significant risks to delivery of the September 2004 outputs in the SRA's June 2003 document due to:

- (i) continuing lack of clarity over work scope and associated delivery arrangements;
  - (ii) delays in the process of handing back assets into maintenance, with consequent risk of delays to approval of the infrastructure safety case and driver training activity;
  - (iii) delays to specific works, including TASS (Tilt Authorisation and Speed Supervision), signage, switches & crossings renewals and the second and third stages of the Manchester South resignalling and remodelling scheme (although the Regulator understands that completion of the Manchester South scheme is not critical to the delivery of the September 2004 outputs);
  - (iv) inefficient management of work during the Stoke blockade during 2003, which necessitated subsequent remedial work, including through alignment, stressing and platform stepping distances, and a number of safety issues identified by the HSE;
- (d) an updated report from BAH dated December 2003 (the December 2003 BAH report) in response to the points made in consultation (published on the ORR website);
- (e) the SRA's response to his draft conclusions dated 21 November 2003, which stated that it remained firmly committed to its West Coast strategy. The SRA has subsequently written to the Regulator stating its view that there should be no departure from the timings in the SRA June 2003 document, other than deletion of the Colwich cut off scheme (£180 million);
- (f) comments from other consultees, which largely reiterated earlier comments supporting the Regulator's proposal to regard the SRA June 2003 document as providing the basis for revised reasonable requirements of passenger and freight operators and funders, and opposing the prospect of any delay in delivery of those outputs. In particular:
- (i) EWS reinforced its concerns that any significant delay to capacity enhancement schemes would have a detrimental effect on the operation and development of freight services;
  - (ii) the Passenger Transport Executive Group on behalf of Merseytravel expressed concern that delay or failure to complete the widening of the Trent

Valley could seriously affect freight traffic, and stressed the need to avoid disruption to passenger services to Liverpool during 2007 and 2008 when the city will celebrate the 800<sup>th</sup> anniversary of the granting of its Royal Charter and be the European Capital of Culture respectively; and

(iii) Virgin Trains wished it to be clearly stated that if the PUG 2 agreement and its West Coast franchise is not renegotiated within a reasonable time and the suspension of its rights to pursue Network Rail is ended, PUG 2 would “revive” in terms of its delivery by Network Rail and once more become a reasonable requirement of Virgin Trains. This point is addressed in paragraph 7.12 above.

*The Regulator’s final conclusions on efficient cost and access charges*

7.18 Table 7.3 sets out the position in respect of WCML expenditure (before applying ORR assumed efficiencies) incorporated in the draft conclusions. Expenditure on the route carried out outside the WCRM project (described as WCML regional renewals) is covered by the allowances set out in Chapters 4 to 6 above.

**Table 7.3 Total annual expenditure (pre-ORR efficiency) on WCML (£ million) – draft conclusions**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
WCRM project renewals	1,052	933	358	359	98	<b>2,800</b>
Enhancements	247	167	148	167	84	<b>813</b>
<b>Total WCRM expenditure</b>	<b>1,299</b>	<b>1,100</b>	<b>506</b>	<b>526</b>	<b>182</b>	<b>3,613</b>
Assumed WCML regional renewals	110	127	237	229	243	<b>946</b>
<b>Total WCML expenditure</b>	<b>1,409</b>	<b>1,227</b>	<b>743</b>	<b>755</b>	<b>425</b>	<b>4,559</b>

Source: ORR draft conclusions – October 2003

7.19 At the request of the SRA, the Regulator has included enhancement expenditure on the West Coast in setting the overall expenditure levels to be recovered by Network Rail through access charges in his final conclusions. He considers this is a sensible approach, given the difficulty of drawing anything other than an arbitrary line between renewals and enhancements for much of the work.

- 7.20 In arriving at his final conclusions on expenditure allowances for the West Coast works, the Regulator has considered whether Network Rail is yet addressing the concern that the current schedule-driven approach is preventing achievement of efficiencies and introducing significant risks to the delivery of the required outputs. In its response to the draft conclusions (see paragraph 7.17 above), Network Rail stated that it was addressing the management of the project to deliver the outputs due by September 2004. It also identified a number of options for rephasing outputs due after September 2004 and stated that because of technical and planning risks, it doubted the practicality of completing the scheme at Rugby within the timescale envisaged in the June 2003 SRA document. Network Rail stated at a meeting of the West Coast Project Board in November 2003 that its preference would be to defer the Rugby scheme, until it is satisfied that it has reliable switching equipment.
- 7.21 The Regulator mandated MP to evaluate the options identified in paragraph 7.14 above, and in particular to establish the minimum renewal requirements necessary to sustain delivery of the September 2004 outputs. The final report from MP, received in December 2003 and published on the Regulator's website, shows that in a number of key areas Network Rail was unable to provide it with sufficient evidence to demonstrate that the project is being delivered and programmed efficiently. The report concluded that:
- (a) there is a mismatch between Network Rail's latest estimates of the work needed to deliver the SRA strategy and Network Rail's September 2003 cost submission – thus there is a risk to delivery of the SRA outputs generally;
  - (b) track renewal volumes for the minimum initial cost option are very similar to those contained in Network Rail's September 2003 cost submission, and, in practice, the minimum initial cost option is more likely to be delivered than the base option;
  - (c) there is concern over the robustness of Network Rail's original cost estimates for some elements of Baseline 5 which (with subsequent adjustments) formed the basis of its September 2003 cost submission; and
  - (d) no evidence has been received that Network Rail's proposed cost savings under Baseline 5 minus can be achieved, and MP has little confidence in the process currently in place to monitor a significant proportion of the cost savings.

- 7.22 The December 2003 MP report therefore expressed real doubts about the deliverability of the outputs and the cost efficiencies under the base option.
- 7.23 The December 2003 BAH report, states that cost efficiencies could be achieved by a selective rather than an across the board rephasing of the project, and that continued work is needed to reconfigure delivery of the project to improve efficiency and reduce risk. BAH's analysis continued to suggest that inefficiency remains within the project both with respect to unit rates associated with specific activities and more general areas of inefficiency which are also present in the wider network.
- 7.24 The Regulator has considered these points, and also notes continued problems with the delivery of the project (for instance the well publicised difficulties with the junction at Ledburn, and the work done during the Summer 2003 Stoke blockade). He has concluded that he cannot be satisfied that, with its current plans, Network Rail is reasonably likely to be able to address the inefficiencies and risks of the project. He considers that, to achieve acceptable levels of efficiency and risk on the project, the rephasing described below is necessary.
- 7.25 As stated in paragraph 7.4 above, the Regulator considers that the outputs listed in the SRA June 2003 document are reasonable requirements of funders and train operators on the route, and that the September 2004 outputs and the further improved journey times to Glasgow for December 2005 (and linked incremental improvement to journey times to Liverpool in June 2005) should be delivered as set out in that document. However, in view of his concerns about the serious inefficiencies inherent in the phasing of the current project, he considers that he should fund Network Rail on the basis of the journey time and capacity outputs envisaged by the SRA June 2003 document being delivered by the end of the next control period (*i.e.* 31 March 2009). This would be achieved by a selective rephasing of project activities (in line with the December 2003 BAH report), based on the Network Rail response to the Regulator's draft conclusions, as described in paragraphs 7.27 to 7.30 below. The annual allowances assume that individual schemes will be rephased by no more than two years and broadly in line with Network Rail's proposed rephasing.
- 7.26 The SRA June 2003 document also proposes performance targets for the route. At this stage, the Regulator does not propose to set performance targets for the route, for the reason that it is not reasonable to expect Network Rail to meet such targets because of the large element of uncertainty as to how they are to be delivered. West Coast is, however, incorporated within the national approach to performance targets set out in Chapter 9.

7.27 In its response to the draft conclusions dated 21 November 2003, Network Rail proposed £98 million further efficiencies and rephasing of a number of project elements compared with the September 2003 cost submission. These would not affect delivery of the September 2004 outputs, but would affect the timing of delivery of some outputs after that date. They are set out in Table 7.4.

**Table 7.4 Network Rail WCRM options (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
<b>Network Rail cost submission September 2003</b>	<b>1,299</b>	<b>1,100</b>	<b>506</b>	<b>526</b>	<b>182</b>	<b>3,613</b>
Bletchley resignalling	(29)	(49)	-	29	49	-
Macclesfield resignalling	(12)	(15)	-	12	15	-
Auto-transformer efficiencies	-	-	(41)	(57)	-	<b>(98)</b>
<b>Sub-Total</b>	<b>(41)</b>	<b>(64)</b>	<b>(41)</b>	<b>(16)</b>	<b>64</b>	<b>(98)</b>
Rugby	(20)	(40)	(60)	25	95	-
Trent Valley	(15)	-	(135)	(50)	200	-
Colwich-Stafford	-	-	(63)	(161)	(146)	<b>(370)</b>
Weaver – Motherwell	(56)	(34)	-	-	-	<b>(90)</b>
Nuneaton Phase 2	(78)	20	58	-	-	-
<b>Sub-Total</b>	<b>(169)</b>	<b>(54)</b>	<b>(200)</b>	<b>(186)</b>	<b>149</b>	<b>(460)</b>
<b>Network Rail further revised plan</b>	<b>1,089</b>	<b>982</b>	<b>265</b>	<b>324</b>	<b>395</b>	<b>3,055</b>

Source: Network Rail, response to draft conclusions, November 2003.

7.28 The primary benefits of rephasing are that it gives Network Rail more time and opportunity to reduce unit costs and to address the risks associated with the project as currently configured. Some of the Network Rail proposed deferrals (e.g. Bletchley and Macclesfield resignalling) should not have a material effect on outputs. Others would affect the timing of delivery of some outputs after September 2004.

7.29 In deciding on the expenditure allowances, the Regulator has assumed a variant of the rephasing proposed by Network Rail. Key elements of this are:

- (a) he has assumed the proposed Bletchley and Macclesfield deferrals as indicated by Network Rail because they do not have a material effect on outputs and should enable work to be carried out at lower unit costs and with lower risk in later years;

- (b) he has assumed that the line speed improvements and capacity improvements on the Crewe – Liverpool and Glasgow sections of the route will be carried out in accordance with the SRA June 2003 document (with further improvements in journey times by achievement of 125 mph running on these sections by December 2005). This is because:
- (i) he recognises the importance of these improvements to passengers, freight users and the SRA, demonstrated by responses to both the Regulator’s July 2003 WCRM and October 2003 draft conclusions documents;
  - (ii) the schemes are relatively low risk; and
  - (iii) he has seen evidence that more efficient delivery mechanisms are being developed;
- (c) he has assumed an 18-month deferral of the Rugby, and Trent Valley works (as proposed by Network Rail), an 18-month deferral of Nuneaton phase 2 (which the Regulator considers forms part of the same group of works) and a two-year deferral of the Colwich – Stafford works (the SRA has indicated it no longer requires the Colwich cut off scheme as proposed and deferral of condition based renewals beyond April 2009 is not expected to have any material impact on outputs). Network Rail has proposed rephasing of these schemes in the light of asset renewal requirements. Having regard to:
- (i) Network Rail’s concerns about the deliverability of the Rugby scheme to previously proposed timescales;
  - (ii) Network Rail’s statement that if the Rugby scheme is deferred, it would make sense also to defer the Trent Valley scheme, since the capacity benefits of the latter can only truly be exploited on completion of the former scheme; and
  - (iii) previously expressed concerns by the Regulator, BAH and MP about efficiency and risk (in terms of cost and delivery) of the current timescales; and

the Regulator considers that this rephasing is likely to reduce risk of non-delivery and cost escalation significantly. It should give time to enable a significant reduction in unit costs and for Network Rail to ensure the most efficient scheme design and delivery arrangements. The work will still be able

to be carried out in conjunction with asset renewal, so that opportunity will not be lost. The Regulator recognises the importance to the SRA and to users of the extra capacity, particularly for freight, which these works will provide. He is however concerned by the risks involved in the current programme and the risk of non-delivery. For these reasons, he considers that, on balance, his duty concerning efficiency and economy means that he should fund Network Rail on the basis of a limited rephasing.

7.30 The assumed rephasings are set out in Table 7.5.

**Table 7.5: ORR revised expenditure (pre-ORR efficiency) (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
Network Rail September 2003 cost submission	1,299	1,100	506	526	182	<b>3,613</b>
Bletchley resignalling	(29)	(49)	-	29	49	-
Macclesfield resignalling	(12)	(15)	-	12	15	-
<b>Sub-total</b>	<b>(41)</b>	<b>(64)</b>	-	<b>41</b>	<b>64</b>	-
Rugby	(20)	(40)	(60)	25	95	-
Trent Valley	(15)	-	(135)	(50)	200	-
Colwich-Stafford	-	-	(63)	(161)	(83)	<b>(307)</b>
Nuneaton Phase 2	(78)	20	58	-	-	-
<b>Total deferrals</b>	<b>(154)</b>	<b>(84)</b>	<b>(200)</b>	<b>(145)</b>	<b>276</b>	<b>(307)</b>
<b>ORR revised expenditure (pre-efficiency)</b>	<b>1,145</b>	<b>1,016</b>	<b>306</b>	<b>381</b>	<b>458</b>	<b>3,306</b>

Source: ORR, December 2003

7.31 The Regulator considers that this profile of activities would enable delivery of all the outputs set out in the SRA June 2003 document (in terms of journey times and capacity improvements) by 1 April 2009, along with timely delivery of the outputs specified for September 2004 and December 2005. Thus the main rephasing within the period is an 18-month to two-year deferral of the capacity outputs between Rugby and Stafford.

7.32 Network Rail now needs to reconfigure the West Coast project within the expenditure allowances provided by the review so as to deliver these outputs and appropriate intermediate outputs in an acceptably efficient and economical way and without undue risk. This will require an appropriate balance between:

- (a) essential condition-based renewal to sustain the September 2004 timetable;
- (b) other renewal prioritised in accordance with the rest of the network;
- (c) low risk enhancements; and
- (d) other enhancements, exploiting synergy with renewal activities and looking for the most efficient and economical means of providing capacity in the light of emerging demands.

7.33 Moreover, the Regulator recognises that improved cost information on the works in the SRA June 2003 document is now becoming available and therefore:

- (a) the specific schemes identified in the SRA June 2003 document may need to be refined in the context of still delivering the outputs; and
- (b) in certain cases, adjustment of the outputs may be appropriate if the cost significantly outweighs the benefits. This can be covered by the change process mentioned in paragraph 7.60.

7.34 The figures set out in table 7.5 contain efficiencies already identified by Network Rail. However, the Regulator is not satisfied that Network Rail's proposed efficiencies:

- (a) fully address the concerns that West Coast unit costs are very significantly out of line with those elsewhere on the network; there are some reasons for higher costs on West Coast (*e.g.* difficulties of access), but Network Rail has not demonstrated that these are fully justified;
- (b) fully reflect the introduction to West Coast of best practice delivery arrangements from elsewhere on the network (*e.g.* on delivery of signalling projects); or
- (c) are consistent with the efficiency improvement profile elsewhere on the network.

The rephrasing outlined in paragraphs 7.29 and 7.30 above gives Network Rail more time and opportunity to address these concerns. Thus the Regulator considers it is appropriate to expect significantly greater unit cost reductions than he assumed in his draft conclusions.

- 7.35 Network Rail has disaggregated renewal spend on the West Coast by asset category. The Regulator has applied unit cost efficiency factors to the activities where he has evidence to prove that unit rates are significantly higher on West Coast than the network average and for which Network Rail has not been able to provide adequate justification for the difference. These asset categories are track and signalling:
- (a) for track, WCRM unit rates are 60% higher than the rest of the network, which is stated to be largely due to the schedule-driven nature of the works, including availability of access. BAH has advised the Regulator that, with the help of the rephasing, Network Rail could be expected to close around half of this gap by the end of 2005/06; and
  - (b) for signalling, unit rates on the WCRM are 100% higher than those on the rest of the network. Again, BAH has advised the Regulator that around half of this gap could be closed by the end of 2005/06.
- 7.36 The Regulator has applied the above unit rate reductions to track and signalling renewal activities and to all enhancement activity in proportion to the overall percentage unit rate reduction for WCRM renewals. Without these unit rate reductions, Network Rail would continue to deliver the WCRM at costs far higher than on the rest of the network.
- 7.37 Elsewhere on the network, the Regulator considers that it is possible for Network Rail to reduce unit costs by between 30% and 35% within the five-year period covered by this review. These network-wide efficiencies have been applied to the revised West Coast expenditure (renewal and enhancement) projections on the basis that the findings from the three benchmarking studies and the procurement strategy study are relevant to the activities on West Coast, particularly as additional activity is now assumed to be rephased and hence less schedule-driven. This should address Network Rail's concern, expressed in its response to the draft conclusions, that it is unrealistic to assume that it can achieve these further savings. To avoid any double counting of efficiency savings, the Regulator has added back into the expenditure allowance the efficiencies (i.e. not scope reductions or deferrals) that Network Rail has proposed since its March 2003 business plan, including the £98 million of autotransformer efficiencies shown in Table 7.4.
- 7.38 In summary, therefore, BAH has advised the Regulator that significant cost savings should be achievable on track and signalling expenditure given that WCRM unit costs are very significantly out of line with those elsewhere on the network. In addition, as

a result of the re-phasing assumed by the Regulator, Network Rail should be able to achieve the network-wide efficiencies (on all asset categories) as the project continues at a slower pace than previously assumed. However, even on the basis of these assumptions, track will continue to be delivered at rates 28% higher than on the rest of the network after the end of 2005/06 and signalling at 50% higher than on the rest of the network after the end of 2005/06. The Regulator's final conclusions on expenditure on the West Coast are set out in Table 7.6 below.

**Table 7.6 Final conclusions on West Coast Main Line expenditure (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
<b>ORR WCRM draft conclusions (pre-ORR efficiency)</b>	<b>1,299</b>	<b>1,100</b>	<b>506</b>	<b>526</b>	<b>182</b>	<b>3,613</b>
Total deferrals	(154)	(84)	(200)	(145)	276	<b>(307)</b>
WCRM unit cost efficiency	(78)	(128)	(35)	(53)	(81)	<b>(376)</b>
ORR network-wide efficiency	(85)	(136)	(60)	(88)	(117)	<b>(487)</b>
Add-back Network Rail efficiencies	155	138	67	-	-	<b>359</b>
<b>Total adjustment</b>	<b>(163)</b>	<b>(211)</b>	<b>(228)</b>	<b>(286)</b>	<b>77</b>	<b>(810)</b>
<b>ORR WCRM final conclusions</b>	<b>1,136</b>	<b>889</b>	<b>278</b>	<b>240</b>	<b>259</b>	<b>2,803</b>
Assumed WCML regional renewals	110	127	237	229	243	<b>946</b>
<b>Total WCML expenditure</b>	<b>1,246</b>	<b>1,016</b>	<b>515</b>	<b>469</b>	<b>502</b>	<b>3,749</b>

Source: ORR analysis, December 2003.

7.39 In total, the Regulator has assumed £863 million of efficiencies for the five-year period from 2004/5 to 2008/09. This compares with Network Rail's estimate of £457 million over the same period (£359 million shown in table 7.6 plus £98 million of autotransformer efficiencies). The £863 million of efficiencies assumed by the Regulator is greater than the £170 million assumed in the draft conclusions for the reasons outlined in paragraph 7.38 and because it includes efficiencies on enhancements. The assumed WCML regional renewals numbers are from Network Rail's September 2003 cost submission and are included for the sole purpose of providing expenditure numbers under this heading for the West Coast re-opener mechanism described in paragraph 7.6. They do not represent the ORR's assessment of the efficient level of regional renewals on the WCML. The Regulator's conclusion on efficient renewals expenditure, across the whole network is contained in chapter 8.

- 7.40 The next stage is for Network Rail, as part of its March 2004 business plan, to set out its plans to meet the reasonable requirements of train operators and funders in the light of the expenditure allowances, and having regard to the factors set out above.
- 7.41 It is of course open to the SRA to inject additional funding if it wishes to accelerate delivery of certain enhancements.

#### **Reasons for final conclusions - future regulation**

- 7.42 The Regulator believes it is important for Network Rail, its customers and other stakeholders to have clarity about the regulation of work on WCML.

#### *The Regulator's July 2003 consultation document*

- 7.43 In his July 2003 WCRM consultation document, the Regulator set out:
- (a) proposed arrangements for funding and monitoring of delivery of the September 2004 outputs; and
  - (b) his approach to monitoring delivery of post-September 2004 outputs, and the criteria for establishing risk allocation and the means of documentation.
- 7.44 There was general support from consultees for the Regulator's approach to monitoring delivery of the September 2004 outputs for the project. However, the SRA said that, having regard to the role it has so far assumed in reviewing progress on the project to date, it considered it fundamental that it should continue to play a leading role in monitoring delivery, along with Network Rail and the ORR reporters.
- 7.45 There was general agreement from consultees that future delivery arrangements, including responsibilities and accountabilities, should be clearly set out and documented. The SRA considered that the delivery arrangements should reflect its role as sponsor and funder and take into account its financial position.

#### *The Regulator's draft conclusions*

- 7.46 In his draft conclusions, the Regulator distinguished between the regulatory requirements up to September 2004 and those after September 2004. Up to September 2004, the Regulator proposed to allow spending to be remunerated by way of adjustments to the RAB. The reporters, MP, would be required to monitor delivery against the activities required to deliver the September 2004 outputs.

7.47 After September 2004, the Regulator considered that his statutory functions and his duties under section 4 of the Railways Act 1993 - and in particular his duties concerning the efficiency and economy of the provision of railway services, the protection of the interests of users, and the ability of providers of railway services to plan their businesses with a reasonable degree of assurance - required him to monitor and enforce delivery of the operation, maintenance and renewals element of the WCML works. He stated that he would continue to discuss with Network Rail and the SRA the allocation of risk and the possibility of the SRA as sponsor of the enhancement element of the work requiring special contractual arrangements.

*September 2004 position*

7.48 MP, the regulatory reporter for the WCML, was required to monitor delivery by Network Rail against the activities to deliver the September 2004 outputs, and to advise if there were likely to be any emerging infrastructure-related reasons why the September 2004 timetable specification could not be delivered reliably.

7.49 In September and October 2003, MP reported to the Regulator its initial findings on delivery of the September 2004 outputs. It concluded on the basis of the information available that there are significant risks to the delivery and sustainability of the September 2004 timetable owing to:

- (a) continuing lack of clarity over work scope and associated delivery arrangements;
- (b) delays in the process of handing back assets into maintenance, with consequent risk of delays to approval of the infrastructure safety case and driver training activity; and
- (c) delays to specific works, including TASS (Tilt Authorisation and Speed Supervision), signage, switch and crossing renewals and the second and third stages of the Manchester South remodelling and resignalling.

7.50 MP therefore concluded, in the light of this, and the incidental consequences associated with the cascade of risks from one job bank or project to another, that there is a significant risk that the infrastructure required to operate the September 2004 timetable specification will not be delivered on time.

7.51 MP is continuing to work with Network Rail to address outstanding information requirements in order to monitor delivery of the September 2004 outputs and will

report to the Regulator on a monthly basis. Discussions are continuing with the SRA and Network Rail over the concerns raised by MP and the appropriate action to be taken in respect of delivery of the September 2004 outputs.

7.52 The Regulator considers that the concerns about delivery of the September 2004 timetable have been reinforced by the experience of the Stoke blockade during summer 2003. The decision was taken at very short notice to hand the route back to traffic one week late, for a number of reasons, including safety issues identified by the HSE. A considerable amount of further rectification work remained outstanding after the route was handed back.

7.53 Following pressure from the Regulator and the SRA, Network Rail has set out how it proposes to secure delivery of the September 2004 outputs by that date. Key elements of this are:

- (a) a review by Network Rail's senior engineers to ensure that work needed to deliver the September 2004 outputs is being properly programmed and prioritised;
- (b) much stronger Network Rail engineering input into the monitoring of this work; and
- (c) clarity of responsibility for accepting the work done for high-speed operation.

7.54 The Regulator believes that these changes represent significant progress. He is continuing to monitor the situation, with the SRA.

*Post-September 2004 situation*

7.55 The SRA said in its response to the Regulator's draft conclusions that it believed it appropriate for Network Rail's exposure to future enhancement costs to be limited to 15%. It did not support a limit on exposure to risk on all aspects of work on the West Coast. It stated in its response to the Regulator's October 2003 draft conclusions that it wanted a contractual arrangement between itself and Network Rail.

7.56 Network Rail considered there to be a need for a clear and appropriate cap on its exposure to potential cost increases in work on the WCML, because of the potential impact on its overall financial position.

7.57 Condition 7 of Network Rail's network licence covers the operation, maintenance, renewal and enhancement of the network. The Regulator considers that the regulation

of operation, maintenance and renewal of the WCML must be consistent with that of the rest of the network because:

- (a) operation, maintenance and renewal of the WCML should not be regarded as separate from Network Rail's core business. The work carried out to review WCRM project costs has highlighted the problems caused by such perceived separation;
- (b) in particular, operation, maintenance and renewal priorities should be consistent with those on the rest of the network, with objective justification for any divergence;
- (c) it is important for the credibility of the overall regulatory framework with financial markets; and
- (d) train operators (including those, such as freight operators, who are not operating under franchise agreements) rely on the Regulator to secure operation, maintenance and renewal of the route in accordance with Network Rail's network licence.

7.58 The Regulator has recognised that, in the case of enhancements, contractual arrangements may be put in place between sponsors (such as SRA) and Network Rail. In the case of the WCML, however:

- (a) because of the large element of renewal in the project, it is very difficult (and would introduce distortions) to disentangle the renewal and enhancement elements;
- (b) SRA has now asked that enhancement expenditure be included in access charges; and
- (c) if a contract also covered operation, maintenance or renewal, there would be a risk of overlap between the Regulator's jurisdiction and the exercise of the SRA's contractual rights, which might make it unduly difficult for Network Rail to finance its activities and by potentially leading to different criteria being applied across the network, prejudicing efficiency and economy.

7.59 In view of this, as well as regulating the operation, maintenance and renewal of the West Coast through the network licence, the Regulator will also regulate the enhancement element. Key elements of this are:

- (a) establishing the reasonable requirements of train operators and funders based on the principles set out above;
- (b) monitoring delivery, in conjunction with SRA, and using the ORR reporters;
- (c) establishing, where appropriate, revised reasonable requirements within the overall funding framework set out above; and
- (d) securing delivery of those reasonable requirements.

7.60 The Regulator expects to issue a document about these arrangements, for the purposes of Condition 7 of Network Rail's network licence. The document, which has been referred to as a protocol, would include:

- (a) a statement of the reasonable requirements of train operators and funders, and in particular the SRA;
- (b) arrangements for monitoring delivery of, and establishing changes to, the defined reasonable requirements (including the future role of the existing project development group and project development board); and
- (c) the Regulator's approach to enforcing delivery of reasonable requirements.

7.61 A key issue is risk allocation. In his July 2003 consultation document, the Regulator stated that he considered that key factors in establishing risk allocation should be:

- (a) Network Rail should not take risk on delivery of outputs related to a number of individual enhancements in the project specified in the SRA June 2003 document;
- (b) subject to this, the need, so far as is reasonably practicable, for consistency of treatment of efficiency and outputs across the company; and
- (c) the impact on the overall financing of Network Rail and its ability to raise debt.

7.62 The overall financial framework for Network Rail, summarised in Chapter 11 of this document, is consistent with it bearing the risks associated with delivery of outputs specified in this review for the allowed expenditure, with monitoring and enforcement by the Regulator through the network licence. Network Rail has argued that WCML is different because of the element of programme risk (i.e. delivery of specific outputs by specific dates), and also because of the history of the project and the perception of

financial markets. The Regulator believes that the former point is less of an issue given the approach to outputs set out above, but he does recognise the concern about the perceptions of financial markets, and the scale of the challenge posed by these conclusions. Therefore he has concluded that provision should be made in the review for a specific interim access charges review if expenditure on the West Coast Main Line (comprising both project and regional renewal costs) exceeds, or is, in his opinion, likely to exceed the total WCML expenditure set out in table 7.6 by 15%. Without prejudice to the outcome of such a review, the Regulator would expect to initiate one if these circumstances were to arise.

- 7.63 The Regulator has considered whether this should apply only to enhancements (as suggested by SRA) or WCRM project expenditure. He has concluded that restricting it to enhancements would run the risk of impeding sensible changes to project management and structure through creating an artificial distinction between different elements of the work, and create perverse incentives on Network Rail to put work in the project even if it would be more efficient to deliver it in other ways. The Regulator emphasises, however, that in any interim access charges review arising under this provision, he would not expect to allow increases in access charges to cover expenditure on work currently planned to be outside the scope of the WCRM project. There are other more general provisions for a review as set out in Chapter 16.
- 7.64 The Regulator considers that in the light of the above arrangements, there is no need for the direct contract between Network Rail and SRA hitherto envisaged.



## 8. *Expenditure allowances*

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### Introduction

8.1 This chapter combines the Regulator's analysis of activity levels, efficiency and spending (including on the West Coast route modernisation project) into an overall assessment of Network Rail's OM&R expenditure in the period from 2004/05 to 2008/09.

### Final conclusions

8.2 The Regulator's final conclusions are set out in Table 8.1.

**Table 8.1: The Regulator's proposed OM&R expenditure allowances (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
OPEX	1,177	1,101	1,031	991	953	5,253
Maintenance	1,222	1,124	1,034	951	875	5,206
Non-WCRM renewals	1,920	1,932	1,981	2,003	1,761	9,596
WCRM renewals	909	740	169	161	198	2,178
<b>TOTAL</b>	<b>5,228</b>	<b>4,897</b>	<b>4,215</b>	<b>4,106</b>	<b>3,787</b>	<b>22,232</b>

8.3 Expenditure on enhancements and payments under Schedules 4 and 8 of Network Rail's track access agreements with franchised passenger train operators are considered separately in later chapters of this document.

### Reasons for final conclusions

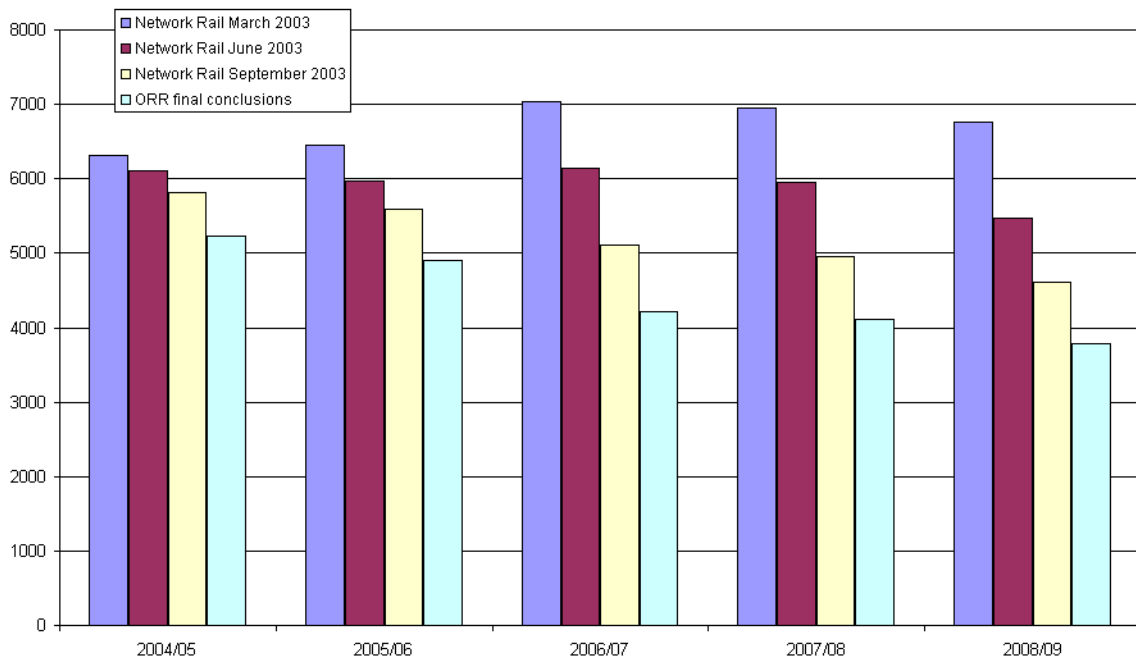
8.4 The expenditure allowances in table 8.1 are based on the following assumptions:

- (a) *OPEX*. Controllable operating costs will fall by 30% over the five-year period, from a starting level of £1,044 million in 2003/04. The speed of the reduction of the costs will be in line with the profile of efficiency savings set out in Chapter 6. Non-controllable OPEX (*i.e.* licence fees, cumulo rates, electricity traction costs and British Transport Police costs) are in line with the forecasts set out in Network Rail's business plan.

- (b) *Maintenance*. Network Rail's expenditure on maintenance will fall by 35% over the five-year period, from a starting level of £1,328 million in 2003/04. The speed of the reduction of the costs will be in line with the profile of efficiency savings set out in Chapter 6.
- (c) *Non-WCRM renewals*. The forecasts in table 8.1 are built in two steps. First, the Regulator has determined that it is necessary for Network Rail to increase the amount of renewal activity that it undertakes each year. He has therefore added the amounts that are set out in Chapter 5 of this document. Second, the Regulator has assumed that the unit cost of Network Rail's renewals activity will fall in line with the profile of efficiency savings set out in Chapter 6.
- (d) *WCRM renewals*. The figures for the WCRM project are those set out in Chapter 7 and relate only to those renewals that are being carried out by the WCMU within Network Rail.

8.5 The total allowance that the Regulator has made for Network Rail's OM&R expenditure over the five-year period is £22.2 billion. This is £7.4 billion or 25% lower than the projections contained in Network Rail's June 2003 business plan and £3.9 billion or 15% lower than the projections contained in the company's September 2003 plans. Figure 8.2 compares the three sets of business plan forecasts that Network Rail has provided in this review to the Regulator's conclusions.

**Figure 8.2: The Regulator’s expenditure allowances versus Network Rail’s March 2003 and June 2003 business plans**



8.6 Under the building block methodology set out in Chapter 3 of this document, the Regulator will include his allowances for OPEX and maintenance expenditure in full within his calculation of access charges for the period 2004/05 to 2008/09. Expenditure on renewals will, by contrast, be added to Network Rail’s RAB and remunerated over time through annual allowances for amortisation.



## 9. *Baseline outputs*

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### Introduction

- 9.1 In setting expenditure allowances for the period after April 2004, it is important that the Regulator is clear about the outputs he expects Network Rail to deliver over the full five-year period. This chapter sets out:
- (a) the measures of performance, network capability, asset condition and asset serviceability that the Regulator will monitor; and
  - (b) the Regulator's views on the level at which these measures should be maintained over the next five-year period.
- 9.2 The incentives that the Regulator proposes to put in place to put pressure on Network Rail's management to deliver the outputs for which Network Rail receives funding through track access charges are considered separately in Part 5 of this document.

### Final conclusions

- 9.3 The Regulator will require Network Rail to meet challenging but achievable targets for year-on-year reductions in the amount of delay that it causes to train operators. These targets are set out in Table 9.1.

**Table 9.1: The Regulator's targets for improvements in delay (post-growth)**

Year	Delay minutes affecting all operators	Delay minutes per 100 train kms (franchised passenger operators)
2004/05	12,300,000	2.34
2005/06	11,300,000	2.12
2006/07	10,600,000	1.97
2007/08	9,800,000	1.80
2008/09	9,100,000	1.65

- 9.4 This trajectory is virtually identical to the one that Network Rail put forward in its March 2003 and June 2003 business plan, and differs only slightly from the September 2003 business plan projections. This is despite the Regulator concluding that the company should spend around £7 billion less on the operation, maintenance and renewal of the network between 2004/05 and 2008/09 than the company estimated that it required in June 2003.

9.5 The Regulator will also expect Network Rail to deliver improvements in the underlying condition of the network, so that these short-term improvements in operational performance may be sustained into the future. The targets he is setting Network Rail are summarised in Table 9.2.

**Table 9.2: The Regulator's output targets for the five-year period 2004/05 to 2008/09**

Measure	Target
Network capability	No reduction in the capability of any route for broadly existing use from April 2001 levels
Asset condition	
— broken rails	Reductions in the number of broken rails to no more than 300 per annum by 2005/06. No increase thereafter.
— Track geometry	Reduction in the number of L2 exceedences per track mile to no greater than 0.9 by 2005/06. No increase thereafter.
— TSRs	Annual reductions in the number of temporary speed restrictions.
— structures and electrification	Condition and serviceability to return to 2001/02 levels
— other measures	Other asset condition and serviceability measures to show no deterioration from 2003/04 levels.

#### Reasons for final conclusions: measures

9.6 The baseline outputs set at the time of the last access charges review were defined in terms of national measures of performance, network capability, asset condition and asset serviceability. Table 9.3 sets out the chosen indicators of each of these outputs.

9.7 Looking ahead to the next control period, the Regulator believes that these national measures should remain at the core of the outputs he monitors. Experience over the last three years does, however, suggest that some minor modifications to national measures would be beneficial. Specifically, these should include:

- (a) adjusting the means of reporting track geometry explicitly to include measures of the poorest track quality (numbers of level 2 exceedences and track that does not comply with Railway Group Standard requirements);
- (b) implementation, when practical, of an objective measure of the condition of track components; and
- (c) extending the condition measurement of structures over time to cover all structure types (at present only the condition of bridges is measured).

**Table 9.3: Measures of baseline outputs adopted by the Regulator at the last access charges review**

Asset serviceability and condition	Network capability
Track serviceability – temporary speed restrictions (TSRs)	Network size
Track serviceability – broken rails	Permissible speeds
Track quality – geometry	Loading gauge
Track quality – exceedences	Permitted axle loads
Earthworks serviceability – TSR-caused delays	Coverage of electrification systems
Signalling serviceability – delay minutes from failure	Number of stations and facilities provided
Signalling age (residual age)	
Electrification serviceability – delay minutes from failures	
Electrification condition	
Structures serviceability – TSRs	
Structures condition	
Stations condition	
Depots condition	

- 9.8 In addition, the Regulator has placed considerable emphasis in recent years on the need to disaggregate certain measures to a local level, so as to provide customers and funders with a clearer understanding of the outputs that will be delivered to each train operator. It is this principle which underlies the introduction of local output commitments in the network code, which will contain disaggregated measures of operational performance and track geometry.
- 9.9 The Regulator therefore considers it necessary that the baseline outputs set in the current review should include provision for disaggregated measures for key outputs, primarily network capability, specified by route.
- 9.10 The definitions he therefore intends to adopt for the baseline outputs he sets as part of this review are set out in Table 9.4, below.

**Table 9.4: Proposed measures for baseline outputs**

<b>National measures</b>	
<b>Performance, asset serviceability and asset condition</b>	<b>Network capability</b>
Delay minutes Track serviceability – temporary speed restrictions (TSRs) Track serviceability – broken rails Track quality – geometry Track quality – exceedences Track component condition Earthworks serviceability – TSR caused delays Earthworks condition Signalling serviceability – delay minutes from failures Signalling age (residual life) Electrification serviceability – delay minutes from failures Electrification condition Structures serviceability – TSRs Structures condition for all structure types Stations condition Depots condition	Network size Permissible speeds Loading gauge Permitted axle loads Coverage of electrification systems Number of stations and facilities provided
<b>Local measures</b>	
<b>Performance, asset serviceability and asset condition</b>	<b>Network capability</b>
	Network size Permissible speeds Loading gauge Permitted axle loads

**Reasons for final conclusions: performance trajectory**

*Introduction*

9.11 In return for the significant increase in funding that the Regulator is allowing Network Rail in this review, he will expect the company to deliver very material improvements in operational performance. The continuing levels of poor performance, by the company’s own admission, remains unacceptable. This is against a background of

massive increases in maintenance and renewal expenditure over the past two years. Fifteen months on from the acquisition of Railtrack, the Regulator, as well as customers and funders, remains concerned that the green shoots of recovery in operational performance are still very small.

- 9.12 The Regulator has said throughout this review, and indeed since his appointment in 1999, that it is not his intention to micro-manage the company. No public authority with regulatory powers should attempt to do this, save in the most exceptional of circumstances and then to the least extent (as to intensity and duration) possible. In relation to operational performance, the Regulator's approach means that his role is to set demanding but achievable targets which a well-managed and competent company could deliver, whilst leaving the company the freedom and flexibility to identify and then carry out the management actions and specific initiatives that reduce delay and improve reliability. In order to arrive at these targets, the Regulator has, however, sought to gain a clear understanding of all the initiatives that Network Rail is undertaking and to take an informed view about whether the company is doing enough and whether it is doing it fast enough to deliver results in a timely and efficient manner.
- 9.13 In this process, the Regulator took advice from AEA Technology (AEAT), in particular in the area of delay per incident whose increase over the past few years has accounted for a large proportion of the total increase in Network Rail-caused delay. AEAT undertook historical analysis of the drivers of the increase in delay per incident, building on the extensive analysis already undertaken by Network Rail. It then reviewed Network Rail's initiatives for driving down delay per incident and developed its own views on the size and timing of reductions in delay per incident which a competent and well-managed company ought to be able to deliver. AEAT's final report can be found on the ORR website.
- 9.14 The Regulator has used AEAT's analysis and combined this with his projections of the number of incidents to determine an appropriate operational performance trajectory between 2004 and 2009. This trajectory will be used by Network Rail as the delay target to be disaggregated by TOC for the purposes of establishing Class A local output commitments<sup>11</sup> and has been used by the Regulator to establish forward-

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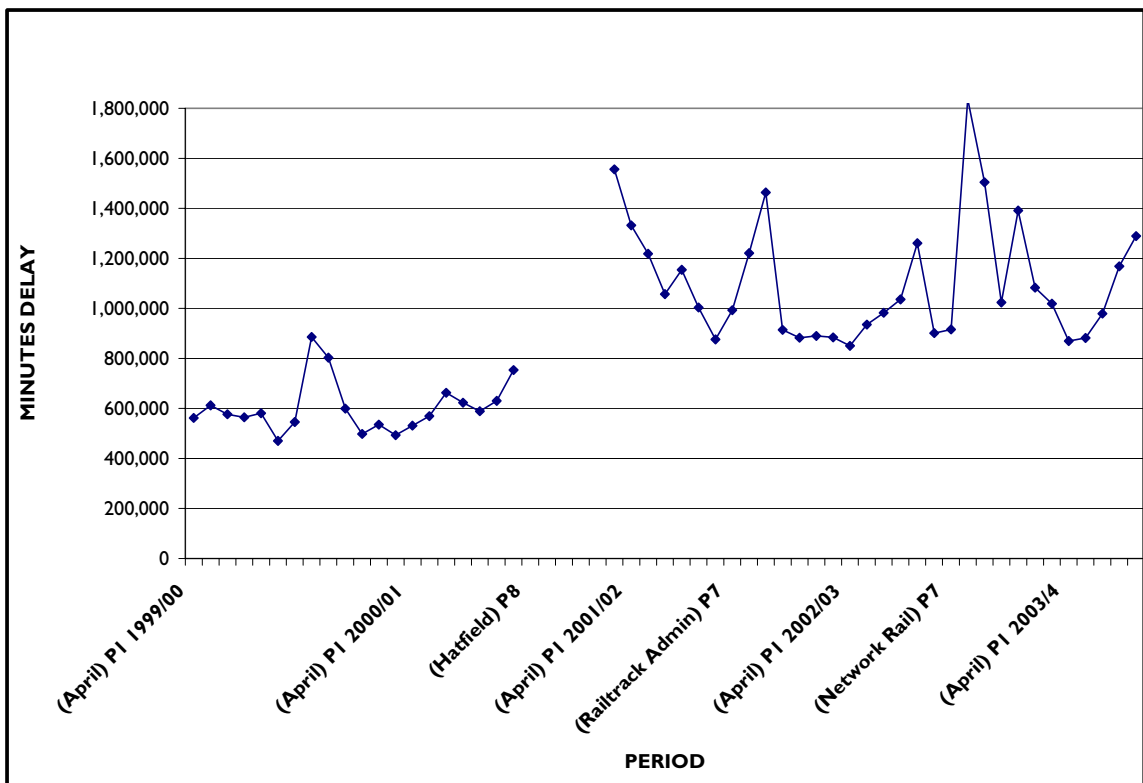
<sup>11</sup> These will soon be contractual commitments given by Network Rail to each train operator to achieve a particular level of delay minutes within a year, backed up by appropriate plans demonstrating how the target is to be achieved.

looking benchmarks in the contractual performance regime (described in Part 5 of this document).

*Background*

9.15 Figure 9.5 below shows that there has been a very large increase in Railtrack/Network Rail-caused delay since 1999/2000. Railtrack-caused annual delay to passenger and freight trains in 1999/00 was 7.73 million minutes. In the best sequence of 13 periods (one year) since the Hatfield accident, the figure was 12.93 million minutes (a 67% increase from 1999/00) and in the 13 periods to period 5 2003/4 the figure was 14.86 million minutes (a 92% increase).

**Figure 9.5: Railtrack/Network Rail-caused delay minutes per 4-week period**



9.16 Delays have increased across all of Network Rail’s recorded categories of delay over the past few years, as follows:

- (a) delay minutes attributable to points failures, track circuit failures, signalling failures and electrification equipment failures (*i.e.* non-track asset failures) have increased by around 65% from 2.8 million minutes in 1999/2000 to 4.7 million minutes in 2002/03, and now account for around 35% of all delay;

- (b) delay minutes attributable to the management control category of delay (such as timetable and signaller errors, possessions overruns, unexplained incidents and adjustments for dispute resolution) have broadly doubled from 2.1 million minutes in 1999/2000 to 4.1 million minutes in 2002/03;
- (c) delay minutes due to severe weather/structures have increased by over 150% since 1999/2000. Lineside structure defects (*e.g.* embankment slips) are now a significant cause of delay in contrast to their historical levels. The period since 1999 includes the impacts of a number of severe weather events including the storms in October 2002, a particularly cold winter in 2002/03, and the more recent heatwave in 2003. However, this category of delay accounts for a small proportion of total Network Rail delay;
- (d) there was a very significant increase in Network Rail-attributable delay for the track assets group (essentially delays arising from temporary speed restrictions due to condition of track and gauge corner cracking) following the Hatfield derailment, which lasted about nine months. Delays due to this group remain significantly higher than before Hatfield principally because of the continuing large number of temporary speed restrictions across the network. Total delays in this category have risen from just under 1 million minutes in 1999/2000 to 2.5 million minutes in 2002/2003; and
- (e) Network Rail-caused delays attributable to external factors (excluding weather) and autumn-related incidents have also increased significantly from 1.2 million minutes in 1999/2000 to 1.9 million minutes in 2002/03.

9.17 The *number* of incidents that cause delay to trains has risen slightly across all these categories since 1999/2000. However, the more significant driver of increases in Network Rail-caused delay is the large increase in *delay per incident*, particularly for the non-track asset and external categories of delay where the concept of an “incident” is well defined:

- (a) for the non-track asset category, delay per incident is 70% higher than in 1999/2000;
- (b) for the external category (excluding weather), delay per incident is 70% higher than in 1999/2000; and
- (c) for the track asset category, delay per incident is 45% higher than in 1999/2000.

- 9.18 This trend in delay per incident had started to emerge even before Hatfield and appears to be a complex phenomenon which numerous studies have sought to understand. Recent analysis by Network Rail and the Regulator's consultants AEAT has shown that the increase in delay per incident has been driven principally by:
- (a) longer incident duration due to slower response and fixing times;
  - (b) professional (more cautious) driving;
  - (c) traffic growth;
  - (d) loss of network resilience due to higher levels of TSRs;
  - (e) other reactionary delay; and
  - (f) a multiplicative effect of all the above.
- 9.19 The most significant of these are incident duration and professional driving. In particular, it is worth noting that growth in train miles between 1999/2000 and 2002/03 has been only 2% and has been a relatively minor contributor to the increase in delay per incident at an aggregate national level.

*Network Rail's operational performance projections*

- 9.20 As reported in Chapter 5 of this document, Network Rail has throughout this review justified its plans for very substantial increases in the amount of maintenance and renewal that it undertakes on the need to drive performance back to pre-Hatfield levels. The emphasis on better operational management and targeting the drivers of the increase in delay per incident was less evident, although these areas are part of Network Rail's performance enhancement action plan (PF1) and do appear now to be given more prominence in tackling poor performance.
- 9.21 When Network Rail provided its long-term projections of operational performance in its March 2003 business plan and its June 2003 business plan update, it said that this was still work-in-progress and that the projection would be updated in its September 2003 cost submission. On 28 July 2003, the Regulator asked Network Rail to send him a report on the progress it was making on the initiatives in these areas and said that he would expect the effects of the initiatives to be quantified in performance terms in the September 2003 cost submission. The Regulator has since then held a performance summit on 5 December 2003 with Network Rail and train operators to understand further:

- (a) the reasons why Network Rail's level of performance continues to be unacceptable;
- (b) if there are any further actions which the company could be taking in the short-term to generate immediate performance improvements; and
- (c) what action, if any, the Regulator should be taking in relation to the company, in addition to setting longer-term targets as part of this access charges review, to try to ensure that these potential immediate improvements are made.

9.22 The Regulator welcomes the constructive approach adopted by all parties at the summit. He is reflecting on the outcome before deciding on the next steps.

9.23 Network Rail's latest performance projections to 2008/09 are shown in Table 9.6 below, along with a comparison with the company's June 2003 forecasts.

**Table 9.6: Network Rail performance projections**

	Train delay minutes – incl. growth in traffic (million minutes)					
	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
June plan	13.25	12.3	11.3	10.6	9.8	9.2
September plan	13.8	12.8	11.8	10.9	9.8	8.8

9.24 Table 9.6 shows that Network Rail does not now expect to achieve the 2003/04 target of 13.25 million minutes that it included in its June 2003 business plan. It says that this is largely due to 0.5 million minutes being added for the extreme weather over the summer and loss of power in London on 28 August 2003. Network Rail does however project better long-term performance in its September 2003 plan. The difference between the forecasts in the June 2003 business plan and the September 2003 plan becomes more pronounced after 2008/09 (10% by 2012/13).

9.25 Within its September plan, Network Rail is targeting significant improvements in delay per incident. From a starting position in which delay per incident in 2002/03 in relation to asset failures was 66.6% higher than in 1999/00, Network Rail's current forecasts show delay per incident falling to 15.7% above 1999/00 levels by 2008/09. This compares with an original projection of 31.8% in the June 2003 business plan. Delay per incident is forecast to reach 1999/2000 levels by 2012/13. Network Rail expects similar improvements in delay per incident in relation to external categories of delay (falling to 20.7% above 1999/00 levels by 2008/09).

9.26 Network Rail's projections for the numbers of failures (incidents) by asset type in its September 2003 cost submission are shown in Table 9.7.

**Table 9.7: Network Rail's projection of number of incidents**

	1999/2000 (actual)	2004/05	2005/06	2006/07	2007/08	2008/09
<b>Total TSRs (year-end)</b>	c. 400	480	417	387	342	282
<b>Broken rails</b>	918	369	291	260	240	220
<b>Other track faults</b>	3,801 <sup>(a)</sup>	5,886	5,323	4,964	4,566	4,082
<b>Asset defects:</b>						
- points and track circuits	23,028	19,838	18,471	17,216	15,870	14,740
- other non-track	22,895	24,580	23,260	22,033	20,661	19,515
<b>Signalling failures</b>		38,655	36,375	34,265	31,969	30,051

Note: (a) actual figure for 2000/01.

9.27 The reduction in delay minutes projected for many of these categories is derived by combining a reduction in the number of incidents with the assumed improvement in delay per incident. The forecast reduction in delays due to fewer TSRs is determined by first establishing the relationship between historic TSRs and their contribution towards overall delay, and then using this relationship to project forward the impact of forecast TSRs.

9.28 Network Rail's own forecasts also contain a near 50% reduction in delays in the management control category (before including assumptions on growth) to return to pre-Hatfield levels by 2008/09. Delays due to autumn, severe weather and external factors are forecast to fall from 3.4 million minutes in 2002/03 to 2.3 million minutes by 2008/09, an improvement of around 33%.

*The Regulator's final conclusion*

9.29 For the reasons given below, the Regulator has concluded that he should not accept Network Rail's September 2003 projections of delay minutes. Instead, he is assuming that:

- (a) delay minutes will fall in 2004/05 and 2005/06 through improvement in asset condition, delay per incident, management control, external factors, weather-related factors and autumn delays, in line with Network Rail assumptions but from the starting point of 13.25 million minutes in 2003/04 and not 13.8 million minutes as assumed by Network Rail; and

- (b) delay will continue to be driven down after 2006/07 principally by reducing delay per incident and through better operational management and not by spending very large sums of money to reduce asset failures.

9.30 A key part of the Regulator's position is that he does not accept that Network Rail's revised target of 13.8 million minutes for 2003/04 should be his starting point when assessing the targets that a competent, well-managed company would be able to deliver in the next five-year period. In order to incentivise Network Rail to achieve its original delay forecast of 13.25 million minutes in 2003/04, the Regulator wrote to the company in May 2003 saying that:

“In setting Network Rail's financial incentives as part of the current access charges review, I expect to be setting the Schedule 8 performance points on the basis that...the 2003–04 projection will be met.”

9.31 This remains the Regulator's position. When questioned at the review hearing on 8 September 2003 about Network Rail's 2003/04 performance target, the Deputy Chief Executive of Network Rail confirmed that:

“...using the latest systems that we are using, the year end forecast is 14.1 million [minutes] which is less than last year, but is higher than the 13.25 [million minutes]. That is because they are future projections of previous history and therefore cannot possibly take into consideration the activities and action we will be taking going forward for the rest of the year which inevitably bring it down, so we are still confident of being able to achieve 13.25 [million minutes].”

9.32 Given the Regulator's statement in May 2003 and Network Rail's statement on 8 September 2003 that it remains confident of being able to achieve 13.25 million minutes in 2003/04, the Regulator does not accept that the target of 13.8 million minutes published in Network Rail's September 2003 cost submission is acceptable. Network Rail, in its response to the Regulator's draft conclusions, has reiterated its position that 13.8 million minutes should be the starting point for establishing the performance trajectory. However, if the Regulator were now to accept Network Rail's revised target for 2003/04 of 13.8 million minutes, this would undermine the purpose of incentive regulation and would adversely affect the credibility of regulatory statements. The Regulator incentivised the company to achieve 13.25 million minutes by making a clear public statement about his intentions in May 2003 and it would not

be appropriate, in the absence of a sound reason to do so which Network Rail has not provided, to reverse these intentions seven months later.

- 9.33 Furthermore, the Regulator considers that Network Rail was insufficiently prepared to deal with the extreme heat-related events which the company says is primarily responsible for the increase in this year's performance target. The Regulator does not accept that he should reflect such poor preparations in his performance trajectory and expects the company to be much better prepared in future. If Network Rail misses the 13.25 million minutes target this year, it will have to catch up any 'lost' minutes if it is not to suffer net financial outflows under Schedule 8 in 2004/05 and beyond.
- 9.34 Going forward, the Regulator does not believe that there will be an adverse impact on performance in 2004/05 and 2005/06 as a result of allowing Network Rail less income to undertake the volume of renewals activity it was planning in its June 2003 business plan. This is because his conclusion on renewals activity is based on not funding work that is unnecessary because assets are not worn out. Good quality maintenance should ensure that such assets which remain in good condition are not prone to persistent failure. Furthermore, Network Rail has not been able to demonstrate a clear correlation between expenditure and asset failures. For these reasons, the Regulator believes that Network Rail should be able to achieve its own projections in its June 2003 business plan for asset failures (signal failures, points failures, track circuit failures, broken rails, TSRs) in 2004/05 and 2005/06 despite the lower level of expenditure on renewals which the Regulator has assumed in his overall allowance. This is consistent with his assumptions on outputs described later in this chapter.
- 9.35 The Regulator explains later in this chapter that he will expect there to be no deterioration in asset condition and serviceability beyond 2005/06. This contrasts with Network Rail's assumption in its June 2003 business plan of a continuous improvement in condition and serviceability (*e.g.* declining numbers of broken rails and TSRs, improvements in track geometry, etc.) but requiring significantly more expenditure. Network Rail, on the basis of this level of expenditure, has assumed a continuing large reduction in the number of asset failures in determining its performance trajectory. On the basis of a much lower level of expenditure, the Regulator, on the other hand, has assumed a slower improvement in the number of asset failures than Network Rail beyond 2005/06. He has made a judgment based on engineering advice that the rate of improvement he should expect in relation to the number of incidents caused by asset failures after 2005/06 is half that assumed by Network Rail.

- 9.36 On the basis of AEAT's analysis, set out in paragraphs 9.44 to 9.48 below, the Regulator believes that Network Rail's revised delay per incident projections represent a significant challenge, albeit achievable as long as all of Network Rail's initiatives to reduce delay per incident are implemented in an efficient and timely manner. Network Rail's projected improvement in delay per incident lies between AEAT's central and best case scenarios.
- 9.37 Given that the number of TSRs affects delay per incident (because TSRs use up recovery time in the timetable), a slight adjustment to Network Rail's delay per incident projection has been made in line with the Regulator's assumption of a slower rate of improvement in the number of TSRs after 2005/06.
- 9.38 Combining the assumptions in paragraphs 9.29 to 9.36, the Regulator's draft conclusion in October 2003 was the set of regulatory targets for operational performance as shown in Table 9.8.

**Table 9.8: Operational performance targets (post-growth)**

	2004/05	2005/06	2006/07	2007/08	2008/09
<b>Delay minutes (millions)</b>	12.3	11.3	10.6	9.8	9.1
<b>Delay minutes per 100 train kms (franchised passenger operators)</b>	2.34	2.12	1.97	1.80	1.65

- 9.39 The delay minutes trajectory in Table 9.8 equates to a 38% reduction in Network Rail delay minutes by 2008/09 relative to the out-turn of 14.7 million delay minutes in 2002/03. This trajectory is almost exactly the same as the one in Network Rail's June 2003 business plan despite the Regulator allowing significantly less expenditure for OM&R compared to the expenditure projections contained in that plan.
- 9.40 The Regulator's projection is for Network Rail to cause around 300,000 minutes more delay per year by 2008/09 compared with the company's September 2003 business plan performance trajectory (which was based on its June 2003 expenditure plans). However, this is to be traded off against savings of £1.7 billion by 2008/09 which the Regulator believes Network Rail should make compared to its June 2003 expenditure plans. This represents considerable value for money.
- 9.41 Network Rail's response to the draft conclusions said that the impact of inconsistencies in the Regulator's approach to determining the performance target and the impact of reduced renewals means that the target should be 900,000 minutes

higher than the Regulator's proposed 2008/09 target. The Regulator rejects this for the following reasons:

- (a) as described in paragraph 9.35, the Regulator has assumed that the impact of allowing less expenditure on renewals than Network Rail requested would be a halving of the improvements in asset failures compared with Network Rail's projections; and
- (b) although this assumption results in there being fewer broken rails by 2008/09 driving the performance trajectory compared with the requirement in paragraph 9.54 to achieve no more than 300 broken rails in two years' time, he has not made an upwards adjustment because there are other balancing, downwards adjustments which the Regulator could make but has not made. In particular, he has not adjusted traffic growth rates downwards to reflect the SRA's latest forecasts for franchised passenger operator train miles. He considers that the impact of increasing the number of broken rails and reducing the growth rates in the performance model used to derive the trajectory has a broadly neutral effect and that therefore no adjustment is required.

9.42 The Regulator therefore confirms that the performance targets between 2004 and 2009 will be those set out in Table 9.8 above.

9.43 In order to achieve the targets set out in Table 9.7, Network Rail will need to improve significantly its operational management. AEAT identified a number of key areas for prioritisation in targeting reductions in delay per incident (described in more detail in its report on the ORR website), based on its analysis of the key drivers of the recent increase:

- (a) response times to incidents and time to fix the problem – these are wholly within the direct control of Network Rail and its contractors although the Regulator recognises that to some extent the increase has arisen as a result of more stringent safety procedures;
- (b) Rules of the Plan (RotP)/timetable reviews – AEAT believes that around two-thirds of the performance impact of professional driving/TPWS has resulted from slower approaches to stations. If professional driving policies continue to require slower approaches to stations after a review of the safety benefits

gained then this can be dealt with through changes to the RotP<sup>12</sup>. Network Rail is able to propose changes to the RotP under Part D of the network code, although it cannot of course determine the outcome. Network Rail does not need TOC approval before a proposal is made;

- (c) improved industry control structure – review of national control strategy and controller training (essentially information management between TOCs, Network Rail and infrastructure maintenance contractors);
- (d) full implementation of Service Recovery 2003 principles across the country – whereby cancellation of some services after a major incident is recognised as a key contributor to restoring punctual operation more quickly; and
- (e) more realistic train diagramming – whereby train operators keep crews and trains together more extensively and reduce the spread of delays after an incident.

9.44 All the action items will require some degree of industry cooperation to deliver improvements. Train operators, ATOC, the SRA and the National Task Force all have a role to play. However, it is up to Network Rail to do what it can to force the agenda and set the pace. Moreover, Part H of the network code contains a mechanism for the establishment of arrangements for handling minor and major operational disruption. It could be used to entitle Network Rail to take a closer and more effective role in handling and recovering from disruption when it occurs, so reducing the aggregate levels of delay which passengers and freight customers suffer. The Regulator has been disappointed that Network Rail – and Railtrack before it – appears to have been insufficiently aware of the availability of this important tool.

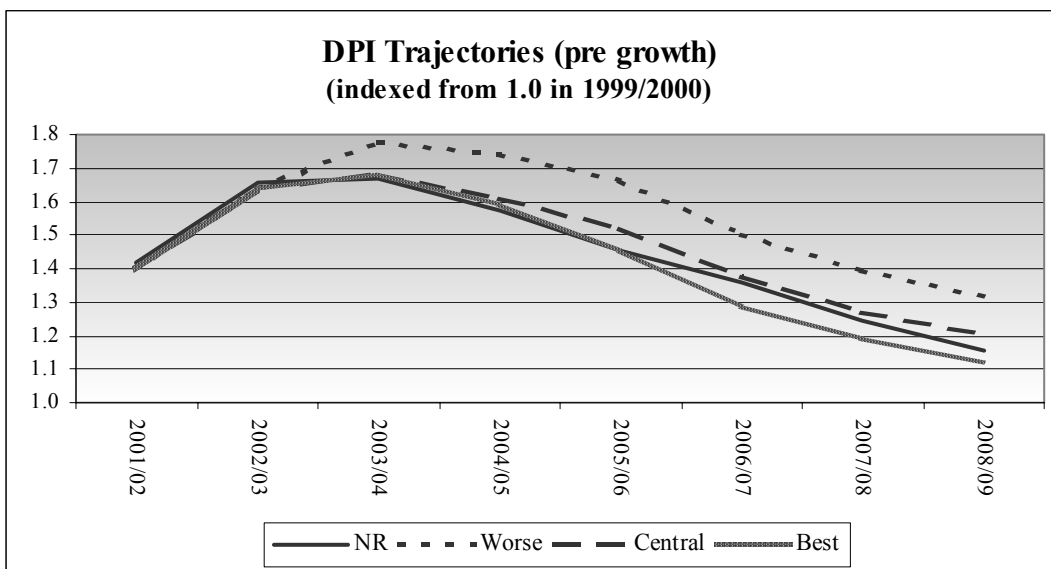
9.45 Network Rail has now set up pilot projects in the West Midlands, East Midlands and Great Eastern Inner areas, all concentrating on the duration of incidents. The findings and recommendations emanating from these pilot studies will be rolled out across the network, but it is AEAT's view, based on Network Rail's plans, that this is not likely to happen for many months. All other initiatives are still at the define stage of the six sigma process and/or are being progressed through existing industry plans such as the National Rail Performance Plan (*e.g.* Service Recovery 2003, structural review of timetables, and future control strategies).

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<sup>12</sup> AEAT believes that the remaining third is irreversible without changes to professional driving standards.

- 9.46 Some of the initiatives identified by Network Rail and AEAT ought to have other beneficial consequences. For example, improving technicians' competence and ensuring that necessary spares are available to fix faults should ensure that the quality of maintenance is improved, thereby leading to fewer future asset failures.
- 9.47 AEAT has provided its view on the range of delay per incident trajectories between 2004/05 and 2008/09 which a well-managed and competent company should be able to achieve. These are shown in Figure 9.9 below (excluding the impact of growth), along with Network Rail's trajectory. The figure shows that, for most of the period, Network Rail's delay per incident trajectory falls within AEAT's central and best case scenarios. However, AEAT form a more pessimistic view than Network Rail of the likely delay per incident at the beginning of 2004/05.

**Figure 9.9: AEAT and Network Rail delay per incident trajectory**



- 9.48 Based on AEAT's analysis and the fact that Network Rail's implementation work on reducing delay per incident is still at an early stage, the Regulator believes that the target reduction in delay per incident by 2008/09 is demanding. It will require strong leadership, commitment and industry cooperation if the targets are to be achieved. It is also likely to require clear prioritisation if adequate resources are to be made available for the initiatives to be implemented in a timely manner. To illustrate this point, Network Rail has around 30 action plans and work on delay per incident is only a subset of one of these action plans.

9.49 By accepting Network Rail's revised delay per incident targets, the Regulator believes that Network Rail will be strongly incentivised to deliver on all of these requirements, otherwise it is likely to suffer financial losses through Schedule 8 payments to TOCs.

### **Reasons for final conclusions: other output targets**

#### *Network capability*

9.50 In his October 2000 access charges review final conclusions, the Regulator concluded that the network as a whole should not in future offer any less functionality (subject only to network changes authorised under the network code) than from its starting position in April 2001. It was on this basis that the Regulator asked Network Rail to produce its March 2003 business plan and on this basis that all of the expenditure projections in this document have been produced.

9.51 The Regulator does not consider that there is any basis for changing his requirements as part of this review. Train operators and industry funders need to plan their businesses with a reasonable degree of assurance that the overall functionality of the network should not change for the worse over time. The Regulator also considers that the interests of future passengers and freight users are best protected by ensuring that the railway that exists today remains available to them to use in the future.

9.52 The Regulator therefore concludes that he should expect Network Rail to maintain the capability of the network for broadly existing use at April 2001 levels throughout the five years that are covered by this review. In this context, maintaining the capability of the network means the following:

- (a) the size of the national network should not decline;
- (b) Network Rail should not reduce permanently the permissible speeds on any route;
- (c) Network Rail should not reduce permanently the permitted axle loads on any route;
- (d) the proportion of the network that is electrified should not decline; and
- (e) the number of stations and the facilities provided in these stations should not decline.

9.53 The Regulator considers that these obligations currently represent the reasonable requirements of customers and funders under Condition 7 of Network Rail's network

licence. He would therefore be minded to conclude that Network Rail was in breach of its network licence if it did not meet these obligations unless it could demonstrate that its customers and funders had appropriately adjusted their requirements.

*Asset condition and serviceability*

9.54 In addition to maintaining the capability of the network, the Regulator also expects Network Rail, as a competent and well-managed company, to improve the condition and serviceability of its assets over time. Reductions in the number of delay minutes that Network Rail causes is the most important area in which the Regulator expects to see evidence of this improvement. However, the Regulator recognises that short-term improvements in performance can mask longer term deterioration in the asset base. He would therefore also expect to see clear improvement in some of the other measures set out in Table 9.4. These are as follows.

- (a) *Broken rails.* A significant increase in the volume of rail that Network Rail replaces each year, together with additional monitoring and inspection and better quality maintenance, should translate into a reduction in the number of broken rails reported each year. The Regulator will therefore expect Network Rail to meet a target of no more than 300 broken rails per annum within two years.
- (b) *Level 2 exceedences.* These are discrete track geometry faults, which exceed the requirements of standards to such a degree that high priority repair is required. The number of level 2 exceedences has been falling for the last two years, and the Regulator expects Network Rail to continue this improving trend to meet a target of no more than 0.9 Level 2 exceedences per track mile within two years.
- (c) *Temporary speed restrictions.* Network Rail's June 2003 business plan set targets for a reduction in the number of temporary speed restrictions on the network from 522 at the end of 2004/5 to 332 at the end of 2008/9. In practice the number has increased during 2003 and now stands at around 700. The Regulator recognises that the business plan forecast assumed a higher level of renewal activity than he is now allowing for in access charges. But he considers that improved asset knowledge should lead to better prediction and prioritisation should result in a fall in the total number of TSRs. He does believe, however, that the current measure, covering all TSRs, could be improved to focus on those which reflect stewardship deficiencies and those

which have a material impact on the operation of the network, and will be discussing this further with Network Rail and other industry parties.

- (d) *Electrification.* Network Rail's business plan was formulated on the basis that the company would return the condition and serviceability of its electrification assets to 2001/02 levels. The Regulator expects the company to have done so by no later than 2008/09.

- 9.55 For all of the other measures in Table 9.4, the Regulator expects Network Rail to be able to demonstrate that there has been no deterioration in the condition and serviceability of its assets over the five years that are covered by this review. Network Rail is required to report its performance against these targets in its annual return to the Regulator under Condition 15 of its network licence, and he will monitor closely Network Rail's year-on-year performance in order to identify as early as possible any failure to meet these standards.
- 9.56 These targets are national targets. The Regulator expects Network Rail to deliver aggregate improvements or otherwise maintain average condition across the whole network. Any company managing a diverse portfolio of assets would expect to see the condition of some of those individual assets deteriorate over time while the condition of others improve (depending on where and when maintenance and renewal has taken place. This will be a function of an asset's relative importance and intensity of its use). The railway is no exception.
- 9.57 The extent, quality and timing of Network Rail's operation, maintenance and renewal activities, including the efficiency and economy which Network Rail achieves in them, is a function of Condition 7 of the company's network licence, its commercial contracts with its passenger and freight train operator customers and, of course, the network code.
- 9.58 It is inherent in Condition 7 and its other public interest and private law obligations that Network Rail should honour and not break its contracts. The output obligations specified in this chapter have been devised on the basis that Network Rail will adhere to this standard.
- 9.59 As part of its obligations under Condition 7 of its network licence, Network Rail is required to establish and publish the criteria which it will apply so as to comply with its duty under Condition 7. Paragraph 3 of Condition 7 provides that these criteria must include Network Rail's method of determining the priority and timing of different types of work, the parts of the network on which it will be carried out and

the basis for reviewing that priority. The criteria must be kept under review. If the Regulator is dissatisfied with the criteria, he may require Network Rail to amend them. He may do this on his own initiative or on a substantiated complaint from a train operator or other interested person. The Regulator considers that it would be timely for Network Rail to undertake a review of these criteria in the light of his final conclusions in this review.

- 9.60 Part G of the network code concerns network change and provides important protections to train operators if a change in the condition of the network is likely materially to affect the operation of the network or of trains on the network. Condition 10 of its network licence provides that Network Rail must not unduly discriminate between customers.
- 9.61 On 30 September 2003, the SRA published a document entitled “The SRA’s Strategy: Specification of Network Outputs”. Its principal focus is on the optimum allocation of Network Rail’s resources in its maintenance and renewal activities, and longer possessions for engineering work, with a view to ensuring that these activities are carried out in the most efficient and economic manner. In it, the SRA expresses its wish to see renewals expenditure targeted on those parts of the network where it is most critical, and scaled back on those parts of the network where traffic levels are lower. It sets out its view as to which parts of the network should fall into these categories.
- 9.62 The SRA has of course acknowledged that its preference for a degree of differentiation in maintenance and renewal and longer possessions cannot be achieved solely by the use of the SRA’s statutory and contractual powers, but depends on the co-operation and in some cases the agreement of other railway industry institutions and players, after following the appropriate due processes.
- 9.63 The Regulator is mindful of his duty to exercise his relevant functions in the manner which he considers is best calculated to facilitate the furtherance by the SRA of any strategies which it has formulated with respect to its purposes. He has carefully considered the SRA’s document and the ways in which its applicable strategies might be facilitated, and has weighed this consideration together with the other factors he is required to promote and to take into account in exercising his functions. Paragraph 6.8 of the SRA’s document states that “it is for the ... Regulator to decide on the extent to which the SRA’s strategy should be incorporated into his interim review conclusions”.

- 9.64 The Regulator believes that it would be inappropriate, as part of the regulatory settlement, to prescribe a rigid framework of route differentiation. Nor would it be appropriate for an economic regulator to seek to micro-manage Network Rail. Rather, through the framework established in this review, the Regulator is establishing a level of income and a set of incentives which will allow Network Rail, acting efficiently and economically, to manage its business in a way which accords with its public interest and contractual obligations. Network Rail is best placed to make these judgments.
- 9.65 The Regulator considers that an approach which requires Network Rail to prioritise maintenance and renewal activity according to best practice, efficiently and economically, so as to meet the reasonable requirements of customers and funders across the network as a whole is best calculated to promote the use of the network for the carriage of passenger and goods, the achievement of a system of integrated transport for passengers and goods, sustainable development, efficiency and economy, the imposition of minimum regulatory restrictions and enable providers of railway services to plan the future of their businesses with a reasonable degree of assurance, whilst not making it unduly difficult for Network Rail to finance its relevant activities.
- 9.66 The Regulator's network-wide approach is consistent with the objectives which the SRA seeks in its document. The approach of using resources where they achieve the most efficient and economical result in the best interests of users and in devising better ways of carrying out engineering activity on the network has for several years formed part of the Regulator's policy in his compliance monitoring of Network Rail's network licence obligations and will continue to do so. The Regulator's conclusions in this review continue and reinforce that policy. The savings – including efficiency improvements – which the Regulator is minded to require Network Rail to make in this review are consistent with, and in some respects go further than, the objectives stated in the SRA's document.
- 9.67 When the SRA's specific proposals in relation to its franchising strategy and grant support have been further developed and have crystallised in the outputs required from franchisees, it will be entirely appropriate for Network Rail to assess, with the SRA and the train operators concerned, the implications of that strategy for the delivery of network outputs.



## ***10. Safety, standards and the management of risk***

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### **Introduction**

- 10.1 In reaching his conclusions the Regulator's aim has been to establish a funding framework for Network Rail that will facilitate delivery of a safe, reliable, efficient and cost-effective railway network. The issues of safety and risk-management cannot be compartmentalised, they are integral to the running of Network Rail's business, and their consideration has accordingly been integral to the work undertaken in this charges review.
- 10.2 The Regulator, in discharging his statutory duty "to take into account the need to protect all persons from dangers arising from the operation of the railways, taking into account, in particular, any advice given to him in that behalf by the Health and Safety Executive", has had particular regard to the issues of safety and risk-management, and has worked closely with the Health and Safety Executive (HSE) in developing his conclusions. In addition, the Regulator has employed Lloyd's Register MHA, as an independent third party, to validate the adequacy of the processes he has followed in this charges review, in respect to the consideration of safety and risk-management matters, and to review Network Rail's response to his draft conclusions<sup>13</sup> in respect of any new risks or risk control measures Network Rail identified. The Regulator's approach also reflects the views expressed by Lord Cullen, in his second report into the rail accident at Ladbroke Grove<sup>14</sup>, regarding proposals by the Regulator which have a potential to affect safety.
- 10.3 The HSE has given its broad support to the approach and thrust of the Regulator's proposed conclusions, and for the specific approach the Regulator has advocated in respect of standards. Consultees' responses have also continued to indicate widespread support for the approach adopted by the Regulator in carrying out this review.

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<sup>13</sup> *Interim review of track access charges: draft conclusions*, Office of the Rail Regulator, London, October 2003.

<sup>14</sup> *The Ladbroke Grove Rail Inquiry Part 2 Report*, Health and Safety Commission, London, September 2001.

- 10.4 The Regulator has not at this stage seen any firm evidence to suggest that his conclusions on Network Rail's expenditure, activity levels, and ability to achieve efficiency improvements, and on the refinement of contractual incentives, are inconsistent with Network Rail discharging its legal duties in respect of health and safety. He recognises that there are a number of matters relating to safety that will not be resolved in the short term, for example changes that might need to be made to Network Rail's safety case which would need to be accepted by the HSE. Nevertheless, he has concluded that the outputs he is seeking are consistent with his financial determination as far as can reasonably be established now, and that the provisions he is making for Network Rail to establish a financial buffer and for a further interim review to be possible should Network Rail's expenditure exceed a 15% threshold, together provide sufficient flexibility to cater for any emerging, unavoidable, costs.
- 10.5 This chapter deals with:
- (a) the Regulator's approach to this review and the work undertaken by Lloyd's Register MHA on his behalf; and
  - (b) the issues arising from consultees' responses to the Regulator's third consultation paper and his draft conclusions, on the establishment and application of standards, and other safety-related matters.

### **Approach to the review**

- 10.6 Consultees, including the HSE, supported the Regulator's involvement of an independent third party, to review the access charges review process from the perspective of safety and risk. HSE's view was also sought as part of the study.
- 10.7 In its assessment of the Regulator's process for undertaking this review, Lloyd's Register MHA found that a wide consideration of safety and risk has been an integral part of the review of Network Rail's track access charges, stating:
- “Overall, we believe the interim review has been carried out conscientiously with a substantial and detailed level of work performed to confirm Network Rail's position. Whilst safety considerations were not an explicit part of the remit or deliverables from consultants, there is a specific safety section within the Regulator's third consultation document and implicit safety considerations in the interim review findings”<sup>15</sup>.

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<sup>15</sup> The full report is available on the ORR website.

- 10.8 In responses to the Regulator's third consultation paper, consultees encouraged the Regulator to consider extending the scope of consultants' work to provide assurance that Network Rail will continue to be able effectively and efficiently discharge its responsibilities, given the large programme of change arising from this access charges review.
- 10.9 The Regulator notes that it is for Network Rail itself, as duty holder, to identify the risks, and appropriate risk control measures, arising from these changes: the Regulator's responsibility is to satisfy himself that his review conclusions are not inconsistent with Network Rail's ability to discharge its safety duties. Nevertheless, the Regulator commissioned Lloyd's Register MHA to conduct an assessment of:
- (a) Network Rail's response to the Regulator's draft conclusions (although Network Rail's response to the draft conclusions did not appear to raise any specific safety issues, the Regulator, nevertheless, sought clarification from Network Rail on this matter, prior to finalising Lloyd's Register MHA's remit); and
  - (b) two pieces of consultancy work commissioned following completion of the initial Lloyd's Register MHA report.
- 10.10 In its further report, Lloyd's Register MHA<sup>16</sup> identified that, whilst there was an explicit requirement to consider safety within the remit for the Review of Long Term Renewal (post 2006) Activities, there was no such explicit requirement in the remit for the Post 2006 Analysis of Network Rail's Business Plan (Activity Modelling).
- 10.11 In his conclusions, and particularly in the points made in this chapter, the Regulator has borne in mind the comments of Lloyd's Register MHA regarding the extent to which the remits given to consultants working on his behalf have made explicit references to the need to consider the maintenance of safety by Network Rail.

## Standards

- 10.12 The Regulator's third consultation paper posed two questions on the establishment and application of railway standards:
- (a) to what extent have changes in standards and their application driven costs; and

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<sup>16</sup> The full report is available on the ORR website

(b) to what extent has this led to improvements in safety?

The Regulator invited consultees' views on the appropriateness of the approach he was minded to take (*i.e.* to build on the work of the industry-wide Standards Strategy Group, chaired by the SRA; to encourage Network Rail both to press ahead with reviewing its internal process for the development and review of company standards and subsequently to undertake a thorough review of existing standards using its new company process; and to encourage Network Rail to improve the clarity of its compliance policies).

- 10.13 Consultees' responses suggested that standards change had been associated to some extent with a general improvement in safety, but they did not quantify the safety benefits or cite any specific examples. Consultees considered that changes in standards frequently affected costs, and were generally concerned that cost-effective improvements in railway safety should be delivered in accordance with the principles of ALARP<sup>17</sup>, including that safety risk should be managed, not avoided. Consultees commented that the changes to standards made after the accident at Hatfield appeared to be far more substantial and expensive to implement than the incremental process they had experienced hitherto. Consultees did not feel that adequate consideration was being given to the issue of practicability in developing new or amending existing standards.
- 10.14 Consultees expressed particular concern about the presumption in the standards process that new or amended standards should always deliver *increased* safety benefits, and that changes which improved efficiency without *diminishing* safety were not pursued. The blanket application of standards was identified by a number of consultees as inefficient and unduly restrictive. In addition, a number of consultees commented that recent experience of the standards culture and process appeared to have created a "can't do" environment.
- 10.15 Network Rail acknowledged that there had been inconsistencies in the interpretation and application of standards, leading to inefficiencies, and pointed to its recent efforts to ensure that its contractors achieve satisfactory levels of compliance with standards as a major driver of cost.
- 10.16 In responses to the Regulator's draft conclusions some consultees expressed concern at the lack of in-depth analysis by the Regulator about the effect of standards on cost

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<sup>17</sup> ALARP – as low as is reasonably practicable.

and performance and questioned whether the Regulator had attached sufficient importance to ensuring the consistent and sensible interpretation of standards.

10.17 The Regulator recognises that appropriate standards, applied appropriately and consistently, have the potential to contribute significantly to the achievement of safety, performance and efficiency benefits to the industry. The Regulator therefore welcomes Network Rail's commitment to undertake a fundamental review of its company standards processes. As part of that review, the Regulator expects Network Rail both:

- (a) to challenge those standards offering minimal safety benefit; and
- (b) to satisfy itself that, even where existing standards appear to be delivering tangible safety benefits, the cost of adherence represents value for money in comparison with adopting alternative risk control measures.

10.18 In addition to Network Rail exercising firm control of its own company standards processes, the Regulator considers it essential that Network Rail engages fully in the development of new or amended Railway Group Standards (RGS), challenging the efficacy of new Railway Group Standards against other risk-mitigation options as appropriate, in order to ensure that necessary safety benefits are delivered in a cost effective manner. That said, the Regulator commends to all industry parties the benefits of participating fully in the Railway Group Standards development process, in order to crystallise the benefits of the establishment of the industry owned Rail Safety and Standards Board (RSSB), and the bringing into effect of a fully revised RGS Code<sup>18</sup>. The revised RGS Code, once approved, will bring much greater clarity to the process of developing, challenging and establishing new Railway Group Standards and will provide for greater industry involvement in the process.

10.19 It is not for the Regulator to establish rail industry standards, nor does the Regulator consider that an access charges review is itself the vehicle for attempting a fundamental challenge to existing standards. Rather, the Regulator considers that consequent on his conclusions in this review, and through his approval of a fully revised RGS Code, alongside his support for the initiatives Network Rail already have in place to review its own standards processes, Network Rail and the wider rail industry will have both the incentive and facilities to take forward the effective

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<sup>18</sup> RSSB submitted a revised RGS Code to the Regulator for approval on 31 October 2003.

development and application of standards in support of safety, performance and efficiency.

10.20 Finally, the Regulator supports Network Rail's involvement in the industry-wide, SRA-chaired, Standards Strategy Group, which provides a forum for identifying and addressing issues surrounding the effective use of standards.

### **Safety issues**

10.21 Consultees, with the exception of Network Rail and HSE, did not raise any general safety points in their responses to the Regulator's third consultation paper or his draft conclusions, although Arriva did raise concerns about possible adverse effects arising from Network Rail's current and projected re-organisations.

#### *Network Rail*

10.22 Network Rail's main safety-related concern in response to the Regulator's third consultation paper focused on the Regulator's proposals for reduction of Network Rail's proposed level of renewal activity. In particular, Network Rail cited:

- (a) the potential for an increased risk of derailment as a result of broken rails if track renewal was deferred;
- (b) the need for increased inspection of structures and the associated need to prioritise expenditure on earthworks to guard against embankment slippage;
- (c) the limited scope Network Rail has to defer renewal of life-expired high voltage switchgear and cables; and
- (d) the risk of full or partial closure of stations and light maintenance depots (*e.g.* withdrawal of lifts and escalators, withdrawal of fire certificates etc).

10.23 In its response to the draft conclusions and in its letter in response to the enquiry by the Regulator referred to in paragraph 10.9 above, Network Rail re-emphasised its concern that the proposed reductions in the level of renewals was not matched by appropriate allowances for additional maintenance activity and also pointed out that one of the mitigation measures associated with the rephasing of telecoms renewal was increased levels of maintenance.

10.24 The Regulator has considered carefully the concerns raised by Network Rail in respect of changes in the levels of renewal activity, and does not consider that safety

and risk management considerations should lead him to adopt a different approach from that set out in the draft conclusions, for the following reasons:

- (a) although his conclusions assume a lower level of renewal activity than those sought by Network Rail, they still represent a very significant increase on previous levels;
- (b) there is considerable scope for Network Rail to achieve efficiencies by identifying and applying an effective balance between asset renewal and other risk-mitigation activity (*e.g.* increased inspection and maintenance);
- (c) the review by Network Rail of its own company standards processes and the introduction of the revised RGS Code have the potential to generate further efficiencies ; and
- (d) he considers the approach set out in Chapter 5 above addresses the age-related safety risks associated with electrification and plant equipment, a significant volume of which will be replaced as part of the planned enhancement to power supplies across Network Rail's Southern Region.

10.25 In its response to the draft conclusions Network Rail raised a number of other safety concerns, arguing that:

- (a) it was not appropriate to set specific regulatory targets for TSRs as there should be no disincentive to apply one when it was judged necessary on safety grounds;
- (b) there was no allowance for the impact of emerging legislation, such as the Asbestos at Work Regulations 2002;
- (c) the unprecedented efficiency savings sought over the next five years and the scale of the challenge in transforming Network Rail was not fully understood; and
- (d) there were a number of factors not entirely within the control of Network Rail, not least the possibility of material changes to its safety case, which might affect the level and speed of the savings which could be delivered over the next few years.

10.26 In respect of regulatory targets for TSRs, the Regulator recognises that a careful balance has to be struck between encouraging greater adherence to a regime of

“predict and prevent”, which is recognised by HSE as promoting enhanced safety, performance and business efficiency, and the necessary use of a “find and fix” approach that recognises that not all incidents requiring the imposition of a TSR can be predicted. It is for Network Rail to manage carefully the message it sends to staff such that they are clear about the importance of delivering appropriate levels of performance to Network Rail’s customers, and equally clear that this has to be done without compromising safety.

- 10.27 With respect to the points made by Network Rail at paragraphs 10.25(b), (c), and (d) above, the Regulator recognises that there are a number of issues that are as yet uncertain, not least possible material changes to Network Rail’s safety case (a matter also raised by HSE). Whilst it is for Network Rail to identify any potential changes, they are subject to acceptance by HSE. As part of the acceptance process the HSE will form a view as to whether the risk control measures identified by Network Rail are adequate. In addition, the Regulator recognises that the organisational change associated with such measures as the bringing in-house by Network Rail of all maintenance activities are not inconsiderable.
- 10.28 For the reasons explained throughout this document, the Regulator considers he is setting Network Rail an achievable profile of outputs and efficiencies. In the absence of perfect knowledge, there are matters on which the Regulator necessarily must form a judgment based on a fair analysis of the available information. This is the process which the Regulator has followed. Furthermore, there are safeguards built into these conclusions in terms of allowing Network Rail a buffer to enable the company to manage risks and to provide for unforeseen cost shocks, as well as providing for an interim review reopener if the company overspends by 15%.

*Health and Safety Executive and Lloyd’s Register MHA*

- 10.29 In its response to the Regulator’s third consultation paper, HSE stated that Network Rail would need to review the existing arrangements in its safety case. However, the extent of any potential revisions to the safety case arising from this review would not become clear until Network Rail had revised its plans in accordance with the Regulator’s conclusions. HSE emphasised that any potential material changes to Network Rail’s safety case would need to be accepted by HSE before the related organisational changes could be implemented by Network Rail. HSE added that the time taken by the acceptance process would depend on the extent and nature of the changes proposed.

10.30 Among the specific points made by HSE were:

- (a) Network Rail needed to improve its corporate asset knowledge as a basis for more efficient asset renewal policies;
- (b) HSE was currently inspecting Network Rail's arrangements for the management of track approaching the end of its useful life and expected to report early in 2004;
- (c) HSE stressed the interdependence of renewals and maintenance and emphasised that deferral of renewal may place an additional burden on maintenance activity; and
- (d) HSE felt that those measures within the proposed Asset Stewardship Index (see Chapter 19) which directly related to safety should have a greater weighting.

10.31 In its response to the draft conclusions, HSE identified a number of areas where it considered Network Rail would need to review its arrangements for safety:

- (a) the general move towards maintenance and increased inspection and away from renewals activity;
- (b) the bringing in house of maintenance activities;
- (c) significant management changes such as those arising from Network Rail's efficiency programme and the ending of the New Maintenance Programme; and
- (d) changes in health and safety policy, such as decision-making processes in relation to track renewals.

10.32 At the Regulator's request HSE also provided a response to Network Rail's own response to the draft conclusions. HSE's initial view was that, given the links between operational delivery, performance indicators and safety, it would require a closer analysis of both Network Rail's response and the relevant supporting documentation for HSE to have sufficient evidence to judge its impact on safety.

10.33 HSE believed that the Network Rail response highlighted a need to make substantial changes to safety related activities compared with those they had previously identified as being required. The moves from renewals to maintenance and to adopting a route-

based approach represent a changed approach to delivering a safe network. The proposed review of standards could also result in significant potential changes. HSE felt that the Network Rail document did not present a full analysis of the impact of these changes either on safety in the round or in respect of their possible impact on precursors of catastrophic events.

- 10.34 HSE re-emphasised that it is for Network Rail to review its safety case arrangements in parallel with revising its business plans to meet the Regulator's final conclusions. HSE will do further work (based on information from NR as the dutyholder) to assess the potential impact of the access charges review on safety performance, working closely with both NR and ORR.
- 10.35 In its report on Network Rail's response to the Regulator's draft conclusions, Lloyd's Register MHA said that it considered that, at least at high level, Network Rail had spelt out the safety consequences, as it saw them, of the proposed levels of expenditure allowed for. Lloyd's Register MHA said that it considered the scale of change that was being planned by Network Rail made forecasting difficult, if not impossible, and that some degree of flexibility would need to be built into the Regulator's conclusions.
- 10.36 In respect of the more general points regarding the impact of his conclusions on Network Rail's management of the risks arising from its activities, the Regulator notes the apparent lack of analysis by Network Rail thus far and re-iterates the points he made in paragraph 10.4 regarding provisions in his conclusions for emerging, unavoidable, safety-driven pressures. The Regulator takes comfort from the requirement for Network Rail to consider its arrangements for safety and, where necessary, have material changes to its safety case accepted by the HSE before implementing changes to its business structures and processes. The Regulator also takes comfort from the close interest HSE has taken, and will continue to take, in this review and Network Rail's response to it. The Regulator notes that the HSE welcomed the provisions he has made to address unforeseen increases in Network Rail's costs, which includes costs driven by safety considerations.

## Conclusions

- 10.37 Responding both to his duties under the Railways Act 1993 and to the views expressed by Lord Cullen in his second report on the Ladbroke Grove train accident, the Regulator has sought throughout the process of this review of Network Rail's access charges to ensure that the maintenance of safety has been an explicit topic for

discussion. To this end, the Regulator has not only specifically invited Network Rail, and other industry parties, to comment on his proposals from a safety perspective, but has also sought advice on and review of his proposals from both HSE, the safety regulator, and from Lloyd's Register MHA, an independent third party. The results of this process are outlined above.

- 10.38 The Regulator recognises that, as a consequence of his conclusions and of Network Rail's decisions in respect of maintenance, Network Rail will need to make significant changes to the way it organises and runs its business. These changes may have implications for the management of risk and the maintenance of safety. The Regulator notes that, in accordance with the Health and Safety at Work etc. Act 1974, Network Rail, alone, is responsible for ensuring that the risks arising from its activities are controlled to a level as low as is reasonably practicable. The Regulator also notes that, in accordance with the Railways (Safety Case) Regulations 2000, Network Rail is required to produce, and have accepted by HSE, a safety case demonstrating how those risks are controlled. The Regulator accepts that Network Rail is likely to need to make material changes to its safety case as a consequence of his conclusions and that Network Rail will be unable to implement any related business changes until the changes to its safety case have been accepted by HSE.
- 10.39 On the information available to him now, the Regulator has no basis for believing that any safety case changes Network Rail needs to bring forward will necessarily increase Network Rail's business costs, and it is entirely possible that the changes could improve business efficiency, given the view, supported by HSE and Lord Cullen, that good safety performance and good business performance are two sides of the same coin<sup>19</sup>. Were that not to prove to be the case, the Regulator considers the provisions he is making for Network Rail to establish a financial buffer, and for a further interim review to be possible should Network Rail's expenditure exceed a 15% threshold, together provide sufficient flexibility to cater for any emerging, unavoidable, costs.

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<sup>19</sup> In paragraph 5.9 of his Part 2 report into the Ladbroke Grove accident, Lord Cullen said: "It is clear, therefore, that there is a link between good safety and good business. The rigour and operating discipline of the processes which lead to good safety performance are exactly the same processes which deliver good operational performance, which in turn leads to good business. There is no 'trade-off' between good safety and good business."



# **PART 3: FINANCING**



## ***11. Financing: overview***

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- 11.1 When Network Rail took over Railtrack in October 2002, it was provided by the SRA with a number of transitional financial support facilities to enable the company to finance its spending on the operation, maintenance and renewal of the network. These financial facilities recognised the very considerable amounts of overspending (as against the Regulator's October 2000 conclusions) in which the company was engaged. The company was released from administration on the basis that the Regulator would carry out an access charges review, set access charges accordingly and so place it on a sound, stable and sustainable financial footing.
- 11.2 Most of the SRA's facilities expire within the next two years, and a key objective in this review has been to ensure that the business can move quickly to a position where it is able to raise new finance from private-sector lenders. Network Rail originally told the Regulator that it intended to refinance its activities via a securitisation of track access charges and certain other income by the end of 2003, before the conclusion of this review. However, the company has now informed the Regulator that its refinancing will not take place until 2004. Network Rail has asked the Regulator to proceed on a number of assumptions during the review when analysing Network Rail's financial position over the next five years. These are as follows:
- (a) the revenues that the licensed business ("opco") receives from track access charges and any grants provided by the SRA will be securitised;
  - (b) the securitisation will be carried out via a sale of receivables to a separate subsidiary ("finco");
  - (c) opco will, in effect, sell a portion of its entitlement to receive revenues from train operators and the SRA to finco;
  - (d) finco will then use the revenues that it receives to pay the interest on any debt that it raises;
  - (e) the residual revenues will be paid to opco along with the proceeds of any debt that finco has raised; and
  - (f) this money will then be used to fund the operation, maintenance, renewal and enhancement of the network.

- 11.3 The way in which Network Rail finances itself is a matter for the company to determine, and the Regulator has placed considerable weight on Network Rail's proposed financial structure when arriving at his conclusions. However, he has also considered alternative financing arrangements that Network Rail, as a competent and well-managed company limited by guarantee, is able to adopt and has satisfied himself that his final conclusions remain appropriate in circumstances where Network Rail departs from the structure set out above. The assumptions that the Regulator makes about Network Rail's financial structure are important for two reasons:
- (a) Network Rail's financing arrangements will determine how far the business is able to borrow money from lenders to cover the costs of improving the network. The Regulator has said previously that he believes the structure of a company limited by guarantee should enable the network business to raise more money through borrowing than its predecessor; and
  - (b) in setting access charges, one of the Regulator's duties under section 4 of the Railways Act 1993 is to act in a manner which will not make it unduly difficult for the holders of network licences to finance their relevant activities. This entails that he must ensure that the overall level of access charges, as well as the determination of each individual building block within these calculations, takes account of Network Rail's financial arrangements.
- 11.4 Because Network Rail has not issued new debt, it has not been possible for the Regulator to ascertain the requirements that lenders make of the company by speaking directly to the lenders (or potential lenders) themselves. Instead, the Regulator has relied heavily on advice provided by his financial advisers, Royal Bank of Canada and RSM Robson Rhodes, and on precedents in other regulated monopoly industries when setting the financial blocks in his calculation of track access charges.
- 11.5 The most relevant building blocks here are the value of the RAB, the level of allowed returns, and the level and profile of the Regulator's allowance for amortisation.
- (a) *RAB*. The RAB is the Regulator's valuation of Network Rail's assets. This is important to investors in Network Rail because the value of the RAB and the amount of debt that the business can sustain are very closely related: generally speaking, Network Rail's debts cannot exceed the value of the RAB; a debt to RAB ratio of significantly less than one indicates that the business is more robust to future cost shocks (because it is more likely to be able to sustain the additional debt that would arise from any losses incurred).

- (b) *Amortisation.* Under the building block methodology set out in Chapter 3, in which expenditure on renewals and enhancements is added to the RAB, the Regulator's allowance for amortisation determines how much of Network Rail's investment in improvements and renewal of the network is funded through access charges and, in consequence, how much must be funded through borrowing. Other things being equal, the higher the allowance for amortisation, the less Network Rail will be required to borrow (and *vice versa*).
- (c) *Returns.* The allowed return reflects the interest that Network Rail must pay to its lenders and any additional annual surplus that the Regulator allows the business to make. This additional surplus is intended to provide a reasonably efficient business with a buffer against future cost shocks, and serves to reduce the risk that investors bear. Thus, the higher this additional surplus, the more comfort investors can take that the business will be able to meet its obligations to them and to customers if there are unanticipated increases in expenditure.

11.6 These building blocks are examined further in the next two chapters of this document. Chapter 14 then sets out the Regulator's projection of the income that Network Rail can generate from sources other than track access charges paid by franchised passenger train operators. Combining the conclusions from these chapters with the Regulator's position on expenditure, as set out in Part 2 of this document, provides an overall picture of the level of access charges that the Regulator has determined.

11.7 This picture is, however, a preliminary one in the sense that as a final check in his analysis the Regulator must assure himself that the proposed level of access charges does not make it unduly difficult for Network Rail to finance its relevant activities. This requires that he looks carefully at Network Rail's overall financial position, at the arrangements it has in place to raise debt from private lenders, and at the requirements that these investors will have of Network Rail. Chapter 15 sets out the framework that he has adopted in making his assessment.



## 12. The RAB and amortisation

### Introduction

- 12.1 A key foundation in the financial framework for Network Rail is the RAB, the Regulator's calculation of the value of Network Rail's assets. As a building block in the Regulator's methodology for assessing access charges, the RAB forms the basis for calculating two of the components of allowed revenue: the level of return and the allowance for amortisation.
- 12.2 This chapter sets out the Regulator's calculation of the opening value of the RAB as at 1 April 2004 and his projections of the value of the RAB over the full five-year period covered by this review. It also contains the Regulator's final conclusions on the allowance for amortisation which he will include within his calculations of access charges.

### Final conclusions

- 12.3 The Regulator's final conclusions on the value of Network Rail's RAB are set out in Table 12.1.

**Table 12.1: The Regulator's calculation of the RAB (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09
valuation of the RAB, 1 April	17,696	20,182	21,865	22,921	23,932
renewals + enhancements	3,853	3,066	2,439	2,399	2,168
amortisation	(1,367)	(1,383)	(1,383)	(1,388)	(1,391)
valuation of the RAB, 31 March	20,182	21,865	22,921	23,932	24,709

- 12.4 The steps that the Regulator has taken in reaching this valuation are as follows:
- (a) *Opening RAB.* The value of the RAB at 1 April 2004 is £17.7 billion. This valuation is based on a straightforward application of the principles that the Regulator set down previously in his October 2000 access charges review final conclusions and in his June 2002 statement on the acquisition of Railtrack. In particular, it includes an allowance for the debt that the licensed business accumulated between 2001/02 and 2003/04, *i.e.* before, during and immediately after the period spent in administration;

- (b) *Renewals and enhancements.* The Regulator has added to the RAB the renewals expenditure that he considers a competent and well-managed company would incur during the next five years. He has also added expenditure on certain health and safety related enhancements to the network, as well as enhancements in relation to the West Coast project and the southern power upgrade project, at the request of the SRA. This means that a total of £13.9 billion of new investment will be added to the RAB during the course of the next five-year period; and
- (c) *Amortisation.* The Regulator has calculated an annual allowance for amortisation (or depreciation) to reflect the wear and tear on Network Rail's assets over time and has each year deducted this amount from the value of the RAB. For expenditure incurred after April 2004, this allowance is calculated by amortising Network Rail's investment on a straight-line basis over 30 years. For investment undertaken before April 2004, amortisation is calculated by decreasing the value of the RAB by 7% per annum on a reducing balance basis.

12.5 In amortising the value of the RAB to reflect wear and tear, the Regulator will add an equivalent amount of money in his calculation of Network Rail's revenue requirements. This will ensure that the company has sufficient funding to enable it to maintain the overall condition of its assets over time. The Regulator's allowances are set out in Table 12.2.

**Table 12.2: The Regulator's allowances for amortisation (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09
Amortisation	1,367	1,383	1,383	1,388	1,391

### **Reasons for final conclusions: the 1 April 2004 RAB**

12.6 The Regulator's approach to the calculation of the opening RAB was discussed in detail in his second and third consultation documents. His main objective has been to ensure that Network Rail is not handicapped by the debt, or the interest on the debt, left by its predecessor's overspending before and during the period spent in administration. Ultimately, this means that the RAB at the start of the five-year period is higher than the amount of debt that Network Rail has outstanding to its lenders, and, in consequence the return and amortisation which the Regulator allows on the RAB over time are sufficient to provide Network Rail with the income that it needs to pay back its debts.

- 12.7 The Regulator's calculation of the value of the RAB at 1 April 2004 follows three main principles.
- (a) *Transparency.* By resetting the value of the RAB now as part of this access charges review and by publishing his calculations in full in his final conclusions, Network Rail's future lenders will have a clear and transparent basis on which to value the company. This should assist Network Rail as it refinances its existing debts at the beginning of next year.
  - (b) *Consistency.* The Regulator has placed considerable weight on ensuring that the methodology that he adopts is consistent with the policy statements that he has made previously about the way in which he will approach the valuation of the RAB at this review. This is because predictability and consistency over time in the Regulator's approach serves to improve confidence in the regulatory regime and will enhance Network Rail's ability to finance its business in future.
  - (c) *Simplicity.* Network Rail has asked the Regulator to include in the RAB certain types of past expenditure that would otherwise generate a stream of unregulated income (by virtue of separate agreements with customers and funders). Having satisfied himself that Network Rail is no better and no worse off if he makes the additions that the company has sought, and since the assets concerned are part of the core business, the Regulator has agreed to Network Rail's request.
- 12.8 The vast majority of consultees, including Network Rail and the SRA, have supported these principles in their responses to the Regulator's previous consultation documents. Consultees have also been given the opportunity in these consultation documents to review the Regulator's calculation of the adjustment to the RAB. With the exception of some minor computational errors, all consultees have endorsed the Regulator's calculations.
- 12.9 The Regulator's calculation of the 1 April 2004 RAB is set out in Table 12.3. The figure of £17.7 billion compares with Network Rail's current forecast of net debt of £13.7 billion.

**Table 12.3: Adjustments to the April 2004 RAB (£ million)**

	2001/02	2002/03	2003/04	Cumulative Total
Opening RAB				7332.6
Other enhancements in RAB	175.8	200.8	412.8	789.4
Additional stations and depots renewals	43.3	39.3	20.0	102.6
Adjustments				
(i) volume incentive (passenger)	47.0	24.6	27.0	98.6
volume incentive (freight)	9.3	-10.1	-4.7	-5.5
(ii) broken rails incentive	21.0	21.3	275.7	318.0
(iii) shortfall in capacity charge	0	0	0	0
(iv) Railway Safety cost pass through	1.2	-0.9	4.7	5.0
(v) additional project development costs	0	0	0	0
(vi) under/overspend on train control renewals (in overspend calculation)	0	0	0	0
(vii) funding of additional obligations	0	0	0	0
(viii) land disposal compensation	0	0	0	0
(ix) adjustment for underdelivery in CP2	0	0	0	0
(x) retiming of SRA grants and other deferred income	-	-	-	360.0
(xi) aggregate overspending in 2001/02 and 2002/03	990.1	1,705.2	-	2,695.3
(xii) aggregate overspending in 2003/04	-	-	2,963.0	2,963.0
(xiii) shortfall in revenues 2001 to 2004	-	-	-	1,874.7
(xiv) ring-fenced enhancements	570.2	290.3	302.1	1,162.6
<b>Cumulative total</b>	<b>1857.9</b>	<b>2,270.5</b>	<b>4,000.6</b>	
<b>1 April 2004 RAB</b>				<b>17,696</b>

*Source:* Network Rail's regulatory accounts and Network Rail's response to the third consultation document.

12.10 A detailed explanation of each line item in Table 12.3 is included in Annex C of this document.

12.11 The adjustments for the financial year 2003/04 remain provisional in the sense that they are based on forecasts provided by Network Rail. The actual out-turn figures will not be available until the publication of the 2003/04 regulatory accounts in July 2004, several months after the conclusion of this review. The Regulator therefore confirms his intention to make an adjustment to the RAB at the next access charges review

equal to the difference between the actual and forecast numbers. Although Network Rail has argued that this approach may penalise it for legitimately deferring expenditure from the current year into 2004/05, the Regulator does not consider it is appropriate to set the RAB on the basis of forecasts that he has not independently verified and which may, therefore, be overstated.

### Reasons for final conclusions: renewals and enhancement expenditure

12.12 The Regulator's assessment of Network Rail's expenditure on renewals was set out in Part 2 of this document. The Regulator has added to the RAB the amounts which are included in Table 8.1 because he considers that this level of expenditure is a reasonable estimate of the investment that a competent and well-managed company would incur in renewing the railway.

12.13 He has also added the expenditure associated with enhancement of the West Coast route set out in Chapter 7 and the amounts for transition projects shown in Table 12.4

**Table 12.4: Transition projects expenditure (£ million)**

Project	2004/05	2005/06	2006/07	2007/08	2008/09
Southern power upgrade	453	63	12	-	-
Southern region new trains programme (non-SPU)	28	13	8	-	-
CTRL blockade	108	-	-	-	-
Thameslink 2000 development	32	-	-	-	-
<b>Total</b>	<b>621</b>	<b>76</b>	<b>20</b>	-	-

12.14 From the beginning of this access charges review, the SRA told the Regulator that it would be entering into separate bilateral agreements to secure delivery of these enhancements and therefore that they would be remunerated outside of the RAB through separate streams of charges or grants. However, on 14 November 2003, around four weeks before publication of these final conclusions, the SRA formally informed the Regulator that it had encountered a number of problems in establishing separate contracts to deliver these projects, principally relating to budgetary constraints.

- 12.15 The Regulator received a proposal from the SRA on 2 December 2003 for transition project costs of £1,067 million, which include an allowance for contingency of 50%, to be added to the RAB. The proposal also states that the SRA has provided Network Rail with an indemnity against all costs, losses and liabilities of and arising from carrying out the development and implementation of the projects. It has therefore asked the Regulator to mirror these arrangements by allowing any cost overruns to be added to the RAB at the 2009 access charges review without any further efficiency review.
- 12.16 In principle, it would usually be appropriate for the Regulator to add the costs of these types of projects, which enhance the capability of the network, to the RAB. However, he would expect to undertake an extensive analysis of the justification for Network Rail's expenditure forecasts before doing so, as he has done with the West Coast project, to satisfy himself that the projects will be delivered at an efficient cost. There has been no time to carry out such an extensive exercise because of the extremely late notice provided by the SRA of its wish to have the costs of the projects added to the RAB.
- 12.17 On 20 November 2003, the Regulator received a report from the SRA, providing information on the sufficiency of the cost estimates produced by Network Rail for the southern power upgrade project. It also contains information on project scope, programme and risks. The report does not attempt independently to check unit costs or activities used to develop the cost estimates or the technical sufficiency of the proposals. Having reviewed the report, the Regulator is concerned about:
- (a) the apparent lack of robustness of the cost estimates;
  - (b) the very high level of contingency within the cost estimates, particularly given the emerging cost nature of the project; and
  - (c) the inefficient risk allocation agreed between the SRA and Network Rail which the Regulator considers gives Network Rail little incentive to ensure costs are minimised (although the Regulator understands that the SRA intends to try to mitigate the risks by retaining significant control of the project).
- 12.18 For these reasons, the Regulator would in normal circumstances be very reluctant to add the estimated cost of these projects to the RAB as to do so would be inconsistent with his duty to promote efficiency and economy on the part of persons providing railway services. However, the SRA has told him that if the transition projects are not funded through the RAB, there is a high risk that they cannot proceed as currently

envisaged. Clearly, this is a highly undesirable scenario particularly given that the HSE requires the southern power upgrade project to be implemented by 31 December 2004 in order to meet the deadline for replacement of Mark 1 slam door rolling stock. The SRA has also said that the CTRL blockade works need to be undertaken in September 2004. Since section 16A to 16I of the Railways Act 1993 has not yet been brought into effect (which will enable the Regulator to give directions to Network Rail to provide, improve or develop railway facilities), with reluctance the Regulator believes that there is therefore no alternative to ensuring delivery of the transition projects to the required timescales than to add the project costs to the RAB so that Network Rail can borrow in order to finance them.

- 12.19 In relation to risk allocation, Network Rail has argued that the very demanding specifications and timetables that the SRA has laid down for the projects means that it is not in a position fully to control the costs of the work that it undertakes. The Regulator accepts that the potential inefficiencies inherent in these projects stem from the demanding specifications and timetables and, for this reason, he proposes to make an adjustment to the RAB at the next review for any over- or underspend (including any financing costs or benefits) on the amounts set out in Table 12.4. Given this, he sees no sound justification for also including any contingency allowance and the expenditure figures in Table 12.4 therefore exclude the SRA's proposed 50% contingency. Although Network Rail's overall financial position is protected under the emerging cost arrangements, the Regulator's decision not to allow any contingency to be added to the RAB means that there should be greater incentives on Network Rail to minimise costs. Otherwise Network Rail will have to borrow to fund any overspend without any remuneration until 2009, hence affecting its short-term cash flow position.
- 12.20 Network Rail's business plan also contemplates a series of more general health and safety related enhancements across the network which are not specific to any individual customer. During this review, Network Rail has provided the Regulator with a submission requesting that these enhancements be included in the RAB. The amounts are set out in Table 12.5.

**Table 12.5: Health and safety enhancements (£ million)**

Type of Enhancement	2004/05	2005/06	2006/07	2007/08	2008/09	CP3 Total
Safety and environment plan	120	115	95	77	62	469
Train control development	41	40	35	43	50	209
Other specified safety schemes	10	4	0	0	0	14
<b>Total</b>	<b>171</b>	<b>159</b>	<b>130</b>	<b>121</b>	<b>112</b>	<b>693</b>

12.21 The expenditure in Table 12.5 includes a variety of schemes which are required by law or as a result of requirements imposed on Network Rail by safety authorities. These include the fitment of TPWS+ at 420 locations nationwide and Network Rail's support for the Cambrian Trial of ERTMS. Having reviewed the list of projects that Network Rail has provided to the Regulator, he has concluded that it is appropriate to include these schemes in the RAB as part of this review.

#### **Reasons for final conclusions: amortisation**

12.22 As the value of the RAB increases with the addition of new capital expenditure, an offsetting reduction in the value of the RAB must also be made to reflect amortisation, or depreciation, of Network Rail's assets over time. As explained in Chapter 3, the Regulator then adds the allowance that he makes for amortisation to Network Rail's annual revenue requirements and the company recovers this amount through access charges.

12.23 The third consultation document outlined a number of possible approaches that the Regulator might take when calculating the annual adjustment that he makes for amortisation. The Regulator also explained that there were three main criteria which would influence his decision:

- (a) broadly speaking, the net annual adjustment to the RAB (*i.e.* annual renewals and enhancement expenditure less the amortisation allowance) ought to reflect the amount of capital investment which actually improves the underlying condition and performance to the railway rather than simply that which maintains steady state;
- (b) any net increase in Network Rail's debts must be sustainable, in the sense that lenders must be satisfied that customers and funders will be able to pay access charges which include an allowance for interest payments; and

- (c) Network Rail must be able to raise the required amount of additional debt from lenders in a timely manner.

12.24 Because Network Rail has not yet undertaken its securitisation of track access charges, the Regulator has placed considerable weight on experience in other regulated industries and the advice provided by his financial advisers when trying to understand the perspective that lenders are likely to have on these matters. Methodologically, there are two main questions to address:

- (a) over what time period and what profile should new investment be amortised; and
- (b) over what time period and what profile should past investment, which is already included in the RAB, be amortised?

#### *Overall approach*

12.25 The Regulator's answers to these two questions depend on the constraints imposed by the three criteria set out above. The key principle that the Regulator has adopted in his calculation is that the total allowance for amortisation in any year should be broadly equivalent to the proportion of renewals and enhancement expenditure that is required in order to maintain the overall capability, age, condition and serviceability of the network in steady state. This satisfies the three criteria because:

- (a) the net annual adjustment to the RAB at any point in time (*i.e.* the difference between the Regulator's amortisation allowance and expenditure on renewals and enhancements) will reflect the extent to which Network Rail is spending money improving the network;
- (b) Network Rail will only need to borrow during periods in which it is improving the underlying asset base, thereby limiting the extent to which the RAB will increase over time and the scale of the interest payments that it will make to lenders to a manageable level; and
- (c) discussions with the Regulator's financial advisers, rating agencies and potential lenders have indicated clearly that, within limits, Network Rail should not face difficulties in borrowing money which is used to finance the improvement of the network.

12.26 During the course of the next five years, the Regulator considers that a significant proportion of Network Rail's expenditure on renewals and enhancements will

constitute improvement of the network, whether by improving its capability, its condition or by reducing its age. In particular, the vast majority of the work on the West Coast route modernisation (accounting for 20% of total renewals and enhancement expenditure on the network over the five-year period), the upgrade of Network Rail's telecoms systems (7%), expenditure on new plant and machinery (3%), a significant proportion of the increased volume of track renewals (23%), transition projects (5%) and all of the company's proposed health and safety enhancements (5%) constitute genuine improvements to the network.

12.27 He has therefore concluded that his chosen methodology for amortising the RAB should allow for approximately half of Network Rail's renewals and core enhancement programme to be financed through increased borrowing during the next five-year period. The remaining expenditure will then be funded through the allowance for amortisation within the calculation of track access charges.

12.28 In the longer term, as expenditure on renewals falls, the Regulator expects the proportion of expenditure on renewals that is funded through access charges will increase significantly.

#### *New investment*

12.29 Having determined that his allowance for amortisation should be equal to approximately half of Network Rail's expenditure on renewals and enhancements during the next five-year period, the Regulator has considered carefully the rules he should adopt when amortising investment. Most other regulators amortise new investment on a straight-line basis over a fixed period (or fixed periods) of time. This is also the approach that the Regulator took previously when amortising the expenditure on enhancements that was added to the RAB at the last review. The Regulator considers that it represents the most suitable approach to amortising new renewals and enhancement expenditure in this review. This is because:

- (a) the annual allowance for amortisation under this approach tracks closely the extent to which an asset wears out until eventually it needs to be replaced; and
- (b) the approach is simple to implement.

12.30 Network Rail has asked the Regulator to amortise all new investment over a common period and argues that this will enable the company to maximise its borrowing capacity. The Regulator agrees with this approach. He will amortise renewals and enhancement investment over a period of 30 years. This is because:

- (a) 30 years is approximately the average life of the railway assets that will be created by Network Rail's investment (calculated on the basis of Network Rail's own estimates of asset lives); and
- (b) 30 years is a reasonable estimate of the maturity on the long-term debt that Network Rail will be able to issue to finance its investment.

*Past investment*

- 12.31 Most other economic regulators amortise past investment (normally that proportion of investment that was undertaken before privatisation) differently from new investment. This is particularly true in industries where the value of the RAB is significantly below the amount that it would cost today to replace all of the underlying assets and where a simple straight-line amortisation profile would therefore produce an annual amortisation charge that is significantly less than the money that a company needs to spend on renewals expenditure.
- 12.32 The Regulator has concluded that he should also take a different approach when amortising the existing RAB (*i.e.* the value of the RAB at 1 April 2004). He considers that it is appropriate to set a higher allowance for amortisation of the existing RAB than that which is implied by the approach he is adopting for new investment. This is because it is necessary to allow Network Rail an allowance for amortisation which is sufficient to cover the cost of renewing the network in steady state. He also considers that it is inappropriate for him to calculate the amortisation of the existing RAB on a straight-line basis. This is because such a methodology generates a constant allowance for amortisation for a number of years before falling to zero at some date in the future. This creates a 'cliff-edge' in revenues at that point and introduces unnecessary volatility in prices from the perspective of customers and lenders.
- 12.33 He has therefore chosen to amortise the existing RAB on a reducing balance basis. Under this approach the value of the RAB declines by a given percentage each year (with an offsetting addition to allowed revenues to match this reduction). In order to ensure that the amortisation allowance in the next five years covers approximately half of Network Rail's expenditure on renewals and enhancements, it is necessary to reduce the value of the RAB at a rate of 7% per annum.

### Summary

12.34 The Regulator's allowances for amortisation, calculated using the above rules and the figures for the initial RAB and new investment earlier in this chapter, are set out in Table 12.6.

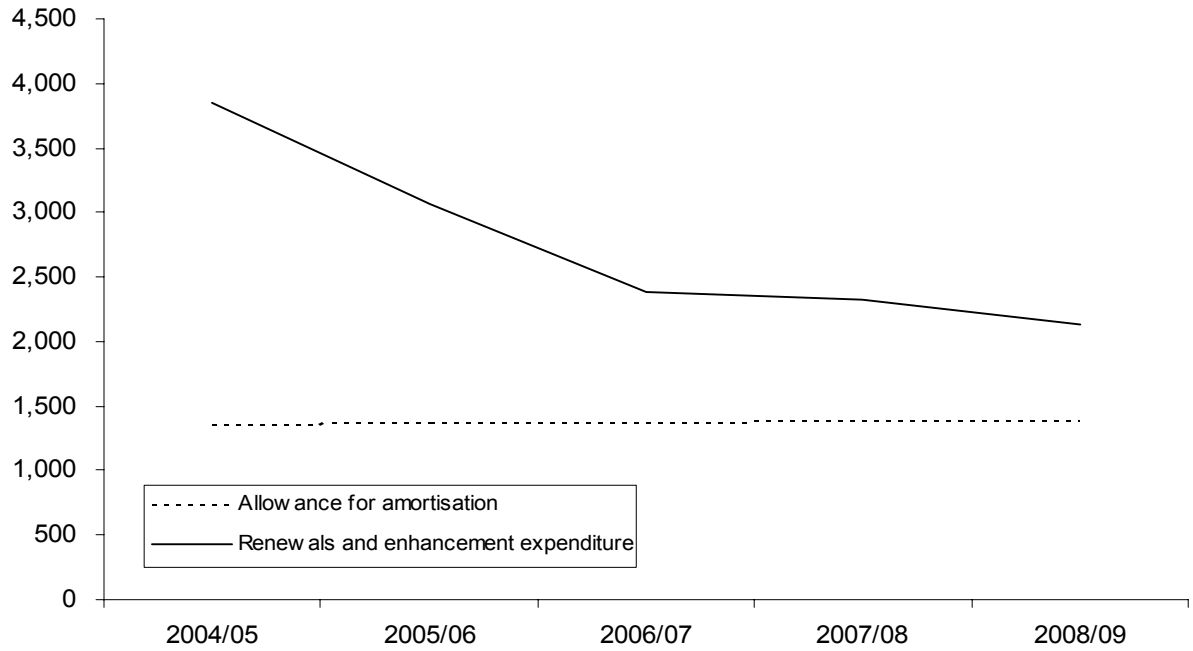
**Table 12.6: The Regulator's allowances for amortisation (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09
Amortisation of new investment	128	231	312	392	464
Amortisation of the existing RAB	1,239	1,152	1,071	996	927
<b>TOTAL</b>	<b>1,367</b>	<b>1,383</b>	<b>1,383</b>	<b>1,388</b>	<b>1,391</b>

12.35 Figure 12.7 presents this profile graphically. It shows that the proportion of renewals and enhancements that Network Rail must finance through borrowing declines throughout the five years covered by this review, with an offsetting increase in the amount of renewals that are funded by access charges. This is consistent with the pattern of Network Rail's expenditure, in which the proportion of work that is intended to lead to demonstrable improvements in the quality, age and condition of the network is highest in the early years of the control period.

12.36 The Regulator also notes that, on current forecasts of long-term expenditure, the two converging lines in Figure 12.7 are likely to become broadly equivalent at the end of the next five-year period (*i.e.* around 2013). This is consistent with a return to steady state in the next control period. The Regulator would expect to take a similar approach to amortisation in the next control period to that described above so that, based on current forecasts, the steady state position would be achieved.

**Figure 12.7: Amortisation and expenditures on renewals and core enhancements (£ million)**





## 13. Returns

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### Introduction

13.1 This chapter sets out the Regulator's conclusions on the appropriate level of return to include within his calculation of access charges. In his previous consultation papers, he explained that there are two key steps in the analysis:

- (a) *Step one*: The first is to ensure that Network Rail is able to meet its interest payments. This means calculating a forward-looking estimate of the cost of debt that a reasonably efficient company would incur; and
- (b) *Step two*: Having, in step one, established a floor on the level of return, the second step is to assess how much additional surplus the business requires. This can be assessed by looking at the overall profits earned by similar companies and by undertaking bottom-up modelling of the implications for Network Rail's financeability of alternative levels of return.

13.2 The outcome of this analysis is an amount, expressed as a percentage return on the RAB, which will form part of the Regulator's forward-looking calculations of Network Rail's revenue requirement. Network Rail can, of course, earn higher returns if it is able to reduce costs more quickly than the Regulator provides for when setting his allowances for expenditure and will earn lower returns if it is unable to meet the Regulator's efficiency targets. For this reason, the calculations in this chapter should be thought of as a base level for returns, with actual profits almost certain to turn out higher or lower according to Network Rail's ability to meet output and efficiency targets.

### Final conclusions

13.3 The Regulator will allow Network Rail a return on the RAB of between 6.5% and 7.0% per annum when setting access charges. He will set the return at the top end of this range for the first two years (*i.e.* 2004/05 and 2005/06) and at the bottom end of the range for the final three years (*i.e.* 2006/07, 2007/08 and 2008/09).

13.4 In arriving at these conclusions, the Regulator has assumed that Network Rail will pay interest of between 5.25% and 5.75% per annum on any debts that it owes to lenders. He proposes to take the upper end of this range expressed in real terms as 3.25% as

his discount rate when profiling Network Rail's revenue requirements across the five-year period.

### Reasons for the final conclusions: financing costs

- 13.5 In his previous consultation papers, the Regulator explained that he intended to assess the likely scale of Network Rail's future interest payments by looking empirically at the rate of interest that Network Rail pays on its existing debt just before the conclusion of this review. However, the company has said that it does not now intend to refinance its business until next year, after the conclusion of the review. The Regulator has therefore looked at the interest rates paid by other large corporate borrowers in the UK and based his assessment of Network Rail's cost of debt on these comparisons.
- 13.6 Table 13.1 summarises the results of the Regulator's analysis. Because the current level of interest rates for corporate borrowers is relatively low, the Regulator has examined corporate bond yields over a five-year period. He has also taken account of the credit rating which the three main rating agencies, Standard and Poor's, Moody's and Fitch, have assigned to companies.

**Table 13.1: Average bond yields by credit rating and measurement period (%)**

	Latest	Two-year average	Five-year average
AAA/Aaa	5.44	5.22	5.49
AA/Aa2	5.53	5.38	5.72
A/A2	5.76	5.71	6.14
BBB/Baa2	6.21	6.10	6.48

*Note:* the figures in table are based on the average yields on 10- and 20-year bonds.

- 13.7 The figures in Table 13.1 indicate that other investment-grade companies that have borrowed money in the UK bond market pay yields of between 5.2% and 6.5% per annum. Among those borrowers with the highest credit ratings (*i.e.* AA and above), the range is 5.22% to 5.72%.
- 13.8 Network Rail has told the Regulator that its securitisation of track access charges is intended to enable the company to raise the vast majority of the finance that it requires at a AA rating or higher. Based on the comparisons set out above, the Regulator therefore considers it appropriate to assume that it will pay interest to lenders of between 5.25% and 5.75% per annum.

- 13.9 This range then represents a reasonable floor on the return that the Regulator needs to allow Network Rail when calculating access charges. It is also an important factor for the Regulator to consider when setting the discount rate that he should apply when profiling access charges over the five-year period covered by this review. In Part 4 of this document, he has used a discount rate of 3.25% per annum, *i.e.* the upper end of his range for financing costs expressed in real terms. He has chosen this value because recent movements in the UK bond markets suggest that future interest rates are likely to be more in line with the five year average than the relatively low rates of the last two years.

### **Reasons for final conclusions: additional surplus**

- 13.10 In his June 2002 statement on the acquisition of Railtrack by Network Rail, the Regulator acknowledged that the overall return he allows should exceed financing costs, so as to allow Network Rail an additional surplus which can act as a buffer against shocks to costs and revenues. The Regulator outlined his proposed approach to the assessment of the allowed return in the second and third consultation documents and said that it would be important for him to have regard to a range of evidence before reaching his conclusions, including:
- (a) analysis of the overall returns earned by companies that conduct similar activities to Network Rail; and
  - (b) a bottom-up approach, in which the allowed rate of return is considered as just one part of detailed modelling of the cash flows that Network Rail will require in order to be in a position to be confident about its ability to finance its future activities.
- 13.11 The Regulator explained in his third consultation document that he considers that it is appropriate to place significant emphasis, at least in the first instance, on comparisons with other regulated network businesses and on assessing how much risk investors in Network Rail bear compared with investors in these other companies. If it appears that Network Rail's investors bear similar levels of risk to investors in similar businesses, the Regulator considers that this provides a strong basis for setting a similar overall return. Equally, if it can be shown that investors in Network Rail bear higher (or lower) risk, this provides a strong argument for allowing a relatively higher (or lower) return than that earned by other regulated businesses.
- 13.12 This approach is essentially the same as that which has been adopted by regulators in other industries in their own rate of return calculations and mirrors very closely the

approach the Regulator adopted at the October 2000 access charges review. The Regulator therefore considers it to be a robust methodology for assessing the overall return, both in this review and at future reviews of access charges. As a check on the conclusion that emerges from this analysis, the Regulator has also examined Network Rail's overall cash flows and the level of key financial indicators over the short and long term. The results of this work are set out in Chapter 15.

- 13.13 Few of the consultees who responded to the previous consultation documents commented in detail on this approach. Network Rail said in its response to the draft conclusions that it favoured a rate of return of between 7.0% and 7.5% and said that this should enable the business to achieve financial ratios that are consistent with an investment-grade credit rating.
- 13.14 The only other parties to comment on the Regulator's methodology were EWS and Freightliner, both of whom argued that Network Rail's return should be no more than 6% per annum.

#### *Comparisons with other utilities*

- 13.15 At the last access charges review, the Regulator allowed Railtrack an overall return of between £460 million and £560 million per annum, equivalent to a pre-tax rate of return on the RAB of 8%. This was a somewhat higher return than has been allowed by regulators in other monopoly network industries, as demonstrated by Table 13.2.

**Table 13.2: Rates of return allowed by other UK regulators**

Sector	Regulator	Pre-tax return
Rail	ORR	8.0%
Water and sewerage	Ofwat	6.8%
Electricity transmission	Ofgem	6.25%
Electricity distribution	Ofgem	6.5%
Gas transmission	Ofgem	6.25%
Gas distribution	Ofgem	6.25%
Airports	CAA	7.75%

*Note:* Ofwat return taken from Ofwat response to second consultation document.

- 13.16 The main reason for the difference in the return allowed by the Regulator in October 2000 and the returns set by regulators in other industries was the fact that a given change in Railtrack's costs and revenues has historically had a much larger impact on profits than in other regulated industries. This exposed investors in Railtrack to

relatively high levels of risk and the Regulator concluded previously that it was appropriate to allow Railtrack to make higher profits to offset the adverse impact that this sensitivity to cost and revenue shocks would have on investors.

- 13.17 In assessing the appropriate return for Network Rail during this review, the Regulator has considered how the level of risk faced by Network Rail's future lenders might differ from that borne by Railtrack's investors, and so whether the return required by those lenders might also be different. There are a number of factors to consider:
- (a) does the business's underlying exposure to variations in costs and revenues remain high;
  - (b) how far are investors in Network Rail protected against the impact of these variations by the company's financial structure; and
  - (c) how far do the proposed changes in the Regulator's methodology for setting access charges outlined in Chapter 3 of this document affect Network Rail's risk profile?

*Exposure to variations in costs and revenues*

- 13.18 Taking into account both recent increases in expenditure and the proposed adjustments to the value of the RAB set out in the previous chapter, it has become apparent that the sensitivity of Network Rail's profits to a given variation in costs and/or revenues has diminished over time. One way of measuring this sensitivity is to compare the amount of money that a company spends annually on operating, maintaining and renewing the network with the value of that company's RAB. Railtrack's annual expenditure amounted to approximately 50% of the value of the RAB, while in Network Rail's case the figure is between 20% and 30%.
- 13.19 While the level of operational gearing may have diminished, and continues to diminish further, Network Rail's profits will still remain more sensitive to changes to costs and revenues than is the case for other regulated companies, where the equivalent ratio is typically between 15% and 20%. He also notes that over the last three years Network Rail has faced considerable cost uncertainty, and he expects that this uncertainty will only diminish slowly in future. Therefore, while the scale of the risk associated with a cost overrun may have fallen to a level more in line with other regulated utilities, it is likely that the probability that a cost overrun will occur remains higher in the rail industry. For these reasons, the Regulator takes the view

that Network Rail's exposure to cost risk has changed little since the October 2000 access charges review.

*Network Rail's financial structure*

13.20 In order to establish how far cost risk and operational gearing affect the return that lenders will require, it is necessary to consider the extent to which lenders, rather than other parties, bear the financial consequences associated with overspending. Network Rail has several buffers in its financial structure which provide safeguards that the business will still be able to meet interest payments even in the face of cost shocks:

- (a) the availability of the £4 billion standby credit facility provided by the SRA; and
- (b) Network Rail's opening debt to RAB ratio, and the resulting possibility for Network Rail to borrow against the RAB to create upfront cash reserves.

13.21 Such buffers within Network Rail's financial structure were deliberately designed to enable the business to withstand very severe shocks to costs and revenues. Other things being equal, they serve to reduce the risk that Network Rail's lenders bear and suggest to the Regulator that Network Rail may require a lower rate of return than its predecessor.

*Changes in the regulatory framework*

13.22 In Part 1 of this document, the Regulator outlines new provisions which, when implemented, will allow him flexibility to adjust Network Rail's access charges in the light of information that emerges in future about expenditure. They include:

- (a) reviews of specific activities where there is currently significant uncertainty about the spending that Network Rail will incur over the next five-year period; and
- (b) a more general interim review provision which would enable the Regulator to consider more widely Network Rail's expenditure, the outputs it is required to deliver and the overall level of access charges if Network Rail's expenditure deviates by more than 15% from the allowances made in this review.

13.23 In allowing this flexibility, the Regulator considers that Network Rail's lenders will be exposed to much lower amounts of risk compared to investors in Railtrack and other regulated companies which operate under more rigid five-year price controls.

13.24 He also regards many of the other changes proposed in this document as helpful in reducing risk, either directly or indirectly, by applying more appropriate and manageable incentive frameworks. All these considerations indicate strongly that investors in Network Rail may face less exposure to the risk associated with unanticipated variations in costs and/or revenues than investors in Railtrack did.

### *Summary*

13.25 In his third consultation paper, the Regulator said that his preliminary analysis of these considerations had led him to the view that Network Rail's allowed return should be between 6% and 8% per annum. The bottom half of this range is consistent with the returns that have been earned by other monopoly network businesses in the electricity, gas and water industries, while the upper limit coincides with the return that the Regulator allowed Railtrack in the October 2000 review of access charges.

13.26 His final conclusion is that he should allow Network Rail to earn a return within the range of 6.5% to 7.0% per annum. This figure is lower than the return that he allowed Railtrack because Network Rail's lenders will bear lower risk than investors in Railtrack. Instead, the allowed return is now much more in line with the allowances made previously by Ofwat and Ofgem. Whilst the Regulator considers that Network Rail remains more likely than other monopoly network businesses to experience variations in profitability (because of its relatively high operational gearing), his view is that Network Rail benefits from significant protections which transfer risk away from lenders.

13.27 Because the likelihood of cost variations is highest at the beginning of the five-year period, when Network Rail's new management are still implementing the initiatives that will enable them to deliver the efficiency improvements required by the Regulator and when Network Rail is undertaking significant expenditure on the West Coast modernisation, the Regulator proposes to allow Network Rail a return at the top end of his range, *i.e.* 7.0% per annum, in the first two years of the control period. From 2006/07, he has concluded that it is appropriate to reduce the allowed return to 6.5% because Network Rail's new management team will by this date have a much better understanding of the cost base and lenders will as a result be exposed to lower levels of risk.

13.28 While allowing the company a return in excess of its likely interest payments will provide Network Rail with an annual buffer against cost overruns, the scale of this buffer has been set so that it is in line with that which is made available to other

monopoly network businesses. The Regulator therefore considers that the incentives facing Network Rail's management will be no less strong than those facing management in similar companies as a result of these conclusions.

*Approach to taxation*

- 13.29 The range of 6.5% to 7.0% set out above is a pre-tax rate of return. Network Rail will therefore need to cover any tax payments it is obliged to make from the surpluses that it generates.
- 13.30 The Regulator notes that this position is consistent with the approach adopted by most of the other regulators. In particular, the comparisons set out earlier in this chapter between Network Rail and other regulated utilities focused on the pre-tax returns earned by other, similar businesses. The Regulator has not been provided with any evidence to suggest that the tax shields that are available to Network Rail are any less favourable than those that are available to these other companies – indeed, if anything, Network Rail is likely to make much lower tax payments than other regulated businesses. The Regulator therefore considers that it is appropriate for him to set Network Rail's allowed return in line with the pre-tax returns earned elsewhere.

## 14. Other income

### Introduction

14.1 In setting the access charges paid by franchised passenger train operators, the Regulator will follow the ‘single till’ approach that was originally adopted in 1995 and used again at the access charges review in 2000. Under this approach, the Regulator assesses the costs incurred by the business as a whole in calculating Network Rail’s revenue requirement, regardless of whether or not the expenditure is directly related to the provision of the access rights that are contained in the agreements between Network Rail and franchised passenger train operators. He then estimates the income that Network Rail will receive from sources other than these train operators and sets access charges so that Network Rail’s *aggregate* income is just equal to the business’s overall revenue requirement.

14.2 This chapter sets out the Regulator’s projections of the income that Network Rail can expect to earn from these other sources, primarily its property business, charges paid by freight train operators and open access passenger train operators, stations and depots charges, and income from previously ring-fenced enhancement schemes.

### Final conclusions

14.3 The Regulator’s final conclusions are set out in Table 14.1.

**Table 14.1: Forecasts of other single till income (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
Property income	220	230	230	235	239	1,152
Freight income	81	83	86	88	91	428
Open access income	43	43	43	28	28	184
Stations income	273	273	274	274	274	1,367
Depots and other income	49	49	49	49	49	247
Ring-fenced assets income	16	25	25	25	25	116
<b>Total</b>	<b>682</b>	<b>703</b>	<b>707</b>	<b>699</b>	<b>705</b>	<b>3,495</b>

14.4 The amounts in Table 14.1 are slightly higher than the figures set out in Network Rail’s 2003 business plan. However, the Regulator’s forecasts are on average £45

million per annum below the figures used in the 2000 access charges review. This is due entirely to the SRA's commitment to pay directly to Network Rail a proportion of the charges that would otherwise have been levied on freight operators. Stripping out the effect of this policy, the Regulator's forecasts on average are £40 million per annum higher than the figures used at the last access charges review.

## Reasons for final conclusions

### *Property*

14.5 In June 2003, the Regulator appointed DTZ Pidea Consulting (DTZP) to review Network Rail's property income projections for the five-year period covered by this review. The consultants' work was divided into two stages:

- (a) in stage 1, the consultants undertook an assessment of the property income projections set out in Network Rail's March 2003 business plan and assessed whether the business was maximising the revenue-generating potential of its existing property assets; and
- (b) in stage 2, the consultants reviewed Network Rail's new property strategy and assessed whether a change in the business's approach could enable Network Rail to generate further income from its property activities over the longer term.

14.6 In a number of areas, DTZP concluded that Network Rail had slightly underestimated the income it can expect to generate over the next control period. Broadly speaking, however, DTZP endorsed Network Rail's projections. Table 14.2 sets out the estimates that have been made by both parties.

**Table 14.2: DTZP forecasts compared to the business plan (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
DTZP best case	230.2	241.9	247.7	258.5	268.2	1,246.5
DTZP benchmark	222.4	232.2	236.7	243.3	248.8	1,183.4
DTZP worst case	217.8	227.3	229.1	235.3	240.5	1,150.0
Network Rail March 2003	219.3	230.1	234.7	242.5	248.3	1,174.9

14.7 In his third consultation document, the Regulator said that he was minded to set his projections for property income in line with DTZP's best case scenario. Network Rail

responded by arguing that its own targets are already sufficiently challenging and by pointing out that DTZP's best case is based in part upon a series of assumptions relating to the impact of external factors on the property market, rather than factors that are directly within its management's control.

14.8 The Regulator's conclusions on property income have been influenced by Network Rail's request to remove the property allowance scheme (PAS) provisions from Schedule 7 of franchised passenger operators' track access agreements. These provisions currently require Network Rail to share with customers and funders 25% of the benefits of any increase in the level of property income over and above that assumed by the Regulator at an access charges review. Network Rail's arguments in favour of the abolition of the PAS are as follows:

- (a) the PAS is no longer needed to ensure that property out-performance remains in the industry since Network Rail has no shareholders;
- (b) the PAS is no longer necessary to constrain the development of land that might be required for railway use as Condition 26 of Network Rail's network licence provides sufficient protection for operators and funders;
- (c) continuing with the PAS would create a disincentive for Network Rail to outperform the target level of income, as well as perverse incentives in relation to the timing of deals and the discouragement of those where the PAS does not take into account all costs and revenues;
- (d) abolishing the PAS would not reduce Network Rail's appetite for schemes which offer benefits to the railway; and
- (e) the PAS involves additional administrative burden and complexity for no additional benefit.

14.9 The SRA has written to the Regulator and said that it supports Network Rail's request. The Regulator has also consulted with all of Network Rail's other customers and funders, none of whom has objected to the removal of the PAS arrangements from track access agreements. He has therefore concluded that he should remove this provision from Schedule 7 when implementing the conclusions of this access charges review.

14.10 Because Network Rail will now retain in full any out-performance against the forecasts of property income set as part of the review, the Regulator believes it is vital

that the forecasts he makes are challenging, but realistic, estimates of the income that a well-managed and competent company would generate from Network Rail's portfolio of assets. He does acknowledge, however, that the best case scenario set out as the property income forecast in the third consultation document may have been too high given the current market conditions.

14.11 For this reason, the Regulator's final conclusions are based upon the mid-point between the best case and the benchmark cases as set out in DTZP's report. Network Rail has pointed out that some of this income is dependent upon investment in its Spacia business for which Network Rail is receiving no other funding as part of this review. The Regulator accepts that it would be inappropriate to clawback these revenues through his single till calculations and he has reduced DTZP's forecasts by an average of £8 million per annum so as to exclude this income. He has also amended DTZP's forecasts slightly so as to include only the net income arising from commercial activities at major stations.

14.12 After these adjustments, the Regulator's projections of property income are as set out in Table 14.3. The Regulator considers that this is a challenging target for Network Rail to meet, and one that ensures customers and funders continue to benefit from improvements in the way in which Network Rail manages its property portfolio.

**Table 14.3: Forecasts of property income (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR December 2003	220.0	229.8	229.6	235.0	238.4	1,152.8
Network Rail November 2003	216.8	220.0	220.4	222.2	223.5	1,102.9
ORR October 2000	195.1	201.6	-	-	-	-

### *Freight*

14.13 In its March 2003 business plan, Network Rail predicted that it would receive increasing income from freight operators, from £80.6 million in 2004/05 to £90.8 million in 2008/09.

14.14 The Regulator has included Network Rail's projections of income from freight operators in his own calculations. This is because:

- (a) Network Rail has based its projections upon the price list which the Regulator established in his 2001 review of freight charging; and

- (b) the traffic forecasts that Network Rail has used in its projections were provided by the SRA, and therefore represent an objective and reliable estimate of freight volume growth in the next five years that are aligned with the SRA's freight strategy.

14.15 A comparison with the forecasts made by the Regulator in his 2000 review of track access charges and his 2001 review of freight charging policy are set out in Table 14.4.

**Table 14.4: Forecasts of income from freight operators (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR December 2003	80.6	83.1	85.6	88.1	90.8	428.2
Network Rail November 2003	80.6	83.1	85.6	88.1	90.8	428.2
ORR October 2001	82.2	79.3	-	-	-	-
ORR October 2000	183.2	176.7	-	-	-	-

14.16 The table shows that the Regulator's forecasts are quite considerably lower than the assumptions made by the Regulator at the time of the October 2000 access charges review. This is for two reasons:

- (a) in October 2001, it was decided that the SRA should pay directly to Railtrack/Network Rail the fixed charges that would otherwise have been levied on freight train operators; and
- (b) during the last three years, forecasts of the growth in freight traffic have been reduced.

#### *Open access*

14.17 Revenue from non-franchised passenger train operators is a small component of Network Rail's overall income. The Regulator has concluded that the company will receive just over £40 million from open access operators during the next three years and then approximately two thirds of this amount in subsequent years. This is because:

- (a) it is appropriate in the first three years to assume that Network Rail will maintain the levels of income that are provided for by its existing contracts with open access operators;

- (b) from 2007, the largest open access operator, Eurostar, will be able to use phase 2 of the Channel Tunnel Rail Link, causing Network Rail's income to fall; and
- (c) the projections are in line with those that Network Rail has set out in its own forecasts.

14.18 Table 14.5 sets out the Regulator's projections, along with the forecasts made by Regulator at the last access charges review.

**Table 14.5: Forecasts of income from open access operators (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR December 2003	43.0	43.0	43.0	27.5	27.5	184.0
Network Rail November 2003	43.0	43.0	43.0	27.5	27.5	184.0
ORR October 2000	52.0	52.0	-	-	-	-

14.19 The figures in Table 14.5 are slightly lower than those which were set out in the Regulator's third consultation document to reflect an amendment to Network Rail's track access agreement with London Underground Limited which was agreed in October 2003.

### *Stations*

14.20 The income that Network Rail earns from its stations portfolio falls under three main headings:

- (a) franchised stations first reserved rent;
- (b) long-term charges paid by users of both major stations (operated by Network Rail) and franchised stations (which are leased to individual train operators); and
- (c) major stations qualifying expenditure.

14.21 The Regulator has concluded that Network Rail is likely to earn between £270 million and £275 million per annum from these sources. This is because:

- (a) DTZP have, as part of their work on property income, established that Network Rail is likely to earn just over £30 million per annum in each of the next three years from franchised stations first reserved rent;

- (b) income from station long-term charges is determined by the amounts that are set out in the relevant station access agreements and will total approximately £200 million per annum in the next five years; and
- (c) the Regulator considers that the current level of income from major stations qualifying expenditure provides a good estimate of income in future years and has not been presented with any compelling evidence to suggest that there is scope for significant efficiencies in this area of spend.

14.22 The Regulator's projections are set out in Table 14.6.

**Table 14.6: Forecasts of income from stations (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR December 2003	272.6	273.0	273.5	273.9	274.3	1,367.3
Network Rail November 2003	269.5	266.9	264.5	263.3	262.0	1,326.2
ORR October 2000	274.3	275.3	-	-	-	-

#### *Depots and other facilities*

14.23 Network Rail generates income by leasing depots to third parties, known as depot facility owners, who in turn charge train operators for use of these depots. It also owns other facilities from which it earns revenues, notably connections, private sidings and the recouping of litter and TOC insurance costs.

14.24 The Regulator has concluded that Network Rail is likely to receive approximately £50 million per annum from these sources. This is because:

- (a) he considers that the income Network Rail's received in 2002/03 represents the most robust starting point from which to estimate future levels of expenditure; and
- (b) he has rejected Network Rail's arguments that his revenue projections should include an allowance for risk—his calculation of the allowed return, set out in Chapter 13, is sufficient to enable Network Rail to manage revenue risk.

14.25 The Regulator therefore continues to believe that the most accurate forecast for the level of depot income is that level that he set out in the third consultation document. This is set out in Table 14.7 below.

**Table 14.7: Forecasts of income from depots and other sources (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
Depots	42.0	42.0	42.0	42.0	42.0	210.0
Other income	7.4	7.4	7.4	7.4	7.4	37.0
ORR December 2003	49.4	49.4	49.4	49.4	49.4	247.0
Network Rail November 2003	48.5	48.5	48.5	48.5	48.5	242.5
ORR October 2000	42.3	42.3	-	-	-	-

*Previously ring-fenced assets*

14.26 Network Rail receives some additional income directly from customers and funders in the form of contributions to Network Rail's investment in certain enhancement projects, namely the West Coast, Thameslink 2000, Sunderland Metro and Cross Country route modernisation projects.

14.27 The Regulator has concluded that Network Rail is likely to receive £16.2 million from these sources in 2004/05 and £24.9 million in each of the following four years. These are amounts which customers and funders for the above projects are contractually committed to pay Network Rail.

**Table 14.8: Forecasts of income from previously ring-fenced assets (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
ORR December 2003	16.2	24.9	24.9	24.9	24.9	115.8
Network Rail November 2003	16.2	24.9	24.9	24.9	24.9	115.8

# **PART 4: REVENUE REQUIREMENTS**



## 15. Network Rail's revenue requirements

### Introduction

15.1 This chapter combines the Regulator's final conclusions on expenditure and financing into an overall assessment of Network Rail's revenue requirements for the five-year period from 1 April 2004. It discusses, in turn:

- (a) the Regulator's calculations of Network Rail's revenue requirements;
- (b) Network Rail's ability to finance its relevant activities; and
- (c) the SRA's financial position.

### The Regulator's calculations

#### *Overall revenue requirements*

15.2 Table 15.1 sets out the building blocks from the earlier chapters that have been used in this assessment.

**Table 15.1: Key assumptions**

Efficiency savings	8% per annum reductions in unit costs in 2004/05, 2005/06, 2006/07, followed by reductions of 6% per annum in 2007/08 and 2008/09
OPEX	Total expenditure of £5,253 million over five years
Maintenance	Total expenditure of £5,207 million over five years
Non-WCRM renewals expenditure	Total expenditure of £9,596 million over five years
WCRM renewals + enhancement expenditure	Total expenditure of £2,803 million over five years
April 2004 RAB	£17.7 billion
Non-WCRM enhancements	£1,527 million over five years
Amortisation	Average annual allowance of £1,382 million per annum
Rate of return	7.0% per annum in 2004/05 and 2005/06, falling to 6.5% per annum in 2006/07, 2007/08 and 2008/09
Other income	Average annual income of £699 million per annum

15.3 Using the methodology set out in Chapter 3 of this document, Network Rail's annual revenue requirement is calculated as the sum of OPEX plus maintenance expenditure

plus amortisation of the RAB plus an allowed return *less* income received from sources other than track access charges paid by franchised passenger train operators.

15.4 Table 15.2, below, sets out Network Rail's allowed revenue under this approach.

**Table 15.2: Annual revenue requirements (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09
OPEX	1,178	1,101	1,031	991	953
Maintenance	1,222	1,124	1,034	951	875
Schedule 4/8 costs	78	85	91	92	93
Amortisation	1,367	1,383	1,383	1,388	1,391
Return	1,281	1,422	1,410	1,475	1,531
<b>Gross revenue requirement</b>	<b>5,125</b>	<b>5,114</b>	<b>4,949</b>	<b>4,898</b>	<b>4,843</b>
Other income	(682)	(703)	(707)	(699)	(705)
<b>Revenue requirement</b>	<b>4,443</b>	<b>4,411</b>	<b>4,242</b>	<b>4,199</b>	<b>4,137</b>

15.5 A £4.4 billion net revenue requirement in 2004/05 (£5.1 billion before the deduction of other income) represents an increase of approximately 50% on the assessment made by the Regulator in his October 2000 access charges review final conclusions. This is primarily due to increases in the amount that the Regulator is allowing Network Rail to spend on the operation, maintenance, renewal and enhancement of the network and in the amount of interest that the company will owe to lenders. Offset against these rises is the move to remunerate expenditure on renewals through the RAB which serves to reduce the revenue that the company requires within the five-year period.

#### *Implications for access charges*

15.6 In determining the level of track access charges paid by franchised passenger train operators, the Regulator must satisfy himself that Network Rail can expect to receive in full the amounts set out in the last line of table 15.2. At present, the company receives the revenue requirement established by the Regulator from two sources:

- (a) track access charges; and
- (b) grants paid directly to the company by the SRA under section 211 of the Transport Act 2000.

- 15.7 The SRA is currently obliged, by virtue of a deed of grant entered into with Network Rail, to make payments to the company at six-monthly intervals until April 2006. Deducting these amounts from the revenue requirement shown in table 15.2 (and allowing for financing benefits caused by the timing of these grants in two lump sums, rather than being paid throughout the year) means that access charges need to increase to the levels shown in Table 15.3.

**Table 15.3: Network Rail's revenues (£ million)**

	<b>Expected revenue from track access charges (fixed + variable)</b>	<b>Grants paid by the SRA</b>	<b>Total revenues</b>
2004/05	3,164	1,279	4,443
2005/06	3,759	652	4,411
2006/07	3,690	552	4,242
2007/08	4,199	0	4,199
2008/09	4,137	0	4,137

- 15.8 Ten days before the publication of this document, the DfT and the SRA made a joint submission to the Regulator in which they explained that for accounting reasons<sup>20</sup> it would be desirable for the SRA in future to increase the amount of money that it pays in grant to Network Rail, allowing access charges to be set at a lower level than in Table 15.3. By virtue of an obligation in clause 18.1 of all franchise agreements, the SRA is required to indemnify train operators against the consequences of higher access charges and the DfT and the SRA explained that allowing the SRA to pay more directly to Network Rail in grant would reduce the pressure on the SRA's overall franchise support budget at a time when the cost to the SRA of subsidies paid to franchise holders had already risen sharply and was likely to cause the SRA to incur expenditure beyond that which has been allocated to it.
- 15.9 The Regulator considers it regrettable that such fundamental issues should be raised at such a late stage in the review, given the considerable efforts he has made to establish

<sup>20</sup> Specifically the fact that, although higher access charges would be used to support capital expenditure by Network Rail, an increase in franchise support would be classified as current expenditure and the Government's rules prohibit borrowing to cover current expenditure over the economic cycle.

the SRA's financial position, in accordance with his statutory duties. In considering the proposal that has been put to him, the Regulator has placed considerable weight on the need for Network Rail to focus on meeting the requirements of its train operator customers (passenger and freight). It is this imperative which has driven the Regulator's reform programme: to reform the contracts Network Rail holds with its customers, to make them stronger, simpler and streamlined; substantially to strengthen Network Rail's network licence; and to lead the development of local output commitments, through which Network Rail will give contractually binding annual commitments on the level of performance it will deliver - operator-by-operator - and supply the plans which underpin these commitments. The Regulator firmly believes that the nature of the relationship between Network Rail and its train operator customers should be that of a joint-endeavour focused on delivering a quality service to the end-user: passengers and freight customers. For these reasons, the Regulator must be extremely wary of any changes to Network Rail's financial structure that risk diluting this essential supplier-customer relationship.

15.10 Nevertheless, the Regulator understands the implications of the Government's accounting conventions and the broad extent of the financial position of the SRA. He considers it appropriate that he should facilitate accounting treatment that accurately records funding provided for capital expenditure. Because he is satisfied that this is an issue of accounting treatment and not of accountability (which is protected through the elements of his regulatory reform programme described in paragraph 15.9 above), he has therefore decided that it would be appropriate for him to allow for a higher proportion of Network Rail's income to be funded through grants so long as:

- (a) there are *no conditions* attached to the payment of the grants, because any such conditions could dilute Network Rail's focus on its contractual obligations to its customers, and its broader network licence obligations;
- (b) there is *certainty* that the grant will be paid, evidenced by Network Rail and the SRA agreeing changes to the sums payable under the existing deed of grant;
- (c) that this certainty is delivered *swiftly*; and
- (d) there is a mechanism in track access agreements that will cause track access charges *automatically* to rise in the event of any default on grant payments or the attaching of any conditions to their payment.

- 15.11 Because the SRA and DfT made their request to increase grant payments at such a late stage, it has not been possible for the SRA to finalise the legal instrument which provides for additional grants to be paid to Network Rail, nor has it been possible for the Regulator to verify that Network Rail is content with the SRA's proposition. One of the main objectives from the beginning of this access charges review has been to ensure that Network Rail has sufficient income to enable it to finance its activities. In the circumstances, the Regulator has concluded that he has no choice at the present time but to increase access charges to provide Network Rail in full with the amounts shown in Table 15.3. However, the Regulator will include a mechanism in Schedule 7 of franchised passenger train operators' track access agreements which allows Network Rail, by no later than 29 February 2004, to submit to the Regulator a new schedule of grant payments. On receiving this submission, the mechanism will provide the Regulator with the power to reduce the amount paid in access charges to a lower level to be determined at his discretion, with the balance being taken up in grants. He would only be prepared to make such a reduction if he was satisfied that to do so would be consistent with the discharge of his statutory duties, and met the conditions in paragraph 15.10 above.
- 15.12 Existing franchise holders will be unaffected by such an adjustment since clause 18.1 of the franchise agreement contains an indemnity mechanism which enables them to pass through the financial consequences of changes in charges to the SRA on a no-net-loss, no-net-gain basis, so long as the changes arise by virtue of an access charges review, as is the case for these adjustments. In order to ensure train operators do not experience short term cash flow difficulties, if access charges need at some point in the future to increase as a result of a reduction in grant payments (for any reason), higher access charges will be profiled over time with a lag of three months between non-payment by the SRA and any offsetting increases in track access charges. This will give operators time to invoke the indemnities in clause 18.1 of their franchise agreements with the SRA.
- 15.13 In order to ensure his decision on the operation of the mechanism described in paragraph 15.11 above is properly informed, the Regulator wishes to invite further views from the rail industry on the narrow issue of the appropriate balance between track access charges and direct grants. The Regulator would be grateful for views on the conditions he has set out in paragraph 15.10, and on any other specific considerations that he might appropriately weigh in discharging his statutory duties in this respect. **The Regulator invites comments to be sent to him by the end of January 2004, so as to allow time for him to consider and, as necessary, discuss**

**them with rail industry parties and stakeholders in good time before the 29 February 2004 deadline for Network Rail's submission.**

#### **Network Rail's ability to finance its activities**

- 15.14 In reaching his final conclusions, the Regulator has examined carefully the implications for Network Rail's financial position of the level of revenue, including access charges, set out in Tables 15.2 and 15.3, and is satisfied that the overall income he is allowing for the five years is sufficient to enable Network Rail to finance its relevant activities. In particular, he is satisfied that Network Rail will be able to finance the baseline expenditure requirements underlying these revenues and deliver the baseline outputs set out in Chapter 9 of this document.
- 15.15 In practice, this means that the company should be in a position throughout the next five years, as a consequence of this access charges review, to obtain a sufficiently strong credit rating to enable it, in turn, to borrow enough money to finance the difference between its income and its expenditure, and to do so at a reasonable cost. The Regulator recognises that many different factors interact to determine whether this is ultimately the case, but he considers that the financial indicators set out in Table 15.4, together provide an important input into this judgment.

**Table 15.4: Relevant financial indicators**

<b>Indicator</b>	<b>Definition</b>
<b>Income to interest</b>	Total revenues from track access charges and SRA grants  <i>Divided by</i>  Gross interest incurred before subtracting capitalised interest and interest income
<b>Adjusted interest coverage</b>	Post-tax operating cash flow less the portion of capital expenditure that maintains the RAB at a constant value (in real terms) over the regulatory period  <i>Divided by</i>  Gross interest incurred before subtracting capitalised interest and interest income
<b>EBITDA interest coverage</b>	Earnings from continuing operations before interest, taxes, depreciation and amortisation  <i>Divided by</i>  Gross interest before subtracting capitalised interest and interest income
<b>EBIT interest coverage</b>	Earnings from continuing operations before interest and tax  <i>Divided by</i>  Gross interest before subtracting capitalised interest and interest income
<b>FFO interest coverage</b>	Funds from operations (that is, net income from continuing operations plus depreciation, amortisation, deferred income taxes, and other non-cash items)  <i>Divided by</i>  Gross interest before subtracting capitalised interest and interest income
<b>FFO to total debt</b>	Funds from operations (as above)  <i>Divided by</i>  Long term debt plus current maturities, commercial paper, and other short-term borrowings
<b>Net cashflow to capex</b>	Net cash inflow from operating activities  <i>Divided by</i>  Total capital expenditure
<b>Debt to RAB</b>	Net debt (that is, long term debt plus current maturities, commercial paper, and other short-term borrowings, less investments and cash at bank and in hand)  <i>Divided by</i>  RAB plus value of enhancements not included in RAB

15.16 In assessing Network Rail's ability to finance its relevant activities, the Regulator has placed particular weight on three of the indicators in Table 15.4:

- (a) *income to interest*: the Regulator's analysis indicates that the ratio of income from track access charges and SRA grants to interest paid to lenders will remain above 4.0 throughout the next five years. This should enable debt issued under the securitisation structure outlined in Chapter 11 to obtain a very strong credit rating, thereby allowing Network Rail to raise new debt finance at relatively low interest rates;
- (b) *adjusted interest coverage*: the Regulator has examined a number of scenarios for adjusted interest coverage and considers that a well-managed and competent company ought to be able to maintain this ratio above 1.5 throughout the five-year control period; and
- (c) *debt to RAB*: the Regulator's modelling indicates that the ratio of debt to RAB will decline over the next five years, from a peak of approximately 0.8 in April 2004. This provides the company with a buffer against unexpected cost shocks and will be of considerable importance to lenders.

15.17 It is a requirement of Condition 12 of Network Rail's network licence that the company should use all reasonable endeavours to ensure that, as issuer of any corporate debt, it maintains an issuer rating which is investment grade. The Regulator considers it very important that the licensed business is in a position to obtain and maintain an investment-grade credit rating. This will not only enable the company to finance its own activities, but will also provide a demonstration to its railway operator customers and funders, and other railway users, of the company's viability and sustainability thus enabling them, in turn, to plan the future of their own businesses with a reasonable degree of assurance. The Regulator's analysis of the financial indicators set out above and the revenues in Table 15.2 has satisfied him that his final conclusions will enable the company to comply with its network licence obligation in this respect.

### **Implications for the SRA's financial position**

15.18 In reaching his final conclusions, the Regulator has had careful regard to the financial position of the SRA, to the extent he has knowledge of it. He has met regularly with the SRA and with officials from the DfT and the Treasury since the review began and has ensured that all three bodies have been able to follow closely the progress of the review. Although his assessment of Network Rail's expenditure requirements is significantly lower than the amounts that the company put to the Government in its September 2002 business plan, shortly before the Secretary of State applied to the

High Court to lift its administration order, the SRA informed the Regulator before the publication of his third consultation paper in July 2003 that it would not be able to accommodate an increase in access charges within its existing allocation of funding from the DfT. In such a situation, the statutory guidance issued to the Regulator by the Secretary of State provides that the Regulator should allow the SRA time to consider whether it wishes to amend its strategies or seek consent from the Secretary of State for additional expenditure. This process was activated at the beginning of July 2003.

15.19 On 1 September 2003, the Regulator wrote to the SRA and asked that it set out in a submission to him an up-to-date statement of its strategies and its financial position. This submission was received on 30 September 2003 and stated that:

- (a) the SRA had at that date made one amendment to its strategies by producing the network output specification referred to in Chapter 9; and
- (b) there had at the time been no change in the SRA's allocation of funding from the DfT (a position that the SRA confirmed again to the Regulator in December 2003).

15.20 In discharging his statutory duties under section 4 of the Railways Act 1993, the Regulator does not consider that there is currently any action that he can properly take to reduce the level of Network Rail's revenue requirement below the level set out in Tables 15.3 and 15.4. He is also satisfied that it is not in the public interest (as expressed by section 4 of the Act) to set access charges at some lower level. This is because:

- (a) it is not realistic to assume that Network Rail can reduce its expenditure by more than the amounts set out in Part 2 of this document if it is required to deliver the outputs contained in Chapter 9 of this document;
- (b) any downward adjustment to the Regulator's allowances for amortisation and returns will, on the basis of the information currently available to him, make it unduly difficult for Network Rail to finance the delivery of the outputs set out in Chapter 9 of this document; and
- (c) to require Network Rail to deliver less onerous targets for delay minutes or other outputs would be to the detriment of users of the railway, to the detriment of the use and development of the network and would obstruct the furtherance by the SRA of the strategies it has formulated with respect to its purposes.

15.21 Subject to the Regulator's use of the mechanism to reflect a changed proportion of grant income in paragraph 15.10, he has concluded that he should also allow Network Rail the flexibility to propose its own profiling of these grant payments over time, which may involve the company borrowing more in the short term than the Regulator has assumed is possible in these final conclusions. This, in turn, would reduce the pressure on the SRA's budget in the short term. In such circumstances, the Regulator would need to assess carefully any proposition that is put to him in accordance with his statutory duties and Network Rail's network licence obligations. His decision will be subject to four key tests:

- (a) given that additional borrowing is a transitional measure, by no later than April 2006 Network Rail must be in a position where it is receiving the full revenues that the Regulator has established in this review that it requires;
- (b) whether the level of borrowing which the company would incur makes it unduly difficult for the company to finance its relevant activities during the next five years;
- (c) whether the amount of debt thus built up threatens the long-term viability of the company, and thus prejudices the interests of the users of railway services; and
- (d) whether all parties accept that any additional short term borrowing must be reflected in the Regulator's calculation of the RAB.

15.22 In reaching these decisions, the Regulator has, so far as practicable, sought to discharge all of his statutory duties under section 4 of the Railways Act 1993. Where such duties conflict, the Regulator must ensure his conclusions strike the appropriate balance. There is a tension between the Regulator's duty in respect of enabling the company to finance its relevant activities in section 4(5)(b) of the Act and that under section 4(5)(c) to have regard to the financial position of the SRA. The Regulator has therefore weighed carefully the evidence and arguments put to him, and is satisfied that the balance struck, in particular as reflected by the conclusions set out in this chapter, is appropriate in the light of the full range of his duties, given the importance of stabilising Network Rail's financial position so as to protect the interests of the operators of railway services and of users of the railway.

## ***16. Implementation***

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### **Introduction**

16.1 This chapter explains how the conclusions of this review are to be implemented. It also describes the detailed changes to Schedule 7 to franchised passenger train operators' track access agreements, which are being made through this review. The changes which the Regulator is making to Schedules 4 and 8 are discussed separately in Chapter 18.

### **Access charges review**

16.2 The current review is an access charges review under Schedule 4A to the Railways Act 1993 initiated by the Regulator on 25 September 2002. In accordance with the process set out in the Act, the Regulator is implementing the final conclusions set out in this document by issuing a series of notices.

16.3 The first notice – 'the review notice' initiates the implementation of an access charges review and contains:

- (a) a statement of the Regulator's final conclusions in this access charges review and the reasons why he has reached those conclusions;
- (b) the changes which he proposes to make to franchised passenger train operators' track access agreements for or in connection with giving effect to those conclusions; and
- (c) the date of 1 April 2004 on which he proposes that each of those changes should come into operation.

16.4 The review notice which the Regulator will issue in this review has two Annexes. Annex 1 contains the standard (non-train operator specific) amendments to track access contracts. Annex 2 contains operator-specific amendments to track access contracts, for example, revised payment rates and performance points in the operational performance regimes (Schedule 8).

- 16.5 The Regulator is allowing a period of six weeks from the serving of this notice in which Network Rail<sup>21</sup> has an opportunity to object to any of the proposed changes. If the Regulator receives such an objection he may issue a new review notice or make a reference to the Competition Commission. If the Regulator issues a new review notice, this stage of the process begins again, with Network Rail having a further period of up to six weeks to make known any objections to the new notice.
- 16.6 If the Regulator receives no relevant objection, a second notice – a ‘notice of agreement’ – must be published and served on franchised passenger train operators. These operators, may, if they wish, give notice of termination of their access agreements. Any such notice must be given within 28 days of receiving the notice of agreement. If no termination notice is given, a third notice – the ‘review implementation notice’ – must be published. This notice must state that the Regulator’s conclusions are to be implemented as proposed in the review notice, and set out again the relevant changes to access agreements and the date on which the changes take effect.

*Requirements of the parties to track access agreements*

- 16.7 When the review implementation notice is served on the parties to the track access agreements, the parties need to make the amendments set out and submit the revised agreements in consolidated form to show that these changes have been made, under section 72(5) of the Railways Act 1993. Schedule 4A of the Railways Act 1993 states (in paragraph 4(2)) that “relevant changes” which take the form of amendments to access agreements are directed by the Regulator and made by the parties to such agreements. Parties have a duty, under section 144(1) of the Act, to comply with the Regulator’s directions, and failure to do so makes them liable to enforcement action under section 144(2). It is important to note that the process for any objections is as set out above in paragraphs 16.4-16.6. Once a notice of agreement has been served, the parties must make the amendments specified in the review implementation notice except to the extent that they are subsequently varied at the Regulator’s direction (under section 144(3)) or with his approval (under section 22).
- 16.8 The remainder of this chapter sets out further information on the changes that the Regulator proposes to make to these track access agreements.

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<sup>21</sup> As well as any party whom the Regulator considers ought to be given a copy of the review notice and has ‘an estate in, or right over, the railway facility or network installation to which the access agreement relates’.

## Implementation of changes to Schedule 7

16.9 The revised Schedule 7 to franchised passenger train operators' track access contracts contains a number of amendments to reflect the following conclusions:

- (a) a new schedule of fixed charges, to provide for the increase in revenues and future adjustments to the level of grants payable directly by the SRA resulting from the Regulator's final conclusions (for the reasons set out in Chapter 15);
- (b) limited changes to the variable usage charge price list (for the reasons set out in Chapter 18);
- (c) a change to the drafting to reflect the revised capacity charges (for the reasons set out in Chapter 18);
- (d) insertion of a mechanism which would automatically adjust the fixed charge if the SRA defaults on the payment of network grants (for the reasons set out in Chapter 15);
- (e) insertion of a mechanism which would allow Network Rail, at its discretion, to provide a rebate to its customers from any surplus it makes as a result of meeting or outperforming this regulatory settlement (for the reasons set out in paragraph 16.18 below);
- (f) changes to the provisions which allow for future access charges reviews (for the reasons set out in Chapter 3 and later in this chapter); and
- (g) removal of the property allowance scheme arrangements (for the reasons set out in Chapter 14).

16.10 The changes envisaged by (a) to (f) above are set out in more detail below.

### *Fixed charge*

16.11 At the time of the October 2000 access charges review, the Regulator established a methodology for allocating the aggregate fixed track access charge (FTAC) between franchised passenger train operators which, as far as possible, apportions Network Rail's revenue requirement in a cost-reflective and transparent manner. Having said consistently that the structure of charges would not be re-examined in this access charges review, the Regulator has adopted this same methodology to allocate the aggregate FTAC to franchised passenger operators in these final conclusions. The

data to which this methodology has been applied has, however, been updated by Network Rail.

- 16.12 The allocation of the aggregate FTAC was undertaken through the following steps:
- (a) where possible, the FTAC was attributed to individual areas, defined by major route/regional combinations;
  - (b) costs were divided between operators on the basis of vehicle miles in the area to which the cost is allocated. Where a service is partially funded by a body other than the SRA, costs and revenues were allocated according to the appropriate operator/funder combination; and
  - (c) the allocated amounts to be recovered through the FTAC were then adjusted to take into consideration the SRA grants.
- 16.13 Some costs were allocated directly to individual operator or operator/funder combinations where this was appropriate. Various other costs were not easily allocated to a particular major route/region combination and were instead allocated on a national basis.
- 16.14 The fixed charges in each of the 5 years of the control period have been determined on a consistent basis with the allowed revenue profile (after deduction of direct grants payable by the SRA). The overall revenue requirements in this document have been assessed in 2002/03 prices. However, in order to finalise the base values for inclusion in track access agreements, it is necessary to adjust these values for the effect of inflation between 2002/03 and 2004/05. This therefore requires forecasts of inflation over the next 16 months. The 2002/03 values have therefore been increased from 2002/03 prices by 5.7%, based on November 2003 forecasts produced by Oxford Economic Forecasting.
- 16.15 There are several areas of the process described above which have been updated from the calculations that were undertaken in the October 2000 access charges review, as follows:
- (a) total costs and revenues by category of asset;
  - (b) disaggregated costs by major route and region;
  - (c) major route/region combinations;

- (d) funder/operator combinations; and
- (e) adjustments including:
  - (i) an allowance to reflect the debt financing of a proportion of renewals expenditure;
  - (ii) the discount rate;
  - (iii) retail price indexation; and
  - (iv) the value of the central revenue grant.

16.16 Two areas of expenditure where changes have been required to the allocation process since the October 2000 access charges review were signalling and maintenance. Robust estimates of signalling expenditure are not available by route and region combination and so were allocated on a national basis. Maintenance data was allocated at a regional but not major route level, again because of the lack of reliable data at route level.

16.17 With the exception of franchise re-mapping, there has not been a material change to the franchise passenger traffic mix since the October 2000 access charges review and therefore the Regulator decided that updating the traffic databases, a potentially detailed and time consuming exercise, was not necessary as part of the allocation of fixed track access charges at this time. Network Rail has encompassed the effects of franchise re-mapping by redistributing allocated fixed track access charges between operators on the basis of the change in vehicle miles resulting from the re-mapping. This is the same methodology used to redistribute fixed charges at the time the franchises were re-mapped.

#### *Rebate of fixed charge*

16.18 Following an approach by Network Rail and the SRA in the closing stages of this review, the Regulator has considered whether he should provide a mechanism to allow Network Rail, at its discretion and with regulatory approval, to provide a rebate to its customers from any surplus it makes as a result of meeting or outperforming this regulatory settlement. The Regulator considers that as long as Network Rail is meeting all of its contractual and licence obligations, it is for the company to decide how to use any surplus it makes. This would be the situation with an equity owned company, where decisions would be taken on the appropriate apportionment of profits between retaining cash, reinvestment and distribution of dividends/buying back

shares. The only way that Network Rail can provide for rebates to customers is through the track access agreement and so the Regulator has agreed to include a mechanism to allow for this. Any proposed rebate would require regulatory approval.

#### *Other charges*

16.19 The Regulator will issue a revised usage charge price list to reflect the minimal changes he is making to usage charges (see Chapter 18). He will also issue a revised capacity charge price list to reflect the changes described in Chapter 18 and will make the necessary drafting changes in Schedule 7.

#### *Access charges review provisions*

16.20 Chapter 3 explained that the Regulator is amending the existing provisions of Schedule 7 in order to allow him the flexibility to conduct a further review of access charges if it should become necessary. The Regulator's final conclusions contain new drafting for Part 7 of Schedule 7 allowing him to conduct future access charges reviews:

- (a) to review the following costs (which the Regulator expects to do within the next two years) in light of the uncertain nature of estimates in this access charges review for:
  - (i) signalling expenditure; and
  - (ii) compensation for possessions;
- (b) if costs on the West Coast project (as described in Chapter 7) deviate by more than 15% from the costs assumed by the Regulator in these final conclusions;
- (c) if Network Rail incurs additional costs or liabilities as a result of arrangements within the PUG2 (Virgin Trains West Coast) contract;
- (d) if, after April 2006, Network Rail can demonstrate that its cumulative expenditure has deviated by more than 15% (up or down) from the cumulative allowed expenditure determined in this access charges review;
- (e) for the Regulator to initiate an access charges review in circumstances other than those specified elsewhere in this paragraph where he considers that there has been a material change in the circumstances of Network Rail or in relevant financial markets or any part of such markets.

- (f) to review the structure of charges;
- (g) to enable the existing policy-specific interim reviews to be undertaken, where appropriate; and
- (h) to reflect a material change or proposed material change in the policy or practice of Network Rail in relation to Restrictions of Use.

16.21 The provision in paragraph 16.20(e) is not as flexible a provision as was proposed in the draft conclusions (where the Regulator proposed that a review could be undertaken if he considered it necessary or expedient) because he wants to ensure that reviews are initiated only where there is a strong case. He does not want Network Rail to face the prospect of perpetual reviews. Perpetual reviews would defeat the aim of this access charges review of putting Network Rail on to a sound, stable and sustainable footing.

16.22 The provision in paragraph 16.20(f) which enables the Regulator to conduct a review of the structure of charges has been included because the focus of this access charges review, conducted under very tight time constraints, has been on the overall funding requirement for Network Rail. In his first and second consultation documents, the Regulator explained that he would return to the level of and balance between individual charges within Schedule 7 at a later date. Examples of the areas which may be covered in a review of the structure of charges are as follows:

- (a) the appropriate split of fixed and variable charges;
- (b) the capacity charge methodology;
- (c) the cost reflectivity of the current electricity traction price list and modelled consumption rates;
- (d) the implications for traction electricity charges of proposals which allow train operators to purchase electricity from competing suppliers, and to facilitate on-train metering; and
- (e) the incentives to improve track and vehicle quality.



# **PART 5: INCENTIVES**



## ***17. Incentives: overview***

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### **Introduction**

- 17.1 The revenues set by the Regulator amount to a challenging but achievable assessment of the funding that a competent and well-managed company requires in return for delivering the outputs that are established in Chapter 9 of this document. A key objective from the outset of this access charges review has been to ensure that Network Rail's management faces strong incentives to deliver the efficiency savings that will enable it to meet the Regulator's expenditure allowances and, indeed, go on and produce savings above and beyond the level that the Regulator has envisaged in these final conclusions.
- 17.2 Such incentives come in many different forms. For the management of Network Rail, the personal challenge associated with reviving a failed company and the impact on individual reputations of success and failure provides in itself a very real incentive to perform well. This incentive is made all the stronger by the intense public scrutiny that is applied to cost control and performance throughout the railway and the transparency with which Network Rail's progress will be reported. Put starkly, there will be no hiding place for management if Network Rail does not deliver the step change in performance that was promised at the time Railtrack came out of administration.
- 17.3 The Regulator's contribution to the incentives facing management comes from the fact that it is the function of an access charges review such as this one to establish what represents an acceptable level of efficiency and performance.
- 17.4 However, for these targets to have an impact on management behaviour, the Regulator must also ensure that there are clear rewards and penalties associated with the achievement of the targets and non-achievement respectively. In all other UK regulated industries, these rewards and penalties are largely financial. Where regulated companies are owned by shareholders, those shareholders place a discipline on management to earn higher profits. This means that a regulator can influence management behaviour by making the delivery of cost and output targets more profitable than non-delivery. It is this logic that has underpinned the development of incentive regulation in the UK and around the world for the last 20 years.

- 17.5 In a company limited by guarantee (CLG), however, the incentive structure is quite different and it is reasonable to ask whether financial incentives will necessarily be as effective, particularly incentives significantly to outperform regulatory targets. Having carefully considered Network Rail's corporate structure, the Regulator's view is that financial incentives still have a powerful role to play in motivating Network Rail's management. In a debt-financed company, the effects of these incentives arise primarily from the consequences that management face if they are not able to run the business profitably. However, unlike in other CLGs, the consequences for Network Rail's management of poor performance are not limited to the increased risk of insolvency or to the possibility that the company's members might seek to intervene in the running of the company, but have been extended to include significant step-in rights which become available to one of the business's main funders, the SRA, in the event of financial under-performance.
- 17.6 These step-in rights are enshrined in a contract called the Cooperation Agreement, which the SRA and Network Rail entered into on 27 June 2002. Through a separate agreement, the SRA has made available to Network Rail a £4 billion credit facility ('Facility A') which may be drawn down if the business is otherwise unable to meet interest payments. Facility A therefore provides Network Rail's future lenders with considerable protection against the risk of insolvency. However, from the point of view of management, a key incentive arrangement is that the Cooperation Agreement gives the SRA the right to determine 'whether the appointment of the Chairman and the employment of the Chief Executive should not be terminated' if Facility A is drawn down by more than 5%.
- 17.7 These step-in rights are a highly relevant consideration in this access charges review for a number of reasons. First and foremost, any overspending by the company reduces the surplus that the company makes each year and increases the likelihood that it may become necessary at some point in the future to draw on Facility A. Equally, any improvements in efficiency beyond those that have been assumed by the Regulator in setting access charges allows the company to make a higher surplus, providing a buffer against future shocks to the business and reducing the business's dependency on Facility A.
- 17.8 Secondly, and equally importantly, incentive regimes with associated financial rewards and penalties set by the Regulator will have a very direct impact on behaviour. Part 5 of this document explains the incentives that the Regulator is putting in place to put pressure on Network Rail to deliver the outputs that it is being funded for through this review. The most important of these incentives is the performance

regime contained in Schedule 8 of franchised passenger train operators' track access agreements with Network Rail. These arrangements require Network Rail to compensate train operators financially when it imposes more than a certain level of delay on them, and provides for financial rewards if the company is able to reduce the delay that it causes over time over and above the Regulator's requirements. Chapter 18 considers the appropriate benchmarks within Schedule 8 at which penalties and rewards become payable, along with the appropriate scale of those payments. It also examines the arrangements in Schedule 4 of track access agreements which requires Network Rail to compensate train operators when it takes possession of the network for engineering work.

- 17.9 Chapter 19 then explains two other financial incentives which the Regulator is putting in place through this review:
- (a) a volume incentive, which provides Network Rail with additional income at the next access charges review if it accommodates predicted growth in traffic during the next five years; and
  - (b) an asset stewardship incentive, which provides Network Rail with additional income at the next access charges review if it improves the underlying condition and serviceability of its asset base.
- 17.10 Taken together, this package of incentives ensures that Network Rail is better off if it delivers the outputs that customers reasonably require of the company. This is important because incentives that affect the returns that the company makes, both now and in the future, will influence the behaviour of management by making it more or less likely that the company will need to draw on Facility A at some point in the future. The Regulator therefore considers that these incentives are a vital part of the discipline that he is imposing on Network Rail's management through this review.
- 17.11 To reinforce the incentives facing management still further, the Regulator expects Network Rail to adjust the incentive plan which is used to determine the remuneration that the company's senior managers receive in light of the conclusions that he has reached in this review. Condition 28 of the company's network licence requires that Network Rail should have regard to the targets set by the Regulator when formulating this plan.



## 18. Contractual incentives

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### Introduction

- 18.1 This chapter sets out the Regulator's conclusions on incentives contained within franchised passenger train operators' track access agreements, namely the performance regime (Schedule 8 to franchised passenger operators' track access agreements), the possessions/restrictions of use regime (Schedule 4), and track access charges (Schedule 7).
- 18.2 From the outset of this review, the Regulator has stressed that the primary focus of his work necessarily had to be on the aggregate level of charges that train operators pay to Network Rail. The review of the contractual incentives has therefore been limited in scope, focusing on changes that were deemed necessary given the new financial structure of Network Rail and on other minor changes.
- 18.3 A more detailed review of various aspects of the incentives framework, including a review of the structure of charges, is envisaged by the Regulator before the next access charges review in 2008/09. This is described in more detail in Part 4 of these final conclusions.

### Conclusions

#### *Schedule 8 – Performance regime*

- 18.4 Schedule 8 – the performance regime – incentivises Network Rail and train operators to maintain and improve operational performance (*i.e.* the amount of delay and level of cancellations)<sup>22</sup>. The regime is structured around benchmark levels of delay (known as performance points) which are based on historic levels of performance. If train operator or Network Rail performance deteriorates beyond the benchmark, compensation payments are made to the affected party<sup>23</sup>. If performance improves beyond the benchmark, the party benefiting from the performance improvement makes payments to the other party.

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<sup>22</sup> For franchised passenger train operators, the contractual framework complements the performance incentives contained in Schedule 7 of their franchise agreements with the SRA.

<sup>23</sup> In the case of a train operator exceeding its benchmark and making compensation payments to Network Rail, these payments reflect the impact of the initial delay on other operators (TOC-on-TOC delay), for which Network Rail takes responsibility as the common contracting party.

- 18.5 The Regulator has concluded that he should reset the benchmarks within Schedule 8 so as to reflect the targets for delay that are set out in Chapter 9 of this document. These targets translate into the following adjustments to the recalibrated benchmarks derived by the Regulator's consultants AEAT using performance data from October 2001 to October 2002:
- (a) a 5.0% reduction to derive the 2004/05 benchmarks; then
  - (b) a further 6.4% reduction for the 2005/06 benchmarks;
  - (c) a further 4.9% reduction for the 2006/07 benchmarks;
  - (d) a further 6.1% reduction for the 2007/08 benchmarks; and
  - (e) a further 6.3% reduction for the 2008/09 benchmarks.
- 18.6 The Regulator also confirms that he is abolishing the societal rate element of the payment rates in Schedule 8. He has also concluded that it is appropriate through this review to correct inconsistencies in the marginal revenue effect (MRE) calculated at the last access charges review and to recalibrate the access charge supplements that fund Network Rail for the payments it makes under the passenger's charter arrangements.

*Schedule 4 – Possessions regime*

- 18.7 Schedule 4 to franchised passenger operators' track access agreements provides for arrangements under which Network Rail pays compensation to train operators when it temporarily restricts access to stretches of track to allow for engineering work to be done. The regime incentivises Network Rail to promote safe working and to plan engineering work early and efficiently (by providing for discounts on levels of compensation payable for early notification), allowing train operators and customers to plan their services and journeys based on reliable, early information. It also encourages Network Rail to devise appropriate possessions strategies by assessing the trade-off between the impact on train operators' businesses and the level of productivity achieved with different types of possessions (*e.g.* overnight, weekend, or longer possessions, partial restrictions of routes versus total blockades, *etc.*).
- 18.8 In his draft conclusions, the Regulator stated that Network Rail expected to pay compensation through Schedule 4 of £120 million per annum but noted that the company was in the process of developing more robust estimates of Schedule 4 costs which may result in a downward adjustment to these forecasts. Having received

revised estimates from the company, he has concluded that he will allow the recovery through access charge supplements of the expected (efficient) Schedule 4 costs as outlined in Table 18.1.

**Table 18.1: Schedule 4 compensation payments (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
Schedule 4 compensation payments	63	71	78	80	81	373

18.9 The Regulator recognises however that there remains a degree of uncertainty around the scale of Schedule 4 payments during the full five-year period and for this reason he expects to conduct a further review of expected Schedule 4 compensation costs by April 2006 through the interim review provisions outlined in Chapter 16 of this document. He would expect to compensate Network Rail for efficiently incurred Schedule 4 cost overspend by adding this to the RAB upon conclusion of this future interim review.

18.10 The Regulator has also made the following changes to Schedule 4:

- (a) the existing cap on the costs recoverable by TOCs for disruption caused by ‘Significant Restrictions of Use’ (SRoUs) has been removed;
- (b) the categories of cost recoverable in relation to SRoUs are stipulated in Schedule 4 and are as follows:
  - (i) bus and taxi hire costs;
  - (ii) publicity costs;
  - (iii) additional train planning and diagramming costs;
  - (iv) costs directly related to the organisation and management of a train operator’s response to a Significant Restriction of Use; and
  - (v) net avoidable cost of reduced train mileage.
- (c) the deadline from notification of an SRoU to agreement of the estimate of costs has been extended from the existing 28 days to 56 days;

- (d) the floor level at which additional costs can be claimed for SROUs has been changed from the existing 110% of the estimated revenue loss (calculated using the Schedule 4 algorithm) to an absolute amount of £10,000;
- (e) there is an interim review re-opener provision to revisit the structure of Schedule 4 if there is a material change or proposed material change in the possessions strategy adopted by Network Rail (for example, many more longer possessions, blockades, daytime possessions). Such a change in strategy may result in the need to recalibrate the regime to reflect better the revenue effects on train operators; and
- (f) it has been made clear in Schedule 4 that “train-bus” and “bus-train” journeys are to be captured by the Schedule 4 algorithm as well as “train-bus-train” journeys, which are already captured.

*Schedule 7 – Track access charges*

18.11 In his draft conclusions the Regulator said that the proposed changes to the detailed charging arrangements within Schedule 7 of franchised passenger train operators’ track access agreements would affect only the usage charge price list and the methodology for the calculation of the capacity charge.

18.12 He confirms that his final conclusions change the following characteristics within the variable usage charge model:

- (a) class 220 vehicle maximum speed to be increased from 90mph to 125mph; and
- (b) class 221 vehicle maximum speed to be increased from 90mph to 125mph.

18.13 This leads to the following charges for these vehicles:

- (a) class 220 – 20.61 pence per vehicle mile (2004/05 prices); and
- (b) class 221 – 27.52 pence per vehicle mile (2004/05 prices).

18.14 The Regulator also confirms, as set out in his draft conclusions, that the existing capacity charge methodology by route section and time of day is being replaced with average capacity charge rates by service group. Capacity charges have also changed due to the removal of the societal rate from performance regime payment rates. The effect on capacity charges of the increase in delays for any given volume of services

since the October 2000 access charges review will be reflected through an adjustment to the RAB at the next interim review of the structure of charges rather than a change to capacity charges paid by train operators.

- 18.15 The Regulator is, however, using the process in paragraph 9, Part 2 of Schedule 7 of franchised passenger operators' track access agreements to enable changes to be made to the average capacity charge rates where the number or pattern of services within a service group changes. He would expect such changes to be proposed by the parties only where the change in the charge for that service group is likely to be material.
- 18.16 The annual capacity charge income recovered by Network Rail from train operators, in relation to the existing volume of services, will be exactly offset by a reduction in their fixed charges. This is the existing 'CC' term in Schedule 7 of track access agreements.
- 18.17 In 2002, Network Rail raised concerns about the legal precision of the drafting of the definition of "quality adjustment" in Part 8 of Schedule 7. Network Rail's view was that the scope of the definition was narrower than the draftsman had intended when it was devised in 1995. The Regulator has therefore taken this opportunity to make the position clear. The quality adjustment applies to any alteration to the train operator's access rights in relation to:
- (a) performance;
  - (b) the quality or condition of the network;
  - (c) the liability of any person to any other person; or
  - (d) in any other respect (except the quantum of rights).

### **Reasons for conclusions: Schedule 8**

#### *Performance points*

- 18.18 In Chapter 9, the Regulator explained that he expects Network Rail to meet challenging, but achievable, targets for reductions in the amount of delay it causes to train operators. The arrangements in Schedule 8 are designed to provide Network Rail with financial incentives to meet those targets and the Regulator has therefore sought to reset the performance points within Schedule 8 so that the company makes payments to passenger train operators when delay rises above the targets he sets,

while receiving payments from operators if it is able to exceed the Regulator's expectations.

18.19 The Regulator commissioned AEAT to advise on the appropriate methodology for making adjustments to the performance points established at the October 2000 access charges review. The consultant's report makes the following recommendations:

- (a) the most appropriate data period to use for the recalibration is 14 October 2001 to 12 October 2002; and
- (b) there should be some adjustments to MREs to correct for inconsistencies in their calculation at the October 2000 access charges review.

18.20 The Regulator has then adjusted each of the resulting Network Rail performance points (excluding the TOC-on-TOC element) derived by AEAT by an amount equivalent to the percentage reduction in network-wide delay that the company is expected to achieve. The percentage reductions outlined in paragraph 18.5 above are those contained in the Regulator's draft conclusions.

18.21 The Regulator has not attempted to disaggregate the network-wide target by individual operator. This is the purpose of Class A local output commitments.

18.22 In response to the draft legal changes required to implement the review conclusions, which include revised performance points and payment rates in Schedule 8, a number of consultees raised concerns (some of which had been raised previously) about the changes the Regulator is making to the performance regime. The Regulator believes that resetting performance points will have a positive impact on incentives because they now reflect achievable targets. Network Rail will then have strong incentives to outperform the targets since this will lead to net financial gains for the company through Schedule 8.

*Societal rate*

18.23 In his third consultation document, the Regulator reported that the SRA had decided to remove the societal rate from its franchise agreements with passenger train operators. The Regulator said that he therefore proposed to remove the societal rate element of payment rates within Schedule 8 of franchised passenger operators' track access agreements and highlighted the following benefits:

- (a) a reduction in the financial exposure and, hence, risk borne by Network Rail and the SRA;

- (b) the consistency of approach with respect to the revised template franchise agreement; and
- (c) the elimination of the potentially large ‘money-go-round’ between Network Rail, TOCs and the SRA.

18.24 The majority of consultees agreed with the Regulator’s proposal to abolish the societal rate from the track access agreements for these reasons.

18.25 However, there were some concerns expressed by consultees that the elimination of the societal rate would reduce Network Rail’s ability to produce robust business cases for investment in performance improvement schemes, particularly on routes only served by regional operators. The Regulator recognises that Network Rail’s marginal financial incentive to improve operational performance has been reduced due to the removal of the societal rate and that this potentially affects some operators (with a high societal rate currently) more than others. However, he believes that the continuation of the financial incentive (provided by the marginal revenue effect) to improve performance, when combined with a number of contractual safeguards, will ensure that Network Rail’s incentive to introduce performance enhancing measures benefiting all operators will be strong. These safeguards include the forthcoming introduction of enforceable local output commitments, the requirement under Condition 10 of Network Rail’s network licence not unduly to discriminate between operators (without the Regulator’s consent) and Network Rail’s duty under Condition 7 of its network licence to operate, maintain and renew the network in accordance with best practice to satisfy its customers’ reasonable requirements.

#### *Other changes*

18.26 AEAT has undertaken a recalibration of the access charge supplements in Schedule 8 which fund Network Rail for the expected payments it makes under the passenger’s charter arrangements. Since performance is significantly worse than the projections made at the October 2000 access charges review and since the punctuality and reliability triggers for passenger’s charter compensation have, on the whole, not changed, the aggregate expected amount payable by Network Rail has increased. The aggregate access charge supplements that Network Rail will recover from the TOCs in each year of the next control period are shown in Table 18.2:

**Table 18.2: Aggregate access charge supplements to cover expected passenger's charter payments (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09
Passenger's Charter access charge supplement	15.0	14.0	13.2	12.4	11.5

18.27 The Regulator confirms his draft conclusions that neither the Network Rail nor TOC benchmarks should be adjusted to reflect expected improvements in TOC performance or to reflect an expectation that levels of TOC-on-TOC delay will reduce without improvements in TOC performance. With regard to the latter, the Regulator has no sound basis on which to make a judgment about future reductions in TOC-on-TOC delay. He notes that Network Rail's incentive to reduce TOC-on-TOC delay will not be affected by this decision since such reductions will either reduce its losses or increase its gains through Schedule 8. Payments made by TOCs to Network Rail in relation to improvements in TOC-on-TOC delay should be broadly matched by revenue growth.

18.28 While logically the Regulator can see the case for adjusting Network Rail and TOC benchmarks in line with expected TOC performance, there are a number of reasons why this would be problematic or ineffective at this time:

- (a) the difficulty in predicting individual TOC performance for a five-year period, particularly post re-franchising when the SRA's performance requirements may change;
- (b) the reduction in incentive effect on existing TOCs as a result of the application of clause 18.1 of the franchise agreement;
- (c) the additional financial risk and uncertainty that this would create for new franchisees; and
- (d) the additional complexities involved in having to create different performance models (star models) for each of the five years that this approach would require.

#### **Reasons for conclusions: Schedule 4**

18.29 The method used to derive the revised Schedule 4 cost estimates differs from that originally used and described in the third consultation document and assessed by the

Regulator's consultants, L.E.K. The original method contained a 'bottom-up' element, using 'ready reckoner' calculations to estimate the cost of individual possessions in 2004/05 and 2005/06. A top-down estimate was then provided for the remaining three years of the control period. However, L.E.K. determined that the 'ready reckoner' was relatively poor at predicting individual possessions costs and recommended that more work be undertaken to increase the accuracy of the forecasts.

- 18.30 Network Rail's top-down estimates now benefit from being based on one year of actual Schedule 4 costs. Given the inaccuracies with the 'ready reckoners', the top-down approach has been used to produce estimates for all five years of the control period. Although the Regulator agrees that this is a reasonable and pragmatic approach to take at this stage given the time constraints, he would expect Network Rail to continue to develop its 'ready-reckoners' over time. It is particularly important for Network Rail to understand the likely costs of different types of possessions if it is to make optimal decisions about the possession patterns, based on appropriate trade-offs between Schedule 4 costs and engineering efficiencies.
- 18.31 The revised Schedule 4 estimate was derived by applying the relationship between actual maintenance/renewals expenditure and actual Schedule 4 compensation to projections of maintenance/renewals expenditure.
- 18.32 Assuming that Schedule 4 costs change in direct proportion to changes in expenditure takes no account of the expectation that Network Rail will do more work in the future for a given level of expenditure. The Regulator believes though that this effect on Schedule 4 costs will be broadly neutralised by the fact that Network Rail should also require fewer possessions in the future for any given level of activity as possessions productivity improves (this assumes existing patterns of possessions).
- 18.33 Table 18.3 below gives the estimates of Schedule 4 compensation provided by Network Rail (including in relation to SROUs) which assume that 50% of possessions are eligible for maximum discount (included in the Rules of the Route), 40% for medium discount (not included in the Rules of the Route but included in the informed traveller working timetable at T-12) and 10% for minimum discount (notified after T-12 but before the day on which the timetable is operated). The figure of 10% in the latter category represents a significant improvement on Network Rail's previous assumption of 30% of possessions being notified after T-12.

**Table 18.3: Schedule 4 compensation payments (£ million)**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
Schedule 4 compensation payments	63	71	78	80	81	373

- 18.34 Network Rail further proposed that a margin of 25% be factored in to these revised estimates to compensate for uncertainty caused by the assumption that the mix of work will remain unchanged in the future and that there is incomplete knowledge of SROU costs. The Regulator has rejected this proposal because:
- (a) he intends to conduct a further review of expected Schedule 4 compensation costs by April 2006;
  - (b) the revised forecasts are based on about one year of actual cost data, thereby being more robust than those originally developed by Network Rail; and
  - (c) he would expect to add any efficiently incurred Schedule 4 cost overspend to the RAB at the time of the future interim review of expected Schedule 4 costs.
- 18.35 The Regulator accepts though that there remains a degree of uncertainty around the Schedule 4 cost estimates and therefore, as indicated above, he intends to review the Schedule 4 cost estimates by April 2006. By this time, Network Rail will have gained significantly more knowledge regarding TOC responses to restrictions of use and there will be three years of actual cost data to review and to inform future cost estimates. The Regulator does not believe that a commitment to an automatic adjustment to the RAB at this time for any under-spend or over-spend would be appropriate given the potential adverse effect on financial incentives to plan well ahead of work taking place, although he would be prepared to add any overspend which he considered had been efficiently incurred.
- 18.36 The reason for removing the cap on compensation for SROUs is to facilitate more optimal possessions strategies by Network Rail. It was felt in the industry that an artificial cap on compensation (relative to expected costs) was leading to TOCs objecting to SROUs more than they otherwise would and therefore that industry benefits were not being maximised.
- 18.37 The Regulator said in his third consultation document that removing the cap on SROU compensation could potentially make it cheaper for Network Rail to provide no notification of SROUs and pay compensation under Schedule 8 rather than notify in

advance and pay compensation under Schedule 4. The Regulator reiterates his belief that such behaviour is very unlikely to occur in practice because:

- (a) it would not necessarily be financially beneficial to Network Rail since it could lead to a breach of the Class A local output commitments;
- (b) it would generate damaging adverse publicity; and
- (c) he would not hesitate to take enforcement action as a result of a breach of Condition 9 of the company's network licence if it was evident that Network Rail was carrying out work on this scale without providing prior notification, unless there was a very good reason for doing so (for example, emergency work required for safety reasons).

18.38 The Regulator has specified the categories of cost that can be recoverable in relation to SRoUs. He has done so in an attempt to alleviate the potential problem of protracted negotiations and hence to reduce transaction costs. The cost categories proposed are based on recommendations by L.E.K in a report on Schedule 4 produced for the Regulator in July 2003 (see ORR website). There was broad support for the concept with no consultees objecting to the proposed categories of cost or suggesting any additions.

18.39 The Regulator has previously suggested that in order to reduce the length of negotiations (and hence minimise transaction costs) between Network Rail and TOCs in relation to compensation for SRoUs, he would conduct further work to establish whether some of the cost items could be templated. The Regulator has not received the necessary data to be able to consider whether the cost categories lend themselves well to templating and he has therefore not taken this any further at the present time.

18.40 The Regulator continues to believe that compensation for SRoUs should be based on pre-determined estimates of costs. If instead it was based on actual costs:

- (a) it could adversely affect the incentives on TOCs to minimise these costs; and
- (b) it would leave Network Rail exposed to an unknown liability.

18.41 Schedule 4 currently requires that compensation for SRoUs be agreed with affected TOCs within 28 days of notification. This was designed to prevent prolonged and costly negotiations but it has generally been found to be too short for TOCs to provide Network Rail with detailed cost estimates. Most consultees therefore agreed with the Regulator's proposal to extend the agreement deadline to 56 days.

- 18.42 Additional costs in relation to SROUs can currently only be claimed if those costs exceed 10% of the revenue loss estimates given by the Schedule 4 algorithm. The intention was to discourage claims that could have involved disproportionate transaction costs. The Regulator proposed to adjust the compensation floor to an absolute amount because TOCs were finding it difficult to estimate up-front what the revenue loss generated by Schedule 4 would be. Most respondents agreed that such a change would be beneficial. Based on a review of revenue loss and cost data in relation to SROUs supplied by Network Rail, a floor level of £10,000 would appear appropriate. Network Rail has said that the revenue and cost data it supplied would in fact support a floor level of up to £30,000. Nevertheless, the Regulator believes that a floor level of £10,000 provides the right balance between preventing claims where transaction costs could frequently be expected to exceed the amount of the claim and enabling operators to claim for the costs incurred as a result of SROUs in most circumstances.
- 18.43 The Regulator proposed two changes to Schedule 4 in his third consultation document that he has decided not to pursue following a review of consultation responses. One was to issue a general approval for extended mid-week night possessions with bespoke compensation arrangements and the other was to simplify the calculation of busyness factors which form part of the compensation calculation. Both of these were proposed by the Regulator in response to suggestions from Network Rail in order to:
- (a) make the process for securing longer mid-week night possessions less time-consuming and uncertain (in terms of not requiring specific regulatory approval); and
  - (b) to make the calculation of Schedule 4 compensation costs easier.
- 18.44 The Regulator reiterated in his third consultation document that although he was prepared to proceed with formulating the arrangements for a general approval, Schedule 4 does not in fact preclude Network Rail from proposing extended mid-week night possessions. Some TOCs had expressed the view that the reason such possessions are not more common is not the absence of a general approval but that Network Rail has so far failed to make the case in forums with train operators and contractors for the industry benefits that extended mid-week night possessions would generate.
- 18.45 Network Rail has since said that there is increasing evidence that extended mid-week night possessions can be incorporated into the Rules of the Route where a compelling

case can be made, without the need for changes to track access agreements. Network Rail has therefore changed its view on the need for a general approval. The Regulator has, therefore, not taken this forward.

18.46 Network Rail has also changed its view on the need to simplify the calculation of busyness factors after determining that the necessary system changes are likely to outweigh any potential benefits of making such changes. Again, the Regulator has, therefore, concluded not to proceed with a change to the busyness factor calculation.

### **Reasons for conclusions: Schedule 7**

#### *Usage charge*

18.47 A consultation letter on the specific anomalies identified in the vehicle characteristics which drive the calculation of usage charges was sent on 6 August 2003 to Network Rail, train operators, funders and vehicle manufacturers. The letter consulted on the following anomalies in the usage charge model that had been drawn to the Regulator's attention:

- (a) the maximum speeds of the Class 220 and 221 vehicles were identified as being too low (90 mph rather than 125 mph); and
- (b) the weight of the Class 373 was identified as being too high.

18.48 The consultation letter also asked whether any other material anomalies existed in the vehicle characteristics.

18.49 The responses received on the speeds of the Class 220s and the Class 221s confirmed that the maximum speeds in the usage charge model are too low. The Regulator has, therefore, concluded that the increased speeds should be reflected in a new usage charge price list.

18.50 The Regulator's conclusion on the weight characteristics of the Class 373 is that no change should be made. As discussed in the consultation letter, at the time of the development of the usage charge model, an adjustment was made in the model to attempt to reflect as accurately as possible the axle load of the Class 373L and Class 373C. It has been recognised in discussing these issues with those consultees who expressed a view on this issue that the problem is in part caused by the need to include three rather than two different categories of the vehicle in the usage charge model and also by the need to reflect the effect of articulated bogies.

- 18.51 The Regulator notes Alstom's suggestion of adding an additional Class 373 vehicle type to the usage charge model. However, he understands that the limitations of Network Rail's systems continue to restrict the model to using two categories of the vehicle. The Regulator has therefore concluded that the adjustment made in deriving the Class 373 charges to reflect the use of two vehicle types within the model, rather than three, remains the most appropriate method until any reassessment at the next wider structure of charges review, including an assessment of the effects of articulated bogies. As stated in previous documents in this review, a structural change to the model has been beyond the scope of this review.
- 18.52 Whilst the Regulator invited consultees to inform him of additional anomalies in the vehicle characteristics data, the consultation letter stated that he would need to be satisfied that the changes required in such cases were both appropriate and material. Respondents suggested a number of vehicle types where they felt that the vehicle characteristics in the usage charge model did not reflect the actual characteristics of the vehicle.
- 18.53 The Regulator has reviewed each of these. Of the anomalies identified, the Regulator found that the majority were not material (*i.e.* did not lead to a price change of greater than two pence per vehicle mile). This was for a variety of reasons:
- (a) the vehicle characteristic has a relatively small effect on the usage charge *e.g.* the unsprung mass;
  - (b) the identified change involved a relatively small change in the magnitude of the vehicle characteristic and hence did not lead to a material change in the usage charge;
  - (c) the modelled average speed was based on timetable data rather than derived from maximum speed, and therefore the average speed remains appropriate even where the maximum speed is incorrect;
  - (d) the loaded weight and the number of axles both being incorrect in the model but affecting the axleload in opposite directions, thereby leading to broadly the same axle load (the factor that drives the charge) before and after the proposed change; and
  - (e) the vehicle type being used for a small number of vehicle miles for passenger and ancillary services.

18.54 An example was also provided of a vehicle type being omitted from the usage charge price list. Any vehicle not included in the Regulator's price list should be added using the process in Part 2 of Schedule 7.

*Capacity charge*

18.55 In his third consultation document in this review, the Regulator consulted on an alternative method for calculating capacity charges. This alternative was developed because Network Rail has encountered difficulties when billing for the charge on the basis set out at the time of the last access charges review in October 2000.

18.56 The alternative approach uses raw capacity charge data from the AEAT model that was used to derive the rates in the Regulator's capacity charge price list that he published on 29 June 2001. From this data, an average capacity charge rate for each service group is produced based on those services run in 1999/2000.

18.57 The average rates per service group are derived as follows:

- (a) step 1: using 1999/2000 timetable data, a charge is calculated for each service within a particular service group using the raw AEAT data;
- (b) step 2: the charges are then aggregated for all services in a particular service group; and
- (c) step 3: the total in step 2 is divided by the total train miles of all the services in the service group (again using 1999/2000 data). This produces an average capacity charge, for each service group.

18.58 The new arrangements will mean that for each service that actually runs within a particular service group, the capacity charge payable will be the average rate per service group (calculated as above) multiplied by the actual train miles operated by that service.

18.59 Network Rail is already billing train operators informally on the basis of average capacity charge rates per service group. However as a result of other changes being made in this review, a number of adjustments have been made. Network Rail has made changes to the capacity charge data to adjust for the removal of the societal rate and corrections made to the MREs in the performance regime payment rates.

18.60 The removal of the societal rate has implications primarily for future adjustments to the RAB rather than the aggregate amount Network Rail will recover through capacity

charges paid by train operators. At the October 2000 access charges review, the Regulator decided that half of the congestion cost impact of growth in traffic would be recovered through the RAB rather than all recovered directly from train operators. This was because there was roughly a 100% increase in Schedule 8 performance rates to reflect the higher social value of delay (societal rate) and the Regulator decided that it was not appropriate for the capacity charge faced by operators to be increased to reflect this higher valuation of delay. The Regulator has now removed the societal rate from performance regime payment rates and there is therefore no longer a requirement for Network Rail to recover half of congestion costs in relation to any growth in traffic through the RAB.

18.61 Although there is no impact on the aggregate amount of capacity charge income recoverable by Network Rail directly from train operators as a result of the removal of the societal rate, there will be some changes to the amounts individual operators will pay from 1 April 2004 compared to the amounts they are currently paying<sup>24</sup>. This is because the 50% reduction in capacity charges payable by operators since the October 2000 access charges review, although intended in aggregate to compensate only for the increase in the societal rate imposed at that time, has been applied across all route sections and time of day to both the marginal revenue effect and the societal rate elements of the capacity charge. This approach was taken at the time to simplify the calculation. Under the revised approach, operators pay no societal rate element and the full MRE is now included in the capacity charge. Some operators' charges will, therefore, increase whilst others will fall. There should be no financial implications for franchised passenger operators because:

- (a) capacity charges in relation to existing services are offset by a corresponding reduction in the fixed charge; and
- (b) the SRA provides an indemnity through clause 18.1 of the franchise agreement. The SRA has confirmed to the Regulator that this indemnity also applies to additional services.

18.62 The SRA's financial position between 2004 and 2009 will only be affected by these changes in relation to any growth in franchised passenger operator services, of which the SRA forecasts only around a 1% increase in train miles over this five-year period. Even then, the budget will only be adversely affected to the extent that any increase in

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<sup>24</sup> A draft revised capacity charge price list was sent to operators and funders on 21 November 2003.

train miles is unevenly distributed towards those operators whose capacity charge rates will increase compared to current levels.

- 18.63 In principle, the significant increase in reactionary delays since the October 2000 access charges review ought to be reflected in revised capacity charges. Each service introduced now causes significantly more reactionary delay than suggested by the formulaic relationships between capacity utilisation and delay established at the October 2000 access charges review. However, it is not practical at this stage, given that the new capacity charge is only a temporary arrangement, to re-estimate the relationships between capacity utilisation and delay for each route section and then to use the revised relationships to derive new charges. The Regulator proposes instead to adjust the RAB in 2006 to reflect any shortfall in income from capacity charges as a result of the charges not being adjusted to reflect increases in delay since the October 2000 access charges review. Given that the SRA's franchised passenger train mileage growth forecasts are very low over the next few years, the required adjustment is expected to be very small.
- 18.64 A majority of respondents supported the simpler approach to billing capacity charges given Network Rail's inability to bill existing capacity charges, although some questioned the continuation of the capacity charge as an incentive mechanism. Some operators requested further details on the proposed temporary method of calculation and this is provided in the paragraphs above.
- 18.65 The Regulator acknowledges that developments such as the SRA's capacity utilisation and route utilisation strategies, as well as the existence of clause 18.1 of the franchise agreement, will impact on the incentive properties of the charge in relation to franchised passenger operators. However, it remains important for Network Rail as a cost recovery mechanism for the additional performance costs that it incurs with the introduction of additional services and as a useful price signal for open access operators and funders of franchised passenger services. The alternative would be a return to negotiated charges. The Regulator will consider further the incentive properties at the review of the structure of charges intended to take place by 2006.
- 18.66 In relation to the updating of capacity charge rates to reflect changes in train mileage within service groups, Network Rail argued that such updates should not be undertaken automatically on an annual basis as this would mean, in most cases, making insignificant changes to the rate to reflect small changes in trains operated. It supported the use of a threshold level of change in services before an update to

charges would be triggered. The SRA felt that the basis on which an adjustment of the average rates should take place should be the simplest and least cost approach.

- 18.67 The Regulator believes that it would not be an efficient use of resources to make an annual review of the capacity charge compulsory because he agrees with Network Rail that changes to charges for the vast majority of service groups would not be material. Furthermore, this is a temporary arrangement which the Regulator intends to review before 2006.
- 18.68 The Regulator has concluded that amendments to the list of capacity charge rates can be made using the process described in paragraph 9 of Part 2 of Schedule 7. This process involves a proposal of change being made by either party to the track access agreement and if no agreement is reached within a limited period then an arbitration process can be used. The final change to the rate is subject to the approval of the Regulator and he expects that, for such a change to be approved, the change in level or pattern of services within the service group would need to lead to a material change in capacity charge rate.
- 18.69 The draft conclusions envisaged that amendments to the list of capacity charge rates could be made where the volume of services in a service group were to alter by at least 10% in terms of train mileage operated. The final conclusions enable greater flexibility as to when the rates can be changed, including where the change in volume of services is less than 10% but where changes to the pattern of services would lead to a material change in the charge.
- 18.70 The revised capacity charge price list will be published by the Regulator.

*Part 8 of Schedule 7*

- 18.71 Part 8 of Schedule 7 of franchised passenger operators' track access agreements enables quality adjustments to be made to access rights.
- 18.72 It became apparent at the time of English Welsh and Scottish Railway's section 17 application (which also contained this provision) on 30 April 2002 that Network Rail had misinterpreted the meaning of a quality adjustment to access rights. Network Rail interpreted the provision to be restricted to certain aspects of the quality of access rights. However, the provision was always intended to allow for any adjustment to access rights with the exception of quantum. The Regulator has clarified this by providing more explicit drafting in Part 8 of Schedule 7.

## ***19. Other financial incentives***

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### **Introduction**

19.1 This chapter sets out the Regulator's conclusions on the treatment of other financial incentives (*i.e.* the incentives outside the provisions of Schedules 4, 7 and 8 of the track access agreement), namely the volume incentive and the asset stewardship incentive.

### **Volume incentive**

#### *Introduction*

19.2 The volume incentive was introduced at the October 2000 access charges review to encourage Railtrack to promote the use and development of its network and to be responsive to the requirements of its customers and funders. Given the shift to cost-reflective charges at the last review, it was considered that Railtrack would have been broadly indifferent to the volume of traffic on its network unless it was given an explicit volume incentive to provide a direct financial stake in the growth of the railways.

19.3 The volume incentive provides Network Rail with additional revenue (provided through an adjustment to the RAB following the 2009 access charges review) based on:

- (a) the growth in actual passenger train miles, as a measure of what Network Rail delivers to its passenger train operator customers;
- (b) the growth in farebox revenue, as a measure of the value which passenger train operators place on those high level outputs; and
- (c) the growth in freight train miles and gross tonne miles, as a measure of what Network Rail delivers to its freight operator customers.

19.4 The addition to the RAB is then calculated by multiplying the growth as measured above by a pre-determined schedule of rates which is set at each review.

19.5 Even with developments such as the SRA's tighter specification of franchised passenger services in the new franchise agreements, combined with its capacity utilisation policy and route utilisation strategies, Network Rail still retains substantial

control over the availability of capacity for new and existing services. The volume incentive therefore retains its importance in incentivising Network Rail to make the best use of constrained network capacity in order to accommodate traffic growth and to do other things that enable and facilitate growth in passenger and freight revenue.

### *Conclusions*

- 19.6 The Regulator has concluded that Network Rail should continue to be rewarded if it accommodates growth in passenger and freight traffic on its network and that the existing structure of the volume incentive should be retained. However, the Regulator considers it is necessary to make the following minor changes to the incentive:
- (a) rewards will only apply beyond a baseline level of growth set at 50% of forecast growth rates over the next five years; and
  - (b) although the passenger volume incentive will continue to be based on growth in train miles and farebox revenue, the incentive rates applying to each of these will change to ensure that forecast growth in these components, if materialised, will continue to provide an equal contribution to Network Rail's overall reward.
- 19.7 Since the publication of the Regulator's draft conclusions in October 2003, the SRA and Network Rail have produced revised forecasts for passenger and freight growth on the network. The Regulator has adopted the SRA's forecasts in relation to passenger train miles and farebox revenue growth since it is the SRA which specifies service levels in franchise agreements. For freight, the Regulator has used Network Rail's forecasts of train miles and gross tonne miles. These are more conservative than the SRA's forecasts which do not recognise capacity constraints and would, therefore, represent an inappropriate baseline for an incentive that is designed to incentivise the efficient use of network capacity.
- 19.8 The Regulator's conclusions on incentive rates and baseline levels of growth for both the passenger and freight growth incentives are as shown in Table 19.1.

**Table 19.1: Incentive rates and baseline growth**

	<b>Freight Volume Incentive</b>	<b>Passenger Volume Incentive</b>
<b>Incentive rates (2002/03 prices)</b>	£0.64 per train mile £0.80 per kgm	£5.63 per train mile 2.6% of farebox revenue
<b>Baseline level of growth</b>	Train miles – 1.48% p.a. Kgtm – 1.49% p.a.	Train miles – 0.11% p.a. Farebox revenue – 1.74% p.a.

19.9 The reward that Network Rail earns through the volume incentive will be added to the RAB at the end of the five-year period covered by this review.

*Reasons for conclusions*

19.10 The principles underpinning the volume incentive are now well established and the debate in this review has been about the figures on which future calculations should be based.

19.11 In his third consultation document, the Regulator explained that he did not consider it to be appropriate for Network Rail to be rewarded through the volume incentive merely as a result of expected growth in freight and passenger traffic. He proposed that the baseline level of growth be set at half the forecast level. Network Rail's response said that the baseline should be set at 25% of the level of forecast growth in order to ensure that incentives are not blunted. The Regulator continues to believe that setting the baseline at 50% of forecast growth strikes the right balance between ensuring that Network Rail does not benefit from windfall gains and providing a reasonable financial incentive to accommodate growth.

19.12 Network Rail believes that any payments due under the volume incentive should be logged up on an annual basis to reflect growth in traffic in the previous year, with the RAB being adjusted at the end of the control period. The Regulator is not persuaded to adopt Network Rail's preferred approach primarily because it could result in Network Rail being financially rewarded for accommodating exactly the same level of traffic at the end of the control period as it had at the beginning of the period due to fluctuations within the period. Such fluctuations might simply be caused by extensive industrial action in a particular year for example. The Regulator's conclusion is therefore to retain the existing mechanism whereby incentive payments are related to growth within a control period.

- 19.13 The passenger incentive rates introduced at the October 2000 access charges review (which combined were equivalent to 1 penny per passenger mile) were based on 25% of the estimated social value of additional passenger miles plus 25% of additional farebox revenue. Freight incentive rates were set in the Regulator's freight charging review final conclusions in October 2001 and were calculated to be equivalent to the passenger rates. The Regulator confirms his draft conclusion that the scale of the incentive rates be maintained at their current levels. The positive baseline level of both passenger and freight growth will result in a lower total reward than under the existing volume incentive for any given level of traffic growth.
- 19.14 The SRA and Network Rail have provided the Regulator with revised forecast growth rates for each of the variables in Table 19.1 up to 2008/09 as well as for passenger miles. The analysis below is based upon the SRA's forecasts of passenger growth and Network Rail's forecasts of freight growth. The Regulator's estimate of the addition to the RAB in 2009 based on these growth forecasts is £104 million (in 2002/03 prices). This is lower than the estimate provided in the draft conclusions (£143m) due to the downward revision in overall volume growth rates.
- 19.15 Based upon the SRA's forecast of passenger miles and an incentive rate of 1.084p per passenger mile (in 2002/03 prices), this would provide an expected addition to the RAB in 2009 from the passenger volume incentive of £87 million in 2002/03 prices if Network Rail was able to accommodate this growth. In order that the train mile and farebox revenue components provide the same expected amounts (*i.e.* around £44 million each), the passenger mile incentive rate now translates to £5.63 per train mile (in 2002/03 prices) and 2.6% of farebox revenue. The marginal rates have increased compared to those in the draft conclusions due to the relative changes in forecast growth rates for passenger miles, train miles and farebox revenue.
- 19.16 Based upon Network Rail's forecasts of freight gross tonne kilometres and freight train miles, the expected addition to the RAB in 2009 from the freight volume incentive would be £16 million (in 2002/03 prices). The marginal rates in 2002/03 prices are £0.64 per freight train mile and £0.80 per thousand gross tonne miles.

### **Asset stewardship incentive**

#### *Introduction*

- 19.17 In his draft conclusions, the Regulator proposed the introduction of an asset stewardship index (ASI) to create an incentive on Network Rail to deliver ongoing improvements to the underlying condition and serviceability of the national rail

network. The index would measure the improvement in a basket of asset stewardship indicators and provide for an adjustment to the RAB at the next major access charges review according to the extent to which a weighted average of the chosen indicators had improved during the five-year period.

- 19.18 Presently, the only direct financial incentive to improve asset stewardship is through a reward that the Regulator provides Network Rail for reductions in the number of broken rails. The Regulator believes that this may have contributed to a greater focus being placed on reducing broken rails compared with other asset stewardship measures. He therefore believes that it is appropriate to provide a financial incentive for Network Rail to improve a broad range of asset stewardship measures.

#### *Final conclusions*

- 19.19 Having considered the views expressed by consultees, the Regulator has concluded that the index should be made up of the asset measures contained in table 19.2 below, with weightings applied to the respective asset measures.

**Table 19.2 Asset measures and weightings in the ASI**

<b>Asset category</b>	<b>Asset measure</b>	<b>Weighting</b>
Track	Track geometry	20%
	Broken rails	15%
	Level 2 exceedences	15%
	Points/track circuit failures	10%
Signalling	Signalling failures	20%
Electrification	Electrification failures	10%
Structures and Earthworks	Structures and Earthworks related TSRs	10%

- 19.20 Table 19.3 shows the 2002/03 levels of the measures contained within the ASI and the target levels that the Regulator is putting in place for the next five-year period. Table 19.3 also calculates the current level of the ASI.

**Table 19.3: Calculation of current level of ASI**

Asset measure	2002/03 level	2008/09 target level	Individual asset index	Weighting	Current ASI
Track geometry	1.11	1.0	1.11	20%	0.22
Broken rails	444	300	1.48	15%	0.22
Level 2 exceedences	1.2	0.9	1.33	15%	0.20
Points/track circuit failures	21,511	19,360	1.11	10%	0.11
Signalling failures	29,077	28,750	1.01	20%	0.20
Electrification failures	134	133	1.01	10%	0.10
Structures and earthworks TSRs	152	100	1.52	10%	0.15
					<b>1.20</b>

Note: The levels for track geometry have been adjusted since the draft conclusions. Further engineering evaluation resulted in new vertical target levels being set at both short and long wavelengths better to reflect current levels compared with historic performance. The track geometry index is calculated on an annual average basis using figures from Network Rail's network condition report. All other figures are from the company's annual return.

19.21 In his draft conclusions, the Regulator proposed to adopt a straight-line reward schedule, with a maximum possible reward of £300 million. He proposed that the trigger for reward payments be set at an ASI of 1.1, with the maximum payment being received at a ceiling point of 0.9. Given the support for this approach and the fact that the current ASI level has altered only slightly from 1.22 to 1.20 (since the draft conclusions), the Regulator confirms that it is appropriate to adopt the reward structure outlined in his draft conclusions.

19.22 The Regulator intends to monitor the ASI over the course of the next control period. He will then calculate any reward due to Network Rail on the basis of the level of the ASI at the end of the period, and make any required addition to the RAB.

#### *Reasons for final conclusions*

19.23 The Regulator originally outlined his proposed methodology for constructing the index in his third consultation document. He confirmed in his draft conclusions that this approach would be adopted following broadly supportive comments from consultees. The Regulator stated that the setting of target levels for asset performance was a key input into this methodology and he outlined his provisional target levels.

- 19.24 The HSE has said that the Regulator should give a higher weighting to those measures with direct safety implications. The Regulator agrees and highlights the greater weighting he has assigned to broken rails, level 2 exceedences and track geometry compared with those assigned to some other measures with less direct safety implications, for example electrification failures. The Regulator has taken advice from his own engineers and has discussed the measures and weightings with Network Rail before arriving at his conclusions. Based on this advice and discussions, he considers that the measures and weightings he has chosen will incentivise Network Rail to enhance not only safety but also performance and quality of the assets. There has been broad support from the industry for these measures and weightings, and indeed they reflect closely the measures and weightings which Network Rail has adopted in the ASI contained in its management incentive plan. The new ASI will be monitored and developed as appropriate in the future, but the Regulator believes that the index represents a significant improvement in his financial incentives to improve safety and other aspects of asset stewardship compared with the current financial incentive which focuses solely on broken rails.
- 19.25 The Regulator said in his draft conclusions that the most appropriate method for assigning targets in the ASI in order to provide a credible incentive is to assume the same levels that are set in the determination of baseline outputs (see Chapter 9). He confirms this approach for all measures except in relation to points/track circuit failures and signalling failures. The regulatory requirement is for these measures to show no deterioration from 2003/04 levels. However, the Regulator believes that it is appropriate for points/track circuit failures and signalling failures to show some improvement in return for additional financial rewards. Moreover, he believes that it is reasonable to assume that improvements are achievable even though they are not a regulatory requirement. Only relatively small improvements are required before rewards are triggered. Therefore the incentive remains credible. This is consistent with the assumption of a reduction in asset failures partially driving the Regulator's performance trajectory.
- 19.26 In its response to the Regulator's draft conclusions, Network Rail raised concerns that the track geometry measure chosen by the Regulator incentivises improvements to some track that is already considerably better than line standard. The Regulator believes that it is entirely appropriate to incentivise improvements in track geometry to all track and that this should not deflect Network Rail from targeting improvements in poor track geometry particularly given that such improvements are regulatory

requirements as described in Chapter 9. Failing to incentivise good track may lead to some track deteriorating into the satisfactory level of track geometry.

19.27 Network Rail has also raised concerns that future linespeed reclassification (particularly increases on the WCML) will lead to an apparent drop in track geometry measures as the track will be measured against higher standards. The Regulator does not believe that this should have a material effect on Network Rail's ability to achieve the target levels required to earn an award through the ASI for the following reasons:

- (a) there has been a very high volume of track alignment work on the West Coast and a substantial volume of track renewals, all of which should have been installed to the relevant track quality requirements; and
- (b) the linespeed will only be increased from 110mph to 125mph, compared with the original plan to increase to 140mph.

19.28 Network Rail has also argued that the ASI should contain a mechanism to lock in rewards for each year of the control period, as it feels that there is a risk that good asset stewardship in years 1 to 4 might not lead to any incentive payment if asset measure levels then decline sharply in year 5. Network Rail gave the example of the extreme weather experienced in the 12-month period from September 2002 to September 2003 (including storms/flooding in October 2002, extreme winter conditions in January 2003 and the extreme heat of July/August 2003).

19.29 The Regulator believes that it would be inappropriate to develop an incentive mechanism that could create a perverse incentive on the company to remain under-prepared for severe weather conditions. As the Regulator stated in Chapter 9 in relation to the performance trajectory, Network Rail should be adequately prepared for, and respond efficiently to, adverse weather conditions. The Regulator believes that a serious decline in the ASI as a result of adverse weather conditions could represent poor asset stewardship.

## 20. *Monitoring and delivery*

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### Introduction

20.1 Chapter 9 concentrated on measures of outputs, performance and asset condition which the Regulator is funding Network Rail to deliver as part of this review. Chapters 16 to 18 set out the key incentives on Network Rail to deliver these. But the Regulator considers it is important to view these in the wider contexts of:

- (a) regulatory monitoring of the company; and
- (b) incentivising and securing delivery of the company's obligations.

### Monitoring

20.2 Chapter 9 sets out the measures of outputs, performance and asset condition the Regulator expects to monitor, and the improvements the Regulator expects to see made to these measures. The Regulator will also continue to monitor the finances of the company through the regulatory accounts, which present the company's financial position and performance on a basis consistent with the Regulator's determinations and policy.

20.3 The Regulator considers it important that in addition to this, improved information is available on expenditure, activities, unit costs and stakeholder relationships. This is because of the need:

- (a) to ensure that Network Rail addresses the inefficiencies identified in this review, and that the longer term sustainability of the railway is not compromised (*e.g.* by failing to address unit cost issues); and
- (b) to ensure a much improved information base for the company itself, and for the Regulator, at the next major access charges review and for interim reviews.

20.4 The Regulator believes that Network Rail shares these objectives, and he will therefore want to establish with the company improved measures of expenditure, activities and unit costs for each asset type, and for maintenance and renewal activities. The Regulator notes, in particular, the difficulties this review has encountered because of the lack of such information on maintenance. He also considers it important that measures of the effectiveness of Network Rail's relationships with customers and funders be developed.

- 20.5 The work carried out as part of this review has indicated the value of comparative measures between different parts of the company. The Regulator will want to receive disaggregated information and expects to establish with the company the appropriate level of disaggregation having regard to the organisational structure currently being implemented.
- 20.6 The primary focus for monitoring will continue to be the annual return, but the Regulator expects to receive information on a monthly or quarterly basis as appropriate. For instance, he believes that operational performance is sensibly monitored on a monthly basis, but that most measures of asset condition are more appropriately reviewed on a quarterly or annual basis either to smooth out fluctuations, or because the data does not change much on a monthly basis.
- 20.7 The Regulator expects to use the information received from Network Rail to ensure he has a rounded and comprehensive picture of the company's performance. He proposes to establish a "balanced scorecard" giving such a picture, and in order to give transparency of the company's accountability to the public interest, to publish an assessment on a regular basis.
- 20.8 In outline, he expects the balanced scorecard to comprise information under six headings:
- (a) network outputs and performance and asset condition;
  - (b) activities and expenditure against business plan;
  - (c) safety;
  - (d) unit costs;
  - (e) financial measures; and
  - (f) stakeholder relationships.
- 20.9 The Regulator would expect to publish an annual assessment as part of the business planning cycle, and quarterly updates on key indicators.
- 20.10 The Regulator expects that the regulatory reporters will advise him and Network Rail on the robustness of processes by which information is collected and the accuracy of information, and provide other advice to inform the balanced scorecard.

## Securing delivery

- 20.11 Chapters 18 and 19 set out the arrangements that will be in place to incentivise Network Rail to deliver and sustain a better performing network more efficiently. There are a mix of contractual incentives in access agreements, and financial incentives through regulatory mechanisms. The company's financial incentives are supported by incentives on management through the management incentive plan.
- 20.12 The Regulator also expects that arrangements for Network Rail to be required to give contractually-binding local output commitments to train operators will be introduced shortly. He has proposed changes to the network code which will require such commitments, focussed initially on train performance, supported by a three-year performance plan for each operator.
- 20.13 The Regulator expects that as a result of these mechanisms, Network Rail will be incentivised to comply with its network licence obligations. Moreover, he expects that if a contractual remedy (for instance through local outputs commitments or the network change process in the network code) is available, this should be the primary means by which Network Rail's customers hold it to account.
- 20.14 The Regulator recognises, however, that regulatory action under section 55 of the Railways Act 1993 may be necessary in the event of a breach or apprehended breach of the network licence. In particular, he would expect to take enforcement action if:
- (a) contractual remedies are not appropriate (for instance if they do not exist, or because of a systematic failure, or a failure which goes to long term sustainability which may not be relevant to operators with relatively short term contracts); and
  - (b) Network Rail falls well short, or is likely to fall well short, of required performance against the measures set out in this document.
- 20.15 In coming to a view on these points, the Regulator expects to have regard to the company's overall performance, as indicated by the balanced scorecard outlined above.
- 20.16 The Regulator expects to publish a further statement on enforcement policies and on his approach to financial penalties during the first half of 2004.



## ***Annex A: The Regulator's duties under section 4 of the Railways Act 1993***

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1. The Regulator has a duty to exercise the functions assigned or transferred to him under or by virtue of Part I of the Railways Act 1993 in the manner which he considers best calculated:
  - (a) to facilitate the furtherance by the Strategic Rail Authority (SRA) of any strategies which it has formulated with respect to its purposes;
  - (b) to protect the interests of users of railway services;
  - (c) to promote the use of the railway network in Great Britain for the carriage of passengers and goods, and the development of that railway network, to the greatest extent that he considers economically practicable;
  - (d) to contribute to the development of an integrated system of transport of passengers and goods;
  - (e) to contribute to the achievement of sustainable development;
  - (f) to promote efficiency and economy on the part of persons providing railway services;
  - (g) to promote competition in the provision of railway services for the benefit of users of railway services;
  - (h) to promote measures designed to facilitate the making by passengers of journeys which involve use of the services of more than one passenger service operator;
  - (i) to impose on operators of railway services the minimum restrictions which are consistent with the performance of his relevant functions; and
  - (j) to enable persons providing railway services to plan the future of their businesses with a reasonable degree of assurance.

2. The Regulator's statutory duties also include obligations to:
- (a) take into account safety considerations, in particular, any advice given to him in that behalf by the Health and Safety Executive;
  - (b) have regard to the effect on the environment of activities connected with the provision of railway services;
  - (c) have regard to any general guidance given to him by the Secretary of State about railway services or other matters relating to railways;
  - (d) act in a manner which he considers will not render it unduly difficult for holders of network licences (of which the principal one is Network Rail) to finance their relevant activities;
  - (e) have regard to the financial position of the SRA in discharging its functions; and
  - (f) have regard to the ability of the Mayor of London, London Regional Transport and Transport *for* London to carry out their relevant functions; and.
  - (g) have regard to the interests of persons who are disabled.

## ***Annex B: List of respondents to the final conclusions***

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Arriva Trains Limited

English Welsh & Scottish Railway Limited

FirstGroup plc

Freightliner Group

Go-Ahead Group plc

Great North Eastern Railway Limited

Health & Safety Executive

London Underground Limited

Merseytravel & Merseyrail Electrics

Network Rail

Passenger Transport Executive Group

Rail Freight Group

Rail Safety & Standards Board

The Railway Forum

Scottish Executive

Strategic Rail Authority (confidential)

Strathclyde Passenger Transport Executive

Symonds Group Ltd

Transport for London

Virgin Trains



## *Annex C: Calculation of RAB adjustments*

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1. This Annex provides further explanation of each row in the Regulator's calculations of the value of the 1 April 2004 RAB as set out in Table 12.3.

### *Committed enhancement additions and additional stations and depots renewals*

2. Those items of expenditure on stations and depots renewals which the Regulator has previously committed to adding to the RAB and other enhancements are as follows:
  - (a) *Other enhancements in the RAB:* This is expenditure on enhancements which were not included in the Regulator's projections of the RAB at the October 2000 access charges review (for example, expenditure on the Cross Country upgrade and Project Evergreen). The amount for the three years to April 2004 is £789.4 million<sup>25</sup> including financing costs. Since publication of the draft conclusions, this category has been amended so that it also contains the expenditure incurred to date (and forecast expenditure up to 31 March 2004) on the Southern Region New Trains Programme.
  - (b) *Additional stations and depots renewal:* This adjustment relates to certain station and depots renewals that are to be added to the RAB as part of a commitment that the Regulator made in the October 2000 access charges review (see paragraph 3.6 of those final conclusions.) The cumulative addition for the three years to April 2004 is £102.6 million including financing costs.

### *Output incentives*

3. The adjustments that the Regulator intends to make in relation to output incentives set in place in the October 2000 access charges review are as follows:
  - (a) *Volume incentives:* The existing passenger volume incentive is calculated with reference to a weighted average of the growth in train miles and farebox revenue since April 2001 at rates of 60 pence per train mile and 3.5% of farebox revenue respectively. The freight volume incentive was introduced in the October 2001 freight charging review final conclusions. It is calculated with reference to a weighted average of the growth in freight train miles and the growth in gross tonne miles at rates of 60 pence per train mile and 75

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<sup>25</sup> All figures are in 2002/03 prices and include financing costs.

pence per thousand gross tonne miles respectively. For the three years to April 2004, the adjustment to the RAB for the total volume incentive amounts to £93.1 million;

- (b) *Broken rails incentive:* This is an adjustment that is made for actual performance on broken rails relative to the October 2000 access charges review target (615 over the control period). (See paragraphs 16.31 to 16.35 of those final conclusions.) The addition to the RAB for the three years to April 2004 is £318.0 million; and
- (c) *Shortfall in capacity charge:* The capacity charge paid by TOCs accounts for half the estimated congestion costs on the network; the other half of these costs are recovered through the RAB. (See paragraphs 9.22 to 9.36 and 16.36 of the October 2000 access charges review final conclusions for further details.) As the capacity charge did not come into effect until May 2002, the RAB addition for this element is rolled up into the overspend described below.

#### *Overspending and underspending*

4. The adjustments that the Regulator intends to make in relation to overspending and underspending in the three years to April 2004 are as follows:
  - (a) *Railway Safety cost pass-through:* The difference between the cumulative (actual) Railway Safety charge and the amount allocated in the October 2000 access charges review is added to (or taken away from) the RAB on an annual basis and remunerated at the end of the control period. The cumulative addition for the three years to April 2004 is £5.0 million;
  - (b) *Additional project development costs:* In the October 2000 access charges review, the Regulator stated that those project development costs in excess of those allowed for would be included in the RAB at the next access charges review. (See paragraph 16.20 and paragraph 3.16 of those final conclusions.) Network Rail has not incurred any additional costs during the three years to April 2004 apart from those relating to Stations IOS which are included in the overspend category (g) below; and
  - (c) *Under- or overspend on signalling and telecoms:* Due to the uncertainty of Railtrack's required expenditure on signalling and telecoms, the Regulator allowed for any over- or underspend in these categories over the control period to be added or taken away from the RAB. (See paragraph 16.17 of the

October 2000 access charges review final conclusions). This amount has been included in the overall adjustment for overspend in (g) below;

*Other adjustments*

- (d) *Land disposal compensation:* This is compensation for any blocked land sale below the Property Allowance Scheme benchmark. (See paragraph 16.37 of the October 2000 access charges review final conclusions). The Regulator has stated that he will adjust the RAB for any appropriate compensation resulting from a loss in value to Network Rail due to the Regulator issuing a direction under condition 26 of the network licence not to proceed with a disposal. There has to date been no compensation claims and therefore there will be no addition to the RAB now;
- (e) *Underdelivery:* The Regulator does not propose to clawback any amount for underdelivery during the last three years;
- (f) *Grants and deferred income:* This refers to the RAB adjustments to be made in respect of the retiming of SRA grants. It is explained in more detail in the Regulator's letter to Network Rail dated 31 July 2002, which is reproduced at Appendix D of the second consultation document. The RAB addition in April 2004 is £360.0 million. This is a one-off adjustment that covers the entire three-year period and is not an annual adjustment;
- (g) *Aggregate overspend:* The Regulator's June 2002 statement explained that he would adjust the RAB to ensure that Network Rail is no worse off as a consequence of any overspend on OM&R expenditure, Schedule 8 costs and enhancements during 2001/02 and 2002/03. (See paragraph 59 of the June 2002 statement.) This amounts to an adjustment of £990.1 million in respect of overspending during the first year and £1,705.2 million and £2,963 million during the second and third years respectively. This category also contains £1.6 million of abortive development costs allowed by the Regulator through the Stations IOS final conclusions (published on 6 August 2003). Since the draft final conclusions, the SRA has agreed to fund £116 million of previously unremunerated, control period 1 expenditure on the Thameslink 2000 project; this amount has been included in the overspend; and
- (h) *Shortfall in revenues from 2001 to 2004:* As explained in Chapter 5, the Regulator proposes to make an adjustment to the RAB to reflect the shortfall in Network Rail's income over the period 2001 to 2004 that results from the

profile of revenues during the first control period. This incorporates the profiling of access charges, SRA network grants (as set out in Appendix D of the October 2000 access charges review final conclusions) and SRA freight grants. The figure to be added to the RAB is £1,874.7 million.

- (i) *Ring fenced enhancements*: These enhancements are those schemes that were previously remunerated outside the RAB. In the third consultation document, the Regulator stated that he was minded to add these assets to the RAB. The majority of the consultees agreed with this approach and as a result, in the draft final conclusions, the Regulator confirmed that he was adding this category to the RAB. The cumulative total addition to be made to the April 2004 RAB is £1,162.7m.

## *Annex D: Expenditure allowances*

<b>£ million (2002/03 prices)</b>	<b>2004/05</b>	<b>2005/06</b>	<b>2006/07</b>	<b>2007/08</b>	<b>2008/09</b>	<b>Total</b>
<b><i>Pre-efficiency forecasts</i></b>						
<i>Non-WCRM renewals:</i>						
Track	647	812	850	890	930	4,129
Structures	320	320	395	470	470	1,975
Signalling	320	434	434	434	434	2,056
Telecoms <sup>26</sup>	221	187	263	254	57	982
Electrification	50	70	110	120	120	470
Plant and machinery	189	89	74	72	69	493
Operational property	188	190	222	254	271	1,124
Other renewals (incl. IT)	135	149	126	126	134	670
<b>Total Non-WCRM</b>	<b>2,070</b>	<b>2,251</b>	<b>2,474</b>	<b>2,621</b>	<b>2,485</b>	<b>11,900</b>
Maintenance	1,328	1,328	1,328	1,328	1,328	6,640
Controllable OPEX	1,044	1,044	1,044	1,044	1,044	5,220
Non-controllable OPEX	217	217	218	219	219	1,090

<b><i>Efficiency adjustment</i></b>						
Non-WCRM renewals	0.92	0.846	0.779	0.740	0.703	
Maintenance	0.92	0.846	0.779	0.716	0.659	
Controllable OPEX	0.92	0.846	0.779	0.740	0.703	
Non-controllable OPEX	0	0	0	0	0	

<sup>26</sup> For Telecoms expenditure the efficiency adjustments have not been applied to the FTN or GSM-R projects – see Chapter 5 for details. Cab fitment costs have been included in ‘other enhancements’.

<b>£ million (2002/03 prices)</b>	<b>2004/05</b>	<b>2005/06</b>	<b>2006/07</b>	<b>2007/08</b>	<b>2008/09</b>	<b>Total</b>
<b><i>Post-efficiency allowances</i></b>						
<i>Non-WCRM renewals:</i>						
Track	595	687	662	658	654	3,256
Structures	294	271	308	348	330	1,551
Signalling	294	367	338	321	305	1,626
Telecoms	219	185	259	252	55	970
Electrification	46	59	86	89	84	364
Plant and machinery	174	75	58	53	48	409
Operational property	173	161	172	188	190	885
Other renewals (incl. IT)	124	126	98	93	94	536
<b>Total non-WCRM</b>	<b>1,920</b>	<b>1,932</b>	<b>1,981</b>	<b>2,003</b>	<b>1,761</b>	<b>9,596</b>
Maintenance	1,222	1,124	1,034	951	875	5,207
Controllable OPEX	960	884	813	772	734	4,163
Non-controllable OPEX	217	217	218	219	219	1,090
WCRM renewals	909	740	169	161	198	2,178
WCRM enhancements	227	150	109	79	61	625
Other enhancements	797	245	180	157	148	1,527
Schedule 4 + 8 costs	78	85	91	92	93	439
<b>Total expenditure</b>	<b>6,330</b>	<b>5,375</b>	<b>4,595</b>	<b>4,434</b>	<b>4,089</b>	<b>24,823</b>

## *Annex E: Network Rail's revenue requirement*

<b>£ million (2002/03 prices)</b>	<b>2004/05</b>	<b>2005/06</b>	<b>2006/07</b>	<b>2007/08</b>	<b>2008/09</b>	<b>Total</b>
<b><u>RAB</u></b>						
1 April RAB	17,696	20,182	21,865	22,921	23,932	
Renewals & enhancements	3,853	3,066	2,439	2,399	2,168	
Amortisation	1,367	1,383	1,383	1,388	1,391	
31 March RAB	20,182	21,865	22,921	23,932	24,709	
Average RAB	18,939	21,023	22,393	23,426	24,320	
<b><u>Revenue requirement</u></b>						
Maintenance	1,222	1,124	1,034	951	875	5,207
Controllable OPEX	960	884	813	772	734	4,163
Non-controllable OPEX	217	217	218	219	219	1,090
Schedule 4 and 8 costs	78	85	91	92	93	439
Return on RAB	1,281	1,422	1,410	1,475	1,531	7,118
Amortisation	1,367	1,383	1,383	1,388	1,391	6,912
<b>Gross revenue requirement</b>	<b>5,125</b>	<b>5,114</b>	<b>4,949</b>	<b>4,898</b>	<b>4,843</b>	<b>24,929</b>
Other single till income	(682)	(703)	(707)	(699)	(706)	(3,497)
<b>Net revenue requirement</b>	<b>4,443</b>	<b>4,411</b>	<b>4,242</b>	<b>4,199</b>	<b>4,137</b>	<b>21,432</b>
Variable charge income (usage charges, Schedule 4 & 8 charges, EC4T)	367	374	381	382	387	1,890
<b>Total to be recovered from fixed charges and grants</b>	<b>4,077</b>	<b>4,037</b>	<b>3,861</b>	<b>3,817</b>	<b>3,750</b>	<b>19,542</b>
<b>Default Position (based on existing Deed of Grant)</b>						
Fixed Charges	2,797	3,385	3,309	3,817	3,750	17,058
SRA Grants	1,279	652	552	-	-	2,484