ANNUAL ASSESSMENT OF NETWORK RAIL 2005-06

SEPTEMBER 2006
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1. Executive summary

Overview

This is the third annual statement by the Office of Rail Regulation (ORR) to assess Network Rail’s performance in operating, maintaining, renewing and developing the mainline rail network. It covers the period from April 2005 to March 2006 and builds on recent publications issued by the ORR, including the quarterly Network Rail Monitor and draws on the ORR Annual Report on Rail Safety 2005. It relies heavily on the accuracy of data provided by Network Rail in its annual returns as required under its Network Licence. Following the audit of the annual return for 2006, the independent reporter has confirmed that this data is largely accurate and its systems sufficiently robust, although a number of potential minor improvements were identified.

Overall Network Rail continued to make good progress with managing the network during 2005-06. Two years into the current control period it is on course to achieve targets set in the Access Charges Review in 2003 (ACR2003).

Safety performance improved across many aspects of Network Rail's business, although the company has not yet achieved all the targets it had set itself.

The company is providing industry leadership in joint planning for performance improvement. It has achieved further reductions in train delays while traffic levels have increased, although there remain pockets of particularly poor performance that we expect the company to address during the current year.

There is steady improvement in network condition. However, it would appear that the immediate gains from taking direct responsibility for maintenance have now been consolidated; continuing to improve infrastructure reliability will be increasingly challenging.

Despite these achievements measures of train operating company (TOC) satisfaction with Network Rail remain low and tackling this must be a priority for the company.

Network Rail under spent compared with the ACR2003 assumptions, reflecting a combination of additional efficiencies beyond those assumed at the time, and deferral of renewals work.
Key points from each chapter follow.

**Summary assessment**

*Train performance*

- The ‘public performance measure’ (PPM) ‘moving annual average’ (MAA) for all franchised passenger operators in the year to 31 March 2006 was 86.4%, beating the industry target of 85%.

- Some operators consistently achieved well over 90%, while others regularly failed to achieve 80%.

- Delays attributable to Network Rail fell to 10.5 million minutes in 2005-06, significantly better than the ACR2003 target of 11.3 million minutes delay.

- The independent reporter raised some concerns about the accuracy of the delay attribution process, particularly in relation to temporary speed restrictions. While it is clear that some improvements have been made, there are still areas for further improvement.

*Timetable planning*

- Network Rail generally continued to give sufficient advance warning of temporary changes to the timetable in 2005-06.

*Strategic planning*

- Network Rail is fulfilling its Network Licence requirement to adopt the strategic planning role for the industry. During 2005-06 the first ‘route utilisation strategy’ (RUS) produced by Network Rail was established. One more has since been published in final form and two others as drafts for consultation; five more are in preparation.

- These represent a step forward for the industry, not least in achieving wide and effective stakeholder involvement. There remains scope to make the development process more robust and to increase further the value of the final strategies, and we look to Network Rail to build on its achievements in these early RUSs.

*Network Code*

- Network Rail continued to work successfully with industry partners to deliver reform to the Network Code in 2005-06.

*Possessions*

- Following an ORR seminar in May 2005, the industry set up a possessions review to examine how engineering access is planned, managed and
utilised and to study how the need for that access should be balanced with the requirement to run services. ORR is playing a full part in the review. The main work of the review is due for completion by December 2006; this will be a crucial input to the Periodic Review 2008 (PR2008) of access charges.

Customer and supplier satisfaction

- Network Rail’s direct customers are the passenger and freight operating companies (TOCs and FOCs). Its measures of customer satisfaction remain very low. The measure for passenger operating companies improved marginally but that for freight operators deteriorated further. This is particularly worrying and shows that there remains much to be done to improve these relationships.

Network capability

- We continue to be disappointed by the slow rate of progress Network Rail is making in developing a full understanding of the capability of the network.

Infrastructure reliability

- Network Rail has continued to improve the reliability of the infrastructure network-wide with gradual reductions in the number of asset failures and their consequential delays. In some cases however, such as points failures, reliability has barely improved at all, while the number of track faults increased.

- It appears that Network Rail has consolidated the early gains that arose from taking direct responsibility for maintenance. Further improvements in performance of the infrastructure will increasingly challenge the focus, the management and the delivery skills within Network Rail.

Asset quality

- The reduction in the ‘asset stewardship index’ (ASI) confirms that improvements to the condition of the network continued during 2005-06. Network Rail is not only outperforming ORR targets set in ACR2003, but it is also 6% ahead of the more demanding targets in its Business Plan 2005.

- The steady improvement in network condition is evident in all asset categories, with most ‘key performance indicators’ (KPIs) already achieving, or surpassing, 2008-09 targets. However, there are some cases where local variations do not conform so well to this pattern.
Operational property

- Although there was a marginal improvement in overall station condition, we do not have confidence in the measure used. In last year’s assessment we said that we expected Network Rail to progress the action plan to reform the station condition index. It is disappointing to note that this has not been completed but ORR expects this to be done by October 2006.

- Network Rail has not yet proposed a baseline average condition grade for ‘light maintenance depot’s (LMDs) for ORR approval. We expect Network Rail to make an explicit commitment to completing and reporting the condition of all its LMDs by the end of 2006-07.

Asset knowledge

- Network Rail has made substantial progress with its asset information strategy, one of the key components of the business-led asset management approach for the future. There is high level commitment within the company to ensure that the milestones set out in revised guidelines will be achieved.

Activity volumes

- Track renewals volumes in 2005-06 were considerably higher than the previous year and represent a return to near the peak of 2003-04. However in other areas, such as structures and signalling renewals, measured activity volumes in 2005-06 were significantly lower than in 2004-05.

- As ACR2003 provided for increased levels of activity, this assessment asks important questions about value for money and whether Network Rail is delivering asset renewals at the rate it has claimed to be necessary. We conclude that this year’s figures do not necessarily reflect a serious under-delivery against actual plans. However they do underline the need for significant improvements in the way Network Rail reports its asset renewals activities and hence how it is demonstrating value for money.

Expenditure and efficiency

- In 2005-06, Network Rail underspent on controllable non-West Coast route modernisation (WCRM) ‘operation, maintenance and renewals’ (OMR) by a total of £156 million, or 4%, compared to the ACR2003 assumption. This represents an 8% underspend for the first two years of control period 3 (CP3).

- We attribute around £120 million of this underspend to outperformance by Network Rail (additional efficiency compared with the ACR2003
assumption), the remainder being accounted for by deferral of renewals expenditure to later in CP3.

- The cumulative position over the first two years of CP3 is one of outperformance on controllable operation and maintenance expenditure by £236 million and performance broadly in line with the ACR2003 assumptions on renewals expenditure.

- Network Rail is currently on target to achieve the 31% unit cost efficiencies built into the CP3 revenue allowance.

- The financial benefit in 2005-06 to Network Rail associated with achieving the £156 million underspend was £128 million.

- This assessment includes an element of judgement, as Network Rail does not have a full set of unit cost data for 2005-06. We anticipate that sufficient data will be available to allow more complete reporting in future years.

**Finance and income**

- Network Rail’s net debt at 31 March 2006 was £18.0 billion, £1.6 billion lower than the ACR2003 assumption and £0.8 billion lower than forecast by Network Rail in its Business Plan 2005. This was £2.4 billion more than at 31 March 2004.

- The ‘regulatory asset base’ (RAB) was £23.0 billion at 31 March 2006. This is £2.5 billion higher than at 31 March 2005, £0.6 billion lower than the ACR2003 assumption and as forecast by Network Rail in its Business Plan 2005.

- Network Rail’s debt/RAB ratio at 31 March 2006 was 78.1%, which was within the regulatory limits and 1.6% higher than at 31 March 2005. Network Rail had a buffer to cover unforeseen expenditure of £1.6 billion at 31 March 2006, which is 27% higher than its forecast expenditure for 2006-07.

- Income in 2005-06 was £3.9 billion, £0.1 billion higher than in 2004-05, £0.2 billion higher than the ACR2003 assumption and £0.1 billion higher than forecast in the Business Plan 2005.

**Major investment projects**

- Network Rail’s total expenditure on major investment projects during 2005-06 was £406 million, compared to ACR2003 allowance of £429 million, a variance of £23 million. Within this total, a Network Rail underspend of £129 million on health and safety schemes was partially balanced by an
overspend of £83 million on the ‘transition schemes’ (such as the Southern region new trains project).

Health and safety

- The condition of infrastructure assets is improving, therefore reducing the risk of accidents from this cause.

- While the reported misuse of level crossings is rising, the number of collisions with vehicles was steady. Inspectors found Network Rail's management of the risk to be broadly adequate.

- The recorded rise in the risk from irregular working, notably by signallers, conflicted with the findings of inspection, which revealed a competence management system that was fit for purpose. The rise in risk may have other origins than competence.

- Workforce accident frequency rates are falling, though the number of fatalities remains steady - and unacceptably high - over the long-term. Inspection revealed weaknesses in the management of the risk of being struck by trains, and of construction-related risks.

Environment

- In accordance with its ‘safety and environment plan’ Network Rail took forward the implementation of its LMD pollution prevention programme in order to secure compliance with the Control of Pollution (Oil Storage) Regulations and the Groundwater Regulations. The priority works identified under this plan were completed at all LMDs in England by 1 September 2005, with a revised programme of work developed to ensure completion at LMDs in Scotland and Wales by December 2007.

Network Licence compliance

- In March 2006 we concluded that Network Rail was in breach of its Network Licence in that published information about the capability of the network was inaccurate and unreliable. We imposed a penalty of £250,000 and Network Rail is taking remedial actions to resolve these problems as quickly as possible.

Looking forward

Annex B summarises the recommendations for Network Rail. We will monitor the company’s progress with achieving these, with particular reference to:

- Maintaining improvements with train performance, particularly on those routes below the network average.
• Raising customer satisfaction, particularly among freight operators.

• Sustaining improvements in the condition of the infrastructure.

• Providing the evidence of improvements in efficiency required by the end of the control period.

• Reducing the risk of accidents at level crossings and improving workforce safety.

A key requirement of Network Rail in the current year is to continue to work with stakeholders (TOCs and others) to develop its plans to inform PR2008. We particularly expect Network Rail to continue work on improving asset management and the development of asset policies and develop the understanding of the scope for efficiency improvement in control period 4 (CP4).
2. Introduction

Purpose of the document

2.1 This is the third published annual statement by the ORR to assess Network Rail’s performance in operating, maintaining, renewing and developing the mainline national rail network. It covers primarily the year from April 2005 to March 2006, year two of the current control period, but also highlights any significant developments since 31 March 2006. It consolidates our analysis of Network Rail’s performance carried out during the year and allows the company’s customers, funders, members, users and other stakeholders to see how well we believe the company performed in the year.

2.2 The assessment reflects:

- our monitoring of Network Rail throughout the year;
- consideration of Network Rail’s Annual Return 2006\(^1\) to ORR against its Business Plan 2005 and the ACR2003\(^2\) determination;
- the audit of Network Rail’s Annual Return 2006 by the independent reporter, available on ORR’s website\(^3\);
- the requirements of the Network Licence; and
- issues highlighted in last year’s assessment.

2.3 Readers should note that, alongside this annual assessment, ORR monitors Network Rail’s on-going progress against a range of key performance indicators (KPIs) in the Network Rail Monitor\(^4\), available quarterly on our website, which serves to provide an up-to-date picture of Network Rail’s business performance.

2.4 The majority of expenditure figures in this annual assessment are derived from Network Rail’s audited Regulatory Accounts for 2005-06 and its Annual Return 2006. As the expenditure data used in the Network Rail Monitor is not

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\(^2\) Access charges review: Final conclusions. Office of the Rail Regulator, December 2003


\(^4\) Visit [http://www.rail-reg.gov.uk/server/show/ConWebdoc.7027](http://www.rail-reg.gov.uk/server/show/ConWebdoc.7027) to see the Network Rail Monitor.
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audited, there are minor differences between the data reported in the fourth quarter (q4) network rail monitor published in june 2006 and the data reported here, due to amendments following the audit process.

monitoring of network rail

2.5 monitoring network rail's performance is a key role for orr, in order to ensure that the company:

- is properly responding to incentives to deliver the required outputs specified in the most recent review of track access charges (acr2003); and
- has sufficient information to carry on its business efficiently and to inform future periodic reviews of access charges.

monitoring review

2.6 in 2005-06, orr began an assessment of its approach to monitoring network rail’s performance and achievement of business targets, against best practice. we identified actions to enhance the robustness, effectiveness and resilience of our approach, including actions that could be implemented immediately and those requiring further work.

2.7 in addition, we reviewed and enhanced the monitoring framework and publications by:

- revising and re-formatting the network rail monitor;
- adding an england and wales scorecard to the monitor;
- amending the kpis reported in the monitor;
- introducing a new publication, the national rail review, which comments more broadly on issues affecting the gb mainline railway;
- revising, reviewing and streamlining internal reporting; and
- establishing more formalised regular monitoring through an internal review group and formalising the approach to raising issues with network rail through revised liaison guidelines.

the first four points above have been implemented from quarter 1 (q1) 2006-07.

2.8 orr is currently undertaking an analysis of how we monitor network rail’s compliance with its network licence, condition by condition. we expect to identify areas where immediate action could be taken to improve
effectiveness and those where further work is needed. We will set out criteria and processes for ensuring the assessment of compliance is robust and in line with best practice.

2.9 We are aware of the need to review some of the licence conditions themselves to make them more relevant, to provide greater clarity of purpose or to ensure that they do not trigger ‘breach’ provisions on trivial matters. There are some relatively straightforward changes ORR is planning to make to the Network Licence within the near future, but the more complex modifications will feed into an overall licence review, to form part of PR2008, which will determine access charges for the next control period April 2009 - March 2014 (CP4).

Targets

2.10 Specific targets for Network Rail for the period April 2004 to March 2009 were set out in the final conclusions of the most recent review of access charges in December 2003 (ACR2003). For some measures there are annual targets, whereas for others the target is for the end of the control period.

2.11 In addition to the specific requirements of ACR2003, we monitor the company’s outputs against its business plans, as these contain detailed plans for achieving both its own internal and ACR2003 targets.

2.12 The measures, associated targets and achievements for 2005-06 are set out in full in Annex A.

Scope of the assessment

2.13 As in 2004 and 2005, our assessment of Network Rail’s performance covers expenditure, maintenance, renewal, enhancement, asset knowledge, train operations, train performance and timetabling. We have, however, sought to widen the scope of the assessment this year to reflect changing roles.

2.14 Following the enactment of the Railways Act 2005, ORR is now the combined safety and economic regulator, with effect from 1 April 2006. On that date, the rail safety function carried out by Her Majesty’s Railway Inspectorate (HMRI) and the Rail Policy Division was transferred from the Health and Safety Executive (HSE) to ORR. The annual review\textsuperscript{5} of rail safety

\textsuperscript{5} Annual report on Rail Safety 2005, ORR July 2006.
performance, previously published by HSE, is now published by ORR. This assessment does not seek to duplicate the safety report.

2.15 Network Rail’s role has also changed in that it is now leading strategic planning for the industry. This role is in its infancy. While we examine developments in 2005-06, we will review more fully in years to come.

Structure of the document

2.16 The initial focus of this document is on the outputs that Network Rail is expected to deliver. Chapter 3 assesses the impact of the company’s operation and management of the network on train services provided by its customers. We have included for the first time a report on progress with reform of the Network Code, as it is a central element of the contractual arrangements between Network Rail and its customers. We also assess possessions management and consider the extent of customer and supplier satisfaction.

2.17 Chapter 4 assesses the extent to which Network Rail demonstrates it is meeting the ACR2003 target of broadly maintaining the capability of the network as it stood on 1 April 2001. We include for the first time changes in train mileage.

2.18 Chapter 5 examines the extent to which Network Rail is managing the condition of the infrastructure of the network in terms of the reliability of the physical assets and their quality. It is imperative that the company has detailed and accurate knowledge of those assets and we assess progress with the development of systems and processes for capturing and maintaining asset data.

2.19 Physical assets eventually wear out and need to be replaced. Chapter 6 examines the extent to which the projected level of renewal activity to maintain the network at a defined level has been carried out.

2.20 As a monopoly supplier, Network Rail does not have the pressure of competition to drive increases in efficiency. In carrying out ACR2003, we made assumptions about levels of expenditure and increases in efficiency. Chapter 7 compares expenditure with ACR2003 allowances and assesses the extent to which Network Rail is achieving the efficiency assumptions.
2.21 **Chapter 8** looks at the financial health of the company, with particular emphasis on levels of debt in relation to the regulatory asset base (RAB).

2.22 **Chapter 9** focuses on the major investment projects that Network Rail was engaged in during the year and assesses the extent to which the company is delivering the outputs specified.

2.23 Chapters 10, 11 and 12 are new chapters this year. **Chapter 10** highlights relevant aspects of Network Rail's health and safety performance. We assess Network Rail's performance using inspection intelligence alongside industry numerical data.

2.24 **Chapter 11** considers Network Rail's delivery of its environmental commitments published in the business plan, along with its obligations under Condition 8 of its Network Licence, and **Chapter 12** reports on a ‘by exception’ basis on Network Rail's performance in relation to the other requirements of its Network Licence.

2.25 **Annex B** brings together our recommendations for Network Rail. A plan will be developed and agreed with Network Rail to put in place robust and measurable actions to ensure that these recommendations are delivered. Progress in delivering the plan will be monitored and reported in next year’s assessment.

**Independent reporter**

2.26 Independent reporters play an important role in the monitoring of Network Rail and the validation of information provided to ORR. Reporters were first appointed in 2002 and have audited Network Rail’s annual returns since then. The contract for the provision of independent reporter services has been re-let for the period to 31 December 2008. Core services have been extended and now cover: the annual return; business planning and asset management; major investment projects; and the information network. This is a reflection of the value to both ORR and to Network Rail of independent audit and verification of data and systems and of the changing roles of both organisations.

2.27 The reporter has confirmed that data in the Annual Return 2006 is generally robust, reliable and accurate, although the audit report makes a number of recommendations to Network Rail on how this can be improved. We are
monitoring Network Rail’s progress with implementing these recommendations during the current year.

2.28 Reports produced by the independent reporters are published on ORR’s website. Where appropriate, we refer in this assessment to findings and recommendations in the audit report on Network Rail’s Annual Return 2006.

Feedback

2.29 Following publication of this third annual assessment, we will review the value of the assessment to its intended audience and assess how it could be improved. Comments on the content are welcome and can be sent to: brian.hatfield@orr.gsi.gov.uk.
3.  Train operations and customer satisfaction

3.1  In this chapter we review Network Rail’s performance in relation to:

- Reducing delay to train services, focusing on the PPM and delay attributable to Network Rail.
- Meeting its obligations to customers and passengers in respect of changes to the timetable.
- Strategic planning for the industry.
- Managing the operation of the network.
- Managing possession of the network for maintenance and renewal.
- Leading the development of the Network Code.
- Passenger complaints and customer and supplier satisfaction.

Train performance

PPM (MAA) for all operators in the year to 31 March 2006 was 86.4%, which was better than the industry target of 85%.

Some operators now consistently achieve well over 90%, while others are still regularly failing to achieve 80%.

Delay attributed to Network Rail fell to 10.5 million minutes in 2005-06, significantly better than the ACR2003 target of 11.3 million minutes delay.

Network Rail needs to continue to work in partnership with the industry to deliver improvements for the remainder of the control period to March 2009 and to achieve, if not exceed, the targets in ACR2003.

The independent reporter raised some concerns about the accuracy of the delay attribution process, particularly in relation to temporary speed restrictions. While it is clear that some improvements have been made, there are still areas for further improvement.
Public performance measure (PPM)

3.2 PPM combines punctuality at final destination and cancellations for franchised passenger train services. It excludes freight and it assesses punctuality by a simple pass/fail threshold of lateness at a train’s destination. Network Rail’s role is to lead whole industry performance improvement, so PPM is now a key measure of how it is performing in this role, as well as how well the passenger sector is delivering as a whole. Figure 1 shows how this measure has improved steadily over the past five years.

Figure 1: PPM by four-weekly periods, 2000-01 to 2005-06

Source: Network Rail data

3.3 The rail industry set the target of achieving a PPM level of 85% by March 2006, expressed as a ‘moving annual average’ (MAA).

3.4 Key points are:

- At the end of 2005-06, the level achieved was 86.4%, compared to 83.6% at the end of 2004-05 and 81.2% at the end of 2003-04.

- This steady improvement is continuing. The latest figure at the end of the fifth four-week period in 2006-07 was 87.3%.
• There continues to be significant variation between the PPM for individual train operators. Some consistently achieve well over 90%, while others are regularly failing to achieve 80%.

• Performance in Scotland caused some concern during the first three quarters of 2005-6. We established that there had been a combination of a number of exceptional incidents and some underlying problems, including poor incident management and high levels of inter-operator delays and train planning errors. Since January 2006 there has been clear evidence that these issues are being tackled and performance is now generally improving in line with the satisfactory trends across the network.

• The PPM for First Great Western high-speed services was 75.0% at the end of March 2006. This was the lowest for any operator and 7.6% worse than at the same point in 2005. Although there was a marginal improvement to 75.7% in the first quarter of 2006-07, the projected rate of improvement was unsatisfactory. We investigated this situation to establish whether Network Rail was doing enough to fulfil its industry leadership responsibility. Network Rail and First Great Western have agreed a joint action plan to deliver further performance improvements over and above those already planned. ORR is currently considering this plan.

• Network Rail’s business plan target for 2006-07 is for PPM nationally to reach 87.6% by March 2007.

Delay minutes attributable to Network Rail

3.5 Figures 2 to 5 illustrate the impact of Network Rail’s management of the network on its customers.

3.6 Key points are:

• The total delay attributable to Network Rail in 2005-06 was 10.5 million minutes compared to 11.4 million minutes in 2004-05. This is 7% better than the ACR2003 target set by ORR for the year.

• Annual delay minutes per 100 train kilometres for franchised passenger services fell from 2.19 in 2004-05 minutes to 1.93 in 2005-06. This was ahead of the ACR2003 target of 2.12 minutes.

• Delays due to track defects and ‘temporary speed restrictions’ (TSRs) in 2005-06 increased by 7% compared to 2004-05. The reasons behind this increase are discussed in greater detail in Chapter 5.
• Delays attributed to adhesion problems in Autumn 2005-06 increased by 9% compared to 2004-05. This is attributed to a much longer than average leaf-fall period.

• In last year’s assessment we noted an increase in train planning related delays. It was encouraging to see that these figures have improved by 7% in 2005-06.

• Delay minutes attributed to Network Rail increased by 7.2% on the Western operating route in 2005-06, compared to 2004-05. This went against the trend of general improvements elsewhere on the network. ORR is carrying out an investigation, from which we expect the identification of additional performance initiatives by Network Rail.

• Network Rail delay to freight trains in 2005-06 improved by 1% in absolute terms despite an increase in train kilometres. The normalised measure of delay per 100 train kilometres improved by 3.5%.

Figure 2: Delays attributed to Network Rail for all services, by period, 2000-01 to 2005-06

Source: Network Rail data
Figure 3: Delays attributed to Network Rail all services 1999-00 to 2005-06, and ACR2003 annual targets

![Chart showing delays attributed to Network Rail all services from 1999-00 to 2005-06, with ACR2003 annual targets.](chart)

Source: Network Rail data and ACR2003

Figure 4: Annual delay attributed to Network Rail per 100 train kilometres (franchised passenger services only) 1999-00 to 2005-06, and ACR2003 annual targets

![Chart showing annual delay attributed to Network Rail per 100 train kilometres from 1999-00 to 2005-06, with ACR2003 annual targets.](chart)

Source: Network Rail data and ACR2003
A key development in planning for performance improvement was the introduction of ‘joint performance improvement plans’ (JPIPs), through Part L (Performance) of the Network Code, which integrate and align the plans of Network Rail and individual train companies to improve punctuality and reliability. Network Rail has been at the heart of this process, from which the main output is the production of the JPIP and against which monitoring and review takes place throughout the year. A key feature of the process has been the recognition by all parties of the need to move on from focusing on the achievement of the minimum requirement, in terms of targets, to striving for continuous improvement. By the end of 2005-06 JPIPs for 2006-07 were in place for all 23 franchised passenger train operators.

The independent reporter

The independent reporter raised some concerns about the accuracy of the delay attribution process, particularly in relation to temporary speed restrictions. While it is clear that some improvements in the process have been made, there are still areas for further improvement. Network Rail has initiated a delay attribution reform project and we expect this work to deliver further improvements in 2006-07.
3.9 Route performance managers meet regularly, but the reporter found no clear evidence of sharing of best practice in identifying and addressing operational causes of delay. We expect to see evidence of some convergence in route management processes in the current year.

3.10 The JPIP process is still very much an evolving one and it was encouraging that the independent reporter commented on the level of commitment across the industry.

**Timetable planning**

Network Rail largely fulfilled its Network Licence requirement to give sufficient advance warning of temporary changes to the timetable in 2005-06.

3.11 Condition 9 (Timetabling) of Network Rail’s Network Licence requires the company to plan engineering works and to specify its requirements for temporary changes to the national timetable (other than changes arising from emergencies or severe weather conditions) in sufficient time for the timetable to be revised at least 12 weeks prior to the date of any such change (the ‘T-12’ requirement).

3.12 Key points are:

- In general, the greater discipline Network Rail introduced into the possession planning process during 2003-04 appears to have paid off in 2005-06. Very few late-notice disruptive possessions were required and no major problems with the T-12 requirement were raised with ORR.

- To accommodate extra demand for coal movements between ports and opencast sites in Scotland and power stations in England, Network Rail (in conjunction with both freight and passenger operators) successfully produced a timetable plan that provided ample paths for freight without impeding passenger services.

- In contrast, Network Rail took a disappointingly long time to identify the additional paths required on the East Coast Main Line (ECML) to meet the needs of the operators on this route.
Strategic planning

Network Rail fulfilled its Network Licence requirement to adopt the strategic planning role for the industry. During 2005-06, it published one RUS, and has since published one further RUS in final form and two others in draft, and is developing five others.

Route utilisation strategies (RUSs)

3.13 Following the Department for Transport’s White Paper The Future of Rail and the subsequent Railways Act 2005, Network Rail has taken on responsibility for producing RUSs for the network. The Strategic Rail Authority (SRA) previously undertook this work. ORR modified Condition 7 (Stewardship of the network) of Network Rail’s Network Licence in June 2005 to incorporate this responsibility, and at the same time ORR published guidelines on RUSs. Condition 7 outlines a process that the Licence holder must follow for establishing a RUS and gives ORR the right to issue a notice of objection as an important safeguard in the event that a RUS does not comply with its objectives.

3.14 A RUS takes a strategic look at a particular section of the rail network and its usage and capability in relation to current and future demand. It seeks to balance issues of capacity, passenger and freight demand, operational performance and cost, in order to address the requirements of funders and stakeholders. Where shortfalls in capacity are identified, the RUS will propose options for addressing them. These options may involve timetabling changes or investment.

3.15 Condition 7 of the Network Licence requires Network Rail to submit its RUS programme to ORR for approval. Final submission was made in June 2006, and ORR approval was granted. Network Rail is developing RUSs to cover various routes across the rail network, starting with those not covered by RUSs produced by the SRA. Details of Network Rail’s work can be found on its website[^6].

3.16 There was some slippage compared with the draft programme published in Network Rail’s Business Plan 2005. Key points are:

• The South West Main Line RUS was published on 21 March 2006 and established on 19 May.

• The Cross London RUS was published on 31 August 2006 and, subject to there being no objection, should be established on 30 October 2006.

• The Scotland RUS and Freight RUS were published in draft on 24 August 2006 and 5 September 2006 respectively, subject to a 12-week consultation period.

• Other strategies currently under development are:
  o North West
  o East Coast Main Line
  o Anglia
  o Yorkshire and Humberside
  o South London

3.17 To manage the RUS process, Network Rail introduced a route planning team within its Planning and Regulation Directorate. This team has responsibility for Network Rail’s 26 route plans and oversight of enhancements, and controls the ‘Network Rail discretionary fund’ (NRDF). Enhancements are delivered through a series of new route enhancement managers within each route. The head of route planning is currently scoping a series of reviews of completed RUSs and is working with ORR to review its RUS guidelines.

Network Code

Network Rail has continued to work successfully with industry partners to deliver reform to the Network Code in 2005-06.

3.18 The Network Code is a set of rules incorporated by reference into, and therefore forming part of, each bilateral access contract between Network Rail and train operators\(^7\). It is therefore a central element of the contractual arrangements between Network Rail and its customers.

3.19 Network Rail has continued to work with industry partners to deliver reform to the code in 2005-06. Work on reform of the code continues. In summary:

\(^7\) Except for Heathrow Express and London Underground Limited (LUL).
• The reforms to Parts A (General Provisions), C (Modifications), H (Operational Disruption) and L (Performance) were all successfully completed in 2005-06. The new Railway Operational Code has now been implemented and JPIPs for 2006-07 were in place for all franchised operators by 31 March 2006.

• Since the start of 2006-07, reforms to Part K (Information) have been successfully implemented.

• Changes to Part J (Access Rights) and Part D (Timetable Change) have recently been consulted on within the industry, with implementation anticipated by the end of 2006.

• Changes to Parts B (Performance Monitoring), F (Vehicle Change) & G (Network Change) are due for completion in 2006-07.

Possessions

Following an ORR engineering possessions seminar in May 2005, the industry established its own comprehensive possessions review to examine how engineering access is planned, managed and utilised and to study how the need for that access should be balanced with the requirements of train operators to run services. ORR is playing a full part in the review and is particularly focused on ensuring that the industry implements a possessions strategy that optimises the costs and benefits of engineering access.

Although the main work of the review is not due for completion until December 2006, our assessment at this stage is that Network Rail needs to do more to finalise a suite of possessions KPIs, particularly a measure of network availability.

3.20 Network Rail takes thousands of engineering possessions each year to carry out inspection, maintenance and renewal works, as well as accommodate third parties and other network enhancement activities. Not all of these disrupt train services, but many possessions do require timetable alteration. Network Rail has been investigating the opportunities for a more efficient engineering access strategy which may involve taking some longer possessions in which greater productivity could improve its unit costs. However this could result in increased disruption to train operators.

3.21 In May 2005, ORR hosted an industry seminar on this subject, to examine how best to develop and implement an optimum possessions strategy for the network.

3.22 It was agreed that an industry wide group, led by the Association of Train Operating Companies (ATOC), should take a review forward. It has a broad
remit with the objective of examining the overall efficiency with which engineering work is delivered within possessions, the optimum possessions strategy from a whole industry perspective and development of suitable KPIs to monitor and measure progress.

3.23 The review is making steady progress. Network Rail introduced a new planning process and has identified many new initiatives for improving productivity within possessions.

3.24 The review has also encouraged the development of appropriate KPIs to measure the impact of different activities. We are particularly interested in a measure of network availability, demonstrating how Network Rail’s activities in possessions are impacting upon train operators and their customers.

3.25 A further industry wide seminar will be held in October 2006 to report on progress and agree the next steps. The review will report by December 2006.

Customer and supplier satisfaction with Network Rail

While the level of satisfaction of passenger operators with Network Rail improved marginally, the overall opinion of freight operators deteriorated. This is a particularly worrying result and shows that there remain serious and ongoing issues in the relationship between Network Rail and both passenger and freight operators.

Customer satisfaction

3.26 This chapter reviews the results of the annual customer and supplier satisfaction survey that Network Rail undertakes (through its agency Ipsos MORI) and assesses the action plan that Network Rail has implemented to address issues that were identified in the survey.

3.27 The key measure that Network Rail uses to assess the satisfaction of its customers (TOCs and freight operating companies (FOCs)) and suppliers is the advocacy measure:

“Which describes how you best feel about Network Rail?

- I would be critical without being asked (-2)
- I would be critical if someone asked my opinion (-1)
- I would be neutral if someone asked my opinion (0)
- I would speak highly if someone asked my opinion (+1)
- I would speak highly without being asked (+2)"
3.28 Although the results of the 2006 survey were mixed, the overall satisfaction of TOCs with Network Rail improved from –0.47 in the 2005 survey to –0.30 in the 2006 survey. This is encouraging, although it must be viewed in the context of an overall continuing negative perception of Network Rail from this group of customers.

3.29 The overall opinion of Network Rail held by freight operators deteriorated from -0.87 in 2005 to -0.99 in 2006. This is a particularly worrying result and shows that there remain serious and ongoing issues in the relationship between Network Rail and FOCs, although based on a relatively small sample. The issues seem to be at all levels of the FOCs, from senior managers to drivers.

Figure 6: Customer and supplier satisfaction survey results

![Graph showing customer and supplier satisfaction survey results.]

Source: Network Rail data

3.30 The survey also provides a significant amount of data to enable Network Rail to understand the underlying drivers of the overall satisfaction scores. The top reason for managers to have an unfavourable opinion is “poor customer focus”, whereas for train drivers it is the fact that they think that Network Rail does not listen to, or has no interest in, their opinions.

3.31 The top five ways that Network Rail could positively influence managers’ opinions are:

- Better understand needs.
- Be more proactive.
- Better communication.
• Improve train regulation.
• Improve maintenance.

3.32 The top five ways that Network Rail could positively influence drivers’ opinions are:
• Improved communication between signallers and drivers.
• Improve railway infrastructure.
• Improve train regulation.
• Improve maintenance.
• Improve signallers’ skills.

3.33 From analysis of the results of the 2005 survey and subsequent meetings with TOCs and FOCs, Network Rail developed a ‘customer satisfaction improvement plan’ (CS1). This plan was launched in June 2005 and will run through until March 2007. The plan concentrates on rolling out four work streams across the company, comprising:
• Communications.
• Training and education.
• People and processes.
• Benchmarking and measurement.

3.34 Network Rail believes that there is nothing in the results of the 2006 survey to indicate that this approach is not directionally sound. In response to the 2006 survey results, it has accelerated its roll out of the plan. By the end of June 2006, 37 workshops had been held involving 1200 managers.

3.35 The only objective way in which the effectiveness of CS1 will be measured is through the results of the 2007 survey; there is no internal analysis of the effectiveness of the training planned. We believe that while the poor results should improve with staff training, the planned activity would be more effective if coordinated with functional activity to address the underlying causes of dissatisfaction. Network Rail appears to recognise the seriousness of the issues and is providing a significant level of attention to their resolution.
Supplier satisfaction

3.36 The supplier satisfaction survey was also carried out on behalf of Network Rail by Ipsos MORI, and used the same methodology. The previous survey was in 2003-04.

3.37 The results of the survey showed an overall improvement from –0.30 in 2003-04 to –0.06 in 2005-06 (although this comparison has been influenced by the data collection methodology changing to take account of all major suppliers for renewal and enhancements work). As with customer satisfaction it is pleasing to note the improvement in supplier satisfaction, but this must be viewed in the context of it still being negative overall.

3.38 Network Rail remains committed to working with suppliers to further improve satisfaction but, unlike customer satisfaction, there is no evidence of a structured plan to drive this improvement.

Independent reporter

3.39 The independent reporter is satisfied that the process for conducting the surveys is statistically reliable and that the weightings applied are appropriate.

Recommendations

Train performance

3.40 Network Rail is recommended to:

• Ensure performance on the Western route improves by delivering the full range of performance improvements agreed in the JPIP with First Great Western. In particular, we expect to see joint action with First Great Western to ensure improvement of the high-speed services.

• Progress the delay attribution reform project and demonstrate the improvements in this process.

• Develop joint performance planning to build on the success of last year and encourage best practice internally and across the industry.

Timetable planning

3.41 Network Rail should demonstrate strategic leadership of the industry by taking a consistently proactive approach to any timetable planning issues that emerge in the coming year.
Strategic planning

3.42 Network Rail should:

- Ensure there are sufficient resources to deliver the programme of RUSs to its stakeholders’ expectations.
- Ensure that the lessons learned from the review of RUSs are used to drive continuous improvements in the process.

Possessions

3.43 Network Rail is recommended to:

- Play a full part in the industry possessions review to ensure delivery of its objectives.
- Determine the engineering and possession management initiatives that it will implement, together with a timetable for implementation and its assessment of the efficiency benefits that will be achieved.
- Complete as a high priority the development of a suite of KPIs for possessions. Highest priority should be given to rolling out, populating and reporting a suitable measure of network availability.

Customer satisfaction

3.44 Network Rail is recommended to:

- Implement assessment of the effectiveness of the CS1 training programme.
- In parallel ensure that the root causes of train operators’ dissatisfaction are addressed.
4. Network capability

ORR continues to be disappointed by the slow rate of progress Network Rail is making in developing a full understanding of the capability of the network.

4.1 In this chapter, as well as considering specific capability measures, we also review changes in train mileage and progress with relieving bottlenecks on the network. Under ACR2003, Network Rail is funded to maintain the capability of the network at the same level as that which existed at 1 April 2001. Enhancements are generally subject to specific funding arrangements, while reductions are permitted through the network change process under Part G of the Network Code, generally where facilities have become redundant as a result of changing traffic patterns.

Capability measures

4.2 Network Rail’s annual returns track four physical network capability measures by mileage:

- Linespeed.
- Loading gauge.
- Route availability.
- Electrification.

The Annual Return 2006 provides, for the first time, a breakdown of the network-wide data by operating route.

4.3 As noted in last year’s assessment, data correction in the underlying asset information systems for recording and measuring network capability continues, which serves to obscure trends. ORR remains concerned at the length of time it is taking to reconcile the year-on-year figures. For example, the Annual Return 2006 indicates a reduction in the size of the network by 377 kilometres from 2004-05 to 2005-06. However, Network Rail has stated this is principally due to data cleansing from a review of the boundaries with other operators. It would appear its work in 2005-06 has produced greater change than the previous year’s 'geographic information system' GEOGIS data improvement programme.
4.4 Network Rail holds a database of network changes, and ORR uses this information to monitor changes to network capability. We are concerned that not all changes are recorded or identified by the process (which only covers changes that materially affect the operation of the network). During 2005-06 Network Rail sent ORR 140 network change notices, ranging from minor speed restriction changes up to major project proposals. Network Rail does now publish current and established applications on its website\(^8\), but we are unable to track the progress of physical changes against targets. It is to be hoped that this will be addressed by the next stage of the review of Parts F & G (Vehicle & Network Change) of the Network Code.

4.5 In our 2005 assessment of Network Rail’s performance, we noted that there were a number of concerns from freight operators over changes to network capability that did not seem to have been subject to timely industry consultation through the network change process. In addition, we noted that plans for the asset register showed a decreasing consideration of capability and were concerned that Network Rail was not giving this aspect of its asset knowledge the prominence it deserved. We said we would work with Network Rail over the following year to ensure that the data requirements relating to capability were clearly defined. In March 2006 we concluded that Network Rail was in breach of Condition 7 of its Network Licence, because it was not satisfying the reasonable requirements of its customers and funders. It was not adopting best practice in the operation of the network and did not take the necessary steps in a timely manner to ensure that its published information on capability was accurate. We imposed a penalty on the company of £250,000. Network Rail has produced a programme to address these issues, which we are monitoring closely. Chapter 12 provides further details.

**Independent reporter**

4.6 The reporter sampled network capability data as part of their audit of the Annual Return 2006. Some errors were identified, but the overall report was better than in previous years, indicating that data quality is improving.

**Enhancements**

4.7 During the year, some welcome enhancements to capability have been made. For example:

• West Coast Main Line (WCML) capability continues to be enhanced under the route modernisation project, with further increases in linespeed from 110 to 125 mph in a number of sections, re-modelling of Euxton Junction and an improved turnback facility at Birmingham International.

• The Southern Power Supply Upgrade allowed the withdrawal of Mark 1 rolling stock from squadron services by the HSE deadline of 30 November 2005.

• A number of station improvements and line re-openings in Scotland and south Wales.

• New LMD depots opened at Northampton and Wembley, the latter to supplement diesel multiple unit servicing for the Chiltern franchise (replacing the facility at Marylebone), while platform extensions have been completed at a number of Chiltern stations.

4.8 Some enhancements included in the Business Plan 2005 have not been implemented, such as:

• New stations planned to open at Shepherd's Bush and Imperial Wharf in 2005-06 are not now expected to open until 2007.

• In June 2005, Network Rail submitted a Network Change proposal to remove The Wisbech Branch (Route 5) from the operational network, but this has not yet been carried out.

• Completion of a large new freight terminal at Donnington near Telford was expected in Autumn 2005, but construction has yet to start.

Train mileage

4.9 Network Rail was asked to report on annual train mileage for passenger train operators and freight train operators in the Annual Return 2006.

4.10 Passenger operators increased their train miles by over five million miles (1.9%) in 2005-06 compared to the previous year. Freight train operators increased their train miles by almost 3 million miles (10.2%) in the same period, with an increase of 6.7% in gross tonne miles due to an increase in payload per train. Network Rail attributes much of the growth in freight mileage to a large increase in coal traffic and the partial return of mail trains.
### Table 1: Train mileage, 2003-04 to 2005-06

<table>
<thead>
<tr>
<th></th>
<th>2003-04</th>
<th>2004-05</th>
<th>2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Franchised passenger operators</td>
<td>263.3</td>
<td>262.9</td>
<td>267.8</td>
</tr>
<tr>
<td>Open access operators</td>
<td>3.9</td>
<td>3.5</td>
<td>4.0</td>
</tr>
<tr>
<td>Total passenger train miles</td>
<td>267.5</td>
<td>266.4</td>
<td>271.8</td>
</tr>
<tr>
<td>Freight trains</td>
<td>29.3</td>
<td>27.9</td>
<td>30.8</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006

4.11 In places, traffic (particularly freight traffic) has grown to such an extent that there are no longer adequate non-disruptive maintenance windows. While this increases track access revenue, it leads to inefficient maintenance regimes, as more work has to be undertaken out of normal hours or under disruptive possession. Some examples are the South Yorkshire Joint (freight only) Line, and Mark's Tey - Colchester. It is expected that the combination of Network Rail’s RUSs and the industry possessions review will address these issues.

**Bottlenecks**

4.12 Network Rail was asked to report in the Annual Return 2006 on progress with relieving congestion points on the network. Its approach to bottlenecks has historically been relatively unstructured but the company has stated that it is developing a process that will enable compliance with European Directive 2001/14/EC. This requires infrastructure managers to prepare a Network Statement of capability, including its capacity allocation principles, to identify bottlenecks in the network as ‘congested infrastructure’ and identify options for dealing with them.

**Independent reporter**

4.13 The independent reporter has advised that Network Rail has yet to integrate the process for meeting its obligations under directive 2001/14/EC with its ongoing business planning processes.

**Recommendations**

4.14 Network Rail is recommended to:

- Ensure that published capability is consistent with actual.
- Implement the requirements of Directive 2001/14/EC and ensure that where possible it is aligned with the RUS process to provide a network statement of capability.
5. **Asset management**

5.1 The Publicly Available Specification on Asset Management (PAS 55), published by the British Standards Institute in 2004, defines asset management as:

> “Systematic and coordinated activities and practices through which an organization optimally manages its assets, and their associated performance, risks and expenditures over their lifecycle for the purpose of achieving its organizational strategic plan.”

5.2 With the appointment of new independent reporters in December 2005, ORR has initiated the first systematic PAS 55 aligned evaluation of Network Rail’s asset management processes, using the relevant reporter’s assessment template. This review is progressing well and the results will be available in late 2006. We will therefore be able to comment much more extensively in next year’s annual assessment.

5.3 For this year however, the structure of this chapter maintains the approach used in previous assessments by concentrating on two fundamental elements of good asset management. Firstly it sets out ORR’s assessment of the overall state of the network infrastructure, using asset reliability and condition data to evaluate how well Network Rail is managing the infrastructure. This assessment is supported by brief commentaries in each of the key engineering disciplines. The second part describes the progress that Network Rail is making with its asset information strategy; on the basis that good asset knowledge is an essential element of any effective asset management system.

**Network condition**

5.4 The condition of the network infrastructure is monitored using a range of measures appropriate to the different types of asset. Some measures, such as those for track geometry and signalling and structures condition, are assessments of asset quality. Other measures (such as records of asset failures) demonstrate how the assets perform in service and hence influence the reliability of the railway that Network Rail delivers to its customers.
Network Rail has continued to improve the reliability of the infrastructure and the gradual reduction in the number of asset failures and their consequential delays again shows how better management of the assets has contributed to performance improvements in 2005-06.

In some cases however, such as points failures, reliability has hardly improved at all while the number of track faults has increased. We conclude that Network Rail has now consolidated the early gains from taking direct responsibility for maintenance, and hence that further improvements in the reliability of the infrastructure will increasingly challenge the focus, the management and the delivery skills within the company.

Infrastructure reliability

5.5 The reliability of the infrastructure is assessed by analysing asset failure data and the consequential train delay impacts, and provides an indication of both the current condition of the network and the quality with which Network Rail delivered asset maintenance and renewal activities.

5.6 In 2005-06 just over half of all the train delay minutes attributed to Network Rail were caused by infrastructure incidents and failures, with a total impact of 5,623,806 minutes. Tables 2 and 3 present the key figures and show how they compare with previous years. In particular:

- The number of infrastructure failures fell by 4%, from 58,546 in 2004-05 to 56,460 in 2005-06.
- The consequential figure for train delay represents a 7% reduction from 2004-05.

Table 2: Number of infrastructure incidents, total infrastructure delay, and average delay per incident, 2002-03 to 2005-06

<table>
<thead>
<tr>
<th>Year</th>
<th>2002-03</th>
<th>2003-04</th>
<th>2004-05</th>
<th>2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of incidents</td>
<td>65,215</td>
<td>65,036</td>
<td>58,546</td>
<td>56,460</td>
</tr>
<tr>
<td>Delay due infrastructure incidents (minutes)</td>
<td>8,404,420</td>
<td>7,886,110</td>
<td>6,044,488</td>
<td>5,623,806</td>
</tr>
<tr>
<td>Average delay per incident (minutes)</td>
<td>129</td>
<td>121</td>
<td>103</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Network Rail annual returns

5.7 These figures, together with a small reduction in the average delay caused by each incident, confirm that the trend of improvement reported in recent years is continuing. However, the rate of improvement is noticeably less than in previous years and it varies for different types of assets. In some cases, there was little or no improvement in 2005-06 compared to 2004-05; this is
particularly noticeable with points failures, one of the most significant causes of delay. Of particular note is the fact that track faults, which accounted for 16% of infrastructure delays, actually increased. Taken together, the delay data for 2005-06 suggest that:

- The immediate gains of taking direct responsibility for maintenance delivery have now been largely realised and consolidated by Network Rail.
- Sustained effort is required to deliver further performance improvements and to address those categories for which the performance measures have been particularly disappointing.

Table 3: Delay by infrastructure incident category, 2002-03 to 2005-06

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<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Track circuit failures</td>
<td>1,418,682</td>
<td>1,269,960</td>
<td>1,058,772</td>
<td>985,535</td>
<td>10,668</td>
<td>9,935</td>
<td>9,226</td>
<td>8,568</td>
</tr>
<tr>
<td>Points failures</td>
<td>1,206,543</td>
<td>1,065,887</td>
<td>882,872</td>
<td>834,976</td>
<td>10,844</td>
<td>9,802</td>
<td>8,769</td>
<td>8,711</td>
</tr>
<tr>
<td>Track faults (inc broken rails)</td>
<td>1,178,882</td>
<td>1,244,069</td>
<td>849,711</td>
<td>925,259</td>
<td>6,540</td>
<td>7,450</td>
<td>5,774</td>
<td>6,293</td>
</tr>
<tr>
<td>TSRs due to condition of track</td>
<td>1,085,208</td>
<td>809,947</td>
<td>530,427</td>
<td>566,211</td>
<td>4,078</td>
<td>3,860</td>
<td>3,158</td>
<td>2,808</td>
</tr>
<tr>
<td>Other infrastructure failures</td>
<td>582,746</td>
<td>610,463</td>
<td>441,227</td>
<td>386,547</td>
<td>7,027</td>
<td>8,219</td>
<td>7,915</td>
<td>7,966</td>
</tr>
<tr>
<td>Signal failures</td>
<td>509,725</td>
<td>510,991</td>
<td>434,036</td>
<td>390,671</td>
<td>9,165</td>
<td>9,119</td>
<td>8,300</td>
<td>8,141</td>
</tr>
<tr>
<td>Signalling system/Power supply failures</td>
<td>482,853</td>
<td>572,099</td>
<td>410,155</td>
<td>368,535</td>
<td>3,494</td>
<td>3,719</td>
<td>3,448</td>
<td>3,272</td>
</tr>
<tr>
<td>Bridge strikes</td>
<td>357,427</td>
<td>335,176</td>
<td>324,019</td>
<td>245,463</td>
<td>1,912</td>
<td>2,009</td>
<td>1,888</td>
<td>1,593</td>
</tr>
<tr>
<td>OLE/thrd rail faults</td>
<td>350,894</td>
<td>395,082</td>
<td>292,970</td>
<td>244,346</td>
<td>1,547</td>
<td>1,475</td>
<td>1,601</td>
<td>1,492</td>
</tr>
<tr>
<td>Lineside structure defects</td>
<td>332,341</td>
<td>274,968</td>
<td>234,619</td>
<td>124,904</td>
<td>1,087</td>
<td>1,090</td>
<td>841</td>
<td>611</td>
</tr>
<tr>
<td>Cable faults (signalling and telecoms)</td>
<td>146,318</td>
<td>193,616</td>
<td>141,302</td>
<td>155,919</td>
<td>420</td>
<td>535</td>
<td>445</td>
<td>476</td>
</tr>
<tr>
<td>Level crossing failures</td>
<td>168,363</td>
<td>142,037</td>
<td>134,181</td>
<td>126,421</td>
<td>3,050</td>
<td>2,794</td>
<td>2,725</td>
<td>2,657</td>
</tr>
<tr>
<td>Other signal equipment failures</td>
<td>133,160</td>
<td>130,046</td>
<td>106,218</td>
<td>72,289</td>
<td>2,591</td>
<td>2,653</td>
<td>2,337</td>
<td>1,735</td>
</tr>
<tr>
<td>Mishap – infrastructure causes</td>
<td>53,061</td>
<td>107,970</td>
<td>80,707</td>
<td>72,018</td>
<td>293</td>
<td>306</td>
<td>369</td>
<td>466</td>
</tr>
<tr>
<td>Fires starting on NR infrastructure</td>
<td>60,911</td>
<td>81,642</td>
<td>45,887</td>
<td>41,706</td>
<td>424</td>
<td>513</td>
<td>282</td>
<td>314</td>
</tr>
<tr>
<td>Telephone failures</td>
<td>44,014</td>
<td>48,806</td>
<td>42,513</td>
<td>56,409</td>
<td>1,006</td>
<td>994</td>
<td>1,069</td>
<td>1,067</td>
</tr>
<tr>
<td>Rolling contact fatigue</td>
<td>250,750</td>
<td>74,378</td>
<td>19,046</td>
<td>14,477</td>
<td>640</td>
<td>219</td>
<td>98</td>
<td>71</td>
</tr>
<tr>
<td>Change of signal aspect – no-fault found</td>
<td>42,542</td>
<td>18,993</td>
<td>15,830</td>
<td>12,060</td>
<td>534</td>
<td>342</td>
<td>274</td>
<td>231</td>
</tr>
<tr>
<td>Total</td>
<td>8,404,420</td>
<td>7,886,110</td>
<td>6,044,488</td>
<td>5,623,806</td>
<td>65,215</td>
<td>65,036</td>
<td>58,546</td>
<td>56,460</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006
Asset quality

5.8 The performance of the infrastructure, as measured by asset reliability, is supplemented by other measures of asset condition within an ‘asset stewardship index’ (ASI). This index presents a quantified measure of the overall condition of the network.

The reduction in the ASI score from 2004-05 confirms that the condition of the network continued to improve during 2005-06. Network Rail is not only outperforming the ORR targets set in ACR2003, but is 6% ahead of the more onerous targets in the Business Plan 2005. The steady improvement in network condition is evident in all asset categories, with most key performance indicators already achieving, or surpassing, 2008-09 targets.

5.9 The ASI measure is a composite index introduced at the time of ACR2003. It is calculated so that the combination of targets for each component element at the end of CP3 in 2008-09 gives a single ASI target of 1.0. Table 4 shows the index falling, i.e. improving, over time. Table 5 shows how individual measures of the principal asset categories are weighted within the ASI.

Table 4: Asset stewardship index, 2002-03 to 2005-06

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year end ASI</td>
<td>1.20</td>
<td>1.09</td>
<td>0.90</td>
<td>0.80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network Rail target</td>
<td></td>
<td>1.06</td>
<td>0.85</td>
<td>0.78</td>
<td>n/av</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACR2003 target</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006 and ACR2003

Table 5: Component measures and weighting of the ASI, 2002-03 to 2005-06

<table>
<thead>
<tr>
<th>Asset category</th>
<th>Asset measure</th>
<th>Weighting</th>
<th>2005-06 actual*</th>
<th>2008-09 target level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track</td>
<td>Track geometry</td>
<td>20%</td>
<td>0.84</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Broken rails</td>
<td>15%</td>
<td>317</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>Level 2 exceedences</td>
<td>15%</td>
<td>0.82</td>
<td>0.9</td>
</tr>
<tr>
<td>Signalling</td>
<td>Points/track circuit failures</td>
<td>10%</td>
<td>17,285</td>
<td>19,360</td>
</tr>
<tr>
<td></td>
<td>Signalling failures</td>
<td>20%</td>
<td>23,367</td>
<td>28,750</td>
</tr>
<tr>
<td>Electrification</td>
<td>Electrification failures</td>
<td>10%</td>
<td>55</td>
<td>133</td>
</tr>
<tr>
<td>Structures and Earthworks</td>
<td>Structures and Earthworks related TSRs</td>
<td>10%</td>
<td>48</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: ACR2003 and Network Rail data
Asset commentaries

5.10 The following paragraphs show how key indicators in each asset category generally continue to confirm an overall improvement in network condition. However, they also highlight areas where specific cases have not shown this trend.

Track

5.11 The highest weighting in the ASI is for track, for which there is also the largest number of KPIs. The majority of these show that Network Rail made further progress in managing its track assets during 2005-06, with evidence of:

- Better underlying track geometry.
- Better management of track components.

5.12 While no single initiative has given rise to these trends, we would highlight the importance of the new measurement train in increasing the regularity and application of condition monitoring data on the core high-speed network. This will facilitate Network Rail’s stated aim of moving from a reactive maintenance regime to a proactive, predict and prevent regime before asset failures impact upon reliability and performance.

5.13 Despite these positive indicators, two significant exceptions caused ORR some concerns and led us to undertake specific investigations before we could confirm that track condition is continuing to improve – the occurrence of track faults and condition of track TSRs. In both cases the total amount of delay in 2005-06 increased by 8% compared to 2004-05. There is no obvious explanation for this, since all other measures pointed to a continuing improvement in overall track condition. Our investigations led to the following conclusions:

- Network Rail has indicated that the rise in track fault delay was at least in part affected by improved detection methods and management focus that identified more faults than was previously achieved. The long-term effect should be to reduce the associated delay and initial results from 2006-07 are encouraging. We expect a significant fall in the equivalent delay figures in the future.

- Delays from 'condition of track' TSRs in 2005-06 was higher than in 2004-05, even though the number of incidents went down. Network Rail has indicated a number of contributory causes including over-classification of defect severity and issues from the intensive high output track renewal programme. Network Rail is implementing a challenging TSR reduction
programme and increased management attention does appear to be reversing the adverse trend in the first part of 2006-07. Network Rail needs to continue to focus on delay per incident and overall delay caused.

- These two issues serve to highlight the challenges that Network Rail continues to face, and ORR will continue to carefully monitor how track asset management is influencing the overall performance of the railway.

5.14 These challenges are well illustrated by recent problems on the Settle-Carlisle line. Rapid degradation of track condition on this route occurred during 2005-06 and led to such a rapid increase in the number of condition of track TSRs that Network Rail felt it was necessary to take an emergency blockade of much the route during March 2006 in order to carry out major track renewals, even though this work had been planned to start two months later.

5.15 We asked Network Rail to explain why such a rapid deterioration occurred, not least because significant lengths of affected track had been renewed as recently as 2000. We also asked the company to demonstrate that all possible steps had been taken to predict and manage track condition on the route as freight traffic increased during the winter of 2005-06.

5.16 Our investigation of this case as a potential breach of the Network Licence is summarised in Chapter 12. However, from an asset management perspective, we reached the following conclusions:

- While many of the problems arose because of a significant increase in the volume of traffic on a route with a long history of under-investment and substantial lengths of poor quality track, there are important lessons to be learned from the rapid degeneration of steel sleepered track that was re-laid only six years ago.

- The primary lesson is the emphasis that this gives to ensuring that track renewals are properly scoped. In this instance, lack of attention to poor ballast and drainage conditions has significantly shortened the life of recently laid track, and almost certainly does not represent economic whole-life management.

- We are satisfied that Network Rail does now have a robust, long-term, renewal strategy for the route that should sustain its ability to carry the higher levels of freight traffic in the future.

5.17 We are also examining the wider issues from this event for other routes where there is risk that network condition and hence performance and reliability may degrade rapidly with any significant increase in traffic type and/or volume.
Track geometry

5.18 Key points are:

- All track geometry measures show that track quality improved in 2005-06, sustaining the improving trend of recent years. Indeed, they are now at the highest recorded level since at least 1994.

- The percentage of the network with poor track geometry – as classified by Network Rail’s ‘poor track geometry’ (PTG) measure – fell from 3.09% to 2.77%.

- There was a substantial reduction in the number of Level 2 exceedences (discrete geometry faults). For the network as a whole in 2005-06 the figure fell to 0.82 per track mile, down from 0.91 in 2004-05 and 1.11 in 2003-04. Improvements can be seen on all operating routes.

Rail management

Figure 7: Number of broken rails and ACR2003 target level

Source: Network Rail annual returns and ACR2003

5.19 Key points are:

- The year-end figure for broken rails fell for the seventh year in succession to a total of 317. However, the fact that this is just five fewer than in 2004-05 suggests that the more dramatic reductions in previous years have now been consolidated within a much improved rail maintenance regime.

- While we welcome the sustained improvement, the year’s total failed to meet the ACR2003 target of 300 or below per year. Although the over-run is relatively minor and within a reasonable degree of tolerance, the
number is still disappointing. However, Network Rail has revised its forecasts and formulated a new action plan to reduce the annual total below 300 by April 2007. The evidence in the first part of 2006-07 suggests that the company is on course to achieve this

- Network Rail has continued to make significant advances in rail defect management, for example in improved ultrasonic inspection methods and further expansion of the rail grinding programme. However, the data quality for rail defect data is still not up to the high standard of many other asset condition measures. Network Rail has briefed us about the introduction of the new rail defect tracker (RDT) system, which was in trial operation in Wessex for the latter part of 2005-06, and is planned for full roll-out during 2006-07. We expect to see a substantial improvement in data quality for the current year, to be confirmed by the independent reporter.

**Temporary speed restrictions (TSRs)**

**Table 6: Total number of TSRs and corresponding severity scores**

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total TSR sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(in place for four weeks or longer)</td>
<td>1,532</td>
<td>1,308</td>
<td>1,199</td>
<td>942</td>
<td>815</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severity score*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8,029</td>
<td>6,169</td>
<td>6,089</td>
<td>4,622</td>
<td>4,285</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACR2003 target</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual reductions in the number of TSRs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006

*The total severity score is the sum of the individual severity scores of all temporary speed restrictions. It is a measure of train service impact because each score is calculated from linear length, length of time and speed reduction imposed.

5.20 Key points are:

- The majority of current TSRs are required because asset condition has fallen below the standard required for the existing route speed and traffic type. ORR’s view that the overall condition of track is improving is substantiated by the fact that Network Rail achieved a significant reduction in the overall number of TSRs during the year.

- Table 3 shows an 11% reduction in all incidents of condition of track TSRs.

- Table 6 shows how the trend in long-term TSRs (i.e. those in place for more than four weeks) and the severity of their impact is continuing to fall.

- Table 7 and Figure 8 show the trends in numbers of TSRs on the network, as measured by the total number in place at the end of each period.
Despite the reduction in the number of incidents it is disappointing that the average delay per incident increased by 20% and the resulting total train delay (as discussed above) increased by 7%. This reinforces the need for continued management attention by Network Rail.

5.21 Overall, we are satisfied that track condition across the network is continuing to improve. The following supporting evidence supports this assessment, although it must be tempered with a degree of caution about the continuing levels of delay associated with points failures and TSRs.

Table 7: Number of TSRs in place at the end of the year, by cause

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition of track</td>
<td>463</td>
<td>370</td>
<td>355</td>
<td>325</td>
<td>n/av</td>
<td>301</td>
</tr>
<tr>
<td>Rolling contact fatigue</td>
<td>256</td>
<td>62</td>
<td>15</td>
<td>5</td>
<td>n/av</td>
<td>0</td>
</tr>
<tr>
<td>Work in progress</td>
<td>62</td>
<td>85</td>
<td>63</td>
<td>53</td>
<td>n/av</td>
<td>63</td>
</tr>
<tr>
<td>Other</td>
<td>127</td>
<td>139</td>
<td>104</td>
<td>74</td>
<td>n/av</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>908</td>
<td>656</td>
<td>537</td>
<td>457</td>
<td>470</td>
<td>409</td>
</tr>
</tbody>
</table>

Source: Network Rail’s network condition data

* Network Rail only reported aggregate data for part of 2004-05

Figure 8: Number of TSRs on the network by category (at the end of the 4 week reporting period), 2000-01 to 2005-06

Source: Network Rail data
Signalling

5.22 Signalling is a complex system and there is no single measure that provides a high level summary of the condition of the signalling system. We therefore consider the number of signalling failures as an indication of the serviceability and reliability of the asset, and the assessed condition of signalling interlockings as an indication of the overall residual life of the equipment.

5.23 In respect of the serviceability and reliability of signalling equipment, ORR monitors two types of failure data: the number of failures causing delay of more than ten minutes and the total minutes of delay for all failures, as collected by Network Rail’s delay attribution system (TRUST). Both methods confirm an improvement in the reliability of the signalling system in 2005-06.

5.24 Key points are:

- There were 23,367 incidents causing more than ten minutes of delay in 2005-06 (Table 8), continuing a three-year improving trend. However, the 6% reduction from the total for 2004-05 is substantially less than the improvement from 2003-04 to 2004-05, indicating that the immediate gains of the changed maintenance regime have been consolidated.

- Although this particular measure does not distinguish between various types of failure, Network Rail’s TRUST system does.

- Table 3 shows the various categories to which signalling system delays are attributed. Excluding track circuit and points failures (which can be caused by track problems as well as faults with the signalling equipment), other signal failures, system faults (including power supply) and level crossing failures were responsible for approximately 18% of all recorded delay minutes in 2005-06. This proportion did not change from 2004-05, although total delay caused by the signalling system fell by 7%. The number of incidents of failure also fell slightly by 2.5%.

- Track circuits and points failures accounted for 32% of all infrastructure delays in 2005-06. Overall delay minutes from these causes was 7% less than in 2004-05, driven by a 7% reduction in the number of track circuit failures and a 5% reduction in delay per incident for points failures. It is particularly disappointing that the reductions in the number of points failures evident in previous years have not been continued, the number of failures remaining virtually static.
Table 8: Number of signalling failures resulting in total train delay of more than ten minutes, 2000-01 to 2005-06

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Causing delay of more than 10 minutes</td>
<td>25,106</td>
<td>27,905</td>
<td>29,013</td>
<td>28,098</td>
<td>24,950</td>
<td>23,367</td>
</tr>
<tr>
<td>ACR2003 serviceability target</td>
<td>n/app</td>
<td>n/app</td>
<td>n/app</td>
<td>n/app</td>
<td>No deterioration from 2003-04 network level (28,098)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006

5.25 As Table 9 shows, the average condition grade has improved from 2.5 in 2004-05 to 2.4 in 2005-06 as a result of increased renewal activity. This meets the ACR2003 condition grade target, which requires no deterioration over the five years of the current control period.

Table 9: Signalling condition

<table>
<thead>
<tr>
<th>Condition grade*</th>
<th>Observed nominal residual life (years)</th>
<th>Cumulative total and % of interlocking areas in condition band</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt;20</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>10-20</td>
<td>441 (70%)</td>
</tr>
<tr>
<td>3</td>
<td>3-10</td>
<td>162 (26%)</td>
</tr>
<tr>
<td>4</td>
<td>&lt;3</td>
<td>27 (4%)</td>
</tr>
<tr>
<td>5</td>
<td>At end of life</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006

- Total assessed | 630 | 1,043 | 1,032 | 1,393 | 1,510 | 1613 |

Average condition grade | 2.3 | 2.4 | 2.4 | 2.5 | 2.5 | 2.4 |

Source: Network Rail Annual Return 2006

* Although precise definitions will vary from one asset type to another, condition measures are assessed against a scale of 1-5, where 1 represents very good, or as new, and 5 represents end of useful life.

5.26 Consideration of signalling asset condition based upon existing residual life assessments is not straightforward, as the data is neither complete nor totally consistent. A number of variants of Network Rail’s ‘signalling infrastructure
condition assessment’ (SICA) tool have been used to assess residual life, and not all signalling interlocking areas have been assessed. However, as Table 9 shows, the number of interlockings assessed has increased from 1510 in 2004-05 to 1613 in 2005-06 (99% of the network total). As the proportion of signalling equipment assessed increases, so does the confidence in the overall figure as a true reflection of the asset condition nationally. ORR therefore considers that the information generated by SICA is sufficient to indicate general trends in asset condition.

*Telecommunications*

5.27 There has not been the same reporting requirement of Network Rail for telecommunication assets as exists for other asset types. This recognises that the existing fixed telecoms network (cable and transmission systems) only came back under direct Network Rail control on 1st April 2005. These assets had previously been operating under a Finance Lease arrangement since privatisation in 1994. Much of the existing equipment is due to be replaced by the ‘global system for mobile telecommunications – railway’ (GSM-R) project, or is already being replaced by extensive renewals of the fixed telephone network (FTN).

5.28 There are two relevant reporting measures both of which show some increase in numbers of failures in 2005-06. In the case of telephone failures, this was minimal and may be accounted for by an increase in the number of crossing telephones provided during the year. The number of reported cable faults related to signals and telecoms increased by 5%. Although this represents a small increase on a small number of incidents it caused a disproportionate increase of 10% in train delay minutes compared to 2004-05. We expect the extensive renewal of telecoms equipment will lead to significant improvement in the coming years.

*Structures*

5.29 Structures comprise the long-life civil engineering assets of bridges, drainage, culverts, tunnels, retaining walls and earth structures. Many of these date from the original construction of the railway and carry traffic volumes and loads far above the original design intent. Thorough inspection and appraisal regimes are therefore necessary for adequate and timely maintenance and renewal interventions, to ensure no overall deterioration of the network capability.
5.30 The condition of bridges is reported in Network Rail’s Annual Return 2006. Bridges are assessed against a scale of 1 to 5, where 1 is very good, or as new, and 5 represents poor condition. The grades are related to the results of a detailed bridge inspection where a ‘structures condition marking index’ (SCMI) score from 1 to 100 is allocated. Table 10 shows that the grade for 2005-06 was 2.1 with a cumulative average for 2001-06 of 2.0. Both figures are identical to those for 2004-05 and 2003-04.

Table 10: Bridge condition index

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average condition grade (1-5)</td>
<td>2.1</td>
<td>2.0</td>
<td>2.0</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Total number of bridges assessed</td>
<td>1,015</td>
<td>1,421</td>
<td>4,255</td>
<td>3,718</td>
<td>5,004</td>
<td>5,430</td>
<td>20,624</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006

5.31 Network Rail’s company standards require a detailed condition survey of each bridge at a normal interval of six years. Network Rail inspected 5,430 bridges in 2005-06 and the total inspected is now 20,624 over a period of five years. Network Rail expects to complete an SCMI inspection of all accessible bridges by April 2008 but progress remains well behind schedule. Network Rail needs to continue to focus on reducing the backlog.

5.32 The independent reporter has expressed a number of concerns about the management of the SCMI process, including accuracy, progress and document management. The SE territory also has specific access problems caused by busy lines and a multitude of tenanted arches, which can restrict access and have led to a significant backlog. The reporter has made specific recommendations to improve the overall situation and ORR expects Network Rail to consider these and address the problems identified. Network Rail has indicated that they plan to use a new electronic database called the ‘civils asset register and electronic reporting system’ (CARRS) in the early part of 2007. This will enable reports to be received electronically by Network Rail and allow the company to deal with a number of the reporter’s recommendations.
Earthworks

5.33 Network Rail reported that 41 embankment or cutting slopes became unstable in 2005-06, two of which led to serious derailments. ORR understands that Network Rail has reviewed its inspection processes as a consequence.

5.34 There were 28 sites where a TSR was imposed due to poor earthwork condition in 2005-06, down from 37 sites in 2004-05. This reflects continued remedial work to sites in poor condition, particularly on the London North West (LNW) Route, Scotland and South East territories.

Electrification

5.35 As with the signalling assets, ORR currently monitors two versions of failure data for electrification equipment. The annual return reports the total number of major incidents that caused train delays totalling 500 minutes or more.

5.36 Table 11 reports on these major incidents and shows that in 2005-06 the overall reliability of electrification equipment improved again, with 55 major traction power supply failures compared with 84 in the previous year, a 35% reduction. The achievement of such a low level of DC failures is noteworthy, but there is clearly scope for further improvements to the reliability of the AC system.

Table 11: Traction power supply incidents causing over 500 minutes delay

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>AC System (OLE*)</td>
<td>88</td>
<td>107</td>
<td>102</td>
<td>79</td>
<td>71</td>
<td>49</td>
<td>88</td>
</tr>
<tr>
<td>DC System (3rd rail)</td>
<td>45</td>
<td>30</td>
<td>32</td>
<td>33</td>
<td>13</td>
<td>6</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>137</td>
<td>134</td>
<td>112</td>
<td>84</td>
<td>55</td>
<td>133</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006

* OLE – overhead line equipment
Table 12: Traction power supply incidents causing over 500 minutes delay by territory

<table>
<thead>
<tr>
<th>Territory</th>
<th>OLE or 3rd Rail</th>
<th>Track Kilometres Electrified</th>
<th>Major Incidents 2004-05</th>
<th>Track Km/major incident 2004-05</th>
<th>Major Incidents 2005-06</th>
<th>Track Km/major incident 2005-06</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNE</td>
<td>OLE</td>
<td>2363</td>
<td>20</td>
<td>118</td>
<td>13</td>
<td>182</td>
<td>54%</td>
</tr>
<tr>
<td>LNW</td>
<td>OLE</td>
<td>3043</td>
<td>28</td>
<td>109</td>
<td>20</td>
<td>152</td>
<td>39%</td>
</tr>
<tr>
<td>SE - Anglia</td>
<td>OLE</td>
<td>1510</td>
<td>17</td>
<td>89</td>
<td>10</td>
<td>151</td>
<td>70%</td>
</tr>
<tr>
<td>Western</td>
<td>OLE</td>
<td>104</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0%</td>
</tr>
<tr>
<td>LNE</td>
<td>3rd</td>
<td>9</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0%</td>
</tr>
<tr>
<td>LNW</td>
<td>3rd</td>
<td>289</td>
<td>1</td>
<td>289</td>
<td>0</td>
<td>-</td>
<td>0%</td>
</tr>
<tr>
<td>SE - Anglia</td>
<td>3rd</td>
<td>41</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0%</td>
</tr>
<tr>
<td>SE- Kent</td>
<td>3rd</td>
<td>1649</td>
<td>4</td>
<td>412</td>
<td>1</td>
<td>1649</td>
<td>300%</td>
</tr>
<tr>
<td>SE – Sussex</td>
<td>3rd</td>
<td>1033</td>
<td>5</td>
<td>207</td>
<td>3</td>
<td>344</td>
<td>66%</td>
</tr>
<tr>
<td>SE – Wessex</td>
<td>3rd</td>
<td>1472</td>
<td>3</td>
<td>491</td>
<td>2</td>
<td>736</td>
<td>50%</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006

5.37 Table 12 shows the variations by territory and is normalised to reflect the different extents of electrification in each territory. This demonstrates the variability between territories with LNE (OLE) and Kent (3rd Rail) having the least disruption per km of electrified track. Variations between territories will result from traffic levels but inspection and maintenance standards may also influence the results.

5.38 Table 3 shows how Network Rail’s delay attribution system records all electrification failures, as opposed to the major incidents discussed above. Although there was a reduction of 17% in delay minutes in 2005-06 compared to 2004-05, there were only 7% fewer incidents.
Operational property

Although there appeared to be a marginal improvement in overall station condition, we do not have confidence in the measure used. In last year’s assessment we said that we expected Network Rail to progress the action plan to reform the station condition index. It is disappointing that this has not been completed but ORR expects this to be done by October 2006.

Network Rail has not yet proposed a baseline average condition grade for depots for ORR approval. We expect Network Rail to make an explicit commitment to completing and reporting the condition of all its depots by the end of 2006-07.

Stations

5.39 Key points are:

- Table 13 shows the overall average condition score has again shown an improvement, from 2.23 in 2004-05 to 2.22 in 2005-06. However, issues of data consistency, and the known weaknesses of the existing station condition index, mean that this cannot be absolutely tracked to confirm that the apparent improvement in condition actually represents overall improvement for the total population of stations.

- Network Rail is revising the inspection regime that drives the station condition score reporting. Not all stations are assessed each year and currently the coverage across routes is uneven, e.g. no inspections were carried out in 2005-06 on the Anglia sub-route, but 37 were done in Kent (20%). This distorts the running annual average condition score.

- Where conditions have been improved, we believe these have primarily been achieved through:
  - Coping and platform surface renewals.
  - General footbridge refurbishment, (but excluding Disability Discrimination Act (DDA) improvement works).

- Renewal work at several major station sites was hampered by external factors such as uncertainty over capital improvement projects or the activities of third parties, e.g. developers.

- Network Rail put forward a proposal for a revised station condition index. Work continued between ORR and Network Rail during the year to refine this measure and ORR expects the newly revised measure to be rolled out during the next phase of operational property inspections. There have been delays in reviewing this but an amended version will now be taken forward for implementation by October 2006.
Table 13: Number of stations per condition grade and overall condition score, 2000-01 to 2005-06

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>112</td>
<td>125</td>
<td>123</td>
<td>105</td>
<td>151</td>
<td>154</td>
</tr>
<tr>
<td>Grade 2</td>
<td>1,756</td>
<td>1,769</td>
<td>1,773</td>
<td>1,815</td>
<td>1,766</td>
<td>1,787</td>
</tr>
<tr>
<td>Grade 3</td>
<td>532</td>
<td>555</td>
<td>594</td>
<td>572</td>
<td>582</td>
<td>561</td>
</tr>
<tr>
<td>Grade 4</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Grade 5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>2,409</td>
<td>2,458</td>
<td>2,499</td>
<td>2,500</td>
<td>2505</td>
<td>2506</td>
</tr>
<tr>
<td>Overall grade</td>
<td>2.2</td>
<td>2.25</td>
<td>2.25</td>
<td>2.25</td>
<td>2.23</td>
<td>2.22</td>
</tr>
<tr>
<td>ACR2003 target</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No worse than 2003-04 average</td>
<td></td>
</tr>
</tbody>
</table>

Source: Network Rail annual returns

Table 14: Station condition index by route, 2005-06

<table>
<thead>
<tr>
<th>Operating Routes</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
<th>2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>London North Eastern</td>
<td>39</td>
<td>286</td>
<td>55</td>
<td>0</td>
<td>0</td>
<td>380</td>
</tr>
<tr>
<td>London North Western</td>
<td>35</td>
<td>518</td>
<td>48</td>
<td>1</td>
<td>0</td>
<td>602</td>
</tr>
<tr>
<td>South East – Anglia</td>
<td>12</td>
<td>211</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>238</td>
</tr>
<tr>
<td>South East – Kent</td>
<td>1</td>
<td>79</td>
<td>101</td>
<td>1</td>
<td>0</td>
<td>182</td>
</tr>
<tr>
<td>South East – Sussex</td>
<td>2</td>
<td>64</td>
<td>107</td>
<td>2</td>
<td>0</td>
<td>175</td>
</tr>
<tr>
<td>South East – Wessex</td>
<td>0</td>
<td>89</td>
<td>115</td>
<td>0</td>
<td>0</td>
<td>204</td>
</tr>
<tr>
<td>Western</td>
<td>2</td>
<td>279</td>
<td>105</td>
<td>0</td>
<td>0</td>
<td>386</td>
</tr>
<tr>
<td>England &amp; Wales</td>
<td>91</td>
<td>1526</td>
<td>546</td>
<td>4</td>
<td>0</td>
<td>2167</td>
</tr>
<tr>
<td>Scotland</td>
<td>63</td>
<td>261</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>339</td>
</tr>
<tr>
<td>Network total</td>
<td>154</td>
<td>1784</td>
<td>561</td>
<td>4</td>
<td>0</td>
<td>2506</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006
Light maintenance depots (LMDs)

5.40 Key points are:

- The rate of inspection and condition scoring of LMDs has now reached approximately the correct proportion (60% in three years) to allow a better view of whether Network Rail’s proposed initial target (condition score average 2.7) is the right benchmark to use for the LMD condition measure. Subject to any significant variation being reported in 2007, ORR intends to agree that 2.7 should be used as the baseline score.

- On this basis the condition of LMDs is improving, moving to an average condition score of 2.58 in 2005-06.

Lineside buildings

- Two particular initiatives can be reported:
  - Refurbishment of signal boxes including staff facilities improvements.
  - Fire protection arrangements to critical lineside buildings.

Asset knowledge

Network Rail has made substantial advancements with its asset information strategy, one of the key components of the business-led asset management approach for the future. There is high level commitment within the company to ensure that the milestones set out in revised guidelines will be achieved.

5.41 Network Rail continues to recognise the importance of good asset knowledge to support its asset management strategy. This in turn supports its key business processes. During 2005-06 a number of action plans were initiated to improve every aspect of its asset knowledge.

Compliance framework

5.42 Under Condition 24 of the Network Licence, Network Rail must establish and maintain an asset register in accordance with guidelines approved by ORR. We approved revised guidelines in November 2005. A key change was the creation of a compliance framework that identified the main tasks to be completed before compliance with Condition 24 could be considered. The main progress by Network Rail during the year was the successful completion of the tasks detailed in the compliance framework as detailed below:
| Task 1 | Determination of business requirements for asset information | Completed in January 2006, this was an important step in identifying the key asset data needed to support business decisions. It also identified the source of current information, its quality and its level of completeness. |
| Task 2 | Identification of technical architecture | This task was completed at the end of February 2006. It included an analysis that indicated 24 areas where gap filling or data quality improvements were required. Asset hierarchies were also produced for incorporating into the systems to be developed for holding the data. |
| Task 3 | Data cleansing and collection | The first part of Task 3 was also completed at the end of February 2006. A programme of work was prepared and criteria and templates developed. The main work of data cleansing and gap filling is in progress with priority data targeted for completion by 30 September 2006, the remainder by 30 September 2007. |
| Task 4 | Provision of data access to users, customers and funders | Task 4 was completed at the end of April 2006. This identified the asset information required by users other than Network Rail and the means by which it should be accessed. To test on-line access to the Corporate Network Model (the area where asset information will be viewed in different ways), Network Rail and ORR have agreed to carry out a 6-month trial. This began in September 2006. |
| Task 5 | Data Management Procedures | This task was completed at the end of June 2006. Network Rail now has a comprehensive set of procedures to ensure that asset information is maintained and updated whenever changes occur. All staff involved across the company have been briefed, including maintenance and renewals personnel, and key appointments made for those responsible for providing and maintaining the asset information. |
| Task 6 | Assurance regime | This task was completed at the end of May 2006 and provides appropriate assurance regimes to ensure that the processes within Task 5 are complied with. |

5.43 On the broader asset information strategy front, Network Rail is making good progress with the following:

- **Central Asset Inventory**: This will provide the linkage using spine data to ensure that only a single data entry will be required in future, leading to better integration of asset information. This is currently being rolled out for civil engineering assets.

- **Integrated Asset Reporting Tool**: This replaces the reporting functions from RAR (a legacy system no longer in use) to ensure consistent reporting.

- **Disposal of existing systems**: RAR (Railtrack Asset Register), ADD (asset data dictionary) and ADV (Asset Data Viewer) have all been
withdrawn, the latter two overtaken by developments in the new asset information systems now being implemented.

Independent reporter

5.44 We have asked the independent reporter to confirm that the compliance framework would lead to compliance with Condition 24. This is part of a broader review of Network Rail’s progress with improving its performance relating to asset management.

Recommendations

5.45 Network Rail is recommended to:

- Continue with the implementation of the asset information strategy to meet individual programme milestones for component elements of the strategy, demonstrating compliance with its Network Licence obligations and achieving long-term improvement in its asset management processes.

- Continue to improve knowledge of the condition of specific asset types (for example through data quality improvement, extending currently incomplete data or ensuring that inspection schedules are met) where this information is key to effective asset management and needs further improvement, particularly signalling interlockings, electrification power supply and distribution equipment, structural inspections, rail defect data.

- In respect of stations, implement a reformed station condition index by October 2006, and in respect of light maintenance depots complete the assessment and report on the condition of all depots by 31 March 2007.

- Continue to build upon improvements in the management of temporary speed restrictions, aiming to further reduce the number of TSRs without ever compromising safety.

- Review and consider further development of KPIs to measure infrastructure performance and facilitate benchmarking across the network, particularly for the ASI.
6. **Activity volumes**

6.1 Renewal activity on the network is measured by volumes of work undertaken on an annual basis for the various asset categories. There have been significant and essential increases in renewal activity in recent years, and this chapter assesses achievement in 2005-06 in this context. However, year on year comparisons are not necessarily appropriate for all asset types, particularly the longer life assets such as bridges and tunnels. Improved maintenance regimes can also affect the timing of renewals required and renewal activities may be deferred to ensure that benefits of efficient delivery can be maximised. This can be achieved for example by combining renewal of asset components under a single possession.

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**Track renewal volumes**

6.2 Track renewal volumes in 2005-06 were considerably higher than the volumes delivered in 2004-05 and represent a return to near the peak levels achieved in 2003-04. However, in other areas, such as structures and signalling renewals, measured activity volumes in 2005-06 were significantly lower than in 2004-05.

Since the ACR2003 provided for increased levels of activity, this assessment asks important questions about value for money and whether Network Rail is actually delivering asset renewals at the rate it has claimed to be necessary. For reasons that are explained in detail below, we conclude that this year’s figures do not necessarily reflect a serious under-delivery against actual plans. However they do emphasise the need for significant improvements in the way Network Rail reports its asset renewals activities and hence how it is demonstrating value for money.

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**Track renewals**

6.3 These renewals marginally exceeded Network Rail’s planned volumes for the year, as shown below:

- Rail renewal: 12% more than planned.
Sleeper renewal: 2% more than planned.

Ballast renewal: 6% more than planned.

Switches and crossings renewal: 3% more than planned.

6.4 As with switches and crossings, ACR2003 did provide funding for increased levels of sleeper and ballast renewals, but the most significant area where the volume delivered exceeded plans continues to be in rail renewals, where the total volume in 2005-06 continued at the very high post-Hatfield levels. We will be examining what constitutes a ‘steady state’ of asset renewal as part of our periodic review work for CP4.

Table 15: Track and signalling renewal volumes 2000-01 to 2005-06

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail renewal</td>
<td>790 km</td>
<td>983 km</td>
<td>1,142 km</td>
<td>1,010 km</td>
<td>1,198 km</td>
<td>1,125 km</td>
<td>874 km</td>
<td>816 km</td>
<td>1,002 km</td>
<td>1,120 km</td>
</tr>
<tr>
<td>Sleeper renewal (all types)</td>
<td>557 km</td>
<td>636 km</td>
<td>625 km</td>
<td>666 km</td>
<td>849 km</td>
<td>782 km</td>
<td>695 km</td>
<td>670 km</td>
<td>733 km</td>
<td>744 km</td>
</tr>
<tr>
<td>Ballast renewal (all types)</td>
<td>648 km</td>
<td>624 km</td>
<td>775 km</td>
<td>665 km</td>
<td>985 km</td>
<td>812 km</td>
<td>690 km</td>
<td>685 km</td>
<td>752 km</td>
<td>798 km</td>
</tr>
<tr>
<td>Switches and crossings</td>
<td>N/A</td>
<td>136 units</td>
<td>297 units</td>
<td>254 units</td>
<td>393 units</td>
<td>373 units</td>
<td>539 units</td>
<td>511 units</td>
<td>507 units</td>
<td>520 units</td>
</tr>
<tr>
<td>Signalling (signalling equivalent units)</td>
<td>N/A</td>
<td>1,440</td>
<td>N/A</td>
<td>810</td>
<td>N/A</td>
<td>742</td>
<td>N/A</td>
<td>1,635</td>
<td>254</td>
<td>278</td>
</tr>
</tbody>
</table>

* Actual figures from Annual Return 2004 adjusted to exclude maintenance volumes

Source: Network Rail Annual Return 2006 and forecasts from Network Rail’s business plans

6.5 While the measurement of renewal volumes in the four areas reported is an important indicator, current reporting does not reflect work carried out to treat track foundations and drainage. It is often these that determine the long-term quality and hence whole-life cost of the assets. As part of the wider review of activity volume reporting discussed elsewhere in this chapter, we will therefore be asking Network Rail to consider how it can improve the link...
between measures of volume delivered and quality achieved on renewals sites.

Signalling renewals

6.6 Table 15 suggests that the rate of signalling renewal in 2005-06 dropped significantly from the previous year’s high value and was lower than in any of the four years reported (nonetheless it was in line with Network Rail plans and higher than its 2005 submission to our medium-term signalling review.) While this may cause some concern, the figure for 2005-06 should be viewed with a number of important qualifications:

- It does not include minor works and life extension works.
- The high figure for 2004-05 includes a peak in signalling renewals commissioned on WCRM, so any year-on-year comparison is inevitably distorted.
- It only reflects equipment actually commissioned within the 2005-06 year. It does not reflect design and development work on schemes scheduled for commissioning in future years, and given that the typical duration of a signalling renewal scheme is measured in years, some fluctuation in annual volumes is to be expected.
- Although this year’s figure is a particularly dramatic fluctuation, it reflects Network Rail’s decision to reduce the contracting out of signalling renewal in 2003 and 2004 in order to in-source its design and to introduce new framework contracts with suppliers. This led to the low level of commissioning in 2005-06.

6.7 Taking all these factors into account, our assessment is that the low figure of ‘signalling equivalent units’ (SEUs) delivered in 2005-06 does not represent unplanned slippage in the delivery of signalling renewals. We do not believe that it truly reflects the amount of signalling renewal activity taking place, but in order to demonstrate this unequivocally Network Rail must develop the means by which it can report more fully the signalling renewals activities that are currently in progress, including those in the design stage. We are discussing this with Network Rail.

6.8 ORR’s medium-term review of signalling expenditure (December 2005), accepted that the volume of SEUs delivered in 2005-06 would be very low and that the final three years of CP3 would see a major increase in activity.
ORR will continue to monitor the position with signalling renewals delivery very closely.

Telecommunications renewals

6.9 Although there is no detailed activity volume data for telecommunications within Network Rail’s Annual Return 2006, work on FTN and GSM-R project is progressing.

6.10 The replacement of Network Rail’s FTN and introduction of the GSM-R train radio system substantially replaces the existing cable, transmission and radio networks. In ACR2003 the end date was moved from 2008 to 2013 so it will still be some years before the new network is fully operational. However, installation work continues across the country. The full trial of the GSM-R system in Strathclyde is due to start in May 2007. The infrastructure is now in place and testing has begun. The Network Change notice for the trial has been agreed with all affected parties.

6.11 Network Rail is working hard to recover from the delays in the approval of the cab mobile specification. The cab mobile fitment programme has been accelerated by agreement between Network Rail, First ScotRail and the rolling stock companies (RoSCOs). By using periods when their units are already out of service for other work, the fitment plan has been brought forward by up to six months. This should allow installation on the vehicles to be used in the Strathclyde trial to be complete by the end of 2006.

6.12 The trial of GSM-R will take place in Scotland initially on the line between Helensburgh and Drumgelloch and between Glasgow Central and Kilmarnock. In service operation is due to start in Spring 2007. The current radio system in use in the Strathclyde area is now due for replacement and the early deployment of GSM-R in this area will provide a pilot to prove the system for the entire network.

Structures renewals

6.13 From Chapter 7 we see that total expenditure on structures ran slightly over the ACR2003 determination in 2005-06. However, Table 16 shows that, with the exception of tunnel repairs, Network Rail’s activity in structures renewals was at a significantly lower level than the equivalent figures for 2004-05. This assessment therefore analyses this apparent anomaly, in order to determine
whether the figures indicate any issues about poor asset management and value for money in managing the structures portfolio.

6.14 An important factor in Network Rail’s reporting of structures activity is that it only includes jobs above a given level of expenditure, thus many smaller scale interventions do not get reported, and the figures in Table 16 therefore only reflect a proportion of the total work done.

Table 16: Structures renewal volumes

<table>
<thead>
<tr>
<th>Measure</th>
<th>Achievement in 2003-04</th>
<th>Achievement in 2004-05</th>
<th>Achievement in 2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structures Bridges</td>
<td>195 tasks (prevention, repair, strengthening, replacement)</td>
<td>260</td>
<td>157</td>
</tr>
<tr>
<td></td>
<td>5,611 m² deck replacement</td>
<td>10,222 m²</td>
<td>5,433</td>
</tr>
<tr>
<td></td>
<td>Culverts</td>
<td>9 tasks (prevention and repair)</td>
<td>16</td>
</tr>
<tr>
<td>Retaining walls</td>
<td>8,811 m²</td>
<td>2,635 m²</td>
<td>2,016</td>
</tr>
<tr>
<td>Earthworks</td>
<td>146 tasks (prevention and repair)</td>
<td>106</td>
<td>76</td>
</tr>
<tr>
<td>Tunnels</td>
<td>13 tasks (prevention and repair)</td>
<td>38</td>
<td>39</td>
</tr>
</tbody>
</table>

Source: Network Rail annual returns

6.15 Bridges comprise the largest component of the structures stock. Their maintenance and renewal is essential to the capability, security and reliability of the network. Key points are:

- There are approximately 40,000 bridges across the network. In 2005-06 157 were subject to renewal or remediation with a scheme value greater than £100,000. This represents 60% of the total for 2004-05.

- The area of deck replaced in 2005-06 was 53% of the total for 2004-05, but similar to the total for 2003-04. With long-life assets, variations in expenditure from one year to the next are not necessarily significant, reflecting the variation in type and complexity of projects undertaken from year to year. We will continue to review with Network Rail the average condition of the bridge stock and implementation of improvements in asset reporting measures to record this.
6.16 For other structures the key points are:

- Culvert renewals reported for 2005-06 reflect only those renewals greater than £50,000, under the definition of the asset reporting measure. The decrease to nine in 2005-06 is not significant in the total stock of around 23,000 culverts. Most culvert renewals are likely to fall under the £50,000 cut off for this measure and we consider Network Rail should reflect this in its reporting. Network Rail has stated that this asset is in good condition and there is no evidence of a decline in condition but as recommended in Chapter 5 additional KPIs to adequately report structures condition are necessary.

- There was a 23% reduction in retaining wall interventions in 2005-06 compared to 2004-05. The asset reporting measure again only reports interventions of value greater than £50,000. There is no evidence of a decline in condition.

- Earthworks interventions were made at 76 sites in 2005-06 compared to 106 in 2004-05. However, excluding WCRM this total was 75 in 2005-06 and 69 in 2004-05. Earthworks expenditure is planned to nearly double in 2007-08 and clearly this will be reflected in future reporting. This is a major renewals area, second only to bridges.

- There are approximately 700 tunnels on the network with a combined length of 200 miles. There were 39 schemes greater than £50,000 reported in 2005-06, compared to 38 in 2004-05. However, over the last two years there has been a significant increase in interventions consistent with Network Rail’s policy of moving from reactive repair to proactively improving the condition of this vital asset.

6.17 While activities on the larger and more expensive schemes have clearly reduced from last year, the total volume of activity on the many smaller scope and less expensive interventions are not captured within these figures. It is essential that Network Rail develops additional detailed measures to fully demonstrate progress and actual delivery of renewal volumes.

6.18 Network Rail is continuing the development of the decision support tool ‘civil engineering cost and strategy evaluation’ (CECASE), previously known as the ‘structures annual cost profile’ (SACP). This will assist long-term prediction of maintenance and renewal volumes for all principal structures types, and allow evaluation of alternative priorities for those structures elements most critical to security of the network. The SACP informed ACR2003, which provided for some increase in expenditure on structures maintenance and renewals, and
this is reflected in Table 16, which shows renewal activity in 2005-06 for the various structures categories.

Recommendations

- Network Rail is reviewing a composite measure encompassing the majority of asset renewals, which ORR expects to be in place by the third quarter of 2006-07 and published on a period basis. It is recommended that Network Rail develops and reviews KPIs for:
  - Annual activity measures for some asset types, e.g. structures, where activities incurring major costs are published, but not the quantum of all interventions to fully reflect how the total annual expenditure has been allocated.
  - Activity measures that reflect expenditure on project design and development, such as signalling renewals, where considerable expenditure can be incurred well before asset renewals are actually commissioned.
  - Additional activity measures for maintenance volumes particularly track where ORR currently only has visibility of annual spend.
7. Expenditure and efficiency

7.1 This Chapter reports on Network Rail’s 2005-06 operating, maintenance and renewals (OMR) expenditure, and compares this with the amount allowed for by ORR in the Access Charges Review 2003 (ACR2003). We then examine the reasons for the difference observed between actual and allowed expenditures. All figures presented in this chapter are in 2005-06 prices unless otherwise stated.

In 2005-06, Network Rail underspent on controllable non-West Coast route modernisation (WCRM) OMR by a total of £156 million, or 4%, compared to the ACR2003 assumption. This represents an 8% underspend for the first two years of CP3.

We attribute around £120 million of this underspend to outperformance by Network Rail (additional efficiency compared with the ACR2003 assumption), the remainder being accounted for by deferral of renewals expenditure to later in CP3.

The cumulative position over the first two years of CP3 is one of outperformance on controllable operating and maintenance expenditure by £236 million and performance broadly in line with the ACR2003 assumptions on renewals expenditure.

Network Rail is currently on target to achieve the 31% unit cost efficiencies built into the CP3 revenue allowance.

The financial benefit in 2005-06 to Network Rail associated with the £156 million underspend was £128 million.

This assessment includes an element of judgement, as Network Rail does not have a full set of unit cost data for 2005-06. We anticipate that sufficient data will be available to allow more complete reporting in future years.

7.2 At ACR2003, we set a revenue allowance for the current control period (CP3) based on a number of assumptions, including an assumption about the level of unit cost efficiency savings Network Rail would be able to achieve over the period. Establishing the reasons for the variance between actual and...

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9 Expenditure on major enhancement projects is considered separately in Chapter 9.

10 At ACR2003, we assumed that Network Rail would be able to reduce its OMR unit costs by 31% over CP3 (improvements in scope efficiency are not included in the unit cost efficiency target). A detailed breakdown of these assumptions is provided in ACR2003: Final conclusions, December 2003, page 92.
allowed expenditures therefore plays an important role in helping us to assess
the extent to which Network Rail is meeting this unit cost efficiency
assumption.

7.3 In last year’s assessment we noted the need for Network Rail to take further
steps towards establishing a relevant and robust framework for measuring
and monitoring maintenance and renewals unit costs. This chapter includes
an update on Network Rail’s progress with this work.

7.4 The data reported in this chapter is primarily sourced from Network Rail’s
audited Regulatory Accounts for 2005-06 and Annual Return 2006. Other
supporting information has been provided by Network Rail and audited as
required by the independent reporter. The analysis also makes reference to
our Access Charges Review 2003: Final Conclusions document and our
assessment of Network Rail’s performance in 2004-05, where appropriate.
There are some differences to the data reported in the fourth quarter (Q4 -
2005-06) Network Rail Monitor, which we published in May 2006, due to
amendments following the audit process.

7.5 Figures presented in this chapter are for Network Rail as a whole. From
2006-07, we expect to show, in addition, disaggregated data for Scotland, and
England and Wales.

Expenditure

7.6 Network Rail’s actual expenditure on controllable non-WCRM OMR totalled
£4,057 million in 2005-06, compared with £4,280 million assumed in
ACR2003. As Table 17 illustrates, this represents an underspend of £156
million, or 4%, for the year and a cumulative underspend of £696 million, or
8%, for the first two years of CP3.

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11 The reporter noted some concerns regarding the accuracy of the reporting of variance against
budget in the area of renewals, and their confidence in the data in this area (Independent
paragraph 7.26 for further details.

12 In ORR’s Approach to regulation in Scotland: Conclusions (December 2005) (p20), we set out
our expectation that, from 2006-07 onwards, Network Rail’s Annual Return would include
separate disaggregated information for Scotland, and England and Wales.

13 As reported in our 2005 Annual Assessment, Network Rail recorded a £527 million
underspend (in 2004-05 prices: £540m in 2005-06 prices), or 12%, against the ACR2003
assumption in 2004-05.
Table 17: Network Rail actual 2005-06 OMR expenditure compared with ACR2003 projection (2005-06 prices)

<table>
<thead>
<tr>
<th>Expenditure category £ m</th>
<th>Actual spend £ m</th>
<th>ACR2003 determination £ m&lt;sup&gt;14&lt;/sup&gt;</th>
<th>Variance £ m</th>
<th>% Variance</th>
<th>Cumulative % variance for CP3 to date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating expenditure</td>
<td>1,130</td>
<td>1,196</td>
<td>-66</td>
<td>-6%</td>
<td>-5%</td>
</tr>
<tr>
<td>Of which controllable</td>
<td>865</td>
<td>960</td>
<td>-95</td>
<td>-10%</td>
<td>-9%</td>
</tr>
<tr>
<td>Maintenance</td>
<td>1,192</td>
<td>1,221</td>
<td>-29</td>
<td>-2%</td>
<td>-2%</td>
</tr>
<tr>
<td>Renewals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non WCRM</td>
<td>2,000</td>
<td>2,032</td>
<td>-32</td>
<td>-2%</td>
<td>-11%</td>
</tr>
<tr>
<td>- Track</td>
<td>808</td>
<td>746</td>
<td>61</td>
<td>8%</td>
<td>3%</td>
</tr>
<tr>
<td>- Signalling</td>
<td>286</td>
<td>332</td>
<td>-46</td>
<td>-14%</td>
<td>-27%</td>
</tr>
<tr>
<td>- Structures</td>
<td>301</td>
<td>294</td>
<td>7</td>
<td>2%</td>
<td>-7%</td>
</tr>
<tr>
<td>- Electrification</td>
<td>53</td>
<td>64</td>
<td>-11</td>
<td>-17%</td>
<td>-30%</td>
</tr>
<tr>
<td>- Plant and machinery</td>
<td>67</td>
<td>81</td>
<td>-14</td>
<td>-18%</td>
<td>-46%</td>
</tr>
<tr>
<td>- Telecoms</td>
<td>134</td>
<td>201</td>
<td>-67</td>
<td>-33%</td>
<td>-22%</td>
</tr>
<tr>
<td>- IT and other</td>
<td>223</td>
<td>175</td>
<td>48</td>
<td>27%</td>
<td>10%</td>
</tr>
<tr>
<td>WCRM</td>
<td>663</td>
<td>804</td>
<td>-141</td>
<td>-18%</td>
<td>-4%</td>
</tr>
<tr>
<td>Total OMR</td>
<td>4,985</td>
<td>5,253</td>
<td>-268</td>
<td>-5%</td>
<td>-7%</td>
</tr>
<tr>
<td>Controllable non-WCRM OMR</td>
<td>4,057</td>
<td>4,213</td>
<td>-156</td>
<td>-4%</td>
<td>-8%</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006, ACR2003 Final conclusions, ORR Annual Assessment 2005, ORR calculations

Note: a negative variance figure indicates underspend relative to the ACR2003 determination.

7.7 The largest underspends were in signalling renewals (an underspend of £46 million), telecoms renewals (an underspend of £67 million) and controllable operating expenditure (opex) (£95 million). Network Rail also underspent significantly on WCRM renewals, by £141 million. Although Network Rail recorded an overall underspend, expenditure exceeded the ACR2003 assumptions in some areas, notably track renewals, operational property renewals and non-controllable operating expenditure.

<sup>14</sup> Adjusted for signalling review conclusions in December 2005.
Monitoring and treatment of underspend

7.8 In January 2006, we published our policy statement on the monitoring and treatment of Network Rail’s underspend and efficiency\(^\text{15}\). This set out our approach to monitoring the extent and causes of any underspend by Network Rail, which has been adopted for the analysis presented in the remainder of this chapter.

7.9 While Network Rail is allowed to retain the benefits of any outperformance,\(^\text{16}\) at least for the duration of the current regulatory period, it should not be allowed to benefit from any underperformance\(^\text{17}\). We may adjust Network Rail’s allowed revenue accordingly at PR2008.

Analysis of 2005-06 underspend

**Operating expenditure**

7.10 ACR2003 set a controllable operating expenditure (opex) allowance for Network Rail of £960 million in 2005-06, which incorporates an efficiency target for the year of 8% and for the first two years of the control period of 15%. In assessing Network Rail’s performance against this, we have assumed that all of the underspend against this target is outperformance, on the grounds that there is little practical scope for Network Rail to defer or de-scope operational activity without adversely affecting performance.\(^\text{18}\)

7.11 As Table 18 below shows, Network Rail under spent on controllable opex by £95 million in 2005-06, representing a 10% outperformance of the efficiency assumption for the year. It is important also to consider the cumulative position over the first two years of CP3. Network Rail has outperformed its cumulative allowance of £2 billion by £181 million or 9%.

**Table 18: Analysis of Network Rail operating expenditure, 2005-06**

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16. Outperformance is defined as additional unit cost efficiencies beyond those assumed in ACR2003 and reductions in scope that do not compromise the long-term asset condition and serviceability of the network. (See ORR’s *Monitoring and Treatment of Network Rail’s Underspend and Efficiency: Policy Statement*).

17. We define underperformance to mean underspend realised while failing to achieve the output targets specified in ACR2003 and/or compromising the long-term asset condition and serviceability of the network.

18. While we acknowledge that opex could fall due to, for example, the size of the network decreasing, or traffic falling, given the current conditions in the sector, we do not consider this relevant.
Annual assessment of Network Rail 2005-06

<table>
<thead>
<tr>
<th></th>
<th>ACR2003 determination</th>
<th>Actual expenditure</th>
<th>Variance (post-efficiency)</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-efficiency</td>
<td>Post-efficiency</td>
<td></td>
<td>Total gain</td>
</tr>
<tr>
<td>Controllable opex</td>
<td>1,134</td>
<td>960</td>
<td>865</td>
<td>-95</td>
</tr>
<tr>
<td>Non-controllable opex</td>
<td>236</td>
<td>236</td>
<td>265</td>
<td>29</td>
</tr>
<tr>
<td>Total opex</td>
<td>1,370</td>
<td>1,196</td>
<td>1,130</td>
<td>-66</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006, ACR2003: Final conclusions, and ORR calculations

7.12 Supporting information provided to us by Network Rail suggests that much of this outperformance was due to targeted reductions in agency staff, contractors and consultants, and reduced insurance costs. However, the break down of operating costs provided has not been audited. We are working with Network Rail to develop more detailed reporting of opex in the regulatory accounts going forward.

Maintenance expenditure

7.13 For 2004-05, Network Rail’s performance on maintenance efficiency was assessed on the basis of the change in total maintenance expenditure per ‘equated track mile’ (ETM)\(^{19}\), with deferrals and change in scope of activity assumed to be zero.

7.14 Going forward, we expect to supplement our analysis with a range of ‘maintenance unit cost’ measures (MUCs), which Network Rail is currently developing and rolling out. Network Rail has identified a total of 18 repeatable activities (15 track and three signalling) for which it is developing unit cost measures. However, for 2005-06, our assessment of maintenance efficiency is again based on the per ETM measure.

7.15 We had expected Network Rail to provide baseline unit cost data for at least some MUCs for 2005-06 prior to this assessment. However, although the independent reporter noted that Network Rail has made considerable progress in rolling out the MUCs\(^{20}\) and that it is now collecting data for six of

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\(^{19}\) The ETM metric is based on the amount of expected activity necessary to maintain the network to a certain standard.

these, the data is not sufficiently robust for 2005-06 to form a reliable baseline for future comparisons.

7.16 We have written to Network Rail requesting it to set out the reasons for the slippage in its original timetable for rolling out and reporting MUCs, asking it to provide details of the revised timetable. We will monitor Network Rail’s progress against this revised timetable closely.

7.17 In last year’s assessment we noted that Network Rail was in the process of improving the calculation of ETMs. This work has now been done and Network Rail has re-based its ETM figures.

Table 19: Analysis of Network Rail maintenance expenditure, 2005-06

<table>
<thead>
<tr>
<th></th>
<th>ACR2003 determination</th>
<th>Actual expenditure</th>
<th>Variance (post-efficiency)</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-efficiency</td>
<td>Post-efficiency</td>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>Maintenance (£ million 2005-06)</td>
<td>1,443</td>
<td>1,221</td>
<td>1,192</td>
<td>-29</td>
</tr>
<tr>
<td>Maintenance per ETM</td>
<td>66</td>
<td>56</td>
<td>53</td>
<td>-3</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006, ORR ACR2003: Final conclusions 2003, ORR calculations

7.18 As shown in Table 19, Network Rail underspent on maintenance in 2005-06 by a total of £29 million relative to its post-efficiency target of £1,221 million (in 2005-06 prices) set in ACR2003. Accounting for the change in ETMs, Network Rail outperformed its ACR2003 efficiency assumption for maintenance costs by 5% in 2005-06.

7.19 Network Rail outperformed its cumulative expenditure allowance of just over £2.5 billion for the first two years of the control period by £55 million or 2%. When converted to a maintenance per ETM measure, the cumulative underspend was 4%.

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21 ETMs are now calculated based on the track for which Network Rail has maintenance responsibility, eliminating, for example, sidings, docks and colliery routes from the figures. Network Rail report that the re-basing process has also improved the accuracy of its ETM figures (for example corrections in speed and track type assumptions which affect the ETM calculation).

22 Network Rail reported the following ETM figures: 2003-04 21,896; 2004-05 21,896; 2005-06 22,599.
Renewals expenditure

7.20 Network Rail’s underspend on non-WCRM renewals in 2005-06 was £32 million or 2% compared with an ACR2003 allowance of just over £2 billion.

7.21 In assessing underspend on renewals, we differentiate between three main sources of underspend: deferral to some future date, additional unit cost efficiency and scope efficiency. Additional unit cost efficiency and scope efficiency (to the extent it is deemed efficient by the independent reporter) is deemed to be outperformance.23

7.22 As in last year’s assessment, we have examined a combination of measures - the unit cost indices that are currently available and Network Rail’s own budget variance analysis, which assesses the difference between budgeted (as opposed to ACR2003 determination) and actual expenditure for each major renewals asset category. We have had to rely on an element of judgement in arriving at our overall assessment of Network Rail’s renewals efficiency performance, particularly as Network Rail’s unit cost indices cover only part of its renewals expenditure.

7.23 Network Rail is continuing the development of its ‘cost analysis framework’ (CAF), which will monitor unit costs for 51 repeatable work activities covering around 80% of expenditure.

7.24 We had expected Network Rail to present baseline unit cost data for more of its renewals activities for 2005-06 prior to this assessment. However, although data is now being collected for all the measures, the independent reporter has indicated that Network Rail is behind schedule as a result of rolling out data collection processes later than intended.24 Consequently, only those assets for which unit cost data was available in 2004-05 (i.e. for track and civils) are currently considered to be sufficiently robust.

7.25 We are disappointed that this work has not been completed to Network Rail’s own initial timetable. As with maintenance unit costs, we have written to Network Rail asking it to provide us with a detailed work programme for the rollout of the remaining CAF. We will monitor Network Rail’s progress closely.

23 See Monitoring and Treatment of Network Rail’s Underspend and Efficiency: Policy Statement – ORR, January 2006 - for definitions and further details.
7.26 The independent reporter identified some concerns with the reliability and accuracy of Network Rail’s variance analysis. However, it was indicated that if the recommendations arising from Network Rail’s internal audit of the variance reports were fully implemented, the accuracy and reliability of the variance reports for 2006-07 should significantly improve. The reporter has recommended that these changes be implemented in full.

**Renewals unit cost efficiency**

7.27 The renewals unit cost indices that Network Rail currently measures are reported in Table 20 below.

**Table 20: Renewals unit cost indices**

<table>
<thead>
<tr>
<th>Real index, 2003-04=100</th>
<th>2004-05</th>
<th>2005-06</th>
<th>Coverage (%)</th>
<th>% change, 05-06 on 04-05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track (total)</td>
<td>95.6</td>
<td>93.8</td>
<td>89%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Plain line</td>
<td>94.5</td>
<td>95.7</td>
<td>87%</td>
<td>-1.3%</td>
</tr>
<tr>
<td>Switches &amp; crossings</td>
<td>98.1</td>
<td>88.6</td>
<td>94%</td>
<td>9.7%</td>
</tr>
<tr>
<td>Civils (linear metre measure)</td>
<td>87.0</td>
<td>80.0</td>
<td>48%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Civils (square metre measure)</td>
<td>94.0</td>
<td>88.0</td>
<td>48%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Average, expenditure weighted</td>
<td>95.1</td>
<td>92.2</td>
<td>78%</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006, ORR calculations.

Note % change figure shows a reduction (i.e. ‘improvement’) in unit costs as a positive figure.

7.28 The unit costs shown in Table 20 provide only a partial picture of the efficiency of Network Rail’s renewals activity. Track and civils expenditure together represent 55% of Network Rail’s non-WCRM renewals in 2005-06, and the unit cost measures cover 78% of this, implying 43% coverage of total non-WCRM spend. However, if these figures reflected total renewals expenditure, they imply an improvement in renewals unit cost efficiency of around 3% in 2005-06, a 5% under performance of the ACR2003 efficiency assumption. For the last two years, it would imply a total improvement in renewals unit cost efficiency of around 8%.26

25 Network Rail has amended the units it uses for measuring civils expenditure from a linear metre measure to a square metre measure. Both measures have been shown in Table 20 to allow comparisons with the previous year.

26 Note that these weighted average efficiency figures cannot be compared with those shown in the 2004-05 Annual Assessment, due to the change in the civils measure from a linear metre to m² measure.
7.29 Network Rail’s activity efficiency measure, provided in its variance analysis (Table 21), might also be considered a rough proxy for unit cost efficiency and therefore provides an additional source of evidence. However, we have exercised a degree of caution in using this evidence because the measurement is against Network Rail’s own budget for the year and not against the ACR2003 determination. The figures reported by Network Rail would represent additional efficiencies compared with the ACR2003 assumptions only if Network Rail’s budgets already incorporate the ACR2003 efficiencies in full. This is discussed further below.

Table 21: Network Rail’s budget variance analysis

<table>
<thead>
<tr>
<th>£ million 2005-06</th>
<th>Additional Activity Efficiency as % of budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track</td>
<td>-4%</td>
</tr>
<tr>
<td>Signalling</td>
<td>9%</td>
</tr>
<tr>
<td>Civils</td>
<td>12%</td>
</tr>
<tr>
<td>Electrification, Plant &amp; Machinery</td>
<td>17%</td>
</tr>
<tr>
<td>Information Technology</td>
<td>5%</td>
</tr>
<tr>
<td>Telecoms</td>
<td>14%</td>
</tr>
<tr>
<td>Operational Property</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>0%</td>
</tr>
<tr>
<td>Total Non-WCRM</td>
<td>4%</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006

7.30 The unit cost data in Table 20 suggests that Network Rail achieved a unit cost efficiency of around 3% on track and civils (structures), underperforming the 8% efficiency target. The variance analysis, at least for track, is consistent with this finding. However, in aggregate, the variance analysis also shows that Network Rail achieved additional activity efficiencies of 4% (£77 million) compared with its budget.

7.31 This suggests that NR did not incorporate all of the ACR2003 efficiency assumptions into its budgets. Indeed, further investigation and discussions with Network Rail has confirmed this to be the case. We have concluded from this, and from the unit cost analysis outlined above, that although Network Rail is likely to have broadly achieved the ACR2003 renewals

27 Activity efficiency includes unit price savings and outperformance of target prices in renewals works. We believe it is likely to capture some scope efficiency and so will tend to overstate pure unit cost efficiency.

28 The data for civils in Tables 20 and 21 shows this more clearly. Table 20 reveals that Network Rail did not outperform the ACR2003 efficiency assumption of 8% but Table 21 shows that Network Rail achieved additional activity efficiencies of 12%.
Annual assessment of Network Rail 2005-06

efficiency assumption of 8% in 2005-06, it did not outperform this figure. Therefore we have not attributed any of the £32 million underspend to unit cost efficiencies.

Renewals scope change

7.32 The independent reporter was asked to assess whether the reductions in scope made in the affected asset classes were likely to have an adverse impact on network serviceability and sustainability. The reporter’s view is that the low level of expenditure attributed to scope change by Network Rail would not be likely to have an adverse impact on network serviceability and sustainability, and so can be considered efficient.

7.33 Network Rail attributed only £4 million (in 2005-06 prices) of the variance in its actual non-WCRM expenditure versus budget to net changes in scope, with the biggest reduction in scope being in information technology (IT) (£18 million).

7.34 Given that Network Rail’s claimed scope efficiency is against its own budget and not the ACR2003 determination and given that it accounts for an insignificant level of expenditure, we have not attributed any of the renewals underspend to this category.

Renewals deferrals/rescheduling

7.35 We have therefore concluded that all of the £32 million renewals underspend against the ACR2003 determination should be allocated to deferral of expenditure, as shown in Table 22.

Table 22: Non –WCRM renewals underspend attribution

<table>
<thead>
<tr>
<th>Variance against ACR2003</th>
<th>Additional unit cost efficiency</th>
<th>Scope efficiency</th>
<th>Deferral</th>
</tr>
</thead>
<tbody>
<tr>
<td>£ m 2005-06 prices</td>
<td>-32</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Summary of underspend

7.36 In summary, in 2005-06 we consider that Network Rail outperformed its unit cost efficiency target for controllable non-WCRM expenditure by £123 million. Table 23 provides a summary breakdown.

Table 23: Attribution of OMR underspend to outperformance, 2005-06
<table>
<thead>
<tr>
<th>£ million, 2005-06 prices</th>
<th>Variance against ACR2003</th>
<th>Additional unit cost efficiency</th>
<th>Scope efficiency</th>
<th>Deferral</th>
<th>Expenditure out-performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controllable opex</td>
<td>-95</td>
<td>-95</td>
<td>0</td>
<td>0</td>
<td>-95</td>
</tr>
<tr>
<td>Maintenance</td>
<td>-29</td>
<td>-29</td>
<td>0</td>
<td>0</td>
<td>-29</td>
</tr>
<tr>
<td>Non-WCRM renewals</td>
<td>-32</td>
<td>0</td>
<td>0</td>
<td>-32</td>
<td>0</td>
</tr>
<tr>
<td>Total controllable non-WCRM OMR</td>
<td>-156</td>
<td>-123</td>
<td>0</td>
<td>-32</td>
<td>-123</td>
</tr>
</tbody>
</table>

Note: Columns may not add due to rounding.

7.37 The cumulative unit cost efficiency outperformance for the first two years of CP3 is £236 million, or 5%. Therefore at this stage Network Rail is on target to achieve at least the 31% efficiency assumption built into the ACR2003 determination.

7.38 The in-year financial benefit to Network Rail of the 2005-06 underspend on non-WCRM OMR is set out in Table 24. These figures represent the monetary gain accruing to Network Rail in 2005-06 as a result of its underspend. Most of the financial benefit accruing to Network Rail in 2005-06 stemmed from underspend on opex (£95 million). The renewals underspend of £32million has translated into a much more modest in-year financial benefit of £3 million due to the fact that renewals expenditure is remunerated over a 30 year period via the amortisation allowance, rather than fully in the year in which it is incurred.
Table 24: In-year financial benefit of the 2005-06 OMR underspend

<table>
<thead>
<tr>
<th>£ million, 2005-06 prices</th>
<th>In-year financial benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controllable operating expenditure outperformance</td>
<td>95</td>
</tr>
<tr>
<td>Maintenance outperformance</td>
<td>29</td>
</tr>
<tr>
<td>Financial benefit from renewals underspend</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>128</strong></td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006

Note: Financial benefit from renewals underspend calculated as (£32 million non WCRM renewals underspend * 7.0% rate of return)+(£32 million non WCRM renewals underspend * amortisation allowance of 1/30th)

Use of surpluses from outperformance

7.39 Network Rail has developed criteria for the use of any funds from outperformance, which have been formalised in its business planning criteria. For CP3, Network Rail intends to use any outperformance (including that generated from the various regulatory incentive mechanisms) to reduce debt as a first priority, or if there are no financeability/compliance constraints, to fund and finance investments, decided in consultation with the DfT and Transport Scotland.

Recommendations

7.40 We recommend that Network Rail:

- Continues with work to implement a comprehensive set of unit cost measures for both maintenance and renewals activities that are sufficiently robust and wide enough in coverage to be used as the basis for efficiency analysis in future years. With the help of the independent reporter, we will continue to monitor and audit Network Rail’s implementation of these unit cost measures.

- Continue the work already underway with us to develop a more detailed breakdown of operating costs, to be reported in the regulatory accounts.

- Remain consistent with the recommendations of the independent reporter by implementing fully the recommendations of the Network Rail Investment Financial Variance Year-End Audit Report (June 2006), in order to ensure that the reliability and accuracy of its renewals variance analysis is significantly improved for the reporting year 2006-07.

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8. Finance and income

8.1 This chapter reviews Network Rail’s financial position and income in 2005-06. Comparisons are made against the ACR2003 assumptions and in some cases Network Rail’s Business Plan 2005. Unless otherwise stated all numbers are in 2005-06 prices.

Net debt was £1.6 billion lower than the ACR2003 assumption, largely due to underspend on expenditure.

Net debt

8.2 Network Rail’s net debt at 31 March 2006 was £18.0 billion. This was:

- £2.4 billion higher than at 31 March 2005.
- £1.6 billion lower than the ACR2003 assumption of £19.6 billion.
- £0.8 billion lower than the forecast of £18.8 billion made by Network Rail in its Business Plan 2005.

8.3 During the year Network Rail issued £4.4 billion of debt through its ‘debt issuance programme’ (DIP) to fund the net borrowing requirement for 2005-06 and refinance some of its other debts. The DIP is supported by a financial indemnity that allows Network Rail to borrow at a relatively low cost.

8.4 The increase in net debt of £2.4 billion during 2005-06 was lower than the ACR2003 assumed increase in net debt of £3.1 billion (i.e. the ACR2003 assumptions included a £3.1 billion net cash deficit in 2005-06). This assumed ACR2003 net cash deficit of £3.1 billion was offset by a £0.7 billion underspend in 2005-06 (compared to ACR2003). The underspend in 2005-06 was comprised mainly of £0.2 billion on renewals, £0.2 billion on financing costs, £0.1 billion on schedule 4 and schedule 8 costs and £0.2 billion on ‘other’ costs, including opex and maintenance.

8.5 Table 25 below shows the movements in net debt during 2005-06.
Annual assessment of Network Rail 2005-06

### Table 25: Movements in net debt 2005-06 (£ billion)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net debt at 1 April 2005</td>
<td></td>
<td>15.6</td>
</tr>
<tr>
<td>Total franchised track access</td>
<td>(3.1)</td>
<td></td>
</tr>
<tr>
<td>and grant income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenditure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating expenditure</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Renewals</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>Enhancements</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Other (including other income)</td>
<td>(0.5)</td>
<td></td>
</tr>
<tr>
<td>Total expenditure</td>
<td>4.9</td>
<td></td>
</tr>
<tr>
<td>Net interest paid</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>Movements in net debt</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>Net debt at 31 March 2006</td>
<td>18.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Network Rail data and ORR calculations

8.6 Net debt at 31 March 2006 was £1.6 billion lower than the ACR2003 assumption. This difference is mainly due to Network Rail’s underspend on expenditure in the first two years of CP3 which had the effect of reducing net debt by £1.3 billion overall at 31 March 2006. In particular, Network Rail underspent by £0.6 billion on renewals and £0.5 billion on enhancements, largely reflecting Network Rail’s re-profiling of expenditure during CP3. Over the rest of CP3 Network Rail is forecasting an overspend against the ACR2003 assumptions.

8.7 Financing costs were £0.3 billion lower than assumed at ACR2003, as financing costs have averaged 5.0% across 2004-05 and 2005-06, compared to the ACR2003 assumption of 5.5% in 2004-05 and 6.0% in 2005-06. One of the reasons that Network Rail’s net interest costs are lower than we expected is due to the financial indemnity provided by Government. Network Rail is making a £275 million payment to Government for the benefit derived from this indemnity. This payment will be made in three instalments over the remainder of CP3.

8.8 Net debt was £0.8 billion less than assumed in Network Rail’s Business Plan 2005. This largely reflects Network Rail’s £0.2 billion underspend against budget on enhancements, £0.2 billion underspend on net interest, the opening
actual net debt at 1 April 2005 being £0.3 billion lower than assumed in the Business Plan 2005 and other variances of £0.1 billion.

**Regulatory asset base (RAB)**

8.9 At 31 March 2006, Network Rail’s RAB, as shown in Network Rail’s regulatory accounts, was £23.0 billion. This is £2.5 billion higher than the RAB at 31 March 2005, which was £20.5 billion. The RAB at 31 March 2006 was £0.6 billion lower than the ACR2003 assumption, which was £23.6 billion and the same as the forecast made by Network Rail in its Business Plan 2005.

8.10 Table 26 below summarises the movements in the RAB for 2005-06.

8.11 The RAB at 31 March 2006 was £0.6 billion lower than assumed at ACR2003 mainly due to:

- The £0.3 billion deduction from the RAB in relation to actual 2003-04 out-turn expenditure.
- The £0.3 billion reduction in the RAB as spend on investments which are remunerated on an emerging cost basis was lower than expected.

**Table 26: Analysis of movements in RAB (£ billion, 2005-06 prices)**

<table>
<thead>
<tr>
<th>Opening Balance at 1 April 2005</th>
<th>20.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>0.5</td>
</tr>
<tr>
<td>Amortisation</td>
<td>(1.5)</td>
</tr>
<tr>
<td>Additions</td>
<td></td>
</tr>
<tr>
<td>Renewals assumed in ACR2003</td>
<td>2.8</td>
</tr>
<tr>
<td>Enhancements assumed in ACR2003</td>
<td>0.4</td>
</tr>
<tr>
<td>Other additions not funded in ACR2003</td>
<td>0.1</td>
</tr>
<tr>
<td>Total additions</td>
<td>3.3</td>
</tr>
<tr>
<td>Other adjustments</td>
<td>0.2</td>
</tr>
<tr>
<td>Total movement in RAB</td>
<td>2.5</td>
</tr>
<tr>
<td>Closing Balance at 31 March 2006</td>
<td>23.0</td>
</tr>
</tbody>
</table>

Source: Network Rail data and ORR calculations

Notes:
a) RAB is adjusted for inflation every year.
b) Amortisation includes amortisation assumed as part of ACR2003. An appropriate adjustment will be made at 31 March 2009 to reflect actual expenditure.

---

30 This figure has been adjusted in line with the final conclusions of the medium term review of signalling expenditure, published in December 2005 by ORR.

31 Network Rail’s regulatory accounts (available on Network Rail’s website at [http://www.networkrail.co.uk](http://www.networkrail.co.uk)) and ORR’s [Regulatory Accounting Guidelines](http://www.orr.gov.uk) provide more detail about the nature of these adjustments.
c) The ACR2003 assumptions for renewals and enhancement expenditure, funded as part of ACR2003, are added to the RAB and an appropriate adjustment will be made at 31 March 2009 to reflect actual expenditure.

Debt to RAB ratio

8.12 Network Rail’s net debt to RAB ratio at the end of 2005-06 was 78.1%, which was within the regulatory limits. However, it was 1.6% higher than the net debt to RAB ratio of 76.5% at 31 March 2005. This was due to net debt increasing by £2.4 billion and the RAB increasing by £2.5 billion.

8.13 The RAB less net debt figure can be a proxy for the level of buffer that the company has to absorb shocks to costs and revenues. As Network Rail’s Network Licence requires it to keep its borrowings below certain levels of RAB (the first limit being a trigger at 85%), in practice the buffer available to the company is the difference between 85% of RAB and net debt. This buffer was £1.6 billion at 31 March 2006.

8.14 Another way of thinking about the buffer available to the company is to compare the buffer, i.e. 85% of RAB less net debt, to forecast expenditure in the next year. This calculation identifies the amount by which Network Rail could overspend its expenditure budget in the next financial year without breaching the debt/RAB limit of 85%. On this basis, Network Rail could overspend its forecast expenditure budget in 2006-07 by 27% before breaching the 85% debt/RAB threshold.

Other financial indicators

8.15 The actual adjusted interest coverage ratio for 2005-06 is 0.1 times. However, this figure is lower than it would have been if Network Rail had not voluntarily deferred £1.7 billion of income due in the year from the Government to subsequent financial years. If this revenue were included in the calculation, the adjusted interest coverage ratio for 2005-06 would be 2.0 times (based on the calculation presently reported to ORR by Network Rail, which uses gross interest costs).

8.16 The adjusted interest coverage ratio is one of the financial indicators that can give an indication of Network Rail’s financial health. It measures Network Rail’s adjusted net operating cash flow against gross interest costs. This assesses Network Rail’s ability to meet gross interest payments from net operational cash flows after deducting an allowance for maintenance capital expenditure. The maintenance capital expenditure allowance only includes
the level of capital investment that is required to maintain the RAB in steady state, i.e. any capital investment that improves the network is not included.

**Income**

8.17 Network Rail's income in 2005-06 was £3.9 billion. This was:

- £0.1 billion higher than income in 2004-05 of £3.8 billion.
- £0.2 billion higher than the adjusted ACR2003 assumption of £3.7 billion.
- £0.1 billion higher than Network Rail's Business Plan 2005 assumption of £3.8 billion.

8.18 Table 27 below shows the income for 2005-06 broken down into the various income categories compared against the ACR2003 assumptions and the Business Plan 2005.

**Table 27: Comparison of actual income in 2005-06 to ACR2003 and Network Rail's Business Plan 2005 (£ billion, 2005-06 prices)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Actual (A)</th>
<th>Business Plan 2005 (B)</th>
<th>ACR2003 (C)</th>
<th>Business Plan variance (A-B)</th>
<th>ACR2003 variance (A-C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Franchised track access income</td>
<td>1.1</td>
<td>1.4</td>
<td>1.2</td>
<td>(0.3)</td>
<td>(0.1)</td>
</tr>
<tr>
<td>Grant income</td>
<td>2.0</td>
<td>1.7</td>
<td>1.7</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Single till income</td>
<td>0.8</td>
<td>0.7</td>
<td>0.8</td>
<td>0.1</td>
<td>(0.0)</td>
</tr>
<tr>
<td>Total income</td>
<td>3.9</td>
<td>3.8</td>
<td>3.7</td>
<td>0.1</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Source: Network Rail's 2005-06 Regulatory Accounts and Business Plan 2005

8.19 Grant income from DfT for 2005-06 was £0.3 billion higher than assumed in ACR2003, due to an additional grant payment from DfT. This additional payment is exactly offset by a rebate of track access charges from Network Rail to train operators. The ACR2003 assumption for grant income is after the adjustment for Network Rail agreeing to defer £1.7 billion of income due in 2005-06 into subsequent years. The ACR2003 section below explains the £1.7 billion deferral in more detail.

**ACR2003**

8.20 The ACR2003 final conclusions document set out in detail the amount of money that Network Rail is entitled to receive for operating, maintaining, renewing and enhancing the network over the five years of the control period.
The ACR2003 final conclusions document also included a profile of income over the control period and the share of this income that would be paid through track access charges and through direct grants from the SRA in each year. However, in March 2004, ORR published a follow-up document\textsuperscript{32}, which approved Network Rail’s proposed amendments on how the revenue entitlement should be financed over the control period.

8.21 The March 2004 document approved proposals to re-profile Network Rail’s income so that it would receive a larger proportion of its revenue entitlement than originally envisaged by ACR2003, through direct grants from the SRA/DfT, thereby reducing the share of the entitlement received from fixed track access charges paid by train operators. In addition, a portion of Network Rail’s grant income in the first two years of the control period was re-profiled to later years. The resulting shortfall in income in 2004-05 and 2005-06 has been financed through additional borrowing by Network Rail. The amount deferred in both 2004-05 and 2005-06\textsuperscript{33} was £1.7billion.

**Recommendations**

8.22 There are no recommendations that we want to make in relation to Network Rail’s financial position. Most of the variances reported on in this chapter are commented on elsewhere in this document.

\textsuperscript{32} ACR2003: Regulator’s approval of Network Rail’s proposed financing arrangements, March 2004.

\textsuperscript{33} Figures in 2005-06 prices.
9. Major investment projects

9.1 This chapter assesses Network Rail’s delivery of major investment projects (i.e. enhancements) including the modernisation of the West Coast route, the power upgrade to accommodate the introduction of new trains in the Southern region, major telecoms projects and other enhancements.

Network Rail’s total expenditure on major investment projects during 2005-06 was £406 million, compared to ACR2003 allowance of £429 million, a variance of £23 million.

Within this total, a Network Rail underspend of £129 million on health and safety schemes was partially balanced by an overspend of £83 million on the ‘transition schemes’ (such as SRNTP).

Expenditure

9.2 Network Rail’s total expenditure on enhancements during 2005-06 was £406 million, compared to £429 million determined by ORR at ACR2003, a variance of £23 million. The principal variances against ACR2003 allowances were Network Rail’s underspend of £129 million on health and safety schemes, where progress on several health and safety schemes was slower than expected, and an overspend of £83 million on the ‘transition schemes’ (SRNTP, channel tunnel rail link (CTRL) blockade and Thameslink 2000 development). The underspend on safety enhancement schemes was primarily due to two reasons: the changed industry development strategy and timetable for ERTMS implementation; and detailed appraisal of potential schemes by Network Rail which led to deferral or cancellation when it was clear they would not deliver the expected benefits.

9.3 Network Rail has also proposed that the sum of £23 million spent on additional schemes incurred during the year, primarily property investments, should be included in the RAB. We are currently assessing these schemes against our published criteria, as set out in our March 2006 document *Guidelines on the Policy Framework for Investments*\(^{34}\). This expenditure is not included in Table 28, as ORR has not approved the expenditure at this stage.

Table 28: Comparison of 2005-06 actual enhancement expenditure with ACR2003 determination

<table>
<thead>
<tr>
<th>£ m (2004-05 prices)</th>
<th>Actual expenditure</th>
<th>ACR2003</th>
<th>Variance from ACR2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRNTP - PSU works</td>
<td>124</td>
<td>68</td>
<td>-56</td>
</tr>
<tr>
<td>SRNTP – non-PSU works (Network Rail delivered)</td>
<td>20</td>
<td>14</td>
<td>-6</td>
</tr>
<tr>
<td>CTRL Blockade</td>
<td>13</td>
<td>0</td>
<td>-13</td>
</tr>
<tr>
<td>Thameslink 2000 development</td>
<td>8</td>
<td>0</td>
<td>-8</td>
</tr>
<tr>
<td>Sub-total: Transition schemes</td>
<td>165</td>
<td>82</td>
<td>-83</td>
</tr>
<tr>
<td>Train Protection schemes</td>
<td>13</td>
<td>44</td>
<td>31</td>
</tr>
<tr>
<td>LMD Pollution Prevention</td>
<td>21</td>
<td>0</td>
<td>-21</td>
</tr>
<tr>
<td>Other Health &amp; Safety schemes</td>
<td>10</td>
<td>129</td>
<td>119</td>
</tr>
<tr>
<td>Sub-Total: Health &amp; Safety Schemes</td>
<td>44</td>
<td>173</td>
<td>129</td>
</tr>
<tr>
<td>Telecoms enhancements</td>
<td>3</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>WCRM enhancements</td>
<td>171</td>
<td>163</td>
<td>-8</td>
</tr>
<tr>
<td>Other schemes (non-ACR2003) including NRDF</td>
<td>23</td>
<td>0</td>
<td>-23</td>
</tr>
<tr>
<td>Total</td>
<td>406</td>
<td>429</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: Network Rail’s 2005-06 Regulatory Accounts

9.4 The transition schemes (i.e. the SRNTP, the CTRL blockade works and Thameslink 2000 development) are treated on an emerging cost basis, so that any variance against the ACR2003 assumptions is logged up and will lead to an adjustment to the RAB in 2009.

Investment schemes

Southern region new trains programme (SRNTP)

9.5 The upgrading of the Southern region power supply was substantially completed, enabling all new trains to be introduced with the subsequent withdrawal of the slam door stock. Some limited works remain plus testing the resilience of the new systems to ensure that they are robust under all conditions.

9.6 The overspend of £62 million in the year (actual expenditure of £144 million against an assumption of £82 million) was primarily due to deferral of activity originally planned to take place in 2004-05.
West Coast route modernisation (WCRM)

9.7 Network Rail made satisfactory progress on the project during 2005-06, principally by delivering the infrastructure upgrades that allowed further journey time improvements between Crewe and Liverpool, and Crewe and Glasgow in the December 2005 timetable change. Good progress is underway with the major enhancement schemes at Rugby, Trent Valley and Nuneaton, all of which will contribute to the next key milestone in December 2008 when further improvements in capacity and journey times are planned.

9.8 There remain, however, significant challenges to achieve these outputs within the Regulatory funding. The principal risk is a shortage of signalling resources to deliver the WCRM projects in parallel with the general increase in demand for signalling expertise in the UK.

Other schemes

9.9 Network Rail also overspent on the two transition schemes other than SRNTP, due to deferral of Thameslink 2000 development work from 2004-5 (as a result of delays in the public inquiry) and minor slippage on the CTRL blockade scheme. In total, there is a further overspend of £21 million on these two transition schemes.

9.10 On the LMD pollution prevention programme, Network Rail spent £21 million against the ACR2003 assumption of £28 million. ORR sought information from Network Rail to explain how it would deliver the required outputs and comply with its statutory obligations and we requested further reports used by Network Rail’s management to monitor the programme. Evidence from the year was that project management of this programme has improved.

9.11 During 2005-06 Network Rail provided services to 230 schemes promoted by third parties (i.e. bodies other than DfT but including the Scottish Executive). The total Network Rail value of these schemes was £280 million. Increasingly during the year Network Rail contracted with third parties using template agreements approved by ORR and by March 2006 there were 41 schemes using these templates. ORR has now established reporting and monitoring arrangements for third parties schemes, and also put in place similar arrangements for schemes progressed under the Network Rail Discretionary Fund (NRDF) i.e. minor schemes promoted by Network Rail. An independent reporter is now assisting ORR in the analysis of investment schemes.
9.12 As part of our implementation of the investment framework we are currently carrying out a full annual review of Network Rail’s involvement in investments, by category of scheme. We expect this review to be completed in October 2006.

Recommendations

9.13 Network Rail needs to continue to improve the efficiency of its delivery of major schemes, and to play its part in implementing ORR's investment framework, by:

- Ensuring that appropriate information is collated and provided to ORR on all schemes, particularly major schemes, schemes promoted by third parties and NRDF schemes.

- Developing its stakeholder consultation processes further and ensuring that it is meeting its obligations as set out in Chapter 2 of ORR's October 2005 document *Policy Conclusions on the Investment Framework*.

- Ensuring delivery of outputs for the December 2008 timetable change for WCRM.


10. Health and safety

The condition of infrastructure assets is improving, therefore reducing the risk of accidents from this cause. Network Rail's systems for managing the assets are largely fit for purpose, with some weaknesses.

While the reported misuse of level crossings is rising, the number of collisions with vehicles was steady. Inspectors found Network Rail's management of the risk to be broadly adequate.

The recorded rise in the risk from irregular working, notably by signallers, conflicted with the findings of inspection, which revealed a competence management system that was fit for purpose. The rise in risk may have other origins than competence.

Workforce accident frequency rates are falling, though the number of fatalities remains steady - and unacceptably high - over the long-term. Inspection revealed weaknesses in the management of the risk of being struck by trains, and of construction-related risks.

Introduction

10.1 Whereas most of this annual assessment relies upon statistical information, this alone is not effective for assessing health and safety performance. History is littered with unsuccessful attempts to identify definitive numerical measures for health and safety. The industry and Network Rail have developed several useful data measures, but these cannot provide the whole picture. Numbers of deaths and injuries are generally small enough that changes are not statistically significant; and the surrogates used sometimes do not cover the full scope of the risk. Numbers also tend to produce an averaged result, smoothing the peaks and troughs, though it is the latter that is rightly the focus of ORR attention.

10.2 ORR's primary source of information about Network Rail's health and safety performance is our inspection and other contacts with the company. We recognise that the data measures are qualitatively different from the results of inspection, in that they are a historical reflection of incidents that happened, while inspection is largely diagnostic, seeking to identify the steps that will prevent the next incident. Inspection alone therefore provides only an incidental measure of overall performance, but it provides an accurate, evidence-based measure of the performance of management systems,
potentially from a policy level down to the actual delivery of safety on the ground.

10.3 We therefore judge Network Rail's performance here using inspection intelligence alongside industry numerical data. The remainder of this section comprises an overview of Network Rail's health and safety performance, followed by sections assessing performance in level crossings, track, signalling and telecommunications, and employee safety, representing a large sample of Network Rail's operation.

10.4 It should be noted that ORR's role in health and safety inspection is to be critical, and that is the nature of most of the material inspectors collect. Inspection plans deliberately choose areas of high hazard and potential weakness to look at, and inspectors concentrate their efforts on any poor performance they identify. We acknowledge that this makes inspection findings particularly negative reading, but also acknowledge that good standards and good management structures predominate within Network Rail, even though inspection findings mostly do not report this.

Network Rail safety performance in 2005-06

Safety and environment assurance report

10.5 Network Rail's Safety and Environment Assurance Report (SEAR) provides a series of company measures of safety performance. The ‘National Safety Headlines’ (Table 29) shows performance improved across many aspects of Network Rail's business in 2005-06, such as the number of significant train accidents, workforce accident frequency rate, collisions at level crossings, infrastructure wrong-side failures, Category A SPADs and derailments reportable to ORR. Areas where the company target was not met include contractor fatalities, workforce safety and the public safety index, a measure of accidental fatalities and injuries, excluding suicides. The highest risk contributors (level crossings incidents and irregular working) do not feature clearly (although note that some precursors for these risks, notably from level crossing misuse, are not fully under Network Rail’s control).
### Table 29: National Safety Headlines

<table>
<thead>
<tr>
<th>Period 13 2005-06</th>
<th>2005-06 Year end target</th>
<th>Year to date 2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger Accidental Fatalities (Train Related)</td>
<td>No Fatalities</td>
<td>0</td>
</tr>
<tr>
<td>Passenger Accidental Fatalities (Non Train Related)</td>
<td>No Fatalities</td>
<td>3</td>
</tr>
<tr>
<td>Railway Group Staff Fatalities (excluding contractors and NR workforce)</td>
<td>No Fatalities</td>
<td>1</td>
</tr>
<tr>
<td>Network Rail Workforce Fatalities</td>
<td>No Fatalities</td>
<td>0</td>
</tr>
<tr>
<td>Contractor Fatalities</td>
<td>No Fatalities</td>
<td>4</td>
</tr>
<tr>
<td>Workforce accident frequency</td>
<td>0.300 (13 period average)</td>
<td>0.360</td>
</tr>
<tr>
<td>Trespasser Fatalities</td>
<td>N/A</td>
<td>32</td>
</tr>
<tr>
<td>Significant Train Accidents</td>
<td>0.133 (13 period average)</td>
<td>0.078</td>
</tr>
<tr>
<td>Public Safety Index</td>
<td>0.235 (13 period average)</td>
<td>0.271</td>
</tr>
<tr>
<td>Suicides (including suspected suicides)</td>
<td>N/A</td>
<td>214</td>
</tr>
<tr>
<td>Significant environmental events</td>
<td>N/A</td>
<td>16</td>
</tr>
<tr>
<td>All category ‘A’ SPADs</td>
<td>Max of 355</td>
<td>330</td>
</tr>
<tr>
<td>All reportable Derailments</td>
<td>Reduce by 5%</td>
<td>23</td>
</tr>
<tr>
<td>Reportable collisions between trains</td>
<td>Reduce by 5%</td>
<td>9</td>
</tr>
<tr>
<td>Collisions with Vehicles at level crossings</td>
<td>Reduce by 5%</td>
<td>15</td>
</tr>
<tr>
<td>Safety significant fires</td>
<td>N/A</td>
<td>19</td>
</tr>
<tr>
<td>Broken rails</td>
<td>Max of 303</td>
<td>318</td>
</tr>
<tr>
<td>Category ‘B’ SPADs</td>
<td>Reduce by 5%</td>
<td>1712</td>
</tr>
<tr>
<td>Incursions</td>
<td>N/A</td>
<td>19</td>
</tr>
<tr>
<td>Infrastructure WSF Hazard ranked 50+ (Period 12 data)</td>
<td>N/A</td>
<td>77</td>
</tr>
</tbody>
</table>

Source: Network Rail’s Safety and environment assurance report (SEAR), Period 13 2005-06

**Precursor indicator model**

10.6 The precursor indicator model (PIM) seeks to measure major accident risk, and includes risks in the control of other railway companies (Figure 9). The headline measure has remained approximately level since the summer of 2004, when improvements from the introduction of TPWS were realised.

**Fig 9: Precursor indicator model (PIM), 1999-2006**
10.7 For individual elements of the PIM, Figure 10 shows a steady trend of slow improvements in the risks from objects on the line, SPADs and infrastructure failures; but worsening trends for level crossing misuse and irregular working. Note that the PIM does not include workforce risk.

**Fig 10: PIM elements, 1999-2006**

Source: Rail Safety and Standards Board

10.8 Findings from inspection in 2005-06 were that:
• The framework for the new competence management system is sound, though the test of the system will be in gaining sufficient understanding, ownership and resource to implement it effectively.

• The current competence systems are under strain, particularly in that Network Rail cannot always demonstrate that its staff are competent to undertake their technical tasks.

• We found this to be the case in relation to track and signalling maintenance, where an Improvement Notice was served. By contrast we found the competence management system for signallers to be broadly fit for purpose.

• The use of data from the new measurement train has the potential to improve the management of track in safe condition.

• Infrastructure-mounted TPWS equipment has a high maintenance burden, which creates problems (and in a related move HMRI has recommended that the safety integrity of train-borne TPWS equipment should be made more robust).

• We found no major deficiencies at a national level with the management of level crossings, although issues arose in relation to maintenance, risk assessment and competence.

• ‘Road-rail vehicles’ (RRVs) were found in many locations operating at speeds higher than either permitted or safe, creating a significant risk to track workers.

• A local initiative on track worker safety found a series of basic deficiencies coinciding with anecdotal evidence, suggesting a cultural problem of non-compliance, which Network Rail needs to urgently consider.

• High-level project aspects of the management of contractors were broadly in good order, although safety standards on site were variable. While railway-related risks were mostly well controlled (with the exception of RRVs) other construction risks were sometimes not - work at heights, manoeuvring vehicles, and health issues such as exposure to lead or hand/arm vibration, for example.

• Network Rail was slow to meet its duties in relation to managing asbestos in buildings and we served an Improvement Notice that was complied with in July 2006.
Overall findings

10.9 Taking data from the SEAR and the PIM alongside HMRI inspection evidence, key features of Network Rail’s performance in 2005-06 are as follows:

- The condition of infrastructure assets appears to be improving still, therefore reducing the risk of accidents from this cause. Network Rail’s systems for managing the assets are largely fit for purpose, although inspection revealed a few weaknesses or potential weaknesses, notably in the current competence management system.

- While the reported misuse of level crossings is rising, the number of collisions with vehicles is steady. Inspectors found Network Rail’s management of the risk to be broadly adequate, though with some reservations, confirming that the main problems, and solutions, are not entirely within Network Rail's control.

- The recorded rise in the risk from irregular working, notably by signallers, conflicts with the findings of inspection, which revealed a competence management system that is fit for purpose, although the risk may have other origins than competence. Network Rail and the Rail Safety Standards Board (RSSB) are looking at the data in more detail.

- Workforce accident frequency rates are falling, though the number of fatalities remains steady - and unacceptably high - over the long-term. Inspection revealed weaknesses in the management of the risk of being struck by trains, and of construction-related risks.

Level crossings

10.10 This section deals with safety performance in relation to all level crossing types on the network, and addresses catastrophic risk (broadly multi-fatality accidents, typically arising from trains striking road vehicles) and non-catastrophic risk (typically from trains hitting pedestrians).

10.11 Data for deaths, incidents and near misses appear to show safety performance to be neither rising nor falling, though the risk recorded by the PIM shows a significant increase in recent years. Inspection work carried out by HMRI during the year identified no new significant national deficiencies, but a series of other issues needing attention. Network Rail broadly discharges its duty in this area as well as it does in others, and the significant risk presented by level crossings arises primarily from factors outside the company's direct control.
10.12 Inspection during 2005-06 focused on Network Rail's inspection and maintenance of user-worked crossings (UWC), the use of risk assessment in managing crossing risk, Network Rail's level crossings policy, and human factors. Work relating to public access in Scotland also continued. At the national level, inspectors found no major deficiencies. Most issues identified were repeats of issues identified after past inspection plan work, falling broadly into the key areas of level crossing risk assessment, maintenance, and competence and training.

**Track**

10.13 This section describes safety performance in relation to track, comprising rails, fastening systems, rail supports and ballast, which constitute the support and guidance system for rail vehicles. Track includes plain line and switches and crossings.

10.14 The PIM and SEAR report trends going in the right direction, but inspection revealed a number of weaknesses in arrangements, some of which are outlined below. An Improvement Notice was served requiring improvements in relation to the natural stressing of ‘continuously welded rail’ (CWR).

10.15 Inspection by HMRI in 2005-06 considered a range of track topics. An initiative on competence in track maintenance confirmed the need for the new, formal competence management system being planned, but found that it was not yet being implemented at Territory level. There was no evidence that safety critical track work was being undertaken by anyone other than competent staff, but there was limited documentary evidence to prove this competence. Inspectors found weaknesses in the current arrangements, including a lack of formal guidelines for some aspects of training and assessment. There was evidence that the traditional specialised skills of rail welding and stressing of CWR were well managed, with two exceptions, which included deficiencies in the standard and training for natural stressing. An Improvement Notice was served requiring Network Rail to rectify this.

10.16 An examination of the management of track asset workbanks targeted Network Rail's arrangements for managing track deterioration to ensure safety. In particular the work sought assurance that Network Rail is managing track effectively through knowledge of the current state of the track using the Minicom information management system (MIMS). Key findings included that monitoring of re-prioritised defects was not done as a matter of course; and
some evidence that reprioritisation of defects was not being robustly managed, allowing defects to remain in the track inappropriately.

10.17 Inspectors assessed the processes for assurance of work completed before returning track to traffic after maintenance or renewal work. Inspectors found that the contractors visited clearly had robust procedures in place for ensuring that thorough checks were taken prior to handing track back to traffic. Inspectors recommended some improvements to provide Network Rail with a more robust system.

**Signalling and telecommunications**

10.18 Train command and control covers the primary train control systems and train protection, plus the supporting and mitigating train–shore communication.

10.19 The SEAR and PIM trends are going down, but the data is limited. During inspection, inspectors found that equipment is being maintained in a safe manner, but there are indications that some of the supporting management systems may not be functioning properly. Inspection of TPWS maintenance turned up problems arising from the high maintenance burden of TPWS infrastructure-mounted equipment.

10.20 HMRI served an Improvement Notice on Network Rail requiring improvements to the competence management system for signalling and telecommunications maintenance staff.

**Workforce safety**

10.21 Network Rail reported a steady improvement in workforce safety during 2005-06, with the combined workforce RIDDOR\(^{35}\) ‘accident frequency rate’ (AFR) falling from an MAA of 0.46 to 0.36. However this is above Network Rail’s self-imposed target of 0.3.

10.22 The number of fatalities did not see a similar reduction and RSSB reports track workers experiencing a risk of fatality of 1:6000/year, comparable with the highest risk construction activities.

10.23 Work carried out by HMRI during the year identified that there is sometimes poor management of risks on site. A theme emerging from inspection and

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\(^{35}\) Reporting of injuries, disease, and dangerous occurrences regulations.
investigations was a culture of non-compliance with rules designed to protect employees.

Recommendations

10.24 In the introduction to this chapter, we noted that ORR’s role in health and safety inspection is to be critical and diagnose weaknesses, so that Network Rail can implement improvements. We acknowledge that the company is addressing specific weaknesses mentioned in this chapter, particularly those identified by Improvement Notices. Therefore there are no further recommendations.
11. Environment

11.1 This chapter assesses the work carried out by Network Rail toward the protection of the environment and its contribution to the achievement of sustainable development.

In accordance with its safety and environment (S&E) plan, Network Rail took forward the implementation of its light maintenance depot (LMD) pollution prevention programme in order to secure compliance with the Control of Pollution (Oil Storage) Regulations and the Groundwater Regulations. The priority works identified under this plan were completed at all LMDs in England by 1 September 2005, with a revised programme of work developed to ensure completion at LMDs in Scotland and Wales by December 2007.

Safety and environment plan

11.2 As part of its Business Plan 2005, Network Rail provided an update to its S&E plan (covering the years 2003-06) and identified a number of actions that were to be undertaken during 2005-06. Under the plan, schemes specifically funded through ACR2003 in relation to environmental matters included a national programme of works to address issues of oil pollution at light maintenance depots (LMDs) and the more general contamination to groundwater and soil on Network Rail land (to ensure compliance with environmental legislation).

11.3 For the first time Network Rail’s Annual Return 2006 reported on performance during the year against its S&E plan. For environmental issues, however, this has been limited to a statement of its activities in respect of its pollution prevention programme.

11.4 During 2005-06 Network Rail:

- Completed initial (phase 1) works at all LMDs in England to achieve compliance with relevant oil storage regulations.
- Progressed design work on the full scope of work required at LMDs in Scotland and Wales.
- Initiated design work on phase 2 improvements to aprons and drainage systems at LMDs in England.
Completed defect surveys of drainage systems at the remaining LMDs and minor oil storage facilities at over 300 other sites.

11.5 Network Rail also identified the steps that it intended to take to ensure that the programme is completed by December 2007, one year ahead of the timescale outlined in its Business Plan 2005.

Environmental policy

11.6 In its Business Plan 2005 Network Rail indicated that it would undertake a number of other specific issues in respect of its environmental objectives. These involved the review and revision of its environmental policy and management system with the aim of developing and implementing an environmental strategy by which current and future environmental risks can be managed. Within this programme of work, Network Rail also undertook to address:

- Site management statements for sites of special scientific interest (SSSI) on Network Rail land (working towards a target of 80% completion).

- Working with English Nature to contribute towards meeting the Government’s Public Service Agreement target of 95% of SSSIs to be in a favourable or recovering condition by 2010, prioritising sites that require work to bring them into recovering or favourable condition and to develop an outline plan by March 2006.

- Improvements to its waste management processes and to identify opportunities for waste minimisation with specific emphasis on its in-house maintenance function. Network Rail also undertook to inspect all principal maintenance depots in order to ensure legal compliance with regard to waste and identify areas for improvement by March 2006, implement improved waste management contracts where possible and develop and issue a company-wide handbook for waste management by December 2005.

- Investigation, monitoring and, where appropriate, clearing of contaminated land in accordance with the Environmental Protection Act 1990 (Part 11A).

- The minimisation of noise and vibration impacts generated by its operations, including the assessment of impact of the European Directive on Assessment and Management of Environmental Noise.

- Its understanding of environmental impacts and good practice, and work with train and freight operators to improve controls and promote benefits of rail travel. Network Rail also indicated that it would work with the train operator environment forum and ATOC to reduce litter and effluent...
accumulation at stations by implementing more effective contract interface controls.

- Visual impact issues such as graffiti, litter, and fly tipping, including overseeing the establishment of a cross-industry group to deliver improvements in graffiti control across the network.

- Pollution management issues associated with tenants on Network Rail property.

11.7 The latest version of Network Rail's Environment Policy, dated March 2002, can be found on Network Rail's website. Following a review of this policy in 2005-06 Network Rail indicated that it expects to revise this in the near future. Under Condition 11 of its Network Licence, Network Rail has an obligation to formally advise ORR of a change in its Environmental Policy by providing us with a copy of this when finalised, and to also provide train operators with a copy in line with Part E of the Network Code.

11.8 In reporting progress on environmental issues to ORR, Network Rail has concentrated its response on those specific issues that it has been specifically funded to address under ACR2003. While ORR notes from the Business Plan 2006 that certain issues (such as risks associated with operational noise, oil storage, fly-tipping, litter, graffiti and SSI evaluation) were addressed during 2005-06, and that work in these areas is intended to continue, an immediate concern is that Network Rail has not reported any of its activities or progress against the objectives that were set out in the Business Plan 2005. While ORR is encouraged that work on the pollution prevention programme is progressing in a timely and successful manner, it cannot comment fully on whether Network Rail has achieved its objectives in respect of all of the planned environmental/sustainable development objectives identified by Network Rail.

11.9 It is also a concern that the Business Plan 2006 does not identify specific targets against such issues in the same way as the Business Plan 2005 did, and it may similarly be difficult to assess performance during 2006-07 in any meaningful way. ORR therefore looks to Network Rail not only report to more fully on the sustainable development initiatives that it has undertaken, but also to set out more detailed objectives on such issues within future business plans.
11.10 ORR understands that Network Rail has developed specific action plans outside the business plan process to take forward sustainable development issues. It is therefore not possible for ORR to identify what sustainable development issues and objectives these might be seeking to address.

11.11 ORR is currently considering its own role in respect of the railway industry’s wider sustainable development agenda, and is encouraged that Network Rail is already considering, through its S&E plan, the types of issue that would contribute towards meeting the Government’s wider sustainable development aims (such as the safety of workers and members of the public). Although not specifically detailed within the Annual Return 2006, Network Rail is reporting against relevant indicators (such as workforce accident rates and environmental incidents) in respect of major project works such as WCRM.

11.12 It is ORR’s intention to publish a consultation document later this year, seeking industry views on its proposed policy on its sustainable development and environment duties set out in the Railways Act 2005. This consultation may include proposals to introduce further obligations on Network Rail. This may lead to certain defined indicators against which Network Rail will be asked to report on a regular basis (including through its annual returns) which will enable ORR to judge progress both on a year-by-year basis and against defined performance targets.

Recommendations

11.13 Network Rail is recommended to:

- Provide an updated version of its revised environmental policy to ORR and train operators when this is finalised.
- Take appropriate steps to ensure that its Annual Report 2007 provides greater detail of its performance and achievements in respect of the environmental issues that it has identified within its Business Plan 2006 and any wider areas of sustainable development that it is taking forward.
- Incorporate more detailed sustainable development objectives within future business plans so that annual performance can be more easily evaluated.
- Work constructively with ORR in respect of its proposed sustainable development consultation document to ensure that ORR’s role in this area is clearly defined.
12. Network Licence compliance

Introduction

12.1 On 31 March 1994, a licence to operate the network was granted under the Railways Act 1993 (“the Act”) to Railtrack PLC, subject to conditions set out in the licence. Network Rail took over the Network Licence in October 2002, when it became the owner and operator of the network. In this chapter we report on specific aspects Network Rail’s performance in relation to satisfying the requirements of its Network Licence.

12.2 Conditions in the Network Licence cover a wide range of subjects such as stewardship of the network, asset management, insurance, timetabling, cooperation with others, accounting rules, restrictions on types of business, provision of information, environmental matters and disposal of land.

12.3 ORR has a range of statutory powers to enforce Network Licence Conditions under the Act as amended. Using these powers, it sets the contractual and financial framework within which Network Rail operates the network, ensuring that the company carries out its activities efficiently and effectively, and that it is appropriately funded to do so.

In March 2006 we concluded that Network Rail was in breach of Condition 7 of its Network Licence because it was not satisfying the reasonable requirements of its customers and funders. It was not adopting best practice in the operation of the network and did not take the necessary steps in a timely manner to ensure that its published information on capability was accurate. We imposed a penalty on the company of £250,000.

Infrastructure capability

12.4 In our last assessment we noted that there were a number of concerns from freight operators over changes to network capability that did not seem to have been subject to timely industry consultation through the network change process, leading to a discrepancy between actual and published capability. In addition, we noted that the asset register plans showed a decreasing consideration of capability and we were concerned that Network Rail was not giving this aspect of its asset knowledge the prominence it deserved. We said we would work with Network Rail over the following year to ensure that the data requirements relating to capability were clearly defined.
12.5 ORR considers that making available accurate information about the capability of the network by Network Rail is a reasonable requirement of its customers and funders, so that they can plan their businesses with a reasonable degree of assurance. It is also important in enabling Network Rail to understand both the nature of its network in order to plan operation and maintenance and its contractual obligations.

12.6 In April 2005 we asked Network Rail to produce a quantified assessment of the differences between actual and published information. Network Rail initially identified 70 routes where there was thought to be a discrepancy but by January 2006 had reduced this to 40 confirmed routes. It submitted a recovery plan in September 2005, which set out how it intended to complete its review of the relationship between actual and published capability and how it intended to resolve any discrepancies. However, it acknowledged that it still did not know the full extent of the problem and that it would need to carry out further work to verify the accuracy of the capability data across the network.

12.7 Following further investigation, through correspondence and meetings with Network Rail and its customers, in March 2006 we found that Network Rail was in breach of Condition 7 of its Network Licence because it was not satisfying the reasonable requirements of its customers and funders. It was not adopting best practice in the operation of the network and did not take the necessary steps in a timely manner to ensure that its published information on capability was accurate. We accepted that Network Rail was committed to delivering its recovery programme and decided that it was not necessary to take any further enforcement action at this stage. We issued a notice under section 55(6) of the Railways Act 1993 (as amended) to this effect. However, we imposed a penalty on £250,000 on Network Rail for the past breach under section 57C of the Act, as we considered that a diligent licence holder should have identified the discrepancies at an earlier stage and would have worked to resolve them more quickly.

12.8 In March 2006 Network Rail submitted detailed plans for resolving the discrepancies. In this plan Network Rail committed to including in its Business Plan 2006 those routes that it intends to restore to meet the published capability and to complete the network change process for relevant routes by 27 July 2006. Network Rail will also develop a new process, ‘short-term network change’ (STNC), to temporarily amend the published capability while there are no immediate traffic prospects. This process must be
developed and the relevant routes must complete the process by 4 March 2007, subject to industry agreement. The programme also includes a data verification process, which will ensure that the published data matches actual capability across the network. This will be complete by September 2007. There are no specific end-dates for resolution of any discrepancies discovered through this process, or for the restoration of routes included in the Business Plan 2006, but we will monitor Network Rail’s progress on these matters and we expect the company to act in a timely manner in accordance with the requirements of Condition 7 of its Network Licence.

12.9 Network Rail also proposed to carry out a review of the definition of capability, to ensure that its obligations and its customers’ contractual rights are clearer, and a review of the method by which the information is made available, to ensure that the relevant information is easier to find and can be kept as up-to-date as possible.

12.10 Network Rail has introduced a clear project management structure to deliver the programme, with regular reporting to senior teams and to ORR on the progress of the programme and is fully committed to delivering the objectives. It is actively engaging with its stakeholders to ensure that there is an agreed outcome to the programme. Many aspects of the programme are still under debate but we consider that consensus should be achievable in the relevant timescales.

Independent reporter

12.11 The independent reporter is satisfied that the proposals for the recovery plan are reasonable and should deliver the outputs required by ORR, although the timescales are challenging given the resource-intensive nature of some of the work streams. The reporter noted that progress on Network Rail’s additional work to review the definition of capability has not progressed as rapidly as it should have done, which could cause slippage in delivery of later milestones. While this work stream is not a requirement of the recovery programme, we will continue to monitor Network’s Rail’s progress.

Timetabling: T-12 obligation

12.12 Condition 9 (Timetabling) of Network Rail’s Network Licence requires it to plan engineering works and to specify its requirements of temporary changes to the national timetable (other than emergencies) in sufficient time for the timetable to be revised at least 12 weeks prior to the date of any such change.
(the T-12 requirement). This obligation was subject to a recovery plan in 2004-05, which Network Rail successfully delivered. We have continued to monitor the T-12 obligation, also looking at when TOCs make their bids for changes to the timetable and how long it subsequently takes Network Rail to validate and upload those bids.

12.13 In general Network Rail’s compliance with the T-12 condition did not give us cause for concern in 2005-06, following the consolidation of the train planning function into three offices (Paddington, Birmingham and Leeds). Further reorganisation of workloads between Paddington and Birmingham has allowed for more effective planning on the Western route. We will continue to monitor compliance with this obligation on a weekly basis.

Settle to Carlisle

12.14 In March 2006, Network Rail imposed an emergency four-week blockade on a large part of the Settle to Carlisle railway, bringing forward renewal works planned for May 2006. Further details of this can be found in Chapter 5. We investigated whether Network Rail could have anticipated the effect of increased freight traffic on the route at an earlier stage and whether this amounted to a failure to comply with Conditions 7 (Stewardship of the network) and 9 (Timetabling) of Network Rail’s Network Licence.

12.15 We consider that Network Rail did not fail in its obligations under Condition 7 because it was taking sensible steps to address continuing degradation of the route, particularly when it became clear that the rate of track deterioration was accelerating much more quickly than had been anticipated and to an extent that was not reasonably foreseeable. It reacted quickly to signs of deteriorating track condition and worked with the affected TOCs to resolve the situation as quickly and efficiently as possible. We are also content that Network Rail’s actions met its obligations under Condition 9 as this makes allowances for emergency possessions.

12.16 We are seeking more assurances from Network Rail that it is managing the interface between maintenance planning and the freight planning effectively across the network to ensure that incidents of this kind are not repeated.
### Annex A: Summary of targets, measures and achievements 2005-06

#### Train performance (Chapter 3)

<table>
<thead>
<tr>
<th>Measure</th>
<th>ACR2003 target</th>
<th>Achievement in 2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delays to all services (million minutes)</td>
<td>12.3</td>
<td>11.3</td>
</tr>
<tr>
<td>Delays to passenger services (minutes per 100 train kms)</td>
<td>2.34</td>
<td>2.12</td>
</tr>
<tr>
<td>Delays to freight services (minutes per 100 train kms)</td>
<td>No target</td>
<td></td>
</tr>
</tbody>
</table>

Source: ACR2003 and Network Rail Annual Return 2006

#### Asset condition and serviceability (Chapter 5)

**Track**

<table>
<thead>
<tr>
<th>Measure</th>
<th>ACR2003 target</th>
<th>Achievement in 2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serviceability: Temporary speed restriction (TSR)</td>
<td>No target 2004-05</td>
<td>409</td>
</tr>
<tr>
<td>Broken rails</td>
<td>No more than 300 per year from 2005-06</td>
<td>317</td>
</tr>
<tr>
<td>35m top (vertical deviation):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standard: 50%, 90%, 100%;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>target: 62.4%, 89.2%, 97.0%;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td>67.9%</td>
<td>91.8%</td>
<td>98.0%</td>
</tr>
<tr>
<td>35m alignment (horizontal deviation):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standard: 50%, 90%, 100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>target: 72.7%, 92.9%, 96.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td>78.8%</td>
<td>94.8%</td>
<td>97.3%</td>
</tr>
<tr>
<td>70m top (vertical deviation):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standard: 50%, 90%, 100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>target: 63.6%, 92.4%, 95.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td>70.5%</td>
<td>94.3%</td>
<td>96.5%</td>
</tr>
<tr>
<td>70m alignment (horizontal deviation):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standard: 50%, 90%, 100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>target: 79.5%, 95.8%, 97.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td>83.2%</td>
<td>97.1%</td>
<td>98.2%</td>
</tr>
<tr>
<td>Level 2 Exceedences</td>
<td>Reduction to 0.9 per track mile by 2005-06</td>
<td>0.82</td>
</tr>
<tr>
<td>Asset stewardship incentive index</td>
<td>1.00 or less by 2008-09</td>
<td>0.80</td>
</tr>
</tbody>
</table>
### Other assets

<table>
<thead>
<tr>
<th>Asset type</th>
<th>Measure</th>
<th>ACR2003 target</th>
<th>Achievement in 2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthworks</td>
<td>Serviceability: Number of TSR sites and severity score</td>
<td>No target 2004-05</td>
<td>28 116</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total: 85 Severity score: 323 ACR2003 - not worse than 2003-04</td>
<td></td>
</tr>
<tr>
<td>Signalling</td>
<td>Serviceability: Failures causing more than 10 minutes delay</td>
<td>Not worse than 2003-04 level Total failures: 28,098</td>
<td>23,367</td>
</tr>
<tr>
<td></td>
<td>Condition</td>
<td>Not worse than 2003-04 average condition grade of 2.5</td>
<td>2.39</td>
</tr>
<tr>
<td>Electrification (separate for AC and DC)</td>
<td>Serviceability: for 3rd rail and OLE – failures causing more than 500 minutes delay</td>
<td>Annual serviceability no worse than 2001-02 AC - no deterioration from 2001-02 total of 107 DC - no deterioration from 2001-02 total of 30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Condition: Substations and feeder stations, OLE and 3rd rail contact systems</td>
<td>Return to 2001-02 condition level AC sub-station condition 2001-02: 2.1 DC sub-station condition 2001-02: 2.3 AC contact systems 2001-02: 1.8 DC contact systems 2001-02: 1.8</td>
<td>AC failure - 49 DC failure - 6 AC sub-station condition - 1.85 DC sub-station condition – 1.78 AC contact systems - 1.7 DC contact systems - 1.8</td>
</tr>
<tr>
<td>Structures</td>
<td>Serviceability: TSRs</td>
<td>Return to 2001-02 levels No target In 2003-04 total: 79 severity score 208</td>
<td>20 17</td>
</tr>
<tr>
<td></td>
<td>Condition</td>
<td>Return to 2001 baseline of 2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Stations</td>
<td>Condition</td>
<td>No worse than 2003-04 average condition grade of 2.25</td>
<td>National average 2.22</td>
</tr>
<tr>
<td></td>
<td>Facilities</td>
<td>No target</td>
<td>107.0</td>
</tr>
<tr>
<td>Depots</td>
<td>Condition</td>
<td>No worse than 2003-04 condition grade of 2.73</td>
<td>2.58</td>
</tr>
</tbody>
</table>

Source: Network Rail’s Asset Reporting Manual; Network Rail Annual Return 2006 and ACR2003

**Activity volumes (Chapter 6)**

<p>| Renewal activity | Network Rail Business Plan 2005 targets | Achievement in 2005-06 (excluding maintenance renewals) |</p>
<table>
<thead>
<tr>
<th>Measure</th>
<th>Relevant target</th>
<th>Actual 2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail renewal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleeper renewal (all types)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ballast renewal (all types)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switches and crossings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signalling (SEUs)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006

Network capability (Chapter 4)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Relevant target</th>
<th>Actual 2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line speed capability (track kms)</td>
<td></td>
<td>Up to 35 mph – 3,821&lt;br&gt;40-75 mph – 16,895&lt;br&gt;80-105 mph – 7,482&lt;br&gt;110-125 mph – 2,907</td>
</tr>
<tr>
<td>Gauge capability (route kms)</td>
<td></td>
<td>W6 – 4,771&lt;br&gt;W6 &amp; W7 – 2,471&lt;br&gt;W8 – 5,504&lt;br&gt;W9 – 1,615&lt;br&gt;W9 &amp; W10 – 1,100</td>
</tr>
<tr>
<td>Structures route availability (track kms)</td>
<td></td>
<td>RA 1-6 – 2,309&lt;br&gt;RA 7-9 - 25,935&lt;br&gt;RA 10 – 2,861</td>
</tr>
<tr>
<td>Electrification capability (track kms)</td>
<td></td>
<td>25 kV AC - 7,882&lt;br&gt;650/750 V DC – 4,493&lt;br&gt;Dual AC/DC - 39</td>
</tr>
</tbody>
</table>

Source: Network Rail Annual Return 2006 and ACR2003
Annex B: Key recommendations for Network Rail

Key recommendations for each chapter of this assessment are summarised below. A plan will be developed and agreed with Network Rail to put in place robust and measurable actions to ensure that these recommendations are delivered. Progress in delivering the plan will be monitored through our regular scheduled reviews with the company. It is intended that progress will be reported in next year’s assessment.

Chapter 3: Train operators and passenger satisfaction

Train operations and performance

- Ensure performance on the Western route improves by delivering the full range of performance improvements agreed in the JPIP with First Great Western. In particular, we expect to see joint action with First Great Western to ensure improvement of the high-speed services.

- Progress the delay attribution reform project and demonstrate the improvements in this process.

- Develop joint performance planning to build on the success of last year and encourage best practice internally and across the industry.

Timetable planning

- Demonstrate strategic leadership of the industry by taking a consistently proactive approach to any timetable planning issues that emerge in the coming year.

Strategic planning

- Ensure there are sufficient resources to deliver the programme of RUSs to its stakeholders’ expectations.

- Ensure that the lessons learned from the review of RUSs are used to drive continuous improvements in the process.

Possessions

- Play a full part in the industry possessions review to ensure delivery of its objectives.

- Determine the engineering and possession management initiatives that it will implement, together with a timetable for implementation and its assessment of the efficiency benefits that will be achieved.
• Complete as a high priority the development of a suite of KPIs for possessions. Highest priority should be given to rolling out, populating and reporting a suitable measure of network availability.

Customer satisfaction

• Implement assessment of the effectiveness of the CS1 training programme.

• In parallel ensure that the root causes of train operators dissatisfaction are addressed.

Chapter 4: Network capability

• Ensure that published capability is consistent with actual.

• Implement the requirements of Directive 2001/14/EC and ensure that where possible it is aligned with the RUS process to provide a network statement of capability.

Chapter 5: Asset management

• Continue with the implementation of the asset information strategy to meet individual programme milestones for component elements of the strategy, demonstrating compliance with its Network Licence obligations and achieving long-term improvement in its asset management processes.

• Continue to improve knowledge of the condition of specific asset types where this information is key to effective asset management and needs further improvement (for example through data quality improvement, extending currently incomplete data or ensuring that inspection schedules are met) e.g. signalling interlockings, electrification power supply and distribution equipment, structural inspections, rail defect data.

• In respect of stations, implement a reformed station condition index by October 2006, and in respect of light maintenance depots complete the assessment and report on the condition of all depots by 31 March 2007.

• Continue to build upon improvements in the management of temporary speed restrictions, aiming to further reduce the number of TSRs without ever compromising safety.

• Review and consider further development of KPIs to measure infrastructure performance and facilitate benchmarking across the network, particularly for the Asset Stewardship Index.

Chapter 6: Activity volumes

• Network Rail is reviewing a composite measure encompassing the majority of asset renewals, which ORR expects to be in place by the third
quarter of 2006-07 and published on a period basis. It is recommended that Network Rail develops and reviews of KPIs for:

- Annual activity measures for some asset types, e.g. structures, where activities incurring major costs are published, but not the quantum of all interventions to fully reflect how the total annual expenditure has been allocated.
- Activity measures that reflect expenditure on project design and development, such as signalling renewals, where considerable expenditure can be incurred well before asset renewals are actually commissioned.
- Additional activity measures for maintenance volumes particularly track where ORR currently only has visibility of annual spend.

**Chapter 7: Expenditure and efficiency**

- Continue with work to implement a comprehensive set of unit cost measures for both maintenance and renewals activities that are sufficiently robust and wide enough in coverage to be used as the basis for efficiency analysis in future years. With the help of the independent reporter, we will continue to monitor and audit Network Rail’s implementation of these unit cost measures.
- Continue the work already underway with us to develop a more detailed breakdown of operating costs, to be reported in regulatory accounts.
- Remain consistent with the recommendations of the independent reporter by implementing fully the recommendations of the Network Rail Investment Financial Variance Year-End Audit Report (June 2006), in order to ensure that the reliability and accuracy of its renewals variance analysis is significantly improved for the reporting year 2006-07.

**Chapter 8: Financing**

- There are no recommendations in relation to Network Rail’s financial position.

**Chapter 9: Major investment projects**

- Continue to improve the efficiency of delivery of major schemes, and to play its part in implementing ORR’s investment framework by:
  - Ensuring that appropriate information is collated and provided to ORR on all schemes, particularly major schemes, schemes promoted by third parties and NRDF schemes.
  - Developing its stakeholder consultation processes further and ensuring that it is meeting its obligations as set out in Chapter 2 of ORR’s October 2005 document *Policy Conclusions on the Investment Framework*. 
ensuring delivery of outputs for the December 2008 timetable change for WCRM.

Chapter 10: Health and safety

- We acknowledge that the company is addressing specific weaknesses mentioned in this chapter, particularly those identified by Improvement Notices. Therefore there are no further recommendations.

Chapter 11: Environment

- Provide an updated version of its revised environmental policy to ORR and train operators when this is finalised.

- Take appropriate steps to ensure that its Annual Report 2007 provides greater detail of its performance and achievements in respect of the environmental issues that it has identified within its Business Plan 2006 and any wider areas of sustainable development that it is taking forward.

- Incorporate more detailed sustainable development objectives within future business plans so that annual performance can be more easily evaluated.

- Work constructively with ORR in respect of its proposed sustainable development consultation document to ensure that ORR’s role in this area is clearly defined.