Annual assessment of Network Rail 2007-08

September 2008

OFFICE OF **RAIL REGULATION**

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Overview

This is our fifth annual assessment of Network Rail's performance in operating, maintaining, renewing and developing the mainline rail network, and covers the period from April 2007 to March 2008. It expands on recent publications issued by ORR, including the quarterly Network Rail monitor, and draws on the Railway Safety Statistical Report for 2007. It relies on the accuracy of data provided by Network Rail in its annual returns. Following the audit of the annual return for 2007-08, the independent reporter confirmed that this data is largely accurate and the systems behind it are generally robust, although a number of issues were identified.

As we approach the end of the current control period (CP3), it is heartening to report that Network Rail has continued to improve its stewardship of the network. Four years into the current control period it is on course to achieve the targets set in the access charges review of 2003 (ACR2003), with the exception of efficiency.

Safety performance was overshadowed by the death of two track workers during the year. No passengers were killed in train accidents. Although the risks from level crossings are well managed, there was an increase in level crossing misuse events in the year.

Train punctuality improved across the network, with a reduction of 15% in the number of trains arriving late and a 10% reduction in delay attributed to Network Rail. There was a reduction in most categories of delay, including track faults, points failures and, despite the flooding, weather impact.

In 2007-08, in comparison to the assumption in the ACR2003 determination, Network Rail marginally overspent on controllable operating, maintenance and non-WCRM renewals expenditure (OMR) by £34 million (0.8%).

Network Rail deferred £324 million of spending on non-WCRM renewals relative to its 2007-08 budget.

Over the first four years of CP3, Network Rail has outperformed on controllable operating and maintenance expenditure by £350 million, but underperformed against the ACR2003 assumptions on renewals expenditure, driven particularly by significant overspend on track. We do not believe that Network Rail will achieve the 31% unit cost efficiencies built into the CP3 revenue allowance by the end of 2008-09.

Overall, the condition of the network improved during 2007-08. Generally, Infrastructure assets performed more reliably and caused less delay.

There was a deterioration in the level of satisfaction of Network Rail's customers from the previous survey in 2006.

We found Network Rail to be in breach of its licence obligations on four occasions. Three of these were deemed serious and in two instances we imposed a financial penalty.

Scotland

The public performance measure (PPM) for Scotrail was 90.6% at the end of 2007-08, a 1.7 percentage point improvement from the previous year. Network Rail delay fell by 19.0%, which followed a similar improvement the previous year.

Scotland again had the most reliable infrastructure by a significant margin, and it continues to improve. There were 12% fewer incidents than in the previous year, causing almost 20% less delay. This was achieved by notable reductions in points failures (27% down), track circuit failures (21% down) and signal failures (23% down). Scotland's infrastructure compares very well with all other parts of the network, although the overall reliability of the signalling system was affected somewhat by increases in cable faults and other system and power supply problems.

Expenditure on operating, maintaining and renewing the network in Scotland was £481 million (unaudited data) against a budget of £553 million and an indicative ACR2003 determination of £458 million. This represents a variance of £23 million from the indicative determination, approximately 5%.

ORR

Health and safety

The overall improvement seen over the year was marred by the death of two track workers after being struck by trains.

Despite this, the accident frequency rate for Network Rail's workforce and contractors shows a steady reduction, continuing the downward trend seen in previous years.

Level crossings are still the single biggest contributor to train accident risk, but overall the risks from level crossings are well managed. There was an increase in level crossing misuse events in this year. Eight pedestrians died in accidents at level crossings and there were eight collisions between trains and vehicles. There were no deaths of vehicle occupants.

For the first year on record , there were no child trespass deaths.

Train performance

PPM at the end of March 2008 was 89.9%. This is higher than at the end of the previous year (88.1%) and better than the agreed industry target of 89.5%. It represents a reduction of 15% in the number of trains arriving late.

Train delay attributed to Network Rail in 2007-08 fell by 10.0% in comparison to the previous year. Network Rail exceeded the ACR2003 target for the year of 9.8 million minutes by 0.3 million minutes.

There was a reduction in most categories of delay, including track faults, points failures and, despite the flooding, weather impact. The most disappointing category was operations, covering problems such as signaller error, where delay increased by 5%.

There was significant improvement in Scotland, where Network Rail delay fell by 19.0%, following a similar improvement the previous year.

Expenditure and efficiency

In 2007-08, in comparison to the assumption in the ACR2003 determination, Network Rail marginally overspent on controllable operating, maintenance and non-WCRM renewals expenditure (OMR) by £34 million (0.8%). Network Rail's overspend on non-WCRM renewals in 2007-08 was £66 million, offset partially by spending £32 million less than the ACR2003 determination on operating and maintenance costs.

Network Rail deferred £324 million of spending on non-WCRM renewals relative to its 2007-08 budget.

The cumulative position over the first four years of CP3 is one of:

- outperformance on controllable operating and maintenance expenditure by £350 million; and
- performance worse than the ACR2003 assumptions on renewals expenditure, driven particularly by significant overspend on track.

Our assessment of the company's unit cost efficiency includes an element of judgement, as Network Rail does not have a full suite of robust unit cost measures for 2007-08, although there is more data available this year than in 2006-07.

Largely as a result of Network Rail's underperformance on track renewals, the company is now behind the ACR2003 unit cost efficiency targets across OMR. In the four years of the control period to date, we estimate that Network Rail has achieved efficiencies totalling 23% against an ACR2003 target of 26% across OMR. We do not believe that Network Rail will achieve the 31% unit cost efficiencies built into the CP3 revenue allowance by the end of 2008-09.

1. Executive summary

Finance and income

Net debt at 31 March 2008 was £0.9 billion (in nominal prices) lower than the ACR2003 assumption, largely due to an underspend in financing costs in every year of CP3 and to a lesser extent due to higher income than forecast in ACR2003, mainly from the usage charge and outperformance of the schedule 8 regime.

Network condition

For more than a year we challenged Network Rail about the level of asset failures causing delay to services and the company has been working on a number of fronts to address the problem. There was real improvement in the year - the number of incidents fell by 10% and delay minutes to train services from infrastructure causes fell by 11%. The number of infrastructure incidents causing delay in the year was the lowest annual total for at least eight years.

Asset management

Network Rail has made good progress in developing its asset management framework. It has revised and re-published its asset policies and it achieved the significant milestone of reaching compliance with the requirements of its Network Licence to produce and maintain an asset register. It must now continue to develop asset policies, particularly by extending the understanding of the life cycle costs of its infrastructure and to apply itself to improving the quality of its asset data.

Renewal activity

Track renewal volumes were generally at the high levels of recent years, and in 2007-08 signalling volumes increased substantially. However we have concerns about the efficiency of track renewals, a significant under-delivery in electrification and data quality.

Major investment projects

Network Rail spent around £650 million on enhancement schemes in 2007-08, an increase of around £250 million compared with the previous year.

There was a considerable ramp-up in spend on the Network Rail discretionary fund (NRDF) programme, although spend in 2007-08 was more than 30% under budget. Delivery of smaller scale schemes remains a considerable challenge in 2008-09.

Overall Network Rail overspent on enhancements included in ACR2003 by £64 million, spending £341 million against a budget of £277 million.

Network capability

In September 2007, Network Rail completed a verification of the capability of the network to help ensure that the published capability matched the actual capability. The resulting data correction of the underlying asset information systems for recording and measuring network capability therefore obscure trends.

Planning and operations

Network Rail fulfilled its Network Licence requirement to lead the strategic planning work for the industry. During 2007-08 it published five route utilisation strategies. It has since published two more in draft and is developing nine others.

Network Rail largely fulfilled its Network Licence requirement to give sufficient advance warning of temporary changes to the timetable in 2007-08.

Customer and supplier satisfaction

Network Rail's latest customer satisfaction survey shows that the level of satisfaction of train operating companies (TOCs) and freight operating companies (FOCs) towards Network Rail deteriorated from the previous survey (autumn 2006). Attitudes of suppliers to Network Rail improved to the highest level seen since the survey was introduced in 2003-04.

1. Executive summary

Environment

During 2007-08 Network Rail substantially completed (95%) work on its light maintenance depot pollution prevention programme in order to secure compliance with the Control of Pollution (Oil Storage) Regulations and the Groundwater Regulations. It also continued with its scheme to address contaminated land issues and its plans to surrender three of its four waste management site licences.

Network Licence compliance

There were a number of concerns about Network Rail's performance during 2007-08. In some cases we took enforcement action while other areas of concern were resolved without the need for formal enforcement. We found Network Rail to be in breach of its licence obligations on four occasions. Three of these were deemed serious and in two instances we imposed a financial penalty.

Looking forward

A key requirement of Network Rail in the current year is to prepare for the next control period (CP4), the 5-year period starting April 2009, which will culminate in the submission of a CP4 delivery plan. In particular we expect Network Rail to continue work on improving asset management and the development of asset policies and to further develop the understanding of the scope for efficiency improvement. We will be publishing the periodic review 2008 (PR08) determinations on 30 October 2008, which will include the monitoring framework for ensuring Network Rail meets our requirements during CP4 and takes full account of the priorities of Government and stakeholders.

2. Introduction

Purpose of the document

2.1 This is the fifth published annual statement by the ORR to assess Network Rail's performance in operating, maintaining, renewing and developing the mainline rail network. It covers primarily the year from April 2007 to March 2008, year four of the current control period, but also highlights any significant developments since 31 March 2008. It consolidates our analysis of Network Rail's performance during the year and provides the company's customers, funders, members, users and other stakeholders with our view on the company's performance.

2.2 The assessment reflects:

- our monitoring of Network Rail throughout the year;
- consideration of Network Rail's *Annual Return 2008*[1] to ORR against its business plan 2007 and the ACR2003[2] determination;
- enforcement action we have taken during the year;
- the audit of Network Rail's *Annual Return 2008* by the independent reporter, to be made available on ORR's website;
- 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[3], available quarterly on our website, which serves to provide an up-to-date picture of Network Rail's business performance.

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1 *Annual Return 2008*. Network Rail, August 2008.

2 *Access charges review: Final conclusions*. Office of the Rail Regulator, December 2003

3 Visit http://www.rail-reg.gov.uk/server/show/ConWebdoc.7027 to see the *Network Rail monitor*.

2.4 The majority of expenditure figures in this annual assessment are derived from Network Rail's audited Regulatory Accounts for 2007-08 and its *Annual Return 2008*. As the expenditure data used in the Network Rail monitor is not audited, there are minor differences between the data reported in the fourth quarter (Q4) Network Rail monitor published in June 2008 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.

Targets

2.6 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.

2.7 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 its own internal targets and ACR2003 targets.

2.8 The measures, associated targets and achievements for 2007-08 are set out in full in Annex B.

Scope of the assessment

2.9 Our assessment of Network Rail's performance is detailed and wide-ranging, covering: health and safety; management of the condition of the network and its impact on train performance; progress with major investment projects; expenditure and efficiency; and forward planning and train operations.

2.10 Following the enactment of the Railways Act 2005, ORR became 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 safety policy division were transferred from the Health and Safety Executive (HSE) to ORR. The annual review[4] of rail safety performance, previously published by HSE, is now published by ORR. This assessment does not seek to duplicate the safety report.

Structure of the document

2.11 The primary focus of this document is on the outputs that Network Rail is expected to deliver, in particular those defined in ACR2003. As we approach the end of the current control period (CP3), the extent to which Network Rail is on course to achieve those targets becomes clearer.

2.12 Chapter 3 highlights relevant aspects of Network Rail's health and safety performance. We assess Network Rail's performance using inspection intelligence alongside industry numerical data.

2.13 Chapter 4 assesses the impact of the company's operation and management of the network on train services provided by its customers.

2.14 As a monopoly supplier, Network Rail does not have the pressure of competition to drive increases in efficiency. We made assumptions in ACR2003 about levels of expenditure and increases in efficiency. Chapter 5 compares expenditure with ACR2003 allowances and assesses the extent to which Network Rail is achieving the efficiency assumptions.

2.15 Chapter 6 looks at the financial health of the company, with particular emphasis on levels of net debt in relation to the regulatory asset base (RAB).

2.16 Chapter 7 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.

2.17 Chapter 8 reviews Network Rail's progress in developing its asset management framework. 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.

2.18 Physical assets eventually wear out and need to be replaced. Chapter 9 examines the extent to which the projected level of renewal activity to maintain the network at a defined level has been carried out.

2.19 Chapter 10 focuses on the major investment projects that Network Rail was engaged in during the year, including the West Coast route modernisation (WCRM) project, and assesses the extent to which the company is delivering the outputs specified.

2.20 Chapter 11 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.

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4   *Railway safety statistical report 2007*, ORR July 2008.

2.21 Chapter 12 reviews Network Rail's strategic planning role and the extent to which it fulfilled its obligations in respect of timetabling information.

2.22 Chapter 13 reports on Network Rail's own surveys of its customers and suppliers.

2.23 Chapter 14 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.

2.24 Chapter 15 reports on a 'by exception' basis on Network Rail's performance in relation to the other requirements of its Network Licence.

2.25 Annex A brings together issues for Network Rail to address. A plan will be developed and agreed with Network Rail to put in place robust and measurable actions. Progress in delivering the plan will be monitored and reported in the 2009 assessment. Annex B sets out the measures, associated targets and outputs for 2007-08.

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.

2.27 The reporter, Halcrow, has confirmed that data in the *Annual Return 2008* is generally robust, reliable and accurate, although the audit report raises some issues and makes a number of recommendations to Network Rail on how accuracy and reliability 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. The report of the audit of the *Annual Return 2008* should be available by the end of September. Where appropriate, we refer in this assessment to findings and recommendations in the audit report on Network Rail's *Annual Return 2008*, and progress with implementation of recommendations from audits in previous years.

Feedback

2.29 Comments on the content of this fifth annual assessment are welcome and can be sent to: brian.hatfield@orr.gsi.gov.uk.

3. Health and safety

The overall improvement seen over the year was marred by the death of two track workers after being struck by trains.

Despite this, the accident frequency rate for Network Rail's workforce and its contractors shows a steady reduction, continuing the downward trend seen in previous years.

Level crossings are still the single biggest contributor to train accident risk, but overall the risks from level crossings are well managed. There was an increase in level crossing misuse events in the year. Eight pedestrians died in accidents at level crossings and there were eight collisions between trains and vehicles. There were no deaths of vehicle occupants.

For the first year on record, there were no child trespass deaths.

3.1.   ORR's role in health and safety regulation is to seek failures of statutory duty. Inspection plans deliberately focus on areas of high hazard and potential weakness, and we concentrate on any poor performance we find. This lends itself to negative reporting, but we also recognise that good standards and effective management structures predominate in Network Rail, even though the reports of our inspection findings may not necessarily reflect this.

3.2.   This chapter is written as a summary, omitting the detailed outcomes of inspections and the actions necessary as a result. The latter is supplied to Network Rail managers at local level as each inspection initiative is completed.

3.3.   We also pursue national issues arising from these inspections at a corporate level with Network Rail. It follows that no specific issues are made here because Network Rail and ORR are already engaged in appropriate action.

Data sources

3.4.   We assess Network Rail's performance using our own and industry (quantitative) data alongside inspection and investigation intelligence (qualitative) information.

Quantitative data

3.5.   The industry has developed a number of useful data measures involving key performance indicators such as accident rates, train accidents, asset defects and adverse public behaviours. These are analysed in the safety risk model by the precursor indicator model (PIM), which considers major accident or system risk, but not worker risks. Network Rail reports its performance in the safety and environment assurance report (SEAR), compiled every four weeks.

3.6.   Additionally, we extract accident and injury data from reports made to us under the legal obligations of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 1995.

3.7.   Data sources alone cannot provide a complete picture as the number of accidents is generally small and changes may not be statistically significant.

Qualitative data

3.8.   Our field inspectors' findings provide an accurate, evidence-based, means of measuring the performance of management systems from policy level to front line delivery on the ground. This scrutiny of management systems is crucial to understanding the reasons for the incidents shown in the statistics.

3.9.   We receive information on the causes of accidents from comprehensive reports produced by the Rail Accident Investigation Branch (RAIB) and we monitor Network Rail's response to RAIB's recommendations. This has been valuable in supplementing our own work.

Network Rail's health and safety performance

Public safety

3.10. In 2007-08, there were no passenger fatalities from train accidents, compared to one the previous year, although ten passengers died in other accidents, compared with five in 2006-07. These accidents are often the result of passenger behaviour rather than a reflection of Network Rail's performance.

3.11. Public misuse of level crossings is the single biggest contributor to train accident risk, but overall the risks from level crossings are well managed. In 2007-08, eight pedestrians died in accidents at level crossings and there were 8 collisions between trains and vehicles. There were no derailments as a result, and no deaths of vehicle occupants. Network Rail continues its "Don't run the risk" publicity campaign to draw attention to the risks at level crossings.

3.12. The number of signals passed at danger (SPADs) remained at a low level, although the total for 2007-08 is 6.3% higher than the previous year. This is the second consecutive year in which the overall SPAD numbers increased, following seven years of improvement.

3.13. In a number of significant risk areas the trend is good: the number of multi-SPAD signals, i.e. signals where SPAD events occur, has remained steady for the last two years, following significant reductions; there were significantly fewer SPADs involving on-track machines; and fewer instances of train protection warning system (TPWS) reset and go events.

3.14. We maintain a close watch on the industry's management of SPAD risk and note the various actions and initiatives being undertaken by Network Rail and train operators to manage the risks further.

Figure 3.1: All accidental fatalities and injuries (expressed as equivalent fatalities), excluding actual and attempted suicides normalised per million train miles[5] per 4-week period.
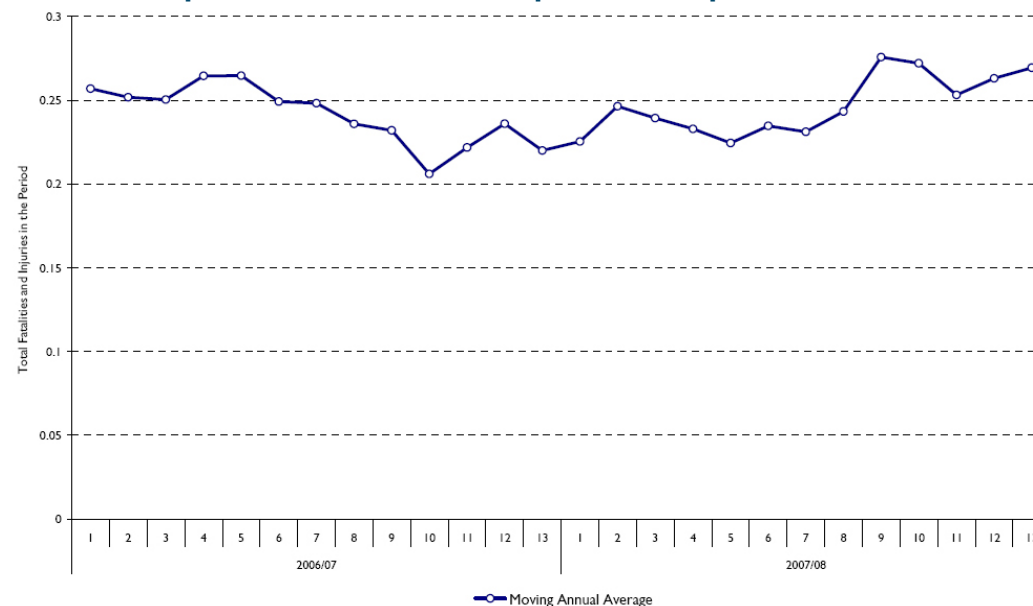
Source: Network Rail's SEAR, period 13, 2007-08

3.15. During 2007-08 Network Rail maintained a targeted programme of initiatives to tackle route crime (trespass and vandalism), which remains the main cause of deaths to members of the public on Britain's railways. There was a reduction of around 16% in deaths due to trespass and suicide compared to the previous year. There were no child trespass deaths, for the first year on record. The number of train incidents due to vandalism also fell in 2007-08, continuing the downward trend of recent years.

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5 Note: the actual figure is for fatalities and injuries that occurred on Network Rail infrastructure only, and therefore shows a lower rate than the measure produced by RSSB for the Railway group as a whole.

3.16. Network Rail continued, via its leadership of community safety partnership groups (CSPGs), to work jointly with train operators, the Rail Safety and Standards Board (RSSB), British Transport Police (BTP), and ORR to agree action to tackle community safety risks, including route crime. We have found CSPGs to be effective in tracking the highest route crime risk areas, and there are emerging signs of sharing of good practice between CSPGs. There remains, however, scope for further improvement in this area.

Safety Index

3.17. Figure 3.1 shows that the index of all accidental fatalities and injuries was around 0.27 equivalent fatalities per million train miles during 2007-08, an increase from 0.25 the previous year. Network Rail reported more than 106 major and 265 over-3-day injuries, as defined by RIDDOR, to ORR. The main causes of injury to workers are slips and trips and falls from a height of less than 2 metres, assaults to staff and manual handling operations associated with moving loads.

Workforce safety

3.18. Figure 3.2 shows the total workforce accident frequency rate (AFR) for the year, compared to Network Rail's annual target. The AFR for Network Rail employees and contractors for 2007-08 was 0.226. This is down 14% from the previous year and continued the downward trend.

3.19. Despite the overall improving picture, two Network Rail workers lost their lives in 2007-08 after being struck by trains, at Reading and Ruscombe Junction. There were no contractor or workforce fatalities in the previous year.

3.20. An analysis of risk shows that, for Network Rail controlled operations, track workers are most at risk of fatal injury, with the risk of being struck by a train the greatest contributory factor.

Figure 3.2: Workforce accident frequency rate for Network Rail workforce and contractors, normalised per 100,000 hours
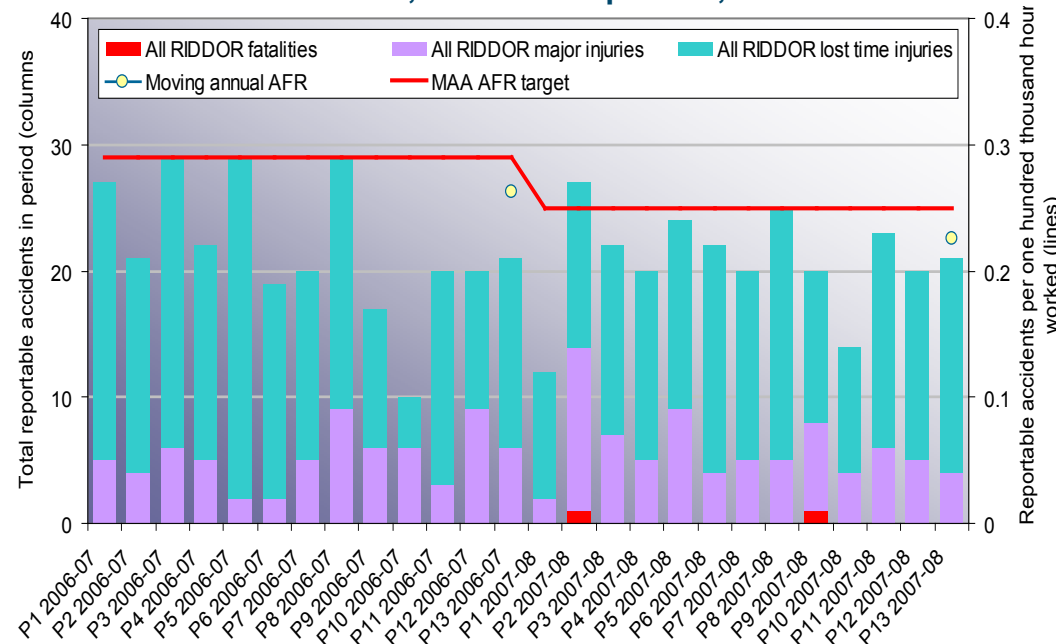
Source: Network Rail's SEAR, period 13, 2006-07

Electric shock is also a significant contributor. The company strives to address these risk areas through communications campaigns (Safety 365) and other initiatives involving their own track workers and the suppliers of contract labour.

Workforce occupational health

3.21. It is difficult to assess Network Rail's performance on occupational health risk management. We have some data from RIDDOR, but we believe that there is much under-reporting in common with most other industry sectors. The company has been working to improve its intelligence base and has developed a key performance indicator (KPI) for employee well-being to track improvement.

3.22. Network Rail has identified that hand-arm vibration syndrome (HAVS), musculoskeletal disorders, exposure to hazardous substances and mental health are the principle health risks.[6]

3.23. The company has devised a policy and action plan for the control of exposure to HAVS. Good progress is being made in the implementation of the action plan, although roll-out is not yet complete.

HMRI inspection findings

3.24. Inspectors from Her Majesty's Railway Inspectorate (HMRI) and railway inspectorate contact officers (RICOs) carry out a planned programme of interventions coordinated through our Network Rail delivery plan. The plan is the means by which we implement our strategy for the regulation of health and safety on the railway. It provides assurance to us, and consequently workers and the general public, that Network Rail is maintaining and, as necessary, improving the standard of health and safety risk control. We sought to address with Network Rail HMRI's long-term themes of risk control, competence and managing assets.

3.25. The following key points are from the findings of working-level inspections, in relation to the delivery of health and safety and safe systems of work on the ground.

User-worked crossings

3.26. There is greater scope for Network Rail to engage with users in order to learn about usage and to manage risks better. Signallers in some places were unable to reliably identify the location of trains, and this was associated with several near misses and a collision. Network Rail has started its improving safety at user-worked level crossings initiative, which will address most of these

issues. Work is also underway to review the practicability of signallers granting permission to cross at user worked crossings with telephones.

Maintenance of public and automatic crossings

3.27. We found broad compliance with maintenance standards, implemented by competent staff, though sometimes there were delays to fault rectification. Inspectors following up some of this work have since taken enforcement action. Further details are provided in paragraph 3.36. Inspectors also found that introduction of the all level crossing risk model tool had generally been managed effectively, although this is a decision support tool rather than providing full risk assessment on its own. Network Rail anticipates that fault rectification will be improved through the implementation of the phase 2a re-organisation of its structure.

Signalling maintenance technician competence

3.28. There were delays to implementation of assessment in the line at every depot we visited, so that authority to work (ATW) certificates were often overdue. This is significant because without seeing an ATW, a supervisor cannot be sure that a technician is competent, particularly if the supervisor is not the line manager of that member of staff. Network Rail is aware of the issues and is addressing them. HMRI is continuing to follow this up in the current year.

Track worker safety from trains

3.29. Although the results of inspections were consistent with previous work, we were not able to visit as many sites as in the previous year. We found evidence of improvement at most worksites although weaknesses persisted at a sizeable minority, arising from difficulties in the land-use planning system, malpractice at ground level and lack of firm supervision. Unannounced

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6 RSSB, project T389 'Management of health needs – the current position across the rail sector'

inspections revealed poorer standards. An incident involving a look-out operated warning system (LOWS) resulted in a prohibition notice being served nationally early in 2008-09. Track worker safety is a high priority for Network Rail as well, and it has a number of initiatives running to increase the supervision of front-line staff e.g. boots on ballast and front line focus, plus a review of the RiMiNi process.

Post-Grayrigg patrolling validation

3.30. We found that track patrolling was carried out by competent staff with a high priority, but that the process was not always robust. Numerous minor concerns, taken as a whole, presented a risk of defects going undetected. Although the likelihood of a major failure was considered to be low, the potential for a high consequence event led to the serving of an improvement notice. We have examined the new processes introduced by Network Rail and they appear to be satisfactory. We are validating the effectiveness of the improvements by checking on the ground, before we can take a rounded view on compliance with the notice.

Low adhesion/system risk

3.31. Inspections revealed that Network Rail and train operators were cooperating to control risks, with effective local liaison and plans addressing all the issues, including those arising from the autumn 2006 problems. There was a different pattern of leaf fall in autumn 2007, which led to a reduction in the number of signalling failures related to leaf fall rail head contamination.

Track asset - longitudinal wheel timbers

3.32. Inspectors found that management arrangements were in place, and competent inspection staff were inspecting the bridges and identifying necessary work.

Structures - extreme wet weather

3.33. We were reassured at national level by Network Rail's review and revision of its guidance on earthwork and drainage examination.

Railways (and other guided transport systems) Regulations 2006 (ROGS)

3.34. ORR is evaluating Network Rail's compliance with its ROGS safety authorisation (granted in May 2007) over the five-year lifespan of the authorisation, by extracting safety management system information from our inspection findings. Based on the limited data from the first year of inspection, overall the company appeared to be compliant with the authorisation and more widely with ROGS. There are inevitably areas for improvement in approach and tightened compliance. The railway will change significantly over the period to the end of the next control period (CP4). There are projected and planned substantial increases in capacity and new technology with consequential changes to Network Rail's organisation, work practices, technical requirements, staff competencies and resources. These will test Network Rail's safety management system, and the ROGS authorisation and permissioning regime will be a focal point for the changes.

Enforcement

3.35. A total of 14 enforcement notices were served on companies working on Network Rail controlled infrastructure during the year, comprising 12 improvement notices (IN) and two prohibition notices (PN). Two notices were served on contractors (one IN and one PN).

3.36. Level crossing risks predominated:

- two INs and one PN were served on agricultural companies who were the authorised users of user worked crossings, relating to the requirements for safe systems of work to use the crossings; and

- a further seven INs were served on Network Rail to improve safety at level crossings. An appeal, launched by Network Rail in the south east against four INs at footpath crossings, was unsuccessful and the INs were upheld.

3.37. Construction work was also the subject of one IN and one PN.

3.38. An IN was served on Network Rail requiring an improvement to the existing system for planning and monitoring basic visual inspection. This arose from some inspection activities following the Grayrigg derailment in 2007. Examination of Network Rail's actions suggests that it now has adequate systems in place. This will be further validated by some inspection activity during 2008-09 before we take a view on compliance.

Overall view of health and safety management

3.39. Network Rail's safety management system is mostly fit for purpose and the safety standards it achieves are satisfactory. The number of serious accidents is low, and other statistical indicators were broadly level or improving through the year. Our inspections show that this is the result of generally good identification and control of risks, competent staff organisation, and sound planning.

3.40. However, we identified two areas of weakness. The first is a failure to comply with rules at working level. This finding is consistent with our findings in previous years and mainly affects workforce safety. We suspect it is minority behaviour, but we are concerned because it often sits alongside a lack of awareness among managers that it is taking place. This in turn demonstrates a lack of, or insufficiently tough, monitoring. Specific examples from inspections and investigations are:
  - track patrolling (affecting the safety of the infrastructure);
  - track worker safety;
  - contractors' safety performance; and
  - the operation of road rail vehicles.

3.41. The second shows weaknesses in how well the company perceives risks. This is mainly evident where standards for infrastructure maintenance are not fully achieved. We found examples in track incidents we investigated as well as from our inspections of switch and crossings and level crossing maintenance. The weakness was also shown where risks are identified but do not have fully-developed or fully effective control measures. Examples are where signallers had no indication of the location of trains in relation to a level crossing, or where new control measure identified during SPAD investigations had not been implemented.

3.42. The company, its managers or staff tolerated the risks in these examples, because they believed it unlikely that an incident would arise in any individual case. Our view is that if a failing is tolerated in multiple locations across the network, the likelihood of a serious event increases. Quantified risk assessment and cost benefit analysis do not always provide accurate answers to dealing with high-consequence/low-frequency risks. However, a world-class safety management system should not allow tolerance of even minor failings in important systems, even at the margins of what is reasonably practicable.

Rail Accident Investigation Branch (RAIB)

3.43. RAIB inspectors investigate accidents and incidents on the railways to identify root causes and make recommendations for actions to prevent recurrence. Its recommendations are directed to us for our consideration prior to us sending them on to relevant parties. In 2007-08 its reports presented over 60 recommendations that were relevant to Network Rail. Of these around 45 related to a national issue; the remainder were about local matters within a territory.

4. Train performance

PPM at the end of March 2008 was 89.9%. This is higher than at the end of the previous year (88.1%) and better than the agreed industry target of 89.5%. It represents a reduction of 15% in the number of trains arriving late.

Train delay attributed to Network Rail in 2007-08 fell by 10.0% in comparison to the previous year. Network Rail exceeded the ACR2003 target for the year of 9.8 million minutes by 0.3 million minutes.

There was a reduction in most categories of delay, including track faults, points failures and, despite the flooding, weather impact. The most disappointing category was operations, covering problems such as signaller error, where delay increased by 5%.

There was significant improvement in Scotland, where Network Rail delay fell by 19.0%, following a similar improvement the previous year.

4.1 This chapter assesses the impact of Network Rail's operation and management of the network on train services provided by its customers. Particular issues were identified and acted upon during the year and progress reported in the Network Rail monitor.

Public performance measure (PPM)

4.2 PPM combines cancellations, punctuality at final destination and failure to call at timetabled stations. It covers franchised passenger train services only, excluding freight and open access operators. It assesses punctuality by a simple pass/fail threshold of lateness at train destination. Network Rail's role is to coordinate whole industry performance improvement, so PPM is a key measure of this role, as well as of how the passenger sector is performing as a whole.

4.3 PPM is measured as a moving annual average (MAA) which is the total of the previous 13 four weekly periods divided by 13.

Figure 4.1: PPM by four-weekly periods (industry average), 2000-01 to 2007-08
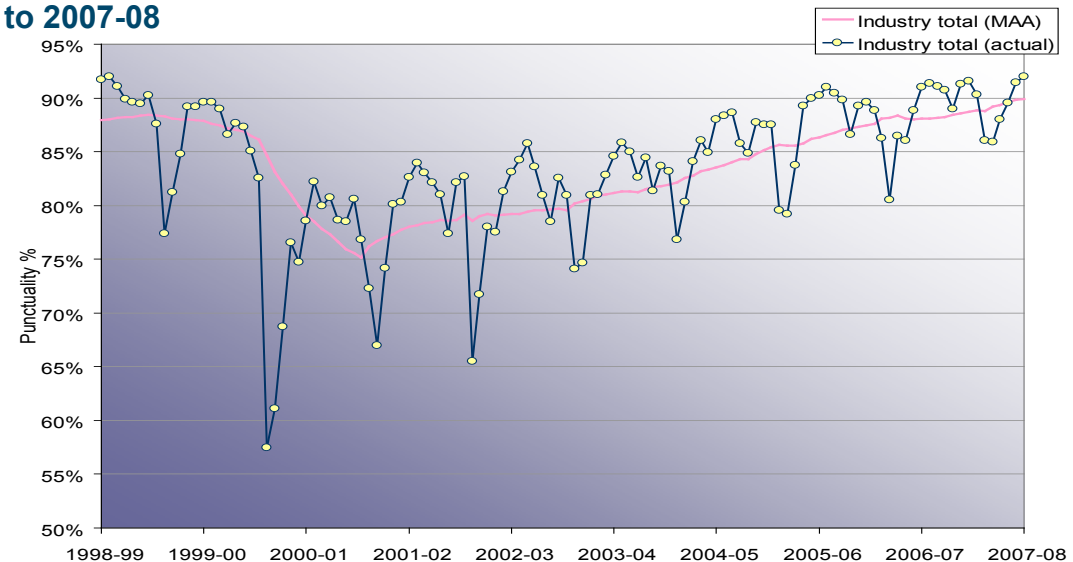
Source: Network Rail's data

4.4 Figure 4.1 shows how train performance has steadily improved over the past five years. The improvement in PPM in the longer-term is also evident; it finished the year 0.1 percentage points higher than at the end of 1997-98.

4.5 PPM was 89.9% at the end of 2007-08 compared to 88.1% at the end of the previous year and 0.4 percentage points better than the industry target of 89.5%. This represents a reduction of 15% in the number of trains arriving late.

4.6 In Scotland, PPM for First Scotrail was 90.6% at the end of 2007-08, a 1.7 percentage point improvement from the previous year.

4.7 For the second year in succession the improvement in PPM was boosted by continued strong performance by train operating companies (TOCs) with delay minutes attributed to TOCs down by 17% over the year. Network Rail delay was 9% lower than in the previous year.

4.8 From Figure 4.2 we can see that:

- London and south east sector showed continuing improvement and for the last quarter of the year achieved over 90% PPM;

- regional sector performance continued to improve. This was driven by notable improvements for Chiltern, Arriva Trains Wales and the former Central Trains (subject to franchise re-mapping from November 2007); and

- the long distance sector also improved, ending 2007-08 with a PPM of 86.2%, but continues to lag behind both London and south east and regional sectors. There was appreciable variation between the worst and best performing train operators; TransPennine Express at over 90% and GNER/National Express East Coast at below 83%.

First Great Western (FGW)

4.9 Whilst we note (see paragraph 7.7) the general improvement in infrastructure reliability in the Western route area as a whole, there were specific issues affecting FGW. PPM for FGW services remained poor for a second year. At the end of 2007-08 PPM MAA was 83.1%, a deterioration of 0.1% from 2006-07, whereas PPM nationally increased by 1.8% to 89.9%.

4.10 Key points are:

- in the early part of the year services were seriously affected by flooding, especially in the Oxford area;

- we discussed our concerns with Network Rail's chief executive and warned that unless there was a material improvement Network Rail may be found in breach of its Network Licence. Further performance improvement initiatives were identified, particularly relating to the reliability of points in the key Paddington-Heathrow airport junction corridor. The key points at the airport junction itself were renewed over Christmas/New Year;

Figure 4.2: PPM by four-weekly periods (by sector), 2000-01 to 2007-08
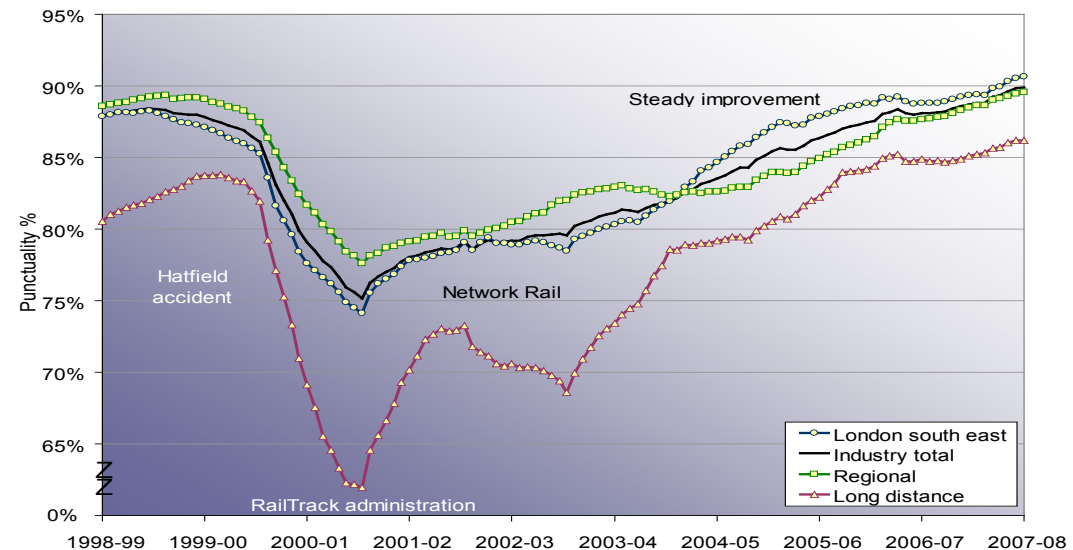
Source: Network Rail's data

- delay due to track faults and speed restrictions were considerably reduced and autumn was generally managed well;

- a major timetable revision was introduced in December 2007. Although this initially suffered from train operator resourcing problems it subsequently proved to be much more robust;

- although the various initiatives in 2007-08 did not immediately show through into actual results, performance in the early part of 2008-09 has been significantly better and PPM has already improved markedly. A new joint performance improvement pan (JPIP) has been agreed for 2008-09, with a target of reaching 86.0% PPM MAA by the end of the year; and

- we continue to monitor delivery of the JPIP initiatives and will report progress in the Network Rail monitor.

4. Train performance

Significant lateness and cancellations

4.11 Although there are no specific targets for either Network Rail or the industry in the current control period, the high level output statement (HLOS) from the Government for CP4 makes specific reference to reductions in significant lateness and cancellations in England and Wales. Network Rail has provided data that allows past performance to be measured, which is summarised in Figures 4.3 and 4.4. This shows a long-term downward trend, consistent with performance improvements generally, although there was a notable increase in the latter part of 2006-07 which carried through into 2007-08. Increases tend to coincide either with severe weather incidents such as storms and flooding or periods of resource shortages around timetable changes, triggering an increase in cancellations.

Network Rail delay

4.12 Figures 4.5 - 4.7 illustrate the impact of Network Rail's stewardship of the network. Key points are:

- total delay attributed to Network Rail in 2007-08 was 9.50 million minutes, compared to 10.53 million minutes in 2006–07, a decrease of 9.8%;

- this was lower than the ACR2003 target (9.8 million minutes) for 2007-08, but higher than Network Rail's business plan target (9.1 million minutes);

- the ACR2003 target for 2008-09 is 9.1 million minutes. To achieve this Network Rail will need to reduce delay minutes by 4%; to achieve its more demanding business plan target of 8.9 million delay minutes for 2008–09 it will need to reduce delay by 6%. JPIPs with individual TOCs set out how Network Rail intends to achieve these reductions;

Figure 4.3: Significant lateness and cancellation by sector
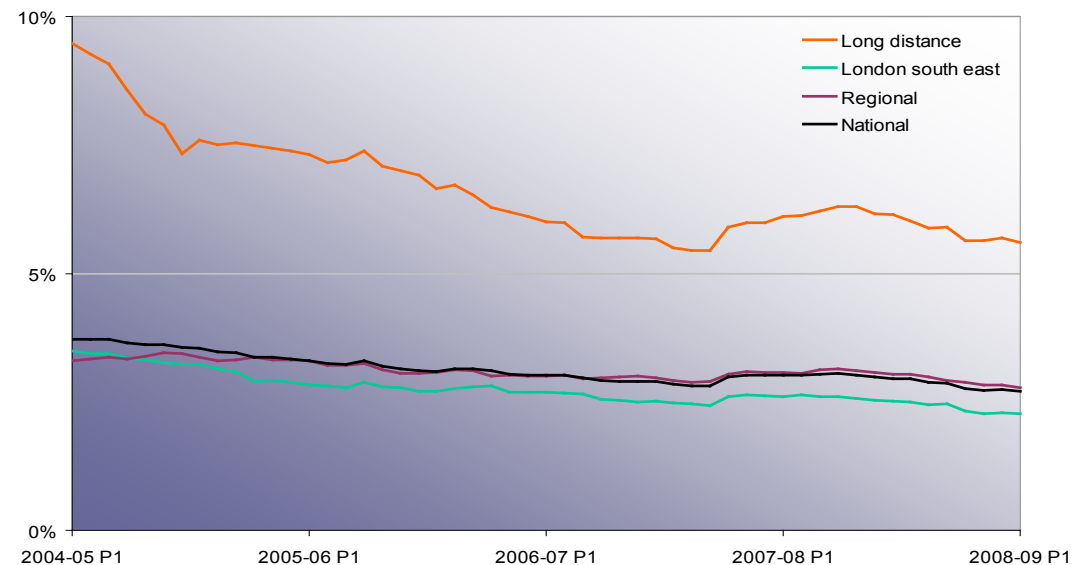
Figure 4.4: Significant lateness and cancellation by operator
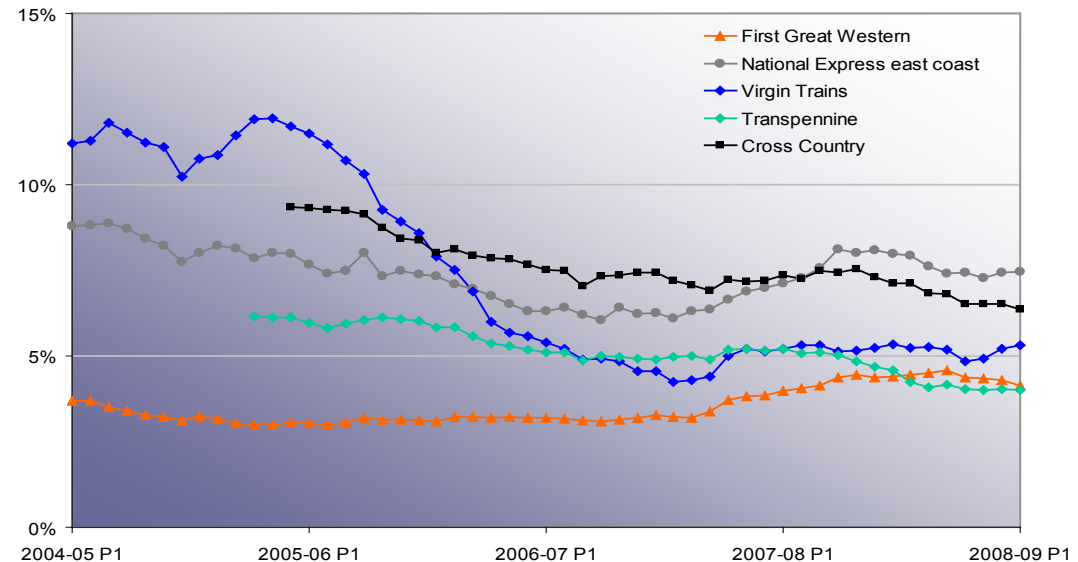
Source: Network Rail

Figure 4.5: Delay attributed to Network Rail (all services) 1990-00 to 2007-08, and ACR2003 annual targets
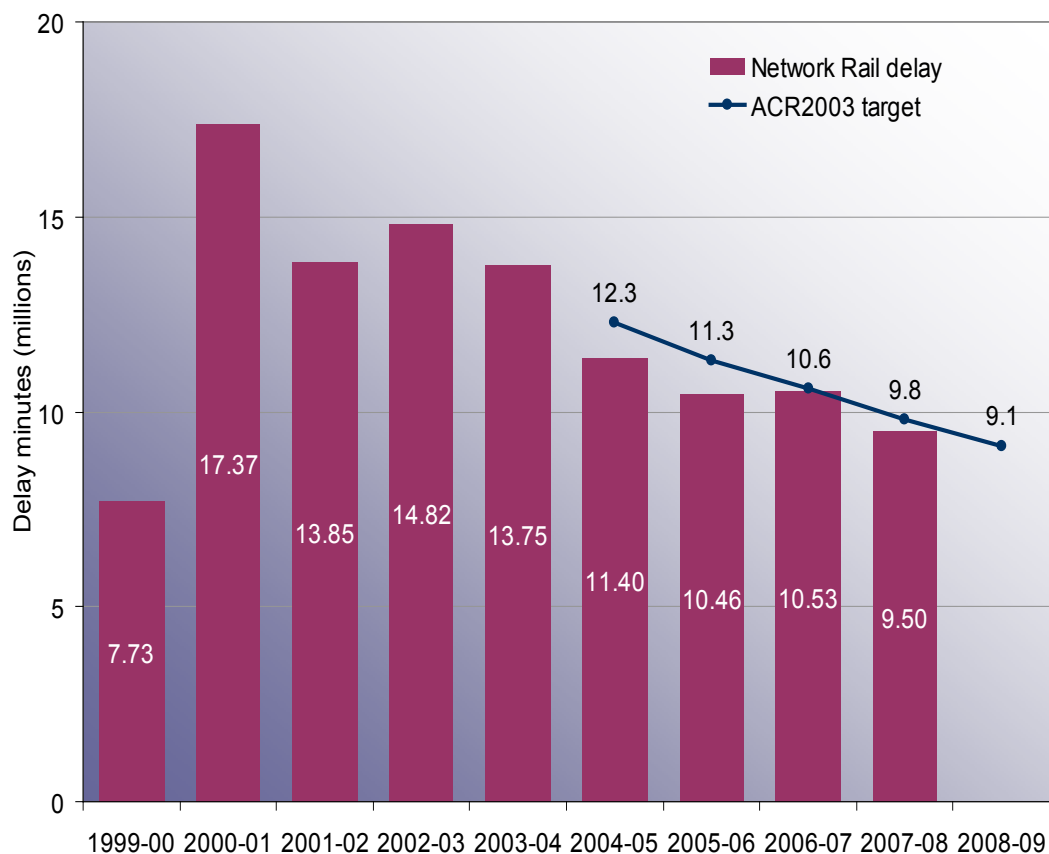
Figure 4.6: Delay attributed to Network Rail per 100 train kilometres (franchised passenger services only) all services 1990-00 to 2007-08, and ACR2003 annual targets
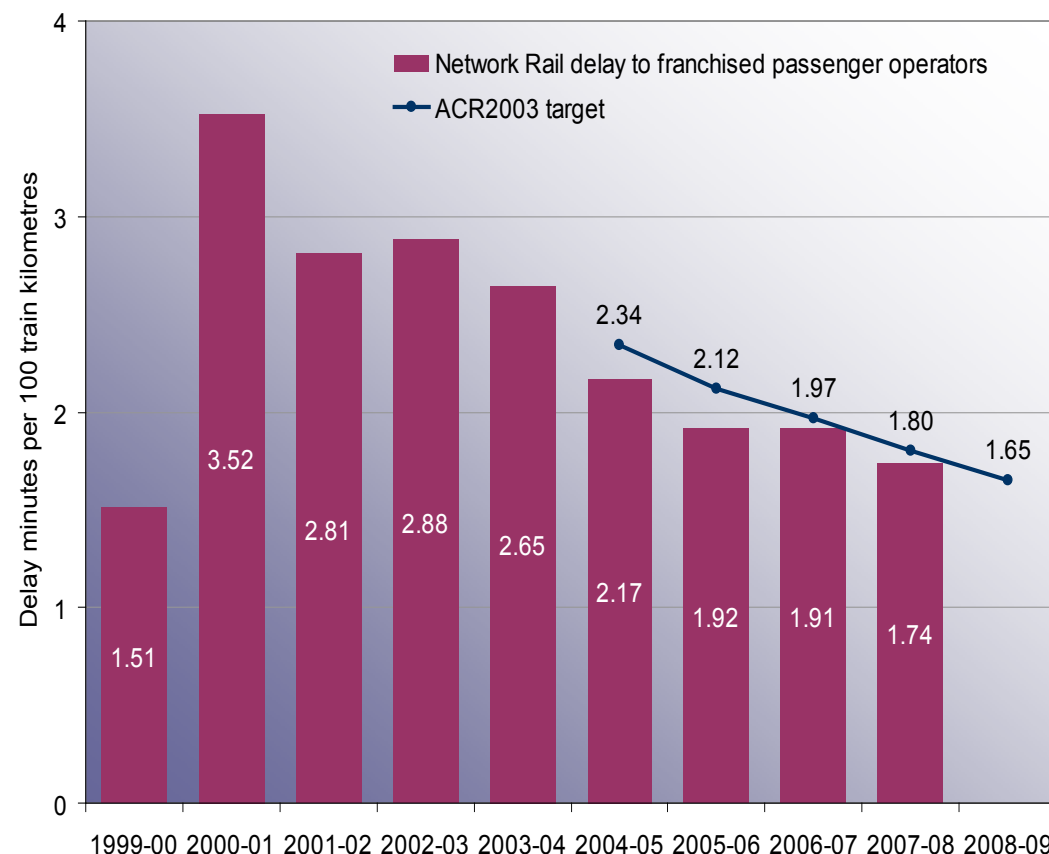
Source: Network Rail data and ACR2003

Source: Network Rail data and ACR2003

- although flooding was a major issue during the year in Yorkshire and the south midlands, with some routes closed for a while for repairs, disruption due to adverse weather recorded in 2007-08 was actually less than in the previous year;

- autumn was well handled by the industry overall. Network Rail's contribution came from vegetation management in advance as well as railhead treatment during the season. Train operators contributed by further training for drivers and improved sanders on some trains. Network Rail's autumn delays were down by 21% on the previous year;

- Network Rail achieved reductions in delays caused by track faults, points failures, track circuit failures, signalling system failures and temporary speed restrictions. Delays due to electrification faults fell by one third, although certain routes still experienced some major incidents. Some other areas saw little or no improvement, however, including general production responsibility (largely staff error) and possession overruns. Although delays from vandalism and theft were slightly down overall, cable theft remaining a serious problem in some areas; delay minutes in 2007-08 were 150,000 more than the average of the previous two years;

- when normalised for distance operated, delay to passenger services was nearly 10% less than in 2006-07 (after a very static picture the previous year), and normalised delay to freight services was down by over 6% (after an increase of 3% in the previous year);

- there was further significant improvement in Scotland. Network Rail delay minutes fell by 19% in 2007-08, on top of an 18% reduction in 2006–07. This is due to improving asset reliability; and

Figure 4.7: Delay attributed to Network Rail per 100 train kilometres (freight services) 1990-00 to 2007-08.
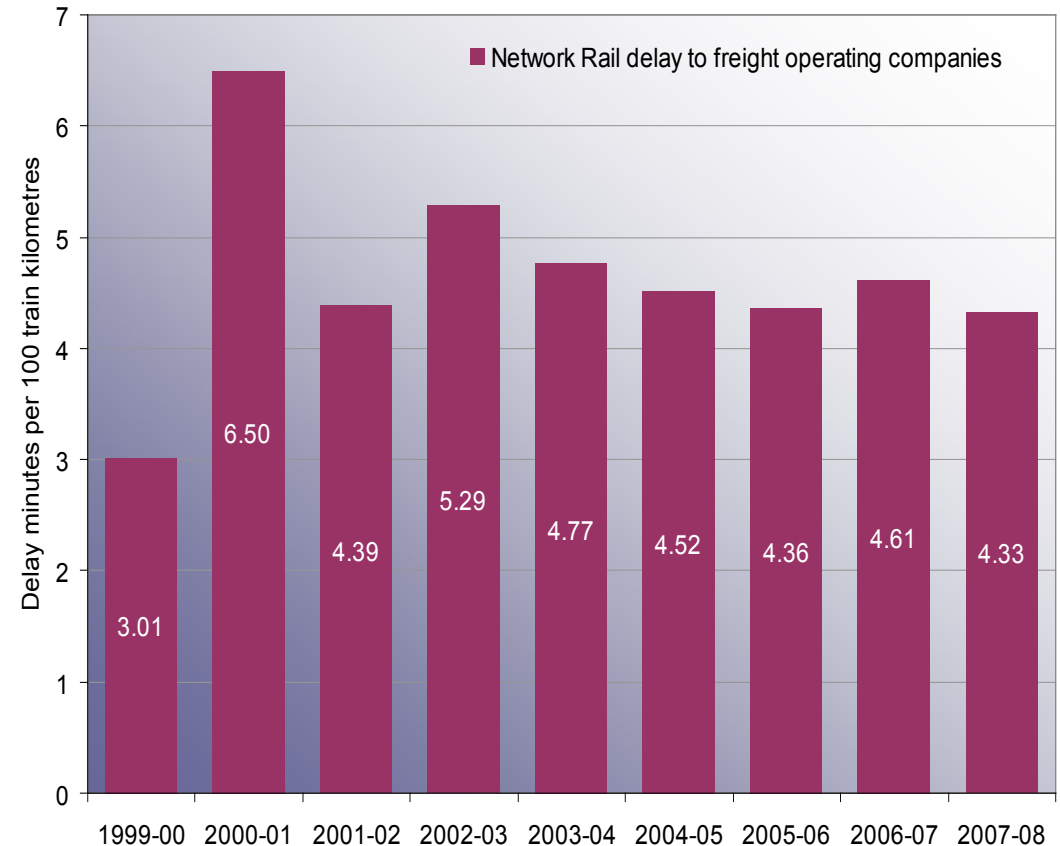
Source: Network Rail data and ACR2003

4. Train performance

- all eight of Network Rail's routes managed to achieve some reduction in delays, year-on-year. Sussex route had a relatively difficult year with a succession of major incidents and managed only a marginal reduction. Southern, the operator affected, formerly referred the matter to ORR. We called a joint meeting with Network Rail and Southern at which the steps being taken to improve performance were explained and we agreed to keep matters closely under review in 2008-09. Kent route was the star performer, with delays down by more than 22% overall, particularly thanks to good asset performance and a very successful autumn.

Train mileage

4.13 Network Rail was asked to report on annual train mileage for passenger train operators and freight train operators in the *Annual Return 2008*. Some errors were identified, especially with regard to the estimation of freight train miles, in which a significant difference between the reported data from two different standard industry sources (billing infrastructure freight system (BIFS) and possession planning system (PPS)) was found.

4.14 Table 4.1 summarises changes in train mileage in recent years. Passenger operators increased their train miles by two million miles (0.74%) in 2007-08 compared with an increase of one million miles in 2006-07. Freight train operators decreased their train miles by just over two million miles (7.2%) in the same period, with a reduction of 1,602 (5.3%) million gross tonne miles.

4.15 These increases are lower than assumed in ACR2003.

Issues arising

4.16 We expect Network Rail to analyse the significant difference in the freight gross tonne mileage data extracted from the two databases BIFS and PPS.

Table 4.1: Train mileage, 2003-04 to 2007-08

Million miles	2003-04	2004-05	2005-06	2006-07	2007-08
Franchised passenger operators	263.7	262.9	267.8	268.8	270.8
Open access operators	3.9	3.6	4.1	4.1	4.2
Total passenger train miles	267.5	266.4	271.9	272.9	275.0
Freight trains	29.3	27.9	31.0	29.9	27.8

Source: Network Rail's *Annual Return 2008*

In 2007-08, in comparison to the assumption in the ACR2003 determination, Network Rail marginally overspent on controllable operating, maintenance and non-WCRM renewals expenditure (OMR) by £34 million (0.8%). Network Rail's overspend on non-WCRM renewals in 2007-08 was £66 million, offset partially by spending £32 million less than the ACR2003 determination on operating and maintenance costs.

Network Rail deferred £324 million of spending on non-WCRM renewals relative to its 2007-08 budget.

The cumulative position on expenditure over the first four years of CP3 is one of:

- outperformance on controllable operating and maintenance expenditure by £350 million; and

- performance worse than the ACR2003 assumptions on renewals expenditure, driven particularly by significant overspend on track.

Our assessment of the company's unit cost efficiency includes an element of judgement, as Network Rail did not have a full suite of robust unit cost measures for 2007-08, although there was more data available than in 2006-07.

Largely as a result of Network Rail's underperformance on track renewals, the company is now behind the ACR2003 unit cost efficiency targets across OMR. In the four years of the control period to date, we estimate that Network Rail has achieved efficiencies totalling 23% against an ACR2003 target of 26% across OMR. We do not believe that Network Rail will achieve the 31% unit cost efficiencies built into the CP3 revenue allowance by the end of 2008-09.

5.1. This chapter reports on Network Rail's 2007-08 operating, maintenance and renewals (OMR) expenditure, and provides a comparison with the amount assumed in ACR2003. We then examine the reasons for the difference observed between actual and allowed expenditure. All figures are in 2007-08 prices unless otherwise stated.

5.2. We set the revenue allowance for CP3 based on a number of assumptions, including an assumption about unit cost efficiency savings[7]. We expected Network Rail to achieve a total of 31% cost savings by the end of CP3, 35% in maintenance and 30% in renewals and controllable operational expenditure.

5.3. Work on capturing unit cost data has progressed over the past year, although there are still many issues with the quality of the data. There has been slow progress with developing maintenance unit costs and we expect to see further improvements in the accuracy and quality of the data.

5.4. The efficiency data we present in this chapter is for Network Rail as a whole. We have not been able to disaggregate for Scotland or England & Wales because unit costs have still not been reported by Network Rail on a disaggregated basis. It is essential that this data is reported in the future to support the ongoing monitoring of Network Rails's efficiency in Scotland and England & Wales separately.

5.5. We define outperformance as additional unit cost efficiencies beyond those assumed in ACR2003 and reductions in the scope of activity that do not compromise the long-term asset condition and serviceability of the network. While Network Rail is allowed to retain the benefits of any outperformance, at least for the duration

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7   In the ACR2003 ORR set an efficiency target of a 31% decrease in unit costs across OMR. Please see *Access Charges Review 2003*, December 2003, page 92 for a full breakdown: http://www.rail-reg.gov.uk/upload/pdf/184.pdf

of the current control period, it should not be allowed to benefit from any underperformance.

5.6. The primary source of the data in this chapter is Network Rail's audited regulatory accounts for 2007-08 and its *Annual Return 2008*. Network Rail also provided additional information to the independent reporter, whose report has added input to our assessment (this report will be available on our website by the end of September). The analysis also makes reference to the ACR2003 final conclusions and our assessment of Network Rail's 2006-07 performance, where appropriate.

Expenditure

5.7. Network Rail's total expenditure in 2007-08 on controllable non-West Coast route modernisation (WCRM) operations, maintenance and renewal (OMR) was £4,530 million, compared with £4,496 million assumed in ACR2003. This represents an overspend of £34 million (0.8%). For the control period to date, Network Rail has spent £663 million (3.62%) less compared to the ACR2003 assumption. Table 5.1 and Figure 5.1 show the difference between actual and assumed expenditure.

5.8. Table 5.1 shows that the largest categories of overspend in percentage terms were:

- track renewals (£149 million); .
- plant and machinery (£30 million); and .
- IT and other renewals (£41 million).

Network Rail overspent on track renewals for the second year in a row. This has had an impact on renewals efficiency, which we discuss later in this chapter.

Table 5.1: Network Rail actual 2007-08 OMR expenditure compared with ACR2003 assumption (all prices in 2007-08 £ million unless otherwise stated)

Expenditure category	Actual spend	ACR2003 (post efficiency determination)	Variance	% Variance	Cumulative % variance for CP3 to date
Operating expenditure	1,179	1,166	13	1.10%	-1.53%
Of which controllable	878	908	-30	-3.35%	-6.65%
Maintenance	1,118	1,119	-1	-0.10%	-1.61%
Renewals					
Non WCRM	2,534	2,468	66	2.67%	-3.41%
- Track	923	774	149	19.20%	11.33%
- Signalling	478	489	-11	-2.19%	-14.44%
- Structures	383	410	-27	-6.47%	-3.00%
- Electrification	94	105	-11	-10.25%	-18.08%
- Plant and machinery	92	62	30	47.51%	-20.43%
- Telecoms	189	297	-108	-36.27%	-30.70%
- Operational property	225	221	4	1.70%	7.12%
- IT and other	150	109	41	37.06%	4.34%
WCRM	360	189	171	90.01%	11.62%
Total OMR	5,199	4,943	256	5.18%	-0.93%
Controllable non-WCRM OMR	4,530	4,496	34	0.77%	-3.62%

Source: Network Rail's *Annual Return 2008*, ACR2003 final conclusions,

5. Expenditure and efficiency

5.9. Based on unaudited data, the cost of total operations, maintenance and renewals in Scotland was £481 million against a determination of £458 million. This represents a variance of £23 million, or roughly 5%. In England & Wales the variance is roughly the same (5%).

Operational expenditure (opex)

5.10. ACR2003 assumed a controllable operating expenditure (opex) for Network Rail of £908 million in 2007-08, which incorporated an efficiency assumption for the year of 5%. In assessing Network Rail's performance against this, we have assumed that all 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.

5.11. Table 5.2 shows that in 2007-08, Network Rail spent £30 million less than the ACR2003 assumption on controllable opex, which represents a 3.4% outperformance of the efficiency assumption for the year and a cumulative efficiency gain on controllable opex of roughly 28.5% over the first four years of CP3. This represents a total cumulative spend of £4,035 million on controllable opex, with an outperformance of £268 million above ACR2003 assumptions. Cumulative opex efficiency is shown in Figure 5.2.

Maintenance expenditure

5.12. Network Rail's 2007-08 performance on maintenance efficiency was assessed on the basis of the change in total maintenance expenditure per equated track mile (ETM), in the same way as we have done in previous years. We assume that deferrals and change in scope of activity to be zero and that all maintenance spend less than the ACR2003 assumption is outperformance. Figure 5.3 shows cumulative maintenance efficiency.

Figure 5.1: Cumulative expenditure against ACR2003 efficiency determination (2007-08 prices)
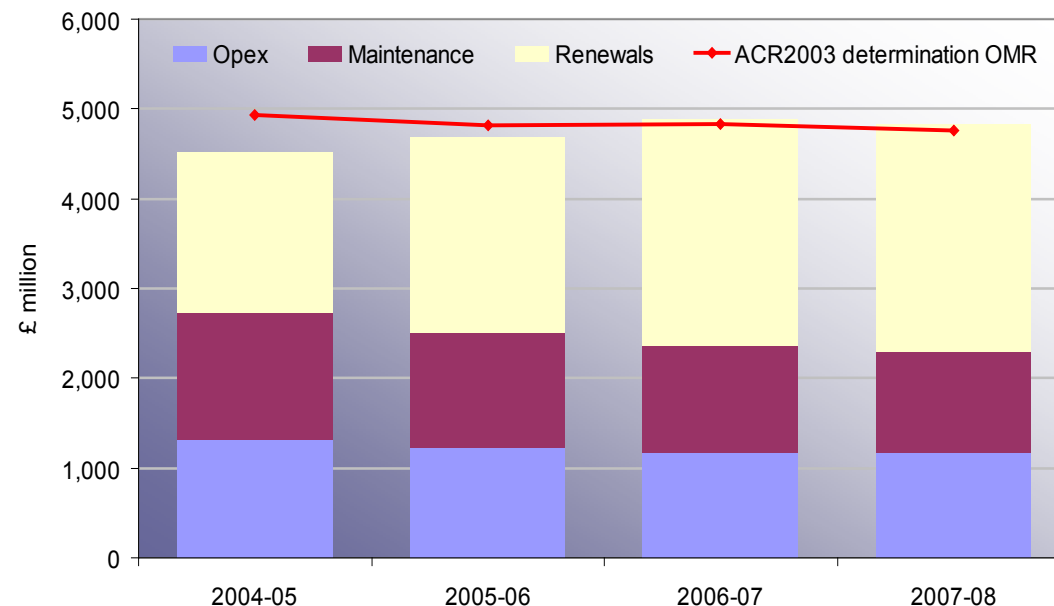
Source: ACR2003 and Network Rail's *Annual Return 2008*

Table 5.2: Attribution of OMR underspend to outperformance, 2007-08

£ million 2005-06 prices	ACR2003 determination		Actual expenditure	Variance (post-efficiency)	Efficiency	
	Pre-efficiency	Post-efficiency			Total gain	Out-performance
Controllable opex	1,229	908	878	-30	28.5%	3.4%
Non-controllable opex	258	258	297	39		
Total opex	1,486	1,166	1,175	9		

Source: ACR2003 and Network Rail's *Annual Return 2008*

Figure 5.2: Cumulative opex efficiency gains CP3

Source: ACR2003 and Network Rail's *Annual Return 2008*

Figure 5.3: Cumulative ACR2003 maintenance efficiency on ETMs
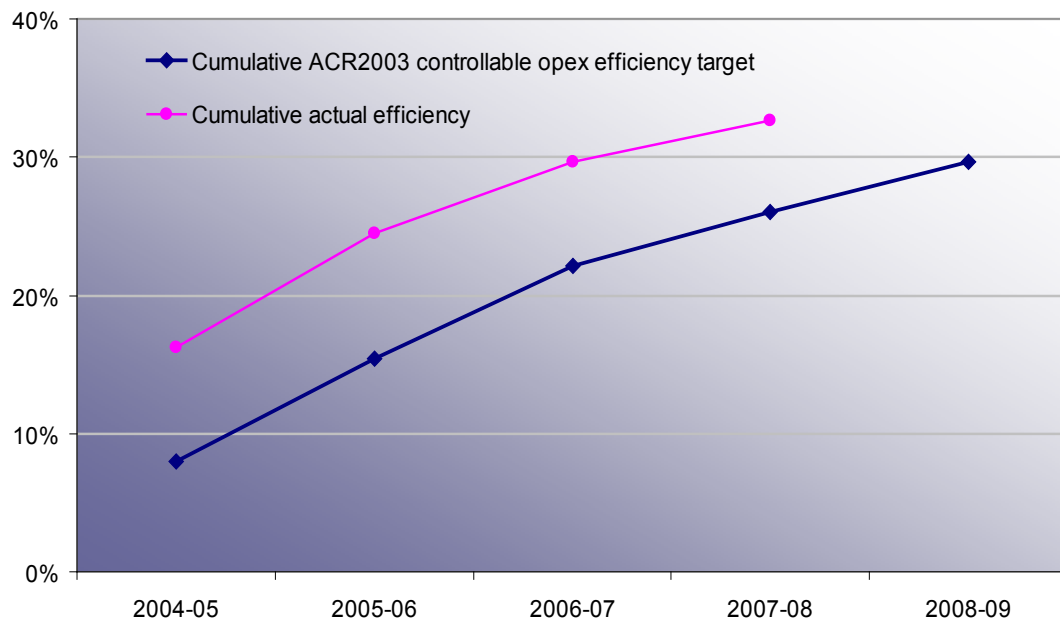
Source: ACR2003 and Network Rail's *Annual Return 2008*

5.13. As Table 5.3 shows, Network Rail spent £1 million less than assumed in the ACR2003 determination, an outperformance of 0.1%. When converted to a measure of maintenance per ETM, and accounting for the increase in ETMs, Network Rail outperformed its target by 4.0%. This represents a total efficiency gain of 31.2% for CP3, as illustrated in Figure 5.3.

5.14. As was the case in the previous year, Network Rail reported on a range of maintenance unit cost measures (MUCs) in 2007-08. It identified a total of 23 repeatable activities and is trialling others. For 2007-08, Network Rail considered data for 12 maintenance unit costs to be reasonably accurate at the network wide level, but not yet robust enough for rigorous benchmarking.

Table 5.3: Analysis of Network Rail maintenance expenditure 2007-08

£ million 2005-06 prices	ACR2003 determination		Actual expenditure	Variance (post-efficiency)	Efficiency	
	Pre-efficiency	Post-efficiency			Total	Out-performance
Maintenance (£ million)	1,563	1,119	1,118	-1	28%	0%
ETMs	21,896	21,896	22,782			
Maintenance per ETM (£k)	71	51	49	-2	0	0

Source: ACR2003 and Network Rail's *Annual Return 2008*

5.15. Table 5.4 shows unit costs measures for activity types that were available both in 2006-07 and 2007-08. Although the quality of the data has improved in some areas, the table clearly shows (see for example, signals routine maintenance) that there are still problems with accuracy. Network Rail needs to implement further changes in the process to improve data accuracy.

Renewals expenditure

5.16. Network Rail's overspend on non-WCRM renewals in 2007-08 was £66 million (2.67%), compared to the ACR2003 allowance of £2,468 million. The overspend arose in part because of a failure to improve on track efficiency and includes a significant proportion of rescheduled activity.

5.17. There is currently no single way of assessing Network Rail's performance against the regulatory assumptions, as the ACR2003 set annual renewal efficiency targets for unit costs. It did not establish baseline unit costs against which to compare efficiency impacts. Additionally, the few renewal unit costs available do not cover all renewals expenditure.

5.18. As in our previous assessments of Network Rail's performance, we have examined a combination of measures to assess its renewals efficiency. These include unit cost indices that are currently available for some asset categories and Network Rail's own budget variance analysis, which assesses the difference between budgeted and actual expenditure for each major renewals asset category. However, 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 costs indices cover only part of its performance.

Table 5.4: Network-wide MUCs, 2006-07 and 2007-08

MUC activity	Unit of measure	Network wide cost per unit (£) 2006-07	Network-wide cost per unit (£) 2007-08	Year-on-year change	% Change
Rail changing	Rail yards	78	78	0	0.0%
Re-sleepering	Number	149	145	-4	-2.7%
Switch and crossings (S&C) unit renewal	Number	10,299	8,555	-1,744	-16.9%
Replacement of S&C bearer	Number	283	306	23	8.1%
Visual inspection (patrolling)	Track miles	42	47	5	11.9%
Manual correction of plain line track geometry	Track yards	14	15	1	7.1%
Point and routine maintenance	Number	69	58	-11	-15.9%
Signals routine maintenance	Number	31	49	18	58.1%
Track circuits routine maintenance	Number	53	49	-4	-7.5%

Source: ACR2003 and Network Rail's *Annual Return 2008*

Renewals unit cost efficiency

5.19. Network Rail has continued to develop its cost analysis framework (CAF), which monitors unit costs for 51 repeatable work activities, covering around 50% of expenditure. For 2007-08, the CAF covered a total of 43 different renewal activity types. Network Rail said that in some cases a relatively small number of projects may have been reported against a particular activity type and suggests that these are not considered representative for reporting.

5.20. Previously, two methods have been used to assess unit cost efficiency for track. The first examines unit costs; the second examines composite unit costs. These reflect work-mix efficiencies, leading to a more complete assessment of overall efficiency.

5.21. Network Rail did not report on track unit costs in the *Annual Return 2008*. It did so without consultation with ORR, arguing that the composite rates are a more robust measure. The composite rates include central costs and non-volume costs whereas the track unit rates do not. We report on both total and composite unit costs for track to maintain consistency with previous annual assessments. Table 5.5 shows unit costs and composite unit cost for track.

5.22. Network Rail's annual return shows cumulative total renewals unit cost efficiency of 16.3% for CP3. There are issues with the quality of the data, although we consider track renewals data to be more robust than other asset categories. We have therefore had to rely on the renewals budget variance to form a view of renewals unit cost efficiency.

Budget variance analysis

5.23. Network Rail's budget variance analysis provides another way of assessing renewal efficiency. As stated in the *Annual Return 2008*, annual budgets are set on the basis of achieving the overall cumulative regulatory assumption of 26%. As Table 5.6 shows, Network Rail achieved a range of core renewals efficiencies, but reported that overall cumulative efficiency was 18.3%, behind the ACR2003 assumption for 2007-08.

5.24. From a budget for 2007-08 of £2,910 million for renewals Network Rail deferred £324 million (11.1%), including £49 million on structures, £54 million on telecoms, and £55 million on signalling. Table 5.6 gives a breakdown of Network Rail's budget variance.

Table 5.5: Track renewal unit cost indices

Renewals total unit cost indices

Real index, 2003- 04 = 100	2004-05	2005-06	2006-07	2007-08	Coverage	% change 07-08 on 06-07	% change 07-08 on 03-04
Track (total)	95.6	93.8	84.6	90.4	95.7%	-6.9%	9.6%
- plain line	94.5	95.7	82.8	89.2	70.7%	-7.7%	10.8%
- switches & crossings	95.6	93.8	84.6	90.1	25.0%	-6.5%	9.9%

Renewals composite unit cost indices

Real index, 2003- 04 = 100	2004-05	2005-06	2006-07	2007-08	Coverage	% change 07-08 on 06-07	% change 07-08 on 03-04
Track (total)	91	88	88	87	95.7%	-1.1%	-12.0%
- plain line	91	91	91	90	70.7%	-1.1%	-9.0%
- switches & crossings	89	80	81	78	25.0%	-3.7%	-19.0%

Source: Network Rail's *Annual Return 2008* and independent reporter

5.25. The view of the independent reporter was that, by using a combination of the unit cost and renewals budget variance data, the regulatory assumption for renewals efficiency had not been met. The reporter concurred with Network Rail's conclusion that it is unlikely the ACR2003 assumption of an overall reduction of 31% in renewals costs over CP3 will be met.

5. Expenditure and efficiency

Summary and issues

5.26. In summary, we conclude that Network Rail outperformed its targets for both operational expenditure and maintenance costs. We expect improvements in measuring MUCs, and expect them to be more robust to gauge maintenance efficiency performance in the annual return for 2008-09.

5.27. Both the independent reporter and Network Rail indicated that the renewals efficiency target for CP3 would not be met. Network Rail has additionally stated that it considers the operational expenditure efficiency target will be increasingly difficult to achieve. On this basis, we do not expect the overall OMR target for CP3 to be met. We expect to see improvements in the accuracy of renewals unit costs for 2008-09.

5.28. Figure 5.4 shows Network Rail's cumulative OMR efficiency to date in CP3. This was calculated using Network Rail's expenditure weighted efficiency figures for controllable non- WCRM OMR, for CP3 to-date. We use Network Rail's budget variance to represent renewals. Using renewals unit costs, both total and composite, shows Network Rail falling further behind than the chart suggests. The slippage below target is due mainly to track renewals efficiency. We calculate that across OMR, Network Rail is approximately 3% behind its 2007-08 cumulative efficiency target.

Table 5.6: Network Rail's budget variance analysis

£ million 2005-06	Actual	Budget	Variance on budget	Scope change	Additional activity efficiency	Rescheduled activity	Core renewals efficiency
Track	923	910	-13	0	-30	17	11.8%
Structures	383	412	29	-45	25	49	26.9%
Signalling	478	513	35	2	-22	55	20.9%
Electrification	94	129	35	-2	5	32	18.0%
Plant and machinery	92	142	50	-6	27	29	18.0%
IT	92	107	15	0	4	11	n/a
Telecoms	189	264	75	-6	27	54	32.2%
Stations	174	177	3	-26	10	18	17.8%
Depots	51	86	35	6	-2	31	17.8%
Other	58	170	112	3	81	28	17.8%
Total non-WCRM renewals	2,534	2,910	376	-74	126	324	18.3%

Source: Network Rail's *Annual Return 2008*

5. Expenditure and efficiency

5.29. We expect Network Rail to:

- improve the processes in handling data for the MUCs, including collection and processing of data;

- describe the work activities (inputs and outputs) and reporting activities in sufficient detail to reduce the opportunity for local interpretation in the development and further roll-out of the MUCs;

- review and subsequently formalise in documentation the method for processing maintenance unit cost and efficiency data before reporting, including the decision criteria for replacing collected data with estimated data; and

- agree with us on the measures to be presented for measuring track renewals efficiency; we believe that track renewals unit costs remain a useful measure of trend monitoring along with composite unit costs.

Figure 5.4: Cumulative efficiency targets against actual outperformance
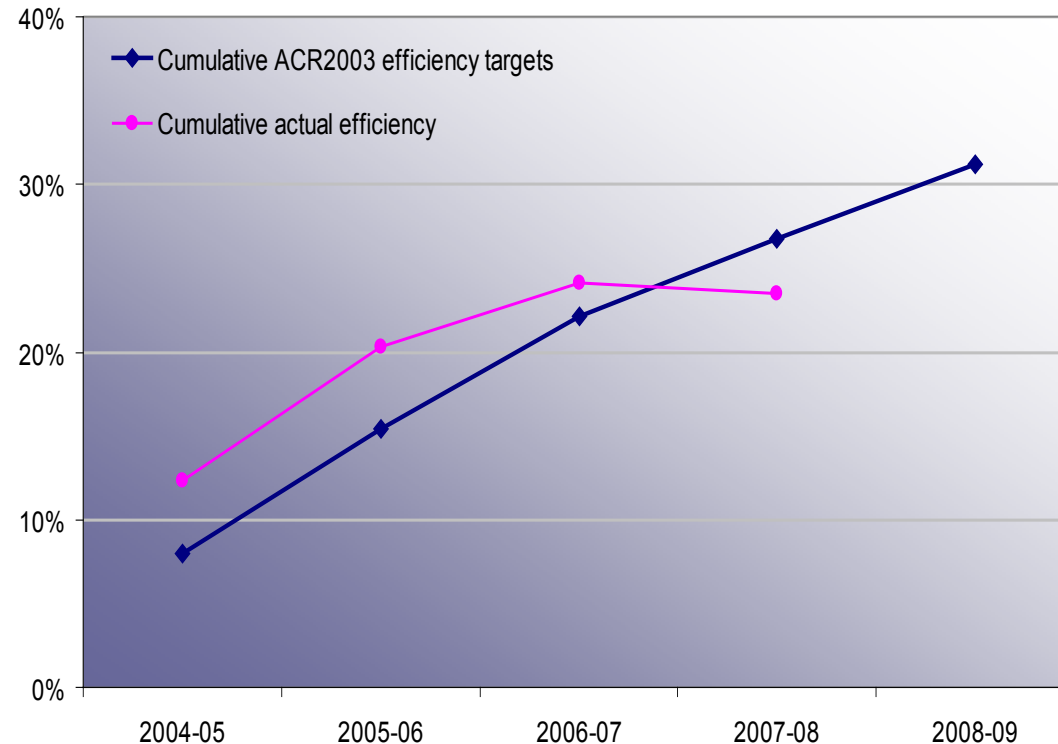
Source: ORR calculations, Network Rail's *Annual Return 2008*

ORR

Net debt at 31 March 2008 was £0.9 billion (in nominal prices) lower than the ACR2003 assumption, largely due to an underspend in financing costs in every year of CP3 and to a lesser extent due to higher income than forecast in ACR2003, mainly from the usage charge and outperformance of the schedule 8 regime.

6.1. This chapter reviews Network Rail's financial position and income in 2007-08. Comparisons are made against the ACR2003[8] assumptions and in some cases with Network Rail's business plan 2007. Unless otherwise stated, all numbers are in 2007-08 prices (apart from the net debt section, which is in nominal prices).

Net debt

6.2. Net debt at 31 March 2008 was £19.4 billion. This was:

- £0.8 billion higher than at 31 March 2007 and £6.5 billion higher than at the beginning of CP3;

- £0.9 billion less than the ACR2003 assumption of £20.3 billion; and

- £1.0 billion less than Network Rail's business plan 2007 forecast of £20.4 billion.

6.3. Table 6.1 shows the movements in net debt over the period 2004-05 to 2007-08.

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8   The ACR2003 assumption includes the revenue deferral and the signalling review adjustments. The revenue deferral adjustment is explained in the *Access Charges Review 2003: Regulator's approval of Network Rail's proposed financing arrangements,* Office of Rail Regulation, March 2003, this document can be accessed at http://www.rail-reg.gov.uk/upload/pdf/188.pdf. The signalling review adjustment is explained in the *Signalling Review: final conclusions of the medium-term review*, Office of Rail Regulation, December 2005. This document can be accessed at http://www.rail-reg.gov.uk/upload/pdf/269.pdf).

Table 6.1: CP3 movements in net debt 2004-05 to 2007-08 (nominal prices, £ billion)

	2004-05	2005-06	2006-07	2007-08
Net debt at 1 April	12.9	15.6	18	18.6
Total income	-3.1	-3.1	-5.1	-5.2
Expenditure				
Operating expenditure	1.2	1.1	1.2	1.2
Maintenance	1.3	1.2	1.1	1.1
Renewals	2.7	2.7	2.8	2.9
Enhancements	0.7	0.4	0.4	0.6
Other income	-0.7	-0.8	-0.8	-0.8
Total expenditure	5.1	4.6	4.7	5
Net interest paid	0.7	0.8	1	1
Other	-0.1	0.1	-0.1	0
Movements in net debt	2.7	2.4	0.6	0.8
Net debt at 31 March 2006	15.6	18	18.6	19.4

Source: Network Rail and ORR calculations.

Note:
1) Other includes outperformance fund spending, capital expenditure not qualifying for RAB addition and working capital movements.

6. Finance and income

6.4. The £0.8 billion increase in net debt during 2007-08 was £0.4 billion higher than the increase assumed in ACR2003 (£0.4 billion). This was due to:

- £0.2 billion higher renewals spending than assumed in ACR2003, driven mainly by an overspend on WCRM renewals; and

- £0.4 billion higher enhancement spending than assumed in ACR2003 due to a £0.1 billion overspend on WCRM enhancements and additional enhancements to the network that were not specified in ACR2003; partially offset by

- £0.2 billion lower interest payments, as financing costs averaged 5.3% in 2007-08 compared to the ACR2003 assumption of 6.0% and as average net debt was £1.1 billion lower than assumed in the ACR2003.

6.5. Net debt at 31 March 2008 was £0.9 billion lower than the ACR2003 assumption. This is mainly due to lower cumulative financing costs of £0.7 billion as the interest rates paid and average debt levels of Network Rail have been consistently lower than our ACR2003 assumption. Network Rail has also received approximately £0.3 billion more income than assumed in ACR2003, mainly due to higher tack access charge income of £0.2 billion. This was as a result of more traffic on the railway than envisaged in ACR2003 and outperformance of the schedule 8 regime of £0.4 billion, as train delays were less than assumed in ACR2003.

6.6. Net debt was £1.0 billion less than assumed in Network Rail's business plan 2007. This largely reflects renewals expenditure of £0.4 billion less than in the business plan 2007 and the opening actual net debt at 1 April 2007 being £0.4 billion lower than assumed in the business plan 2007. The lower than budgeted spending on renewals was due to a £0.2 billion deferral of

expenditure into future years as a result of project delays, £0.1 billion less spend on discretionary schemes and a contingency of £0.1 billion that was not needed.

6.7. Expenditure in nominal prices has been largely at the same level over the first four years of CP3. The year-on-year movements in Network Rail's actual cash flows are mainly due to:

- the effect of the revenue deferral scheme reducing income in the first two years and increasing income in the last three years of CP3 with a net impact of £2.6 billion to date;[9]

- an increase in expenditure as a result of inflation;

- a reduction in expenditure as a result of improved efficiency;

- a relatively higher level of enhancement expenditure in the first year of CP3, followed by lower expenditure in the next two years. Spending for enhancements is higher in 2007-08, partially due to the St. Pancras and Thameslink programme and cost overruns on the WCRM project; and

- an increasing level of net interest costs mainly due to an increase in net debt of between £0.6 billion to £2.8 billion per year, due to Network Rail's significant net new investment in the network and the revenue deferral scheme as set out in ACR2003.[10] Since 2006-07 interest cost also includes an annual financial indemnity mechanism (FIM) fee of £0.1 billion that Network Rail is paying to DfT for providing the financial indemnity of its debt.

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9 Part 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 of £1.6 billion in 2004-05 and £1.7 billion in 2005-06 (all in nominal prices) has been financed through additional borrowing. See also footnote 9.

10 Net new investment is spending on renewals and enhancements less amortisation as set out in ACR2003.

6. Finance and income

Regulatory asset base (RAB)

6.8. At 31 March 2008, Network Rail's regulatory asset base (RAB), as shown in Network Rail's regulatory accounts[11], was £27.9 billion. This was:

- £1.6 billion higher than the RAB at 31 March 2007, which was £26.3 billion (after adjusting for inflation). This is largely due to the addition to the RAB of £3.1 billion renewals and enhancement expenditure, less the amortisation assumption of £1.6 billion;

- £0.1 billion lower than the ACR2003 assumption of £28.1 billion; and

- the same as the forecast of £27.9 billion made by Network Rail in its business plan 2007.

6.9. Table 6.2 summarises the movements in the RAB in 2007-08. The RAB at 31 March 2008 was £0.1 billion lower than assumed in ACR2003, mainly due to:

- a £0.4 billion reduction in the RAB in relation to the adjustment for actual 2003-04 out-turn expenditure; and

- a £0.3 billion reduction in the RAB due to underspend on enhancements in the first year of CP3, which are remunerated on an emerging cost basis[12]; offset by

- additions to the RAB of £0.6 billion for enhancements that were not originally funded in the ACR2003, but nevertheless qualify to be added to the RAB.

Table 6.2: Analysis of movements in RAB (£ billion, 2007-08 prices)

Opening balance at 1 April 2007			25.3
Inflation		1.1	
Amortisation		-1.6	
Additions			
Renewals assumed in ACR2003	2.5		
Enhancements assumed in ACR2003	0.3		
Other additions not funded in ACR2003	0.3		
Other adjustments	0.0		
Total additions		3.1	
Total movement in RAB			2.6
Closing balance at 31 March 2008			27.9

Source: Network Rail regulatory accounts.

Notes:
1) The RAB is adjusted for inflation every year. The RAB at 1 April 2007 was £26.4 billion after adjusting for inflation.
2) The ACR2003 assumptions for renewals and enhancement expenditure, funded as part of the ACR2003, are added to the RAB and an appropriate adjustment will be made at 31 March 2009 to reflect any non-delivery of agreed outputs.

11 Network Rail's regulatory accounts (available on Network Rail's website at http://www.networkrail.co.uk) and ORR's regulatory accounting guidelines (available on our website at http://www.rail-reg.gov.uk) provide more detail about these adjustments.

12 By emerging cost basis we mean enhancements for which we have not set a fixed price in the ACR2003, instead we will add the actual expenditure incurred on the enhancement to the RAB with effect from the year concerned. For further details refer to the enhancements funded in the ACR2003 section of *Regulatory Accounting Guidelines, March 2008,* http://www.rail-reg.gov.uk/upload/pdf/360.pdf.

6. Finance and income

Income

6.10. Network Rail's total income[13] in 2007-08 was £6.0 billion. This was:

- £0.1 billion lower than income in 2006-07 of £6.1 billion;
- the same as the ACR2003 assumption of £6.0 billion; and
- the same as Network Rail's business plan 2007 assumption of £6.0 billion.

6.11. Table 6.3 shows the income for 2007-08 broken down into the various income categories compared with the ACR2003 assumptions and the business plan 2007.

6.12. Actual income was £0.1 billion lower than in 2006-07 due to a reduction in grant income during the year, in line with the ACR2003 determination.

6.13. Actual income in 2007-08 was the same as assumed in our ACR2003 determination. Higher income from the traction electricity charge and outperformance of the schedule 8 regime and the usage charge was offset by a payment to the Department for Transport (DfT) of 0.1 billion[14] .

6.14. Grant income from DfT in 2007-08 was £0.5 billion higher than specified in ACR2003 due to an additional £0.6 billion grant from DfT,[15] partially offset by a payment to DfT of £0.1 billion.

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13 Total income is the sum of track access charges, grant income and other single till income (including net income from schedule 4 and 8).

14 This is a payment paid by Network Rail to reflect the difference between the level of opening net debt as at 1 April 2004 assumed in the ACR2003 and the actual net debt at that date.

15 The additional £0.6 billion grant from DfT is exactly offset by a £0.6 billion rebate of track access charges from Network Rail to train operators.

6.15. Franchised track access income was £0.4 billion lower than assumed in ACR2003. This is due to the net effect of a £0.6 billion rebate of track access charges to train operators[16] offset by £0.2 billion higher income than assumed in the ACR2003 as a result of outperformance of the schedule 8 regime and higher income from the usage charge and traction electricity charge.

Net debt to RAB ratio

6.16. Network Rail's net debt to RAB ratio at the end of 2007-08 was 69.4%, which was within the regulatory limits and 4.1% lower than the ratio of 73.5% at 31 March 2007. This was due to net debt increasing by only £0.8 billion compared to the increase in the RAB of £2.7 billion (in nominal prices).

Table 6.3: Comparison of actual income in 2007-08 with ACR2003 and Network Rail's business plan 2007 (£ billion, 2007-08 prices)

	Actual 2008 (A)	ACR2003 (B)	Business plan 2007 (C)	ACR2003 variance (A-B)	Business plan variance (A-C)
Franchised track access income	1.9	2.4	2.5	-0.5	-0.6
Grant income	3.3	2.8	2.7	0.5	0.6
Single till income	0.8	0.8	0.8	0.0	0.0
Total income	6.0	6.0	6.0	0.0	0.0

Source: Network Rail's regulatory accounts, ACR2003 and Network Rail business plan 2007.

Note:
1) Franchised track access income is stated net of schedule 4 and 8 income and expenditure.

6.17. The difference between the RAB and net debt can be a proxy for the level of the buffer available to the company to absorb shocks to costs and revenues. Network Rail's Network Licence requires borrowings to be below certain levels of RAB (the first limit being a trigger at 85%). Therefore, in practice, the buffer available to the company is the difference between 85% of RAB and net debt. This buffer was £4.4 billion at 31 March 2008.

Other financial indicators

6.18. The actual adjusted interest coverage ratio[16] for 2007-08 is 1.9 times, which is the same as the previous year. This level is generally considered to indicate a strong financial position for a regulated utility.

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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 (total income less operating costs, maintenance, maintenance capital expenditure and corporation tax) against interest costs. This assesses Network Rail's ability to meet 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. At present maintenance capital expenditure is approximated by the regulatory amortisation charge.

For more than a year we challenged Network Rail about the level of asset failures causing delay to services and the company has been working on a number of fronts to address the problem. There was real improvement in the year - the number of incidents fell by 10% and delay minutes to train services from infrastructure causes fell by 11%. The number of infrastructure incidents causing delay in the year was the lowest annual total for at least eight years.

7.1 This section provides the detail underpinning our assessment of Network Rail's achievements in improving the reliability of the infrastructure. It discusses those aspects of asset management and the parts of the network where we believe Network Rail has been most successful. It also highlights the issues and routes that we believe pose continuing challenges for the future.

Infrastructure reliability

7.2 Tables 7.1 and 7.2 present key infrastructure performance data for 2007-08 for the network as a whole. Table 7.1 shows that the network performed more reliably in 2007-08 than at any time under Network Rail's management, demonstrating good progress by the company in managing its infrastructure assets. It is encouraging that the steadily improving trend in the condition and performance of the network has been firmly re-established after it faltered somewhat in the previous year. The key points to note are that, compared with 2006-07:

- total delay caused by infrastructure incidents was 4,748,963 minutes, down 11%; and
- the total of 52,477 infrastructure incidents was down 10%.

Table 7.1: Number of infrastructure incidents, total infrastructure delay, and average delay per incident, 2002-03 to 2007-08

Year	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Number of incidents	65,215	65,036	58,574	56,489	58,227	52,477
Infrastructure delay (minutes)	8,427,479	7,921,928	6,070,515	5,649,798	5,360,001	4,748,963
Average delay per incident (minutes)	129	122	104	100	92	90

Source: Network Rail's *Annual Return 2008*

7.3 Table 7.2 provides a more detailed breakdown for each of the 18 main asset categories. It provides further evidence of how the reliability of track, signalling and electrification systems has improved since 2003-04. It is particularly encouraging to note that:

- Network Rail achieved the lowest level of delay for five years in 11 of the 18 categories, recording the lowest number of incidents in nine of these;
- this success is evident in the three categories that together account for almost half of all infrastructure delays (track faults, points failures and track circuit failures); and
- points and track circuit failure delays were at their lowest level for five years.

7.4 Despite this clear trend of improving infrastructure reliability, Table 7.2 also shows that this was not achieved universally. Overall delay increased in six of the 18 asset categories in 2007-08, albeit quite marginally in most cases. In particular:

- delays caused by cable faults and telephone failures both increased, and the number of cable faults was at its highest level for five years;

- there were also increases in delays attributed to other causes and infrastructure mishaps. Since both of these categories are rather miscellaneous headings covering a number of diverse subsidiary categories, some degree of annual variation can be expected. Network Rail has told us that some of the increase in the other category is due to an increase in disruption caused by track patrolling activities, and it has now implemented a revision to its delay attribution process that will allow us to monitor this category in greater detail; and

- delays caused by rolling contact fatigue almost doubled, although the overall delay remains very small. This is discussed further below.

7.5 In addition to showing how delay from infrastructure causes has fallen, Network Rail's *Annual Return 2008* also shows where the improved performance has been achieved. From Table 7.3 we can see reductions in infrastructure related delays for each of the eight operating routes during the year, although with significantly different rates of improvement.

Table 7.2: Delay by infrastructure incident category, 2003-04 to 2007-08

	Total infrastructure delay (minutes)					Number of incidents				
	2003-04	2004-05	2005-06	2006-07	2007-08	2003-04	2004-05	2005-06	2006-07	2007-08
Broken rails/track faults	1,245,952	856,755	934,958	928,548	827,687	7,450	5,775	6,297	7,683	6,638
Points failures	1,069,100	884,525	839,299	832,048	737,534	9,802	8,770	8,724	9,074	7,891
Track circuit failures	1,272,458	1,062,891	988,514	823,137	727,826	9,935	9,233	8,568	7,970	6,607
Signalling system & power supply failures	577,934	413,099	370,159	436,629	391,219	3,719	3,451	3,273	3,996	3,920
Other infrastructure	615,685	440,429	388,070	357,365	370,999	8,219	7,950	7,960	8,566	8,614
Signal failures	516,615	436,411	395,152	346,695	291,669	9,119	8,300	8,145	7,370	6,580
TSRs due to condition of track	811,687	524,942	567,574	348,496	285,040	3,860	3,132	2,803	2,198	1,879
Bridge strikes	335,431	324,434	245,634	256,274	221,349	2,009	1,889	1,594	1,688	1,684
OLE/third rail faults	399,022	305,334	242,176	337,668	210,066	1,475	1,616	1,497	1,705	1,333
Cable faults (signalling & comms)	193,950	141,332	156,184	160,305	168,800	535	445	470	624	650
Lineside structure defects	276,672	232,867	125,147	143,716	145,710	1,090	840	610	695	651
Level crossing failures	142,186	134,407	126,721	116,093	107,983	2,794	2,725	2,657	2,365	2,200
Mishap - infrastructure causes	109,234	81,667	72,139	92,049	96,530	308	379	468	743	830
Other signal equipment failures	130,556	107,765	72,736	78,045	60,040	2,653	2,355	1,740	1,712	1,414
Telephone failures	49,034	42,591	56,560	45,249	54,079	994	1,060	1,067	1,220	1,124
Fires starting on infrastructure	82,307	46,178	42,149	33,580	27,075	513	282	314	285	229
Gauge corner cracking (GCC)	75,055	19,051	14,499	9,284	17,340	219	98	71	91	73
Change of aspects-NFF	19,050	15,837	12,127	14,820	8,017	342	274	231	242	160
Total asset failures	7,921,928	6,070,515	5,649,798	5,360,001	4,748,963	65,036	58,574	56,489	58,227	52,477

Source: Network Rail's *Annual Return 2008*

Route commentary

Although asset reliability has improved across the whole network, the rate of improvement varies widely. The most reliable route was Scotland; the least reliable was London North Western.

The greatest improvement in infrastructure performance was achieved in Kent. Elsewhere there was a very encouraging improvement in Western.

Network Rail has clearly demonstrated its ability to deliver continuing improvements in infrastructure performance, and we now look for it to meet the challenge of extending its successes particularly on those routes where performance has been more disappointing.

7.6 Network Rail's internal organisation comprises eight operating areas (routes): London North Western (LNW); London North Eastern (LNE); Western ; Anglia; Scotland; Wessex; Sussex; and Kent.

7.7 Tables 7.3 and 7.4 show that:

- the impact of infrastructure reliability on train performance varied by a factor of two, from 0.6 minutes delay per 100 train km in Scotland to 1.24 minutes per 100 train km in LNW;

- Scotland again had the most reliable infrastructure by a significant margin, and it continues to improve. There were 12% fewer incidents than in the previous year, causing 20% less delay. This is the second highest rate of improvement in the year, and was achieved by notable reductions in points failures (27% down), track circuit failures (21% down) and signal failures (23% down); Scotland's infrastructure compares very well with all other parts of the network, although the overall reliability of the signalling system was affected somewhat by increases in cable faults and other system and power supply problems;

Table 7.3: Infrastructure delay by operating route, 2007-08

Operating Route	Infrastructure delay in 2007-08 (minutes)	% reduction in infrastructure delay in 2007-08	Infrastructure delay per 100 train km (minutes) 2007-08	Infrastructure delay per 100 train km (minutes) 2006-07
Scotland	283,892	20%	0.6	0.75
Kent	233,472	23%	0.71	0.93
Sussex	215,510	6%	0.72	0.78
Wessex	383,101	6%	0.88	0.96
Western	666,236	17%	0.99	1.15
Anglia	469,173	14%	1.05	1.23
LNE	1,156,757	7%	1.07	1.14
LNW	1,349,670	7%	1.24	1.33

Source: Network Rail's *Annual Return 2008*

Table 7.4: Analysis of infrastructure delay by operating route, 2007-08

Operating route	Points failures	Track circuit failures	Other signalling failures* (note 1)	Track faults	Condition of track TSRs	OLE & 3rd rail failures	Other* (note 2)	Total infrastructure categories
Scotland	0.12	0.10	0.14	0.02	0.07	0.02	0.13	0.60
Kent	0.10	0.13	0.13	0.0	0.14	0.03	0.18	0.71
Sussex	0.12	0.11	0.10	0.0	0.12	0.06	0.21	0.72
Wessex	0.14	0.18	0.11	0.0	0.2	0.02	0.23	0.88
Western	0.19	0.22	0.19	0.01	0.13	0.0	0.25	0.99
Anglia	0.12	0.10	0.17	0.07	0.21	0.08	0.30	1.05
LNE	0.09	0.06	0.14	0.16	0.24	0.06	0.32	1.07
LNW	0.24	0.24	0.18	0.06	0.18	0.06	0.28	1.24

Source: Network Rail's *Annual Return 2008*

Notes: 1) 'other' signalling failures are delays caused by signal faults, system and power supply and miscellaneous other equipment failures
2) 'other' delays cover the remaining 10 categories of infrastructure delay, e.g. level crossing failures, telephone failures, bridge strikes, cable faults, miscellaneous mishaps, lineside structure defects, etc.

- infrastructure reliability was good in south eastern England (Kent and Sussex routes), although there were significant differences in the performance of these routes during the year;

- the greatest single improvement in infrastructure reliability in 2007-08 was in Kent, with 13% fewer incidents causing 23% less delay. The most notable reductions were in delay from points failures (27% down), track circuit failures (34% down), signal failures (45% down) and track faults (25% down);

- in contrast, the overall performance of infrastructure in the Sussex slipped somewhat in the year and was disappointing. However, infrastructure reliability still compared well with the rest of the network, and delay caused by the electrification distribution and traction system was halved. Although the actual figure is marginal, this was the only route on which there was an increase in the number of infrastructure incidents. This was particularly evident for points failures and track faults which increased by 22% and 28% respectively;

- infrastructure reliability also improved noticeably in Western, with 9% fewer infrastructure incidents and a 17% reduction in overall delay compared to the year. There was particularly good progress in reducing the number of track faults, but significant challenges remain in respect of points and track circuit failures. Overall delay caused by the signalling infrastructure also increased, even though there were fewer incidents;

- the reliability of infrastructure in Anglia was marked by both significant improvements and some apparent substantial deterioration. Overall, the 5% reduction in recorded incidents is lower than that achieved in most other routes, although the overall reduction in delay was much higher at 14% and particularly notable progress was made in reducing the impact of points and electrification failures. In the latter case delay fell to just under 37,000 minutes in 2007-08 from almost 100,000 minutes in the previous year. However, such successes were counterbalanced by a sharp increase in delay caused by speed restrictions due to the condition of track (32,234 minutes in 2007-08 compared with 5,375 minutes in the previous year). Anglia also experienced more delay caused by signalling system and power supply failures and cable faults; and

- the other three operating routes (Wessex, LNE and LNW) all share modest reductions in infrastructure delay:

  o there was good progress in Wessex in improving the reliability of points, signals, track circuits and its direct current (DC) electrification assets, but in common with other parts of the network there are continuing challenges in respect of the signalling system and cable faults. There were particular issues with rolling contact fatigue, referred to later;

  o there is a similar story in LNE, where good progress was made in improving the reliability of points, track circuits, signals and overhead line (OLE) systems. However, there were continuing challenges in managing track condition, with an overall increase in the impact of track faults in 2007-08; and

  o the same progress in points reliability that has been achieved elsewhere was not matched in LNW, where there was an increase in delay caused by cable faults. We continue to be in discussion with Network Rail about a range of infrastructure reliability issues on the West Coast main line, and we are currently considering its recovery plans to address these challenges.

7. Network condition

Asset quality

7.8 Analysis of the reliability of the infrastructure is supplemented by other measures of asset condition. A number of these are combined into an asset stewardship index (ASI), which is a composite index covering seven key elements of the infrastructure. It was introduced in ACR2003 to present a single quantified measure of the overall condition of the network, and it is calculated so that the combination of targets for each component at the end of CP3 in 2008-09 generates a single ASI target of 1.0.

7.9 Table 7.5 shows that the fall in the index continued in 2007-08, representing a further overall improvement in network condition. Table 7.6 shows how individual measures of the principal asset categories are weighted within the ASI.

7.10 The reduction in the ASI in 2007-08 from the previous year confirms that the condition of the network, when measured and weighted in this particular fashion, continued to improve during 2007-08. In all seven of the component measures Network Rail outperformed ORR targets set in ACR2003. It has surpassed the 2008-09 targets and it is ahead of its own more onerous targets set in its business plan 2007, with the exception of signalling and electrification. The equivalent regional measure for Scotland shows a similar improvement.

7.11 However, the positive performance suggested by the latest ASI figure does not entirely represent the complete story about network condition, and output KPIs will be substantially modified in CP4. The following asset-specific commentaries highlight a number of key issues.

Table 7.5: Asset stewardship index, 2002-03 to 2007-08

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Year end ASI	1.2	1.09	0.9	0.8	0.72	0.63
Network Rail target			1.06	0.85	0.78	0.70
ACR2003 target						

Source: Network Rail's *Annual Return 2008* and ACR2003

Table 7.6: Component measures and weighting of the ASI, 2002-03 to 2007-08

Asset category	Asset measure	Weighting	2005-06 actual	2006-07 actual	2007-08 actual	2008-09 target
Track	Track geometry	20%	0.84	0.81	0.72	1
	Broken rails	15%	317	192	181	300
	Level 2 exceedences	15%	0.82	0.72	0.58	0.9
Signalling	Points/track circuit failures	10%	17,285	17,038	14,367	19,360
	Signalling failures	20%	23,367	22,704	19,900	28,750
Electrification	Electrification failures	10%	55	80	72	133
Structures and Earthworks	Related TSRs	10%	48	40	35	100

Source: Network Rail's *Annual Return 2008* and ACR2003

Asset commentaries

Track

> The key track condition measures were all very positive in 2007-08. There were reductions in delay caused by track faults and speed restrictions, and rail management is evidently continuing to improve; the number of broken rails is lower than ever and there are fewer rail defects, although wheel rail interface issues continue to pose particular asset management challenges on certain parts of the network.

7.12   Three indicators of track condition account for half of the ASI weighting. All three continued to improve in 2007-08:

- the improving trend for track geometry continued and the network figure for poor track geometry fell from 2.6% in 2006-07 to 2.1% in 2007-08;
- there was a significant reduction in condition of track temporary speed restrictions (TSRs). The number of incidents fell from 2,198 to 1,879 (-14.5%), as did delay minutes, from 348,496 to 285,040 (-18.2%). Network Rail is making good progress in improving asset condition to achieve more fully the published line-speed capabilities; and
- 181 broken rails were recorded in 2007-08, slightly less than the total of 192 in the previous year and well below the regulatory target of 300 (see Figure 7.1). This is considered to be the result of improvements to rail inspection methods that find and remove defects early and further optimisation of the rail grinding regime, as well as the benefit of the two mild winters.

7.13   Broken rails/track faults again caused more delay than any other category of infrastructure delay. After a number of years in which Network Rail found it difficult to reduce such delay, it achieved a considerable improvement in 2007-08, with delay minutes down to 827,687 from 928,548 (12.2%) in the previous year.

Figure 7.1: Number of broken rails and ACR2003 target
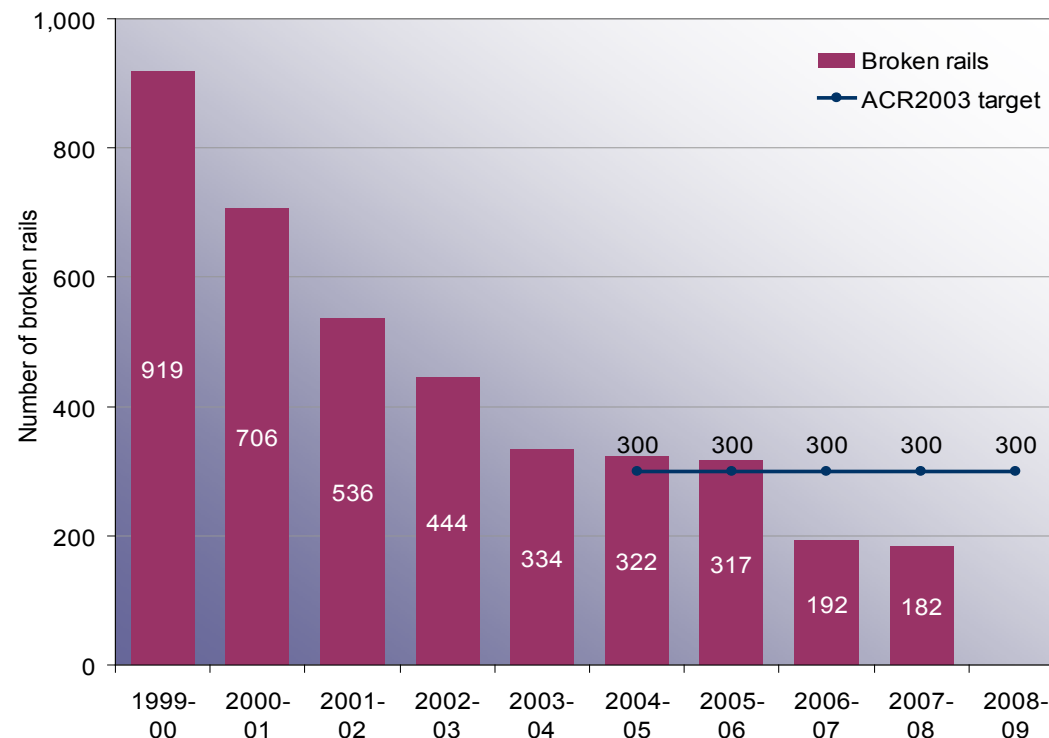
Source: Network Rail annual returns and ACR2003

7.14   However, it appears that particular challenges continue in the management of defective rails, particularly those associated with rolling contact fatigue in southern England, caused in part by new heavier trains with stiffer suspensions. We previously reported on a number of Network Rail initiatives, including joint action with the train operators and vehicle manufacturers, to mitigate this issue. These initiatives are not quick fixes because of the technical complexity of the wheel/rail interface and Network Rail and the train operating companies are trialling a number of solutions, with timescales of up to 18 months. We shall continue to review the outcomes with Network Rail during the coming year.

7.15 Notwithstanding these issues, at the end of March 2008:

- the number of isolated rail defects was down to 9,150 compared to 18,455 the previous year; and
- the total of continuous rail defects (which includes rolling contact fatigue) was 1,839 km compared to 2,008 km the previous year.

7.16 However, the rail defect data is held in different systems at local level, and collating this data to national totals in a consistent manner still presents Network Rail with problems. Network Rail is proposing to roll out a new rail defect data management system to replace a failed new system that stalled last year due to poor design. The new system is planned to be rolled out by December 2008, and ORR expects this system to fully deliver the necessary improvements in data reliability.

7.17 Table 7.7 and Figure 7.2 show the trends in numbers of TSRs on the network as measured by the total number in place at the end of each period. The improving trend in previous years was sustained through 2007-08. We believe that the reduction in the number of TSRs has made a significant contribution to overall operational performance. We commend Network Rail on this achievement and urge it to continue efforts to keep TSRs to a minimum.

Table 7.7: Number of TSRs in place at the end of the year, by cause

	2002-03	2003-04	2004-05*	2005-06	2006-07	2007-08
Condition of track	355	325	n/av	301	249	174
Rolling contact fatigue	15	5	n/av	0	0	0
Work in progress	63	53	n/av	63	63	52
Other	104	74	n/av	45	37	24
Total	537	457	0	409	349	250

Source: Network Rail's network condition data
* Network Rail only reported aggregate data for part of 2004-05

Figure 7.2: Number of TSRs on the network by category at the end of the 4 week reporting period (2005-06 to 2007-08)
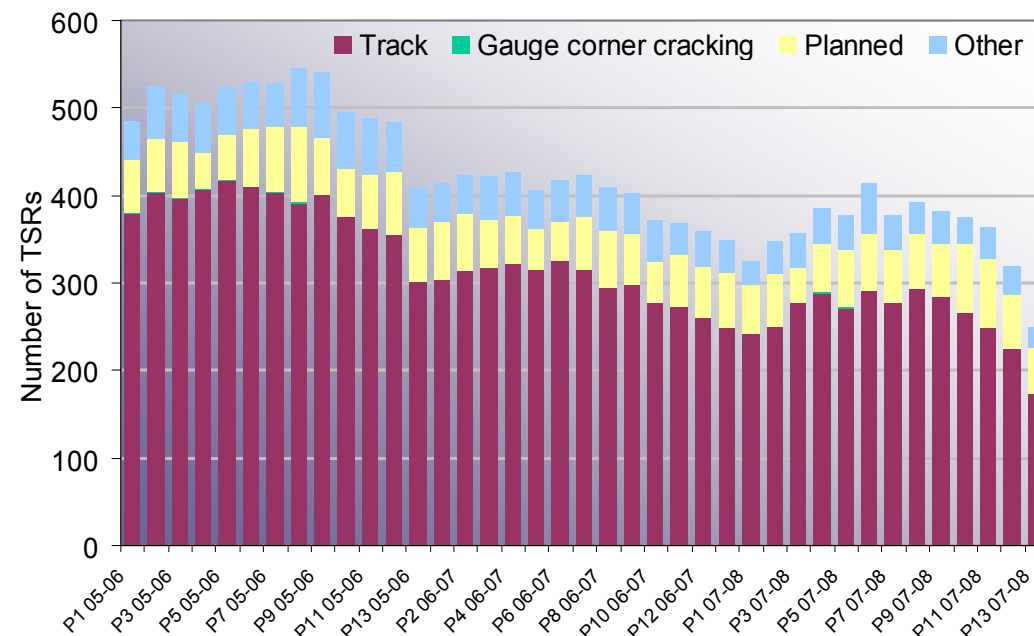
Source: Network Rail's *Annual Return 2008*
Note: There were eight periods in 2004-05 when only aggregate numbers of TSRs were available from Network Rail.

Signalling

The condition and performance of the signalling infrastructure also improved during the year. With the single exception of cable faults, all aspects of delay caused by faults with train detection and control systems were better, and in most cases the system reliability in 2007-08 was better than at any time in the previous five years.

7.18 At the network level there was a clear improvement in the performance of signalling assets, which comprise a diverse group of categories in which all delays relating to train control are measured (i.e. points and track circuit failures, signal failures, signalling system and power supply failures, cable faults, level crossing and other equipment failures). It typically accounts for just over half of all infrastructure delay.

7.19 In 2007-08 there was:

- an overall reduction of almost 315,000 minutes (11%) from the previous year; and
- a 12% reduction in the number of incidents.

7.20 A breakdown to individual elements within this group shows the progress made in improving asset reliability compared with the previous year. Table 7.8 shows the five individual asset categories with the highest asset reliability over the last five years, and indicates where these improvements were most evident in 2007-08.

7.21 Delay from signalling systems and power supply failures was also down, although in this case we note that the overall number of incidents did not decrease to the same extent and increased on five routes: Scotland (6%); Kent (21%); Wessex (26%); Sussex (4%); and Anglia (13%).

Table 7.8: Asset reliability - top five categories

	Network-wide performance in 07-08 compared with 06-07	Routes with >10% improvement in 2007-08	Routes with no improvement or worse in 2007-08
Points failures	13% fewer incidents	LNE, Scotland, Kent, Wessex, Anglia	Sussex, Western
	12% less delay		
Track circuit failures	17% fewer incidents	LNE, LNW, Scotland, Kent, Wessex, Anglia	
	17% less delay		
Signal failures	11% fewer failures	LNE, Scotland, Kent, Wessex, Anglia	Sussex, Western
	16% less delay		
Other signalling equipment failures	17% fewer failures	Western, LNE, LNW, Scotland, Kent, Anglia	Wessex, Sussex
	23% less delay		
Level crossing failures	7% fewer failures	LNW, Scotland, Kent, Wessex, Sussex,	Western,
	7% less delay		

Source: Network Rail annual returns and ACR2003

7.22 Finally, the continuing problems with cable theft caused by the high price of metals world wide has seen increases in the number of cable faults in LNW (44%), Scotland (49%), Wessex (66%) and Anglia (80%), indicating that a crime was mostly confined to the north east of England has now become much more widespread.

7.23 To assess the underlying condition of the signalling system, Network Rail uses a process called the signalling infrastructure condition assessment (SICA). This process assesses the anticipated length of residual useful life before renewal. For 2007-08 Network Rail reported a slight improvement in the average condition to 2.38 from 2.39 in the previous year.

7.24 The proportion of interlockings on the network with more than 10 years residual life was 65% in 2007-08, up from just over 50% in 2003-04, demonstrating the impact of investment in signalling renewals during CP3.

Telecoms

7.25 Information about asset condition and performance of telecom assets is limited. The only fault categories appropriate to telecoms are telephone failures and cable faults.

7.26 The cable fault category includes both signalling and telecoms cables and has been commented on in the signalling section. The telephone failures category includes signal post telephones and level crossing telephones. Those at level crossings are particularly critical and a failure of one of these can cause considerable delay to trains.

7.27 At a network level, delay due to telephone failures has not improved since 2003-04. Delay in 2007-08 was 20% higher than in the previous year, although the number of failure incidents was down 7%.

7.28 The number of failures fell in most routes, apart from a 7% increase in LNE and 42% in Sussex.

Civil engineering structures

7.29 This covers the long-life civil engineering assets of:
- bridges and viaducts;
- tunnels;
- earth structures such as cuttings and embankments;
- retaining walls and coastal defences; and
- drainage culverts.

Table 7.9: Bridge condition index

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2000-01 to 2007-08
Average condition grade (1-5)	2.1	2	2	2.1	2.1	2.1	2.2	2.1	2.1
Total number of bridges assessed	1,015	1,421	4,255	3,718	5,004	5,430	4,344	4,168	29,355

Source: Network Rail's *Annual Return 2008*

7.30 Many date from the original construction of the railway and where they are required to carry traffic they do so at volumes and loads far above the original design intent. Thorough inspection and appraisal regimes are therefore necessary to ensure adequate and timely maintenance and renewal interventions, thus ensuring no overall deterioration of the network capability.

Bridges

7.31 The condition of bridges is assessed on a scale of 1 to 5 where 1 represents very good, or as new, condition and 5 represents the poorest condition. This simple scale is derived from the results of detailed bridge examinations in which each individual structure is marked with a structures condition marking index (SCMI) score from 1 to 100. Table 7.9 shows that when presented in this format the overall grade for 2007-08 was 2.1, representing a slight improvement over the previous year and providing evidence that the population of bridges is being maintained in at least a steady state condition.

7.32 Table 7.9 also shows how Network Rail is progressing with its programme of bridge inspections. This has been an area of concern; we interpret the data as evidence that Network Rail is lagging behind with its inspection programme, although Network Rail disputes this.

7. Network condition

7.33 During the year Network Rail recorded the SCMI results for 4,168 bridge inspections. This is the lowest number so far in CP3 and it brings the total for the last seven years to 27,433. As 41,251 bridges are subject to SCMI scoring, it appears that the company is no more than 66% of the way through completing the marking of its total population of bridges. Network Rail still has to meet the objective it set out in 2005-06 to complete an SCMI inspection of all accessible bridges by April 2008.

7.34 Network Rail may also be non-compliant with its own company standard requirement to carry out a detailed condition survey of each bridge at a normal interval of six years. However, Network Rail has told us that through a risk assessment process it can extend this examination frequency and on this basis it argues that it is not behind on its inspection programme at all. We are urgently seeking clarification of this issue.

7.35 The audit of the *Annual Return 2008* carried out by the independent reporter (Halcrow) adds additional evidence to our concerns. Even though the SCMI process is now well established and should be mature in its execution, the reporter identified serious discrepancies in the knowledge of the precise number of bridges that are subject to condition marking. We find it hard to accept that such basic asset information is not well understood by Network Rail. Any anomalies must be resolved urgently.

7.36 We also remain concerned about the accuracy of this process. Halcrow assigned a low confidence rating to the information about bridge condition, suggesting that there is a high degree of extrapolation from limited data and a level of accuracy no better than +/- 10%. Halcrow also reinforced the concerns it expressed from its audit of the *Annual Return 2007* about the management of the SCMI process, including accuracy, progress and document management. Halcrow make specific recommendations for

improving the overall situation and Network Rail plans to address these key issues by:

- progressing to completion of first cycle scoring;
- clarifying SCMI second cycle procedures;
- ensuring competency standards; and
- conducting a desktop review and carrying out more technical check procedures.

7.37 We expect rapid and effective improvement of this process. We note the potential benefits of the civils asset register reporting system (CARRS) but these were not really evident in 2007-08. Network Rail should progress this as rapidly as possible.

Earthworks

7.38 Network Rail reported that 107 embankment or cutting slopes became unstable in 2007-08, against a regulatory target of no deterioration from the 2003-04 level of 47. Network Rail attributes this increase to flooding during the summer of 2007, with particular effects in LNE, LNW and Western. None of these failures caused derailments, but the level of earthwork failures does serve to highlight the vulnerability of such infrastructure to severe weather. Notwithstanding this, we consider Network Rail's management of earth structures to have improved through increased focus and a better risk classification scheme. Sustained activity in preventative work and earthworks drainage will be required to reduce the number of failures.

7.39 There were 22 sites where a TSR was imposed due to poor earthwork condition in 2007-08, down from 33 in the previous year. The severity score was also lower at 33, down from 98.

7. Network condition

Electrification

7.40 ORR monitors two versions of reliability data for the electrification infrastructure. Overall, the available data indicates that the assets were more reliable in 2007-08 than in past years. Table 7.10 shows that overall delay caused by both the alternating current (AC) and direct current (DC) networks fell by 38% in comparison with the previous year, and that there were 22% fewer incidents. These significant improvements had the effect of:

- reversing the surge in failures and delay in the previous year; and

- re-establishing the longer term trend of improving reliability that is evident for most of the current control period.

7.41 Many incidents of failure of the electrification systems tend to be major incidents that often paralyse the route affected, and for which there are few readily usable diversionary alternatives. When they occur they often cause large accumulations of delay minutes, and Network Rail therefore also reports the total number of major incidents that cause train delay of 500 minutes or more.

7.42 Table 7.10 corroborates the view that the overall reliability of both the AC and DC networks improved during the year. The 72 major incidents recorded (63 on the AC system and nine on the DC third rail network) represent a reduction of 10% from the previous year. Whilst this is a welcome improvement it is still higher than the 55 recorded in 2005-06.

7.43 We are currently reviewing with Network Rail the work it is doing to understand the root causes of these failures. We know that poor installation of replacement components and inadequate delivery of maintenance are both contributory factors. In other instances, we recognise that increasing unreliability can be related to the age and overall condition of the infrastructure itself. Network Rail has started to renew the system on the Great

Table 7.10: Traction power supply incidents causing over 500 minutes delay

	2000 -01	2001 -02	2002 -03	2003 -04	2004 -05	2005 -06	2006 -07	2007 -08	ACR2003 target
AC System (OLE)	88	107	102	79	71	49	69	63	88
DC System (3rd rail)	45	30	32	33	13	6	11	9	45
Total	133	137	134	112	84	55	80	72	133

Source: Network Rail's *Annual Return 2008*

Eastern main line and measures are being planned to improve reliability on the East Coast main line in the early part of CP4. The benefits from these works will gradually become more obvious.

Operational property
Stations

7.44 Network Rail has replaced the station condition index (SCI) with the station stewardship measure (SSM). The new measure weights the value of particular elements on an engineering basis in a way that the previous one did not; for instance an element that is considered to be more important to the station, such as a lift, now receives more weight.

7.45 In 2007-08, 1920 (80%) stations were surveyed, including 247 in Scotland, and condition assessed using the new methodology, where 68 sub-categories of building element are measured rather than the previous 34 elements.   A planned inclusion of 20% of stations using 100% coverage of the assets was not completed in time to be included in the *Annual Return 2008*.

7.46 The SSM score for 2007-08 was 2.71. This cannot be compared with the former SCI. Table 7.11 provides the average SSM score by station category. This breakdown was provided by Network Rail

after the *Annual Return 2008* was published. The average SSM score for the stations surveyed in Scotland was 2.39, indicating that stations in Scotland are generally in better condition than for GB as a whole.

7.47   As the SCI is a regulated output for CP3, Network Rail has been advised that the SCI must be reported in parallel to the SSM. The SCI score for 2007-08 was not available to be included in the *Annual Return 2008*. Network Rail will provide the information to ORR separately and it will be reported in the annual return in 2009 together with the SSM score, by station category.

7.48   We have agreed with Network Rail that the SSM measure can be used to measure whether or not steady state condition for stations (by station category) is being achieved over CP4.

7.49   The independent reporter's confidence in the data and systems underpinning the measure was unchanged from the previous year. However, we are concerned at the apparent variation of scoring grades across territories as reported by the independent reporter. Network Rail needs to investigate and correct any inconsistencies.

Table 7.11: Average SSM score* by station category, 2007-08

Station Category	Number assessed	Average SSM score
A (National hub)	18	2.48
B (Regional hub)	52	2.6
C (Important feeder)	171	2.65
D (Medium, staffed)	228	2.69
E (Small, staffed)	536	2.74
F (Small, unstaffed)	915	2.71
Total	1920	2.71

*(Marked on a scale of 1-5, where grade 1 is high and 5 is low)

7.50   Tables 7.12 and 7.13 provide a breakdown of station condition by category and route.

Table 7.12: Number of stations in each condition grade, 2007-08

Station Category	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Total
A (National hub)	0	8	10	0	0	18
B (Regional hub)	1	17	34	0	0	52
C (Important feeder)	0	58	112	1	0	171
D (Medium, staffed)	0	78	146	4	0	228
E (Small, staffed)	0	151	375	10	0	536
F (Small, unstaffed)	0	344	527	44	0	915
Total	1	656	1,204	59	0	1,920

Source: Network Rail's *Annual Return 2008*

Table 7.13: Condition grade by operating route, 2007-08

Operating routes	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Total
London North Eastern	0	197	91	3	0	291
London North Western	0	65	461	11	0	537
South East - Anglia	0	69	105	8	0	182
South East - Kent	1	44	84	8	0	137
South East - Sussex	0	46	90	5	0	141
South East - Wessex	0	56	94	4	0	154
Western	0	13	198	20	0	231
Scotland	0	166	81	0	0	247
Total	1	656	1,204	59	0	1,920

Source: Network Rail's *Annual Return 2008*

7. Network condition

Network Rail managed stations

London Paddington

7.51 At 31 March 2008 detailed design of the project was in progress to fully define the scope of the renewal and allow the implementation phase works to be competitively tendered. This will confirm the scope for a fourth roof arch (span 4) and also inform the proposals for the station enhancements and other major development projects at the station including potential passive provision (for a further phase).

London Kings Cross

7.52 Detailed design for the refurbishment work to the eastern and western ranges and the train shed is complete. Implementation of the eastern range work was approximately 50% complete. The train shed and the western range work was due to start on site in June 2008.

Edinburgh Waverley

7.53 The project is still at the early stages of development. An options study was carried out to identify the general project scope.

7.54 Tenders for outline design had been received and the contract awarded. Outline design is programmed for completion by November 2008, followed by detailed design between April and November 2009. The detailed design will refine the scope of the renewals, facilitate the progress of the Listed Building Consent and deliver the documentation necessary for the implementation phase to be competitively tendered.

7.55 The implementation phase is programmed between April 2010 and April 2014, i.e. completion within CP4.

Franchised stations

7.56 In the Southern territory, a programme to renew pre-cast concrete Exmouth footbridges is underway.

7.57 In northern England trial works and investigation of use of modular platforms has started this year.

7.58 Network Rail developed a modular approach for new or replacement stations as a means of minimising time, disruption and costs. A demonstration station was erected on a non-rail site to illustrate the concept. To date, four stations have been proposed for the application of this approach. Mitcham Eastfields in south London and Corby are new stations and the former has now opened. Effingham Junction station in Surrey was intended to replace an existing wooden station that was in a poor state of repair. However, planning permission has been refused as the planning authority considered the design inappropriately intrusive in this rural location. Greenhithe will also be a replacement of an existing station.

Station facilities

7.59 In the audit of Network Rail's *Annual Return 2007*, the independent reporter recommended that Network Rail redirect the resources planned for the collection of this measure in 2007-08 to the development of a better measure of station facilities. We agreed with this recommendation and confirmed that the station facility score did not need to be reported in the *Annual Return 2008*.

7.60 An industry working group including Network Rail, the Association of Train Operating Companies, Passenger Focus and ORR, has been established to develop an improved measure of station facilities. The group's work is at an early stage but we expect to see significant progress in 2008-09. We would like to see the new measure of station facilities reported in the annual return in 2009 and we have stressed the importance of completing the development work as quickly as possible.

7. Network condition

ORR

Light maintenance depots (LMDs)

7.61 The inspections are conducted on a rolling five-year cycle. The first round is now complete although this has taken three years longer than planned (and excludes the new depot at Ashford).

7.62 Table 7.14 shows that the overall condition score improved to 2.49 from 2.58 in 2006-07. The improvement reflects the work undertaken including renewal of plant as well as improved working relationships between Network Rail and the depot facility owner.

Issues arising

7.63 A number of issues have been identified in this chapter. We expect Network Rail to:

- ensure that it continues to exploit the opportunities to benchmark the performance of its delivery units, using data on the reliability and condition of its infrastructure assets, to understand and identify opportunities to implement best company practice across the entire network;

- continue to apply this analysis to develop and quantify targets for route-specific action plans, and it should demonstrate clear success in this by delivering consistent improvements in asset reliability, including those routes on which this year's performance has lagged behind the best performing ones;

- continue to identify and implement effective control measures for rolling contact fatigue on those parts of the network where the incidence of RCF has been increasing recently;

- successfully deliver its replacement data management system for rail defects;

- urgently clarify and resolve outstanding issues relating to its progress with bridge examinations;

Table 7.14: Light maintenance depots - condition index

Condition grade	2001-03 2-year total depots (in each grade)	2001-04 3-year total depots (in each grade)	2001-05 4-year total depots (in each grade)	2001-06 5-year total depots (in each grade)	2001-07 6-year total depots (in each grade)	2001-08 7-year total depots (in each grade)
1		2	2	2	2	3
2	3	17	17	27	38	44
3	13	15	15	20	35	34
4	5	5	5	5	6	4
5	0	0	0	0	0	0
Total	21	39	39	54	81	85
Average condition grade	3.04	2.63	2.63	2.58	2.58	2.49

Source: Network Rail's *Annual Return 2008*

- urgently clarify its use of, and plans for, SCMI as a structures asset management tool, as recommended by the independent reporter; and

- continue to analyse the root causes of specific asset failures to address key infrastructure reliability issues e.g. electrification system reliability.

Network Rail has made good progress in developing its asset management framework. It has revised and re-published its asset policies and it has achieved the significant milestone of reaching compliance with the requirements of its licence to produce and maintain an asset register. It must now continue to develop the asset policies, particularly by extending the understanding of the life cycle costs of its infrastructure and apply itself to improving the quality of its asset data.

8.1 Network Rail's asset management strategy provides the framework by which the company will establish what it must do to deliver its corporate objectives and meet the requirements of its customers and stakeholders. The framework comprises three main elements:

- a core process - that defines the high level business requirements and then uses key decision making stages to translate them into specific and detailed activity plans. Asset policies, that define how Network Rail manages its infrastructure assets, are a key component of this process;

- enabling components - the knowledge and tools that facilitate the decision making process and make it work effectively. Good asset information is one of these key enablers; and

- review components - that check and audit the operation of the process.

8.2 In last year's annual assessment we summarised the results of the independent reporter's evaluation of the technical, organisational and human capabilities that constitute Network Rail's asset management regime and therefore span across all three elements of the framework. This broad-ranging evaluation concluded that Network Rail was making good progress in developing its asset management processes and it made several key recommendations about how the company should move forward. It particularly emphasised the need for priority to be given to the further development of Network Rail's asset policies.

8.3 We expect to see continuous improvement in the quality of Network Rail's asset management, and in due course we intend to conduct a further evaluation using the same assessment criteria to chart the progress. In doing this we will make use of the report produced by the independent reporter in September 2007 (*Asset Management Vision for Network Rail*). This sets out a trajectory for improved asset management in the near future, with timescales and key milestones in 2011 and 2012. These dates are expected to coincide with key points in the development of CP5 (2014-19), and clearly we expect to see that being informed by quantifiable progress in Network Rail's asset management processes. However, in addition to setting out this trajectory for improvement, this year we have focused on two specific areas and this assessment therefore describes the progress that Network Rail has made in:

- establishing its asset policies; and

- developing and improving its asset knowledge.

Asset policies

8.4 Network Rail's asset policy documents define how the decision making and business planning processes function for each core element of the infrastructure, and they therefore provide important supporting information to explain the company's plans for CP4. They describe how the assets behave and degrade in service, how these physical characteristics affect the performance of the network and the nature of the engineering activities by which the assets are inspected, maintained and renewed.

8.5 Network Rail published a full suite of revised asset policy statements and supporting policy justification documents in October 2007. The independent reporter for asset management (AMCL) reviewed these documents and assessed the extent to which:

- Network Rail's policies progressed;
- they substantiate the technical solutions and demonstrate that the planned maintenance and renewal activities are the most economical solutions; and
- they can be developed and improved.

8.6 Network Rail has clearly made progress in documenting its various asset policies in a consistent format and in seeking to align them with the business requirements of different parts of the national network. AMCL highlighted two specific asset categories (track and overhead electrification systems) where the policies have been developed most significantly, and found that the state of development of these particular documents compares favourably with current levels of maturity achieved by other equivalent organisations.

8.7 AMCL also concluded that other asset policies had not been developed to the same extent and/or were less mature. Network Rail should build upon the results it has achieved with its track and OLE policies, in order to bring all other policies to the same level of maturity. In doing this, we consider that it needs to make more progress in understanding the life cycle costs of its infrastructure assets.

Asset knowledge

8.8 Network Rail's asset management strategy identifies the importance of asset information as a key enabler of good, cost-effective decision making. Since the Network Licence was amended in 2001 to require the licence holder to produce and maintain an asset register, work has continued to develop the systems and processes by which the required knowledge can be collected, held, maintained and accessed.

8.9 This has been a huge task, but in December 2007 Network Rail formally notified us that it believed it had completed its compliance programme and had therefore met the requirements of its licence. This means that it has now:

- completed a thorough review of the information it requires and the systems it needs for holding and accessing this information;
- completed a programme of data cleansing and data collection to improve the quality of the information it holds;
- established processes for making relevant information available to key stakeholders; and
- established processes for managing and reviewing data to ensure that information is kept up to date.

8.10 The independent reporter audited the work done by Network Rail, we are pleased to report that we have verified and accepted that Network Rail has achieved technical compliance with the requirements of its licence (Condition 24) for developing and maintaining an asset register.

8. Asset management

8.11 By this we mean that we recognise that Network Rail has made sufficient progress in developing its framework of asset information systems and processes. However, there is still scope for further improvement – especially in respect of data quality. In carrying out its review, AMCL identified a number of areas where Network Rail needs to make further improvement. It identified:

- that asset information systems are not yet being used fully and/ or consistently at all levels within Network Rail;

- some concerns about the quality of data that is provided to third party users, and concluded that there was still a need to engender a view in Network Rail that the data provided needs to be a quality product; and

- variability in the application of data management procedures and assurance processes that currently focus more on data completeness than accuracy.

8.12 Network Rail clearly needs to continue to develop a culture in which its staff engage fully with the maintenance and use of the systems that are now established. Without such effort, the risk remains that asset knowledge could deteriorate in future and hence undermine the progress made.

Data quality

8.13 Halcrow's audit of Network Rail's *Annual Return 2008* reinforces concerns about certain aspects of data quality. Of the 17 asset condition measures reported, Halcrow assigned a lower than acceptable confidence grading to seven of them, indicating that in each case the data is based on limited samples and/or is at or above a 10% tolerance margin.

8.14 Similarly, we note that six of the 10 activity volume measures reported have also been assigned relatively low confidence grades.

8.15 Network Rail continues to improve data quality and we acknowledge the progress it has made this year. Areas where it has taken steps to improve the quality of its knowledge include a number that we identified last year as not being of reasonable standard, including:

- station condition: a revised measure has been implemented and as part of the operational property asset system (OPAS) initiative, condition surveys have been completed at over 1,900 of the 2,500 stations on the network;

- light maintenance depot (LMD) condition: surveys have also been completed at 14 depots as part of the OPAS initiative; and

- condition of 3rd rail electrification contact systems: the southern measurement train (SMT) has been fitted with a laser based rail profile measuring system and it was calibrated in 2007. This will enable it to start providing much improved data about conductor rails throughout the south east, e.g. physical wear, degradation rates and electrical impedance.

8.16 We welcome the focus that Network Rail is giving to asset management and the progress made. Best practice asset management demonstrates a commitment to continual improvement, and this assessment highlights a number of areas where processes and quality of information need to improve.

Issues arising

8.17 We expect Network Rail to:

- continue to develop its asset policies in line with the recommendations made by the independent reporter, demonstrating how it is developing the maturity of its policies and in its detailed understanding of the life cycle costs of the infrastructure assets;

- ensure that it continues to build upon the progress made in implementing its asset information strategy, in particular to develop the right culture amongst all its staff in respect of maintaining and using asset information as a critical asset in its own right; and

- demonstrate how it is making progress with implementing new asset information systems such as the replacement rail defect database (also raised in Chapter 7).

9. Renewal activity

Track renewal volumes were generally at the high levels of recent years, and signalling volumes increased substantially. However we have concerns about the efficiency of track renewals, a significant under-delivery in electrification and data quality.

9.1. 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 largely continued into 2007-08. However, year-on-year comparisons are not necessarily appropriate for all asset types, such as those on long cyclic renewals and 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 or brought forward 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.

9.2. As provision was made in ACR2003 for increased levels of renewal activity, this assessment asks important questions about value for money (see Chapter 5) and whether Network Rail is actually delivering asset renewals at the rate it has claimed to be necessary for sustainability of the network.

9.3. We have a serious concern over the quality of the renewals volume data, which was raised by the independent reporter following the audit of the *Annual Return 2008*. Our overview is that there is a substantial lack of clarity about what work has actually been done, particularly in respect of the major expenditure on civils assets, but even in areas such as track renewal where volume data should be more robust there are some inconsistencies within the *Annual Return 2008*.

9.4. Network Rail has reported on a new composite measure of renewal volumes in its last two annual returns. Whilst this measure is welcomed it is not yet as helpful or as well explained as it needs to be. A particular problem is that significant underspend in one asset area can be masked by overspend in others. Currently Network Rail's composite figures appear to suggest major underspend on electrification plus lesser underspends on civils and track whilst reporting overspend on signals and telecoms. We shall be discussing this issue and other anomalies with Network Rail in the coming year.

Track

9.5. Table 9.1 shows renewal volumes in recent years for track and signalling. Figure 9.1 provides more detail for track renewal volumes.

Table 9.1: Track and signalling renewal volumes 2003-04 to 2007-08

Renewal Activity	2003-04		2004-05		2005-06		2006-07		2007-08	
	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual
Rail renewal - km	1,198	1,401	874	816	1,002	1,120	1,007	1,028	1,016	1,039
Sleeper renewal (all types) - km	849	937	695	670	733	744	782	738	698	763
Ballast renewal (all types) - km	985	812	690	685	752	7*98	986	850	851	837
Switch and crossings - units	393	373	539	511	507	520	407	442	473	436
Signalling - equivalent units	N/A	604	N/A	1,678	257	278	669	481	1,357	1,441

Source: Network Rail's *Annual Return 2008* and Network Rail's business plans

9.6. After peaking in 2003-04, the volume of plain line renewal was significantly lower in 2004-05, but increased again to steady levels for 2005-06, 2006-07 and 2007-08. The volume of switch and crossings (S&C) renewals in 2007-08 was 436, very similar to the previous year's total of 442, although there is a notable increase in the volume of partial S&C renewals (120 in 2007-08 compared to 18 in the previous year) reflecting the recent shift in Network Rail policy towards life extension of S&C where economical. However this summary is inconsistent with the track element of the composite measure and Network Rail needs to resolve this.

9.7. The renewal volumes in 2007-08 were close to Network Rail's planned volumes for the year:
- rail renewal 2% more than planned;
- sleeper renewal 9% more than planned;
- ballast renewal 2% less than planned; and
- S&C renewal 8% less than planned.

9.8. Network Rail's new composite activity volume measure gives 93% delivery against plan and it is not clear how this composite measure equates to delivery of the individual components above. Even taking into account the inclusion of WCRM and maintenance volumes in the latter the measures do not appear to be consistent for either plain line or S&C.

9.9. Renewal volumes in Scotland were very close to planned volumes with the exception of ballast renewals, which were 18% less than planned.

Signalling

9.10. There was a significant increase in the reported volume of signalling renewals in 2007-08 compared to the previous two years. Network Rail report a total of 1,441 SEUs (signalling equivalent units) renewed compared to the business plan target of 1,357 and last year's total of 481.

Figure 9.1: Track renewal data
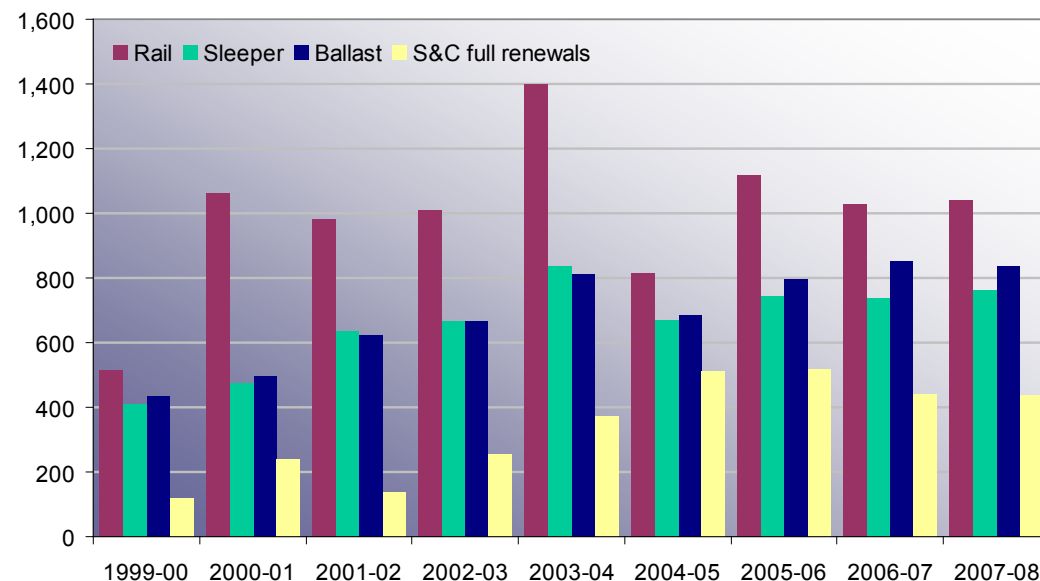
Source: Network Rail's *Annual Return 2008* and Network Rail's business plans

9.11. This represents an important step in the on-going renewal plan that Network Rail has for the next six years, which is dependent on having available the resources to routinely complete levels of renewal similar to that achieved in 2007-08.

9.12. As a measure of signalling renewal activity during 2007-08 the figure quoted must be treated with some caution. Signalling renewal schemes take many years to progress yet the data provided only reflects the equipment brought into service (commissioned) during the year. The 1,441 SEUs reported therefore reflects the efforts and costs of possibly four or five previous years as well as 2007-08. Similarly design and installation work carried out in 2007-08 but associated with future commissions is not reflected in the reported total.

9.13. A particular example of this is the 287 SEUs commissioned at Portsmouth which were planned to be commissioned at Christmas 2006 but were delayed into 2007-08 and therefore contributed to the 2007-08 SEU renewal total.

9.14. If the level of renewal is approximately constant for several years these issues balance each other so that the reported SEUs commissioned give a reasonable impression of the annual level of activity. However for the last two or three years there has been a planned increase in renewal activity which means that the reported SEUs commissioned may not give a true reflection of current activity. The only other indicator available is the cost of the work done which does show steady increase over the previous two years.

9.15. The impact of cable thefts on Network Rail is not limited to train performance. Many resignalling projects suffered cable thefts, causing potential delays through replacement, additional cost and additional security measures.

Telecoms

9.16. Telecoms covers a wide range of equipment that needs renewing. It includes voice systems such as signal concentrators, level crossing telephones and voice recorders, CCTV systems for driver only operation, and information systems and clocks on stations.

9.17. In almost every category the volume of equipment renewed exceeded the number planned by Network Rail. This is a reflection of the improved level of knowledge about asset condition and better utilisation of contractors.

9.18. Renewal of the national radio network (NRN) and cab secure radio (CSR) cab radio systems is treated as a major investment project and is therefore commented on in Chapter 10.

Structures

9.19. The independent reporter concluded that the information provided by Network Rail in the *Annual Return 2008* for the renewals measures for bridges, culverts, tunnels, retaining walls and coastal and estuarial defences is inaccurate, as it includes business plan projections and they are unable to comment further. We are concerned and require Network Rail to provide a clear statement of work done for 2007-08, which is current and based on actual activities not business plan projections. We also find the explanation given in the *Annual Return 2008* (section 4) on this issue inadequate and confusing.

9.20. We do not believe that Network Rail does not know how much work is being done and that it is unable to provide proper and robust information. Whether the data provided indicates any issues about poor asset management and value for money in managing the structures portfolio is therefore not clear and the independent reporter has declined to comment.

9.21. However, we can comment that supplementary information provided for the periodic review indicates Network Rail's output and costs are close to the assumption in ACR2003.

9.22. We note the inclusion of the composite renewal volume measure in the *Annual Return 2008*. However, proper linkage to the existing individual structures renewal reporting measures should be given with explanation of the differences where appropriate. There remain anomalies in the unit rates used within this measure, which also need further explanation. We note that overall for civils this measure shows renewals 10% less than planned and we shall be seeking an explanation of this shortfall.

9.23. Network Rail has continued the development of the decision support tool civil engineering cost and strategy evaluation (CECASE), to support their CP4 submission for structures funding. However in the periodic review process Network Rail has not convinced us that CECASE is sufficiently robust, and our funding was determined on the basis of actual volumes delivered in CP3. We intend to review further with Network Rail the development of CECASE so that it can reliably achieve its potential. This will assist the long-term prediction of maintenance and renewal volumes for all principal structures types for the purpose of establishing funding requirements. It is anticipated that in the short-term work banks will continue to be developed on the basis of engineer's assessments and the application of asset policies that will prioritise those structures elements most critical to securing the required performance across the network.

9.24. While renewal activity on the larger and more expensive schemes generally increased in 2007-08 compared to the previous year, volumes of activity on the many smaller and less expensive interventions are not captured within the existing renewal measures.

Electrification and power supply

9.25. Network Rail's composite activity measure shows only 67% of total electrification activity delivered against plan in 2007-08. This figure reflects under-delivery in virtually all aspects of the planned renewals e.g. OLE contact systems, AC and DC distribution and grid supply. Only in the renewal of the conductor rail has Network Rail delivered at levels above plan. We are seeking further explanation of the significant under-delivery, especially to understand how this may be affecting the performance and reliability of the electrified network.

Issues arising

9.26. Network Rail needs to continue to improve the way it reports asset renewal activities and hence how it demonstrates value for money.

9.27. Network Rail should address the unreliability of the structures volume measures (M23 and M26-29) as a high priority.

9.28. The new composite volume measure is welcomed but Network Rail should explain the linkage and differences with the existing measures, together with anomalies within the unit rates. The new measure does provide an overall summary by asset type but does not give explanation of over- or under-delivery within each asset.

9.29. Network Rail should continue to develop the decision support tool CECASE to reliably assist in establishing future renewal budgets.

9.30. It remains our recommendation that Network Rail continues to develop and review 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 take place; and

- additional activity measures for maintenance volumes, particularly track, where ORR currently only has visibility of annual spend.

10. Major investment projects

Network Rail spent around £650 million on enhancement schemes in 2007-08, an increase of around £250 million compared with the previous year.

There was a considerable ramp-up in spend on the Network Rail's discretionary fund (NRDF) programme, although spend in 2007-08 was more than 30% under budget. Delivery of smaller scale schemes remains a considerable challenge in 2008-09.

Overall Network Rail overspent on enhancements included in ACR2003 by £64 million, spending £341 million against a budget of £277 million.

10.1 This chapter describes our review of Network Rail's major investment activity. It has been supported by a review of major projects by the independent reporter, Halcrow, and its report will be published on our website.

Expenditure

10.2 Network Rail's regulatory accounts for 2007-08 show that:

- Network Rail overspent overall on enhancement schemes included in ACR2003 by £64 million, spending £341 million against an allowance of £277 million, driven by an overspend on West Coast route modernisation (WCRM) of £127 million but balanced by an underspend on health and safety schemes of £45 million; and

- Network Rail also spent £308 million in 2007-08 on enhancement schemes not funded in ACR2003, including Thameslink (£62 million), St Pancras (£72 million), Kings Cross (£17 million) and Disability Discrimination Act compliance (£33 million).

West Coast route modernisation (WCRM)

10.3 Following the possession over-run at Rugby at the New Year, Network Rail submitted a revised delivery plan to ORR on 31 March 2008 that included additional possessions but maintained the previous timescales. We reviewed Network Rail's plan with the independent reporter, and concluded that the plan is achievable, providing Network Rail diligently manages delivery against the new plan.

10.4 Network Rail's revised plan is dependent on achieving 25 key milestones, 21 of which are critical for the December 2008 timetable. Of these 21 milestones, Network Rail has delivered six according to plan, but one milestone associated with the power supply upgrade slipped from June to September 2008. Network Rail has satisfied the independent reporter that this should not affect the December 2008 timetable, with the critical signalling commissionings planned for 2008-09 on course.

10.5 Clearly the WCRM programme remains a major challenge and Network Rail will need to remain focused as it progresses through 2008. The company needs to work closely with the TOCs and FOCs involved to ensure that all reasonable steps are taken to minimise the impact on their operations during the heightened disruption on the route over the remainder of 2008. We will continue to closely monitor delivery of the remaining milestones as the year progresses to ensure Network Rail is on target to deliver the timetable improvements at the end of 2008.

10.6 Also of critical importance is the need to improve general infrastructure performance on the route, particularly following the spate of signal power supply failures during April and May 2008 in the Milton Keynes and Bletchley areas. Network Rail has said that it has formed a West Coast infrastructure reliability group, to draw

up action plans to deal with poor performing asset groups. The delivery of these action plans will need to significantly improve reliability to ensure the new December 2008 timetable is robust.

10.7 Forecast total expenditure in CP3 for the whole West Coast main line route (WCRM project and all other regional condition renewals) ended the year at 4.6% over the CP3 regulatory allowance. For the WCRM project alone, the forecast expenditure ended the year at 19.6%. For WCRM the 2007-08 budget of £554 million was exceeded by £60 million; a breakdown of this overspend is given in the independent reporter's review. These figures do not yet include the cost impact of the revised programme. All overspend will be funded by Network Rail.

Fixed telephone network global system for mobile communication – railway (FTN/GSM-R)

10.8 The renewal of the existing NRN and CSR is programmed to be complete nationally in 2013-14. This work involves the installation of an entirely new network of radio base stations and control equipment on the railway infrastructure, coupled with the replacement of radio equipment in every cab using the national railway network.

10.9 A key part of the project occurred during 2007-08 with the introduction of the trial use of the GSM-R equipment in the Strathclyde area in Scotland. This trial is a key step to demonstrating that the system, as planned for the whole network, functions as intended and to identifying and resolving technical problems before widespread introduction.

10.10 During the year the project organisation underwent a significant restructuring including a total review of the project programme. The project has a series of key deadlines driven either by the need to support other projects or to meet external events.

The project has team recognised that achieving all of these is extremely challenging but believes them to be achievable.

10.11 Co-operation with the train operators and owners has become increasingly critical and the project team made considerable effort to involve all these organisations. The commercial issues are now recognised as needing as much attention as the technical issues for the project to succeed.

10.12 As in 2006-07 both outputs and expenditure were below budget, for both renewals and enhancements. In the case of renewals this was mainly due to an understandable move to using smaller radio masts in greater numbers. Progress with enhancements was held up by delays to cross-industry agreement on the cab-radio scope.

European rail traffic management system (ERTMS)

10.13 During 2007-08 site work started on the ERTMS trial site on the Cambrian line in central Wales. The next generation signalling system, ERTMS, has been devised and developed in Europe for some years now but within the UK it is only in the last two years that signs of a real commitment have appeared.

10.14 The national implementation plan is hugely complex requiring all vehicles to be fitted with electronic systems allowing signalling information to be displayed in the cab. The objective for the fixed infrastructure is to remove the line side signals but to do this the vehicles need to be pre-fitted with ERTMS systems.

10.15 The ERTMS project team will need to develop close working relationships with the train operators and owners if the planned fitment is to be achieved and to resolve a range of operational issues relating to the rules needed to operate an ERTMS based railway.

10.16 The complexity of this project is yet further increased by the consequences of rolling stock movements around the country and the fact that the timescale for the national project is much longer than the train operator franchise periods making it difficult for train operators to commit to future plans.

10.17 The Cambrian trial has already exposed a range of difficulties such as the means of trying a new signalling system on a working railway, resolving commercial and contractual arrangements between industry partners and the availability of the required version of the system software.

Access for all

10.18 The delivery of this programme improved over 2007-08 following the problems recorded in last year's assessment. Progress is still behind the baseline (there is a reduced expectation of outputs for 2008-09) and the independent reporter's analysis highlighted concerns as to whether the level of resource applied is adequate.

Network Rail discretionary fund (NRDF)

10.19 Last year we highlighted that delivery of NRDF schemes would be a challenge for Network Rail in 2007-08, and this has proved to be the case. There was an underspend across all schemes of £30 million compared to the budget.

10.20 While the ramp-up in activity was significant (£61 million spent in 2007-08 compared to £11 million in the previous year) we remain concerned at Network Rail's planning and delivery in this area. Our concern during the year led us to ask the independent reporter to review a sample of NRDF schemes, and a number of recommendations were made reflecting weaknesses in Network Rail's documentation of process and the tracking of benefits. We will monitor closely in 2008-09 given the importance of these small schemes.

Third party schemes

10.21 Our investment policy framework and guidelines are aimed at smoothing the way for greater third party investment by providing clarity to potential investors about the role and responsibilities of Network Rail and the terms on which they can expect to invest.

10.22 We analysed Network Rail's involvement in schemes promoted by third parties, where Network Rail may provide design or delivery services, or facilitate on behalf of others delivering schemes.

10.23 In summary, Network Rail provided services for 130 schemes in 2007-08, of which 102 used the templates approved by us and setting out default terms for investment. In 2007-08, third parties entered into new contracts with Network Rail for £282.7 million of new rail investment. This is nearly 100% up on 2006-07, reflecting the increase in value of the schemes[17] in implementation (this figure is obtained by summing the value of schemes in implementation i.e. £58.7 million + £224.0 million). The value of the services that Network Rail will provide on these schemes is £222.7 million.

10.24 In May 2008 we published our conclusions on the changes necessary to the template agreements in order to ensure that the risk allocation in the agreements properly reflects our policy framework for investments. Network Rail is currently consulting on proposed changes to the templates following those conclusions. Once the templates are approved we will monitor any effect on the level of investment activity in 2008-09.

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17 Note that the value of the agreements in 2007-08 is not the same as the cost of work done (COWD) in 2007-08, as some of the agreements cover a number of years of activity.

10. Major investments projects

Table 10.1: Major projects

	Template Agreements	Bespoke Agreements	Total number of agreements	Value of projects funded under template agreements (£ million)	Value of projects funded under bespoke agreements (£ million)	Total value of projects funded under template & bespoke agreements (£ million)	Total forecast Network Rail spend under template & bespoke agreements (£ million)
Projects in development	54	19	73	463	430	893	22.3
Projects in implementation Network Rail facilitating	19	1	20	56	2.7	58.7	7.3
Projects in implementation Network Rail implementing	29	8	37	190	34	224	215.4
Total third party projects	102	28	130	709	466.7	1,175.7	245

Source: Network Rail

10.25 Table 10.1 summarises Network Rail's involvement in third party schemes entered into in 2007-08.

Issues arising

10.26 We support the recommendations from the independent reporter contained within its report and expect Network Rail to act upon them. In particular in respect of WCRM, in addition to the existing reporting, we recommend Network Rail reports on a periodic basis:

- progress in removing TSRs;
- reliability of the new and existing infrastructure, together with progress on any action plans for reliability improvement;
- planned and actual delivery of renewals by the territory in 2008-09; and
- progress in the establishment of the future maintenance arrangements.

11. Network Capability

In September 2007, Network Rail completed a verification of the capability of the network to help ensure that the published capability matched the actual capability. The resulting data correction of the underlying asset information systems for recording and measuring network capability therefore obscure trends.

11.1. In this chapter, as well as considering specific capability measures, we also review some enhancements to the network. In the current control period Network Rail is funded to maintain the capability of the network at the level that existed at 1 April 2001. Enhancements are generally subject to specific funding arrangements, while reductions are permitted through the network change process under the Network Code (Part G), generally as a result of changing traffic patterns.

Capability measures

11.2. Network Rail's annual returns track four physical network capability measures by mileage:

- linespeed;
- loading gauge;
- route availability; and
- electrification.

The *Annual Return 2008* provides a breakdown of the network-wide data by operating route.

11.3. In 2005, we identified discrepancies between actual and published capability of the network, and we found Network Rail in breach of its Network Licence. In September 2007, Network Rail completed a verification of the capability of the network to ensure that the published capability matched the actual capability. It has carried out a recovery plan to rectify the discrepancies, either to restore the route to its published capability, or to revise the published capability on a permanent or temporary basis through Part G of the Network Code. A new Part G mechanism for making temporary network changes has now been incorporated into the Network Code. As noted in the 2006-07 assessment, data correction in the underlying asset information systems for recording and measuring network capability obscures trends.

Data quality

11.4. The reporter sampled network capability data as part of its audit of Network Rail's *Annual Return 2008*. The overall report was better than in previous years, indicating that data quality is improving.

11.5. There were some reductions in the base network due to data cleansing, which are of approximately the same magnitude as the additions to the network as a result of enhancements.

Enhancements

11.6. During 2007-08, Network Rail made some welcome enhancements in capability, in many cases partially or totally funded by third parties. For example:

- the capability of the West Coast main line was further enhanced under the route modernisation project, with additional tracks on the Trent Valley section, and further increases in linespeed of a number of sections, for example from 100 to 125 mph between Rugby and Birmingham;
- twelve track miles in Wales from the reopening of the Ebbw Vale branch in February 2008;
- eight track miles in Scotland from the reopening of the Alloa branch in May 2008;
- new stations at St Pancras International for both main line and Thameslink services;
- new stations at Coleshill Parkway and Llanharan;
- completion of new platforms at Edinburgh Waverley and the ability to operate an additional four trains per hour at peak periods;
- platform extension at Newport; and
- Portsmouth resignalling, providing additional capability with reversible working from Havant to Portsmouth Harbour, was delayed from 4 February 2007 and Network Rail did not commission it until October 2007.

11.7. There have been no material gauge enhancements this year, but some routes have been cleared following reassessment. Conversely, with regard to route availability, there has been a downward reclassification of over 1,000 miles of track from route availability (RA) value 7-10 to RA 1-6 as a result of reassessment.

11.8. Some schemes included in Network Rail's business plan 2007 were not implemented. Variance can be caused by a number of reasons, such as scope change, planned slippage to increase efficiency, or third party changes. Some examples of schemes yet to be implemented are:

- upgrade of the Brigg line, planned for August 2007, has been postponed to 2008;
- Penryn loop, originally planned to double services on the Falmouth branch from Easter 2008 is not now expected to open until May 2009;
- a new station originally planned to open at Shepherd's Bush in 2005-06, deferred to 2006-07 and not now expected to open until later in 2008;
- new stations at Reading Green Park and Aylesbury Vale postponed to 2008-09;
- a new transport interchange at Partick;
- bay platform extension at Northampton delayed to 2008;
- platform extensions in the Welsh valleys delayed until 2008;
- extension of the bay platform at Grays delayed to 2008-09;
- platform extensions at Bromsgrove have been delayed to 2009-10 to permit the station to be relocated to the south;
- completion of a large new freight terminal at Donnington near Telford was originally planned for autumn 2005, but is not now expected until later this year;
- in June 2005, Network Rail submitted a network change proposal to remove the Wisbech branch from the operational network, but this has not yet been carried out; and
- the planned closure of the Folkestone Harbour branch has not yet taken place.

Congested infrastructure

11.9.   European Directive 2001/14/EC requires infrastructure managers to prepare annually a network statement of capability which sets out all the information a train operator wishing to use the network needs to know. This includes the capacity of the network, how that capacity is allocated and where the network has been declared 'congested'. Congested infrastructure occurs where it is not possible for Network Rail to satisfy requests from train operators for infrastructure capacity.

11.10.   In its *Annual Return 2007*, Network Rail was asked to report progress with relieving congestion points on the network. Its approach was to focus mainly on compliance with Directive 2001/14/EC. In October 2006, Network Rail published its 2008 network statement in which it declared three sections of infrastructure to be congested:

- Gospel Oak to Barking;
- Reading to Gatwick Airport; and
- Barassie Junction / Kilmarnock / Newton Junction / Mauchline junction to Gretna Junction (known as the Glasgow and south western - G&SW - route).

11.11.   In the *Annual Return 2008*, Network Rail did not include any progress on the relief of congestion. The required capacity analyses were published in April 2007 but the corresponding capacity enhancement plans were not published during October 2007 as planned. However, two of the three declared sections are already subject to major upgrades:

- the Government announced in July 2007 that it would contribute £18.5 million towards the Gospel Oak to Barking rail upgrade (to be constructed by Network Rail as part of the DfTs transport innovation fund (TIF) programme). It is anticipated that this work will be completed in 2008-09; and

- work for the Glasgow and south western route started in 2007 – this is also expected to be completed in 2008-09.

11.12.   No further infrastructure was declared congested in the 2009 Network Statement[18]. However, there are many other locations where there is a known constraint on capacity allocation but which do not quite meet the criteria to be declared congested. We said last year that Network Rail should continue to focus on resolving these problems and should include proposals to address them in the RUS programme, but to date it has sought to keep the two processes separate. For example, during March 2008, we identified a large number of potentially competing applications for track access to the East Coast main line (ECML). During 2008-09, we look to Network Rail to coordinate these applications with the ECML RUS and consider whether the ECML needs to be declared congested.

Issues arising

11.13.   We expect Network Rail to:

- continue to ensure that published capability is consistent with actual capability;
- create formal definitions and procedures for estimating all measures with a clear audit trail of how the figures published in the annual return were arrived at; and
- ensure that the preparation of the annual network statement of capability is aligned with the RUS process.

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18 http://www.networkrail.co.uk/documents/4294_Network%20Statement%202009.pdf

12. Planning and operation

Network Rail fulfilled its Network Licence requirement to adopt the strategic planning role for the industry. During 2007-08 it published five route utilisation strategies. It has since published two more in draft and is developing nine others.

12.1 This chapter assesses Network Rail's progress with providing leadership in the strategic planning work of the industry, particularly through the development of route utilisation strategies, and the extent to which it is meeting it's obligation to provide timely data to customers, and hence passengers, on changes to the timetable.

Route utilisation strategies (RUSs)

12.2 Following DfT's white paper *The Future of Rail* and the subsequent Railways Act 2005, Network Rail took on responsibility for the development and production of RUSs across the network. ORR subsequently 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 a RUS to be established 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.

12.3 The purpose of a RUS is to take a strategic look at a particular section/aspect of the rail network and the 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.

12.4 Network Rail is required to submit its RUS programme to ORR for approval. Revised submissions were made in March and October 2007, and (following endorsement by the Rail Industry Planning Group) ORR approval was granted. To avoid continual small changes to the programme, ORR agreed with Network Rail in January 2008 that henceforth it would be formally reviewed every two years. Details of Network Rail's work can be found on its website[19].

12.5 In December 2007 we reviewed the parts of Network Rail's Network Licence relevant to RUSs, and its guidelines. Broadly we found that RUSs had improved in quality since our 2006 review, and we concluded that in the short-term there need be no further substantive changes to the process. In the longer term we believe that there should be a stronger industry-led strategic planning framework. We are taking this forward in our 2008-09 business plan.

12.6 There was substantial slippage of two-six months for most RUSs, but nine months for three RUSs and 11 months for the WCML RUS. The delay arose partly out of ORR's RUS review requirement for increased quality of output, and partly because of a lack of Network Rail resource in the year. There was some slippage compared with the draft programme published in Network Rail's business plan 2007.

12.7 The following RUSs were established in 2007-08:
- Scotland RUS, established April 2007;
- Freight RUS, established May 2007;
- North West RUS, established June 2007; and
- Greater Anglia RUS, established February 2008.

19 http://www.networkrail.co.uk/browseDirectory.aspx?dir=\RUS%20 Documents&pageid=2895&root=

12. Planning and operations

12.8 Published but not established in 2007-08 were:

- East Coast main line (since established April 2008); and
- south London (since established May 2008).

12.9 Other strategies under development at the end of 2007-08 were:

- Lancashire & Cumbria (draft since published April 2008);
- Wales (draft since published May 2008);
- Yorkshire and Humberside;
- Merseyside;
- Network;
- Kent;
- Sussex;
- East midlands;
- West midlands & Chiltern; and
- Great Western.

12.10 To manage the RUS process, Network Rail has a route planning team with 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 route enhancement managers. At the beginning of 2008, Network Rail recruited three RUS project managers to its HQ team to ensure that the RUS Programme is more robustly managed. In addition, core economic analysis has been brought in-house to reduce reliance on consultancy contracts and to improve response times.

Joint performance process

12.11 The joint performance process (JPP) is the industry process for working together on performance improvement. The arrangements are set out in Parts L and LA of the Network Code. Network Rail's role is to lead the process. The key output is an annual joint performance improvement plan (JPIP) for each franchised TOC. (Open access passenger and freight operators are covered by local output commitments.)

12.12 2007-08 was the second full year of the Part LA process and a full set of JPIPs were agreed. As in 2006-07, the collaborative approach to production and implementation of JPIPs was one of the factors behind a significant improvement in train performance (see Chapter 4).

12.13 A few problem areas were raised with ORR during the year. One of these was First Great Western, as described in Chapter 4. Additionally, First Capital Connect was satisfied with the targets in the JPIP but had doubts over Network Rail's ability to meet them. A number of meetings were held and close monitoring took place but by the end of the year the JPIP targets had been delivered and the operator was satisfied. Southern experienced the effects of a series of very disruptive incidents including flash flooding, fatalities, track faults and conductor rail icing that put its PPM behind JPIP targets. At the end of the year the PPM MAA had reached 89.9% against a 90.3% target. ORR called a meeting with senior representatives from Network Rail's Sussex route team and Southern but was satisfied that Network Rail was taking all reasonable steps to recover performance.

12.14 Before relinquishing the franchise for the East Coast main line high speed services, GNER expressed a number of informal concerns about progress against its JPIP. The PPM MAA target was 85.0% but a number of problems, including flooding, cable

theft and overhead line failures, held back progress and the new operator, National Express East Coast, finished the year at 82.6%. However, both companies preferred to work locally with Network Rail on recovery plans, rather than making a formal reference to ORR.

Timetable planning

> Network Rail largely fulfilled its network licence requirement to give sufficient advance warning of temporary changes to the timetable in 2007-08.

12.15 Condition 9 (Timetabling) 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 time for the timetable to be revised at least twelve weeks prior to the date of any such change (the T-12 requirement, also known as the informed traveller requirement).

12.16 Network Rail largely achieved the T-12 requirement throughout the year, but there were some areas of serious concern, especially planning and implementation of the West Coast route modernisation (see paragraph 15.9). Achievement of the requirement was sometimes affected by late provision of information by TOCs, itself sometimes caused by late notice changes to the planned engineering work.

12.17 Key points are:

- Network Rail achieved an average of 10.77 weeks ahead of the date of operation for uploading altered timetable data to the train service database, with a slightly improving trend over the

year. However late notice possessions for engineering work advised after the monitoring date (T-12) will not necessarily be taken into account in this figure;

- the provision of data to Network Rail by all TOCs was an average of 16.47 weeks against a target of 18 weeks (T-18). Performance by individual TOCs varied, with some regularly outperforming their requirements and others consistently underperforming, which can have implications for Network Rail achieving the licence condition requirement; and

- Network Rail has a review process in place to vet all proposals for additional late notice disruptive possessions or changes to disruptive possessions. This maintains pressure on its engineers to manage their requirements in a way that causes fewer late notice changes to the timetable than might otherwise be required. However some routes request more such possessions, pro rata, than others, and Network Rail must continue to ensure that these are truly necessary, to identify the root causes, and to manage the disparity to achieve the required timescales.

12.18 Significant issues that caused late changes to timetable plans include:

- short notice possession changes on the Merseyrail Electric network, whose limited train planning resources were further stretched by having to produce altered train plans to deal with threatened strike action by signallers and planning for sporting events;

- a very late request for an additional day (31 December 2007) to be added to the Christmas blockade at Rugby (which, in the event, overran significantly beyond the extended period); and

- major changes to the possessions for the WCRM programme, following ORR's investigation into the Christmas 2007/New Year 2008 possession overruns at Rugby and elsewhere. Some of these possessions were changed too late to be reflected in the figures quoted above.

12.19 Such problems impact both on Network Rail's train planning units and on those of the TOCs. Any major late-notice changes can cause TOCs resourcing difficulties, but, where small TOCs with limited train planning resources are involved, the effects will be felt for some weeks, sometimes months, afterwards. Even larger TOCs with significant train planning teams may struggle to recover. Stagecoach South West Trains had to endure major late changes to its engineering work plan as a result of Network Rail's failure to commission the Portsmouth resignalling work in the autumn of 2006, and the effects continued into 2007-08. Resulting late bidding for altered paths in the timetable can affect TOCs that have not been directly involved, as Network Rail may be unable to compile the full altered timetable without the affected TOCs' bids.

12.20 When taken in conjunction with the development of a comprehensive suite of RUSs, we are satisfied that Network Rail is working to improve the timetable planning process and we shall continue to monitor progress. This will remain a high profile issue, given the anticipated continuing widespread growth in demand across an already heavily utilised network.

Issues arising

12.21 Network Rail should continue to ensure late disruptive possessions are genuinely necessary, identify root causes of late requests (especially for those routes where these are most prevalent), and manage the disparity between routes to achieve required timescales.

Network Rail's latest customer satisfaction survey shows that the level of satisfaction of train operating companies (TOCs) and freight operating companies (FOCs) towards Network Rail deteriorated from the previous survey (autumn 2006). Attitudes of suppliers to Network Rail improved to the highest level seen since the survey was introduced in 2003-04.

13.1 This section reviews the results of the annual customer satisfaction survey that Network Rail undertakes (through its agency Ipsos MORI) and reviews Network Rail's action plan for addressing the issues identified.

Customer satisfaction

13.2 The data to produce the measure is gathered through primary research. A total of 236 interviews were carried out by telephone with TOC and FOC managers (against a minimum target of 200; there were 244 interviews in the 2006 survey). The sample was representative of all operators, including open access operators. The methodology was unchanged from the 2006 survey.

13.3 The survey was carried out between 15 October and 30 November 2007, which was before the highly publicised problems with overrunning possessions at Christmas 2007.

13.4 The key measure that Network Rail uses to assess the satisfaction of its customers (TOCs, FOCs and owning groups) 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)"

Figure 13.1: Customer satisfaction survey results
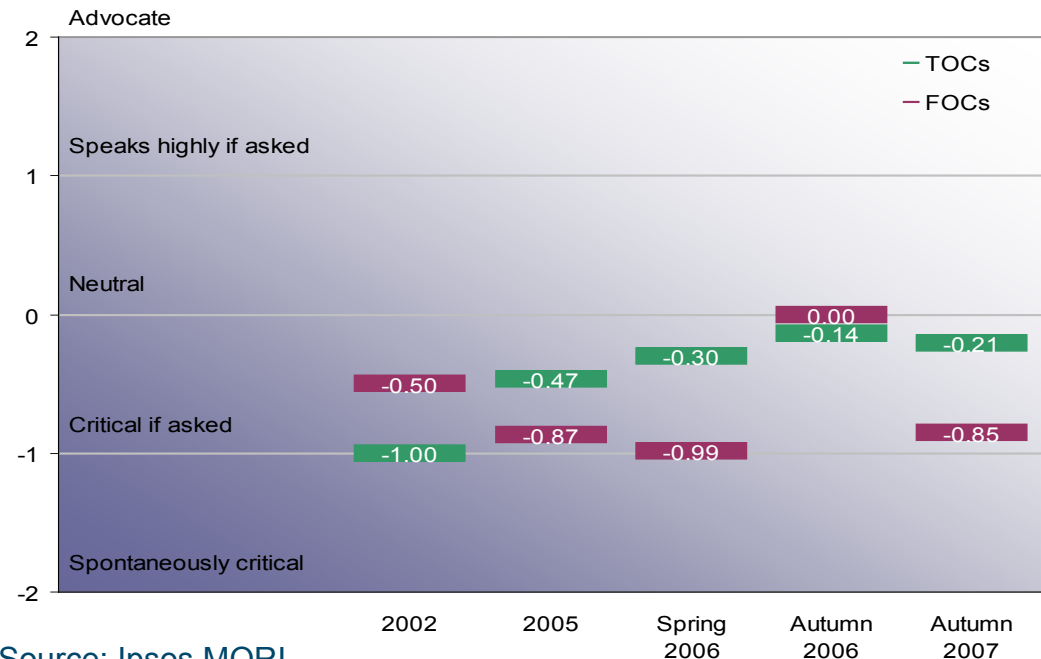
Source: Ipsos MORI

13.5 Figure 13.1 shows that the attitude of TOCs to Network Rail fell back slightly from -O.14 to -0.21. Similarly the 'net satisfaction' score fell back from 25% in autumn 2006 to 16% in autumn 2007. This compares with an improvement noted in 2006 over the previous year's survey from -0.41, compared with -0.30 in 2005-06.

13.6 FOCs' attitude also fell back, from 0.0 to -0.85. This compares with a slight improvement noted in 2006 over the previous year's survey - to 0.0 compared with -0.99 in 2005-06. It should be noted that the FOC sample is much smaller and therefore more volatile.

13.7 Below the top level numbers, the highest ratings were for: understanding customers' needs; personal working relationships; and values relationship. Network Rail is perceived as being open and honest with customers.

13.8 The lowest ratings were for: integrated; decision involvement; and flexible. There has been a decline in perceptions of Network Rail delivering on its promises as well as in terms of trusting Network Rail.

13.9 This data is supplemented by numerous verbatim comments from operators that indicate:

- Network Rail is too bureaucratic and slow in decision making;
- freight companies do not believe that they are treated equally in Network Rail's decision making process; and
- Network Rail is overly hierarchical in structure.

13.10 However more positively, the way that Network Rail handled autumn delays was complimented and the work of dedicated groups at route level was appreciated.

13.11 In terms of understanding customers' needs the mean score (1 = not at all well, 4 = very well) declined from 2.63 in 2006 to 2.56 in 2007. There were however considerable geographical variations: LNW and Western both improved from the 2006 survey, from 2.94 to 3.17 and 2.88 to 2.99 respectively. All other routes declined, particularly Kent, Scotland and LNE.

13.12 We conclude from the survey that Network Rail's work to ensure that customer relationships are effectively managed (through the customer service improvement plan - CSIP) has had an effect, but that it needs to do more to speed up decision-making and reduce bureaucracy.

13.13 We have emphasised to Network Rail the importance of this measure and are pleased that the company has confirmed that it will include it in its management incentive plan from 2009-10. The measure included will be the net satisfaction score as opposed to the advocacy measure used to date. We believe that this change is logical but urge Network Rail to undertake benchmarking of appropriate infrastructure providers (either in the UK or internationally) to better understand and put in to context its achievement and proposed targets.

Supplier satisfaction

13.14 For the supplier survey, 72 interviews were conducted with chief executive officers and other senior managers and technical experts drawn from Network Rail's list of suppliers, the survey being weighted by volume of work done.

13.15 The methodology was unchanged from 2006, with in-depth interviews conducted face to face wherever possible or by telephone if not. The overall satisfaction score was based on the same advocacy measure as customers, described in paragraph 13.4, above.

13.16 The survey showed a further increase in satisfaction levels, reflecting a continued improvement in relationship management through the supplier account management (SAM) process, supplier conferences, improvements to the tendering process and the development of a standard suite of contracts.

Independent reporter

13.17 The independent reporter has examined the process used to produce the customer and stakeholder satisfaction report and is satisfied that the survey was robust and that the results are statistically reliable.

Benchmarking

13.18 Network Rail should undertake benchmarking of appropriate infrastructure providers to better understand its net satisfaction scores to provide a context for its achievement and proposed targets.

14. Environment

> During 2007-08 Network Rail substantially completed (95%) work on its light maintenance depot pollution prevention programme in order to secure compliance with the Control of Pollution (Oil Storage) Regulations and the Groundwater Regulations.   It also continued with its scheme to address contaminate land issues and its plans to surrender three of its four waste management site licences.

14.1.   This chapter assesses the work carried out by Network Rail during 2007-08 toward the protection of the environment and its contribution to the achievement of sustainable development.

Pollution prevention

14.2.   Environmental activity featured in Network Rail's business plan 2007 focused on its ongoing national pollution prevention programme to ensure compliance with the Control of Pollution (Oil Storage) Regulations and the Groundwater Regulations at light maintenance depots and other sites, for which Network Rail has been funded through ACR2003.

14.3.   Work to complete this programme was substantially completed towards the end of 2007, although work continues at a small number of light maintenance depot (LMD) sites where work has taken longer than originally scheduled.

14.4.   Network Rail, as in previous years, has also reported progress against two further initiatives it is undertaking: a scheme to address the contamination of railway operational property that it now owns, and its plans to surrender three of its four waste management site licences (at Conington, Hunslett and Newport Mon Bank, the latter two reported as being surrendered early in 2008).

14.5.   In terms of the contaminated land programme, at the end of 2007-08 Network Rail had:

- investigated and monitored approximately 600 sites to establish levels of soil and water pollution;

- carried out detailed investigation of 100 of these sites and implemented remedial measures where necessary (only five sites remain in long-term remediation);

- installed full effluent treatment plants at 10 sites in conjunction with environmental regulatory bodies; and

- extended the programme to the end of CP3 to address issues discovered during the course of its investment programme.

14.6.   As well as focusing on these specific schemes, Network Rail for the first time has set out its plans to review its environmental strategies to:

- achieve sustainable consumption;

- be more energy efficient and reduce reliance on fossil fuels; and

- protect the natural environment.

Other environmental issues

14.7.   Previous Network Rail business plans highlighted the activities that were being undertaken to address a far wider range of environmental impacts, although subsequent annual returns did not always report progress, specific initiatives or level of activity on such issues. It is for this reason that our specification for the *Annual Return 2008* included a requirement to report on such issues as energy use, carbon emissions, waste management, operational noise and vibration, fly-tipping, litter, graffiti, railway crime, and sites of special scientific interest (SSSI) evaluations. The inclusion of such issues in the annual return was also recommended in our 2006 and 2007 annual assessments.

14.8. We believe that Network Rail could still usefully report against a wider range of initiatives in the annual return. The situation is complicated by Network Rail's inclusion of some environmental initiatives in its separate Corporate Responsibility Report for 2007-08 rather than reporting in the *Annual Return 2008*. We have met recently with Network Rail to resolve these issues for future annual returns.

14.9. During 2007-08 we held a useful meeting with Network Rail to discuss the initiatives and targets outlined in its initial strategic business plan (SBP) submitted in October 2007 to underpin its CP4 activities. Although we decided not to set specific CP4 sustainability outputs for Network Rail, it was clear from its original plans and our subsequent discussions that the company is intending to move these issues forward over the coming years to monitor and improve its environmental performance. This includes the development of an auditable wide-ranging key performance indicator (KPI), to include key supplier data to influence wider sustainable behaviour, and associated targets, to be implemented from 2009-10. Whilst it was disappointing that environmental issues were not included within Network Rail's April 2008 SBP update document, this approach is clearly reflected in the forward looking plans outlined within the *Annual Return 2008*. We expect to see this type of data included in future annual returns when available.

14.10. In our 2006-07 annual assessment we made specific recommendations to Network Rail, namely:

- the provision of a revised environmental policy;
- ensuring that its *Annual Return 2008* focused on a wider range of environmental issues;
- incorporating more detailed environmental objectives within its 2008 business plan; and

- participating constructively in cross-industry initiatives aimed at improving the sustainable performance of the railways.

14.11. In April 2008 Network Rail published a revised policy that reflects our revised environmental guidance document (published in December 2007[20]), which suggested that licence holders consider their environmental arrangements in the wider context of the government's sustainable development strategy. Network Rail has adopted this approach, and its policy now sets out its goals and strategies to address social, economic and environmental sustainability.

Reporting

14.12. Network Rail has not gone far enough in meeting the recommendation in respect of the *Annual Return 2008*.

14.13. Our published position[21], that we would not seek to amend Condition 7 to place a firmer requirement on Network Rail to formally include sustainable development objectives and initiatives within its future business plans, remains. However, in view of the fact that the wider environmental issues have again been overlooked in the annual return, this is something that we may have to consider more seriously in the near future. In the meantime, our PR08 draft determination consultation document included the proposed 2009 business plan notice, which refers to the inclusion of specific objectives and targets to improve Network Rail's environmental performance and details to show how they will be delivered. The consultation also underlined our intention to continue to critically monitor Network Rail's environmental performance against its SBP (and other) initiatives through our annual assessments.

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20 *Guidance on environmental arrangements for licence holders*, ORR December 2007 (available at http://www.rail-reg.gov.uk/upload/pdf/348.pdf).

21 *Sustainable development & environmental duties – conclusions*, ORR April 2007 (available at http://www.rail-reg.gov.uk/upload/pdf/324.pdf).

14. Environment

14.14. In moving forward on this issue, Network Rail should:

- ensure that its annual return in 2009 focuses on its wider environmental initiatives and targets (such as those outlined in its October 2007 SBP document), in order that we, the rail industry and other interested and affected parties can evaluate the extent to which its environmental strategic objective is being met, and discern the extent to which environmental responsibilities are being taken seriously;

- involve us in the adaptation of its environmental KPIs for inclusion within future annual returns; and

- continue to participate constructively in cross-industry initiatives aimed at improving the sustainable performance of the railway.

15. Network Licence compliance

There were a number of concerns about Network Rail's performance during 2007-08. In some cases we took enforcement action while other areas of concern were resolved without the need for formal enforcement. We found Network Rail to be in breach of its licence obligations on four occasions. Three of these were deemed serious and in two instances we imposed a financial penalty.

15.1. This chapter focuses on areas of concern identified during the year and therefore presents a relatively negative view of Network Rail's activities. However, we also note that Network Rail's operation of the national network includes a very large number of different activities, many of which have been carried out successfully.

Monitoring and enforcement

15.2. There were a number of areas of concern about Network Rail's performance during 2007-08. In some cases we took enforcement action while other issues were resolved without the need for that approach. We found Network Rail to be in breach of its Network Licence obligations on four occasions. Three of these were deemed serious and in two instances we imposed a financial penalty.

Portsmouth re-signalling scheme

15.3. In June 2007, we found Network Rail in breach of condition 7 (stewardship of the licence holder's network) in the light of its failure to evaluate and mitigate adequately the risks associated with a re-signalling project at Portsmouth and for failing to manage its contractor in line with best practice. We imposed a penalty of £2.4 million on Network Rail which it paid to the DfT in September 2007.

Engineering work overruns over the 2007-08 New Year

15.4. In January 2008, we initiated an urgent investigation following serious overruns of engineering work at three locations on the network - Rugby (part of the WCRM project), London Liverpool Street and Shields junction over the new year period. This resulted in further enforcement action on two further occasions.

15.5. On 28 February 2008, we found Network Rail in breach of Condition 7 and made a provisional order in respect of a likely contravention of Condition 7 by Network Rail by failing to have an adequate plan to deliver outputs of the WCRM project in time for the December 2008 timetable change. The provisional order required Network Rail to produce a robust plan, in consultation with its customers and funders, showing how it would complete the work on the West Coast main line to enable significant timetable improvements. This plan was submitted to us at the end of March 2008 and reviewed by the independent reporter, Halcrow. After considering all factors, we decided that the plan was deliverable. Network Rail is now delivering its revised plan allowing the improvements to be introduced from December 2008.

15.6. Also on that date, we found Network Rail in breach of Condition 7 in light of its on-going failure to plan and manage projects involving possessions across the network in a timely, efficient and economical manner and in accordance with best practice so as to meet the reasonable requirements of its customers and funders. The areas of weakness which we identified included Network Rail's:

- risk assessment processes;
- management of suppliers;
- site management; and
- communication with train operators.

15.7. At the same time, we announced our intention to impose a penalty of £14 million on Network Rail for its continuing breach of Condition 7 in relation to the planning and execution of the engineering work requiring possessions. The penalty was imposed on 13 May 2008.

15.8. The final order, dated 22 April 2008, required Network Rail to deliver to ORR by 30 June 2008 a plan outlining how it proposed to improve the way it delivers projects in the above four areas. We specified that the plan needed to deliver real benefits by the end of December 2008. Network Rail submitted its plan on 27 June 2008. We are working with Network Rail and the independent reporter to follow progress in 2008 and audit the results in 2009 to ensure the necessary improvements have been implemented.

15.9. Network Rail was also in breach of Condition 9 (Timetabling) for its decision to take on extra day's possession at Rugby on 31 December 2008 at late notice, despite the objections of affected operators. We decided not to take any enforcement action.

Capability of the network - Network Rail's recovery plan

15.10. In March 2006 we issued a notice under section 55(6) of the Railways Act in lieu of enforcement action when we found Network Rail in breach of Condition 7 for failure to ensure the availability of accurate information on infrastructure capability. The notice required the production and achievement of a recovery plan. At the end of September 2007, Network Rail met the final milestone in the plan and we consider that the company has met the requirements of the notice.

15.11. We continue to monitor the implementation of Network Rail's recovery plan to consider the routes to be restored and the routes to be put through the network change process. We also continue to monitor for the timely resolution of any outstanding discrepancies between actual and published capability and Network Rail's forward programme for ensuring that the relevant information is kept up to date in a more readily accessible format. Network Rail's target date for completion of the review is October 2008.

Network Rail's management incentive plan

15.12. We monitor Network Rail's performance against the measures set out in its management incentive plan (MIP). We review Network Rail's performance on each of the three performance metrics in the MIP (train service reliability, efficiency and asset stewardship) and pay particular attention to safety, licence breaches and other performance issues.

15.13. In May 2008, we wrote to the chairman of Network Rail's remuneration committee to draw his attention to key issues in our assessment of Network Rail's performance, to inform the committee before it met to decide on bonuses. We also provided Network Rail members with the results of our monitoring of Network Rail's performance.

Review of our penalties statement

15.14. Following the penalties we imposed on Network Rail for the breaches on infrastructure capability and at Portsmouth, we reviewed our economic penalties statement and compared it to the approach adopted by other regulators. In October 2007, we consulted on proposed amendments to our statement. We have considered the responses and are reviewing our statement in the light of these and other developments since last year. We expect to consult again on our policy later in 2008.

Network Licence review

15.15. Network Rail's Network Licence is a vital part of the framework for holding the company to account. We, as the industry safety and economic regulator, must ensure that Network Rail's obligations, and the way it complies with these obligations, complement the other aspects of the framework such as: outputs; incentives; the financial framework; contracts; general legal obligations; the company's corporate governance; and our enforcement policies. We review the licence from time to time to ensure that it remains fit for purpose.

15.16. We began a review of the Network Licence in 2007 as part of PR08 to assess whether it was still fit for purpose and to examine key areas where it could be strengthened. We consulted on our proposals in June 2008 alongside our periodic review draft determinations. We proposed to restructure the licence so that it is more purposeful. This included proposals to:

- retain the current network stewardship obligations at the heart of the licence; and
- strengthen those obligations to emphasise Network Rail's planning, capacity allocation and asset management roles.

Notices, consents and approvals under the Network Licence

15.17. In June 2007, under Condition 13 (restrictions on interests in train operating and rolling stock companies), Network Rail was granted consent to fit, test and commission European rail traffic management system (ERTMS) equipment on the Cambrian lines. We also consented under Condition 13 for Network Rail to lease some 60 side-tipper wagons to English Welsh & Scottish Railway Ltd (EWS) for use on non-Network Rail infrastructure.

15.18. In September 2007, we granted consent under Condition 12 (ring-fencing) of the Network Licence for Network Rail to act as a notified body in particular circumstances. This allows Network Rail to continue with the certification of third-party rail vehicles when they meet the applicable standards.

Land disposals

15.19. In line with the principles of better regulation, we commissioned the independent reporter, Halcrow, to carry out a review of Network Rail's land disposals under Condition 26 (disposal of land). Halcrow recommended that Network Rail take a greater lead in the land disposal process, provided it improved its procedures.

15.20. In November 2007, we consulted on our proposal to transfer the responsibility for undertaking external stakeholder consultations to Network Rail. This would make Network Rail more accountable for ensuring its effectiveness in its stakeholder consultations before proposing disposals for our consent. The terms of the licence remained unchanged and we retain our powers to protect land required for railway use. We concluded that the new arrangements should be implemented from 1 April 2008.

15.21. In 2007-08 we completed 15 land disposal cases with two cases requiring conditions attached to our consent. No submissions were refused consent in the year.

Issues arising from this assessment are summarised below. A plan will be developed and agreed with Network Rail to put in place robust and measurable actions. Progress in delivering the plan will be monitored through our regular scheduled reviews with the company. Progress will be reported in next year's assessment.

Train performance

- Analyse the significant difference in the freight gross tonne mileage data extracted from the two databases BIFS and PPS.

Expenditure and efficiency

- Improve processes in handling data for the MUCs, including collecting and processing of data.
- Describe the work activities (inputs and outputs) and reporting activities in sufficient detail to reduce the opportunity for local interpretation in the development and further roll-out of the MUCs.
- Review and subsequently formalise in documentation the method for processing the maintenance unit cost and efficiency data before reporting, including the decision criteria for replacing collected data with estimated data.
- Agree with us on the measures to be presented for measuring track renewals efficiency; we believe that track renewals unit costs remain a useful measure of trend monitoring along with composite unit costs.

Network condition

- Ensure that it continues to exploit the opportunities to benchmark the performance of its delivery units, using data on the reliability and condition of its infrastructure assets, to understand and identify opportunities to implement best company practice across the entire network.

- Continue to apply this analysis to develop and quantify targets for route-specific action plans, and it should demonstrate clear success in this by delivering consistent improvements in asset reliability, including those routes on which this year's performance has lagged behind the best performing ones.
- Continue to identify and implement effective control measures for rolling contact fatigue on those parts of the network where the incidence of RCF has been increasing recently.
- Successfully deliver its replacement data management system for rail defects.
- Urgently clarify and resolve outstanding issues relating to its progress with bridge examinations.
- Urgently clarify its use of, and plans for, SCMI as a structures asset management tool, as recommended by the independent reporter.
- Continue to analyse the root causes of specific asset failures to address key infrastructure reliability issues e.g. electrification system reliability.

Asset management

- Continue to develop its asset policies in line with the recommendations made by the independent reporter, demonstrating how it is developing the maturity of its policies and in its detailed understanding of the life cycle costs of the infrastructure assets.
- Ensure that it continues to build upon the progress made in implementing its asset information strategy, in particular to develop the right culture amongst all its staff in respect of maintaining and using asset information as a critical asset in its own right; and
- Demonstrate how it is making progress with implementing new asset information systems such as the replacement rail defect database (recommendation also made in Chapter 7).

Renewal activity

- Network Rail needs to continue to improve the way it reports asset renewal activities and hence how it demonstrates value for money.

- Network Rail should address the unreliability of the structures volume measures M23 and M26-29 as a high priority.

- The new composite volume measure is welcomed but Network Rail should explain the linkage and differences with the existing measures, together with anomalies within the unit rates. The new measure does provide an overall summary by asset type but does not give explanation of over- or under-delivery within each asset.

- Network Rail should continue to develop the decision support tool CECASE to reliably assist in establishing future renewal budgets.

- It remains our recommendation that Network Rail continues to develop and review 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 take place; and

- additional activity measures for maintenance volumes, particularly track, where ORR currently only has visibility of annual spend.

Major investment projects

- We support the recommendations from the independent reporter contained within its report.

- In particular in respect of WCRM, in addition to the existing reporting, we recommend Network Rail reports on a periodic basis:

  o progress in removing TSRs;

  o reliability of the new and existing infrastructure, together with progress on any action plans for reliability improvement;

  o planned and actual delivery of renewals by the Territory in 2008-09; and

  o progress in the establishment of the future maintenance arrangements.

Network capability

- Continue to ensure that published capability is consistent with actual capability.

- Create formal definitions and procedures for estimating all measures with a clear audit trail of how the figures published in the annual return were arrived at.

- Ensure that the preparation of the annual network statement of capability is aligned with the RUS process.

Planning and operations

- Network Rail should continue to ensure late disruptive possessions are genuinely necessary, identify root causes of late requests (especially for those Routes where these are most prevalent), and manage the disparity between Routes to achieve required time

scales.

Customer and supplier satisfaction

- Network Rail should undertake benchmarking of appropriate infrastructure providers to better understand its net satisfaction scores to provide a context for its achievement and proposed targets.

Environment

- Ensure that the annual return for 2009 focuses on wider environmental initiatives and targets (such as those outlined in the October 2007 SBP document), in order that we, the rail industry and other interested and affected parties can evaluate the extent to which its environmental strategic objective is being met, and discern the extent to which environmental responsibilities are being taken seriously.
- Involves us in the adaptation of environmental KPIs for inclusion within future annual returns.
- Continue to participate constructively in cross-industry initiatives aimed at improving the sustainable performance of the railway.

Annex B: Summary of targets, measures and achievements 2007-08

Train performance (Chapter 4)

Measure	ACR2003 target					Achievement in 2007-08
	2004-05	2005-06	2006-07	2007-08	2008-09	
Delay to all services (million minutes)	12.3	11.3	10.6	9.8	9.1	9.5
Delay to passenger services (minutes per 100 train kms)	2.34	2.12	1.97	1.8	1.65	1.75
Delay to freight services (minutes per 100 train kms)	No target					4.33

Asset condition and serviceability (Chapter 7)

Measure	ACR2003 target			Achievement in 2007-08		
Serviceability: temporary speed restriction (TSR)	No target 2004-05			628		
Broken rails	No more than 300 per year from 2005-06			181		
Quality: Track geometry	No more than 2003-04 levels					
	35m top (vertical deviation):					
	standard: 50.0%	90.0%	100.0%	50.0%	90.0%	100.0%
	target: 62.4%	89.2%	97.0%	73.6%	93.8%	98.6%
	35m alignment (horizontal deviation):					
	standard: 50.0%	90.0%	100.0%	50.0%	90.0%	100.0%
	target: 72.7%	92.9%	96.5%	82.1%	95.8%	97.9%
	70m top (vertical deviation):					
	standard: 50.0%	90.0%	100.0%	50.0%	90.0%	100.0%
	target: 63.6%	92.4%	95.3%	74.7%	95.5%	97.3%
	70m alignment (horizontal deviation):					
	standard: 50.0%	90.0%	100.0%	50.0%	90.0%	100.0%
	target: 79.5%	95.8%	97.2%	87.9%	98.1%	98.7%
Level 2 exceedences	Reduction to 0.9 per track mile by 2005-06			0.58		
Asset stewardship index	1.00 or less by 2008-09			0.63		

Other assets

Asset type	Measure	ACR2003 target	Achievement in 2007-08
Earthworks	Serviceability: Number of TSR sites and severity score	No target 2004-05 — Total: 85 — Severity score: 323 — ACR2003 - not worse than 2003-04	22 — 33
Signalling	Serviceability: failures causing more than 10 minutes delay	Not worse than 2003-04 level — Total failures: 28,098	19,900
	Condition	Not worse than 2003-04 average condition grade of 2.5	2.38
Electrification (separate for AC and DC)	Serviceability: for 3rd rail and OLE – failures causing more than 500 minutes delay	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	AC failure - 63 — DC failure - 9
	Condition: Substations and feeder stations, OLE and 3rd rail contact systems	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	AC sub-station condition - 3.5* — DC sub-station condition - 3.6* — AC contact systems - 1.7 — DC contact systems - 1.9
Structures	Serviceability: TSRs	Return to 2001-02 levels — No target — In 2003-04 total: 79 — severity score 208	13 — 11
	Condition	Return to 2001 baseline of 2.1	2.1
Stations	Condition	No worse than 2003-04 average condition grade of 2.3	National average 2.7*
	Facilities	No target	New measure in development
Depots	Condition	No worse than 2003-04 condition grade of 2.7	2.5

Source: Network Rail's asset reporting manual; Network Rail's *Annual Return 2008* and ACR2003

* new methodology

Annex B: Summary of targets, measures and achievements 2007-08

Activity volumes (Chapter 9)

Renewal activity	Network Rail business plan 2007 targets	Achievement in 2007-08 (excluding maintenance renewals)
Rail renewal	1,016	1,039
Sleeper renewal (all types)	698	763
Ballast renewal (all types)	851	837
Switches and crossings renewal	473	436
Signalling (SEUs)	1,357	1,441

Source: Network Rail's *Annual Return 2008*

Network capability (Chapter 11)

Measure	Relevant target	Actual 2007-08
Line speed capability (track kms)	The regulatory targets for each of the network capability measures is for Network Rail to maintain the capability of the network for broadly existing use at April 2001 level, subject to network change procedures under Part G of the Network Code. Actual capability at April 2001 for each of the measures has yet to be confirmed by Network Rail.	Up to 35 mph – 3,783
		40-75 mph – 16,890
		80-105 mph – 7,450
		110-125 mph – 2,959
Gauge capability (route kms)		W6 – 4,669
		W6 & W7 – 2,829
		W8 – 5,408
		W9 – 1,698
		W9 & W10 – 1,139
Structures route availability (track kms)		RA 1-6 – 3,991
		RA 7-9 - 25,060
		RA 10 – 2,031
Electrification capability (track kms)		25 kV AC - 7,974
		650/750 V DC – 4,481
		Dual AC/DC - 40

Source: Network Rail's *Annual Return 2007* and ACR2003