Annual Return 2008

Network Rail

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Network Rail helps bring the country together. We own, operate and maintain Britain's rail network, increasingly delivering improved standards of safety, reliability and efficiency. Our investment programme to enhance and modernise the network is the most ambitious it has ever been. Delivering a 21st century railway for our customers and society at large.

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Contents

Annual Return
Reporting on the year 2007/08

Executive summary

Introduction

This is the sixth Annual Return under Network Rail stewardship. It reports on our achievements, developments and challenges during 2007/08 and is the primary means by which we demonstrate progress in delivering outputs established in the Access Charges Review 2003 (ACR 2003). The year 2007/08 is the fourth year of Control Period 3 (CP3). The outputs to date from CP3 are currently being used to inform the expected outputs for Control Period 4 (CP4) beginning in April 2009.

The Annual Return is a publicly available document, which enables stakeholders to use it as an important reference. This document and previous editions of the Annual Return referring to previous years' performance are available on the Network Rail website under 'Regulatory Documents'.

The Annual Return includes the following information:

- the operational performance and stakeholder relationships section, which includes information on regulatory enforcement
- the network capability section, which includes new information on timetabling and late disruptive possessions
- the asset quality and condition section, which includes some updated definitions for measures
- the activity volumes section, which includes the composite activity volumes table now introduced for internal management purposes
- the safety & environment section, which includes more information on our safety KPIs as well as our environmental initiatives
- the finance and efficiency section, which includes an update on unit costs as well as the Business Plan reconciliation
- the financing section, which includes more details on our financial KPIs.

For most measures we have provided disaggregated information for Scotland and England & Wales together with the network total where appropriate, although there are some measures which only have network-wide information and cannot be disaggregated further.

This Annual Return follows the agreed form as approved by the Office of Rail Regulation (ORR) in 2008 and is prepared in accordance with Condition 15 of the network licence.

Network Rail during 2007/08

This has been another year of significantly improved performance for Network Rail with most of our internal targets met. With four of the five years of CP3 completed, we are on course for meeting our regulatory targets and outputs for CP3. Furthermore, we have continued to invest in the network whilst making efficiencies wherever possible and accommodating increased use of the network.

Highlights for the year include the following:

- Public Performance Measure (PPM) of 89.9 per cent: the highest level of train punctuality for nine years
- train delay minutes attributed to Network Rail down by 1 million minutes from 2006/07: to 9.5 million minutes
- broken rails of 181: lowest ever recorded
- Asset Stewardship Incentive Index of 0.634: continuing our improvement from last year
- £4bn investment overall: up from £3.3bn.

We have generally had a good year, meeting most of our internal and regulatory targets. However, there have been some targets missed such as our internal Financial Efficiency Index and we are behind the renewals efficiency target for the control period. We also face a significant challenge regarding the cost of completing the West Coast Route Modernisation project.

In June 2007, Network Rail was fined £2.4m resulting from ORR finding us in breach of Condition 7 of the network licence following delays to the completion of the Portsmouth resignalling scheme. More recently in February 2008 ORR proposed a fine of £14m as a result of the engineering overruns at Rugby, London Liverpool Street and Shields Junction (near Glasgow) which caused disruption to passenger and freight customers. This fine was confirmed in May 2008 following ORR finding us in breach of Condition 7. There have been lessons learnt from both these issues and remedial action taken as well as changes in working practices. More details of these breaches are found under the section 'Regulatory Enforcement', at the end of Section 1 'Operational performance and stakeholder relationships'.

Table 1 Performance against regulatory targets

Measure	Regulatory target	Performance 2004/5	Performance 2005/6	Performance 2006/7	Performance 2007/08	Met target in 2007/08?
Total Network Rail attributed delay (million minutes)	2004/05: 12.3 2005/06: 11.3 2006/07: 10.6 2007/08: 9.8 2008/09: 9.1	11.4	10.5	10.5	9.5	Yes
Train delay minutes/100 train kms (franchised passenger operators)	2004/05: 2.34 2005/06: 2.12 2006/07: 1.97 2007/08: 1.80 2008/09: 1.65	2.18	1.93	1.92	1.75	Yes
Broken rails	No more than 300 pa by 2005/06	322	317	192	181	Yes
Track geometry	L2 exceedences per track mile to be no more than 0.9 by 2005/06	0.91	0.82	0.72	0.58	Yes
Temporary speed restrictions	Annual reduction in TSRs from 2003/04	942	815	710	628	Yes
Structures & electrification	Condition & serviceability to return to 2001/02 levels	See detail in section 3 Annual Return 2005	See detail in section 3 Annual Return 2006	See detail in section 3 Annual Return 2007	See detail in section 3 Annual Return 2008	Yes
Other measures	No deterioration from 2003/04 levels	See detail in section 3 Annual Return 2005	See detail in section 3 Annual Return 2006	See detail in section 3 Annual Return 2007	See detail in section 3 Annual Return 2008	Yes
Network capability	Maintain the capability of the network for broadly existing use at April 2001 levels (subject to network changes authorised under the Network Code).	See detail in section 5 Annual Return 2005	See detail in section 2 Annual Return 2006	See detail in section 2 Annual Return 2007	See detail in section 2 Annual Return 2008	Yes broadly

A summary of the year's performance against the regulatory targets is in Table 1. The regulatory targets were established in ACR 2003 and provide the output targets which Network Rail is required to deliver for CP3. Most of these targets are for achievement of an overall target improvement at the end of the five year control period but some have intermediate aims or milestones for earlier years so this table reports on our progress generally. Later sections of this Annual Return will provide more detailed information.

Table 2 Trends in PPM and Network Rail delay minutes for the last five years

	2003/04	2004/05	2005/06	2006/07	2007/08
PPM (%)	81.2	83.6	86.4	88.1	89.9
Total delay minutes	13,716,937	11,402,720	10,464,387	10,531,216	9,499,583
Passenger train delay minutes per 100 train km	2.65	2.17	1.92	1.91	1.74
Freight train delays minutes per 100 train km	4.77	4.52	4.36	4.61	4.33

Operational performance and stakeholder relationships

Train punctuality has continued to improve with PPM at 89.9 per cent which represents a reduction of 15 per cent in the number of trains running late. This is better than our target for 2007/08 of 89.5 per cent and is at its highest level since records began. Train delays attributed to Network Rail also reduced by one million minutes since 2006/07, totalling 9.5 million minutes. Although we did not meet our internal target (9.115 million minutes) we more than met the regulatory target for the year which was 9.8 million minutes and are on course for meeting the regulatory target for CP3. This has been achieved whilst there has been an increase in traffic volumes during the year.

The improvements in train performance are due to reductions in most categories of delay. In particular, delays in asset categories have reduced with substantial improvements for points failures, overhead line/ third rail faults and signalling failures. Our preparations for adverse weather helped mitigate the effects of flooding, although delays in this category were still higher than expected. In addition, the reduction in delays and improved punctuality has been as a result of initiatives specifically focused at reducing delays, for example improved maintenance activities and joint planning with our customers.

During 2007/08 further progress and improvements were made with the Joint Performance Process. Planning has been brought forward compared to previous years and a refreshed higher target for 2008/09 developed. There has also been joint planning with Heathrow Express and the extension of the joint planning process to include freight operators, even though this is not formally under any JPIPs.

There has been a lot of progress on the Route Utilisation Strategy (RUS) programme during 2007/08. To date seven RUSs have been established (including one established after April 2008), with the South London RUS awaiting establishment.

The last customer satisfaction survey was conducted in October to November 2007. The results were lower than in 2006/07, and we have been working with customers to understand their concerns and areas for improvement. We have continued to embed awareness of customer requirements throughout all areas of the business. In addition, we will continue the joint working we have already done.

The results of our supplier satisfaction survey have improved for 2007/08 and we will continue with Supplier Account Management to improve our processes and relationship with suppliers.

Network capability

Section 2 provides an update of the network capability changes during 2007/08. There have been more actual changes in capability this year as well as the usual ongoing data quality improvements. In 2007/08, there has been more traffic on the network with an increase of 0.74 per cent in total passenger train miles from 2006/07. There has been a decrease in the freight train miles since 2006/07, largely due to freight operating companies using longer but fewer trains.

Asset management

Overall we have had a good year with the condition of our assets mostly improving on the previous year's level of performance. For some measures we have substantially improved as can be seen in the summary table, Table 3, and some measures have already surpassed the CP3 target. This is also seen in the number of infrastructure incidents causing delays reducing by 8 per cent compared to 2006/07. We are on course for meeting our regulatory targets for CP3 although for 2007/08 two asset measures missed their regulatory targets (Earthworks failures and DC contact systems condition). We will focus on improving these for 2008/09 as well as continuing to better our performance across all assets compared to 2007/08. It should also be noted that some of the electrification measures have a new methodology which has affected the scoring – as these are only a sample of the total network their score should not be taken in isolation. By the end of 2008/09 we will have a more definitive score for the network which can be compared against the regulatory target.

The Asset Stewardship Incentive Index (ASII) is an example of where we are surpassing the regulatory target. This is a composite measure of various asset measures and provides an indication of our asset quality and stewardship. It consists of weighted values for track geometry, broken rails, Level 2 (L2) exceedences, points and track circuit failures, signalling failures, electrification failures and structures & earthworks temporary speed restrictions. In addition, the L2 exceedences and track geometry internal targets for 2007/08 and 2008/09 have been tightened. We have already surpassed the regulatory target for the control period which is 0.9, as the result for 2007/08 is 0.63. All measures showed an improvement and are better than the regulatory target. We have also surpassed our own internal target for this measure which is 0.70.

The number of broken rails has continued to reduce and we have again done better than the regulatory target. This is largely due to further improvements in rail management, including the increase in rail grinding and train based ultrasonic testing as well as maintaining sufficient levels of rail renewals. We have also seen an improvement with track geometry and L2 exceedances. Although the mild summer helped, we have recovered and improved the position from 2006/07 which was affected by hot weather, as a result of rigorous maintenance procedures to treat recurring faults and targeted renewals.

The number of Temporary Speed Restrictions (TSRs), has continued to decrease and is at the lowest since records began. For Track TSRs both the number of TSRs and the severity score has decreased by 10 per cent. This is due to the company's focus on removing high performance impact TSRs and increased major renewals work.

In relation to bridge condition, during the year we have been working on a move to a risk-based assessment system. All structures will continue to be visually inspected every year and the risk-based approach will enable us to target our detailed examinations, renewals and remediation work at the structures that require it most.

Our electrification and power supply measures have also shown good performance of our assets. During 2007/08 the processes for three of our electrification and power supply measures have changed with our Maintenance teams doing non-intrusive measurements, which has reduced the subjectivity of these measures. This methodology was piloted in some areas and so the results of the sample have been reported. The new scoring system also takes into consideration age and life expectancy of the equipment which was not the case with the old methodology.

During 2007/08 we have also introduced the new station stewardship measure to replace the old measure. This measure is more closely aligned to the Stations Code and provides better information for asset management. As this is a new measure, the score cannot be directly compared with the previous one. We are in the process of developing a new stations facilities score with the industry and so have not continued using the old measure which does not provide useful information for asset management or help us satisfy the requirements of customers and passengers. Our depot condition measure has continued to show an improved score largely due to improved relationships between ourselves and the Depot Facility owner and the new franchise commitments.

One area that we will look into further during 2008/09 is earthworks failures which have increased during 2007/08. We will also continue to look into cable thefts which affects the number of signalling failures, even though there has been a steady improvement for this measure.

We have continued to provide high levels of investment in the network and to develop and implement improved asset management activities. As well as this there have been initiatives which have contributed to better asset performance like standardised designs, use of modular components and looking at the root cause of asset failures to avoid repeat failures. We are also continuing to look into precursor measures which align with our strategy towards being proactive rather than reactive by preventing failures, and this work is feeding into the preparations for CP4.

Table 3 Asset measures – comparison against previous year and regulatory target

Measure	Regulatory target	Performance 2006/7	Performance 2007/8	Met target?
M1 Broken rails	Reduction in the number of broken rails to no more than 300 per annum by 2005/06. No increase thereafter	192	181	Yes
M2 Rail defects	No regulatory target	18,455	9,150	N/a
M3 Track geometry	The regulatory target is to maintain 2003/04 levels; no deterioration from this level during this control period	See detailed tables in section 3 of the Annual Return 2006	See detailed tables in section 3	Yes
M4 TSRs	Annual reduction required from 2003/04 levels onwards i.e. from 1,199 for track, structures and earthworks TSRs.	710	628	Yes
M5 L2 Exceedences	Reduction in the number of L2 exceedences per track mile to no greater than 0.9 by 2005/06. No increase thereafter.	0.72	0.58	Yes
M6 Earthworks failures	No deterioration from 2003/04 levels, i.e. 47 national earthwork failures.	90	107	No
M8 Bridge condition	Condition and serviceability to return to 2001/02 levels, which was approximately 2.0.	2.1	2.1	See detail in section 3 for developments during the year
M9 Signalling failures	No deterioration from 2003/04 levels, i.e. 28,098 signalling failures at 59 million train km per annum.	22,704	19,900	Yes
M10 Signalling asset condition	No deterioration from 2003/04 levels, i.e. 2.5.	2.4	2.4	Yes
M11 AC power incidents	No deterioration from number of incidents reported in 2001/02, i.e. 107.	69	63	Yes
M12 DC power incidents	No deterioration from number of incidents reported in 2001/02, i.e. 30.	11	9	Yes
M13 AC traction sub-stations condition	Condition and serviceability to return to 2001/02 levels, i.e. 2.1.	1.9	3.5 (new methodology)	See detail in section 3
M14 DC traction sub-stations condition	Condition and serviceability to return to 2001/02 levels, i.e. 2.3.	1.6	3.6 (new methodology)	See detail in section 3
M15 AC contact systems condition	Condition and serviceability to return to 2001/02 levels, i.e. 1.8.	1.7	1.7	Yes
M16 DC contact systems condition	Condition and serviceability to return to 2001/02 levels, i.e. 1.8.	1.9	1.9	No
M17 Station condition	No deterioration from 2003/04 levels. i.e. 2.25.	2.24	2.71 (new measure)	See detail in section 3
M18 Station facilities	No regulatory target	See detail on Annual Return 2007	This is not being reported for 2007/08	
M19 LMD condition	No deterioration from 2003/04 levels, i.e. 2.7.	2.6	2.5	Yes
Asset Stewardship Incentive Index	0.90	0.72	0.63	Yes

Activity volumes

Table 4 Activity volumes

	2003/04	2004/05	2005/06	2006/07	2007/08
Rail (km of track renewed)	1,401	816	1,120	1,028	1,039
Sleeper (km of track renewed)	837	670	744	738	763
Ballast (km of track renewed)	812	685	798	850	837
Switch & crossing (No. of full units replaced)	373	511	520	442	436
Signalling (SEUs)*	604	1,678	278	481	1,441
Bridge renewals and remediation (No.)		260	157	154	201
Culverts renewals and remediation (No.)		16	9	10	25
Retaining walls remediation (No. of schemes)		10	10	7	7
Earthwork remediation (No.)		106	76	68	107
Tunnel remediation (No.)		38	39	19	22

* The relatively large annual fluctuation in this measure reflects the fact that the EU count is dominated by a fairly small number of major schemes and only records the number of signalling units once they are actually commissioned.

In total, 1,039km of rail, 763km of sleeper and 837km of ballast were replaced during 2007/08. There have been many significant signalling schemes commissioned during 2007/08 including Portsmouth Resignalling Scheme, Port Talbot East Resignalling and Basingstoke Area Infrastructure Upgrade (Part 1). The number of bridge projects has increased, driven by the Levens Viaduct project. The number of earthwork preventative works has also increased.

Safety and environment

We are reporting on the principal safety KPIs in the Annual Return. Further safety information reporting on the year 2007/08 is covered by the Safety & Environment Assurance Report available to the industry.

The safety KPIs show that though there are improvements in some areas, some measures show a worsening position from 2006/07, in particular level crossing misuse which still remains one of our biggest safety risks. There were unfortunately also two workforce fatalities during 2007/08. This further highlights the importance of continuous improvements in safety and we have introduced many initiatives during the year, details of which are covered in the Safety and environment section.

- The Accident Frequency Rate which measures workforce safety shows continued improvement from previous years and is the lowest ever recorded as well as being better than the national rate for the UK construction industry. This is due to many successful initiatives throughout the year including amongst others: all Maintenance Delivery Units developing their own local accident reduction plans, new Lookout Operated Warning Systems technologies and a national risk-based programme to install fixed lighting for track workers at high risk junctions.
- Infrastructure wrong side failures continued to reduce largely as a result of our targeted asset renewal and maintenance and our strategy of tackling the root cause of asset failures.
- Category A SPADs (Signals passed at danger) although still remaining low has increased for a second year. With the rest of the industry we are investigating the factors behind this and will continue to work on initiatives to reduce this risk and target our signalling renewals.
- Operating irregularities have increased slightly (1.5 per cent) compared to 2006/07. We have been working with RSSB to develop a method of ranking the risk associated with each irregular working event. We have also put in place other initiatives and continued with the Safety 365 campaign to reduce operating irregularities.
- Criminal damage has significantly decreased during 2007/08 as a result of us continuing to work with industry partners, for example by establishing Community Safety Partnership Groups, working with the police, public education, the “No Messin!” campaign, and increasing the installation of CCTV cameras.
- Level crossing misuse constitutes the largest single category of train accident risk. Although vehicle misuse events have reduced, pedestrian misuse events have increased and there were eight fatalities due to level crossings misuse in 2007/08. We have continued with the public “Don’t run the risk” campaign and will continue our programme of assessing the risks at all level crossings using the All Level Crossing Risk Model which will help target our actions for mitigating risks at level crossings.

During 2007/08, safety enhancement funding was focused in three areas:

- train accident risk
- other risks to passengers and the public
- workforce safety risk with 131 safety enhancements authorised with a total cost of £81m.

The Safety & Environment fund was used for environmental initiatives during the year. In addition, we have been developing our environmental strategies to deliver the following three aims:

- To achieve sustainable consumption – we have focused on waste management and recycling as well as procurement to move towards more sustainable products.
- To be more energy efficient and reduce reliance on fossil fuels in running the railway – we have been working on reducing our non-traction carbon dioxide emissions.
- To protect the natural environment – we have undertaken initiatives to protect the lineside environment.

Three large environmental projects have progressed during 2007/08. These are: the National Pollution Prevention Programme with work substantially completed by the end of 2007, the Contaminated Land Programme which deals with contaminated land owned by Network Rail wherever it may arise and in whatever circumstances, and the Landfill Waste management project which involves the surrender of the waste management licences which we hold.

Finance and efficiency

Table 5 Expenditure comparison in outturn prices (£m)

	2003/04	2004/05	2005/06	2006/07	2007/08
Controllable Opex	1,060	934	865	878	878
Maintenance	1,245	1,271	1,192	1,146	1,118
Renewals	3,203	2,665	2,673	2,777	2,894
Enhancements	770	821	473	569	1,061

Notes: 1) Investment figures include WCRM; 2) Opex and maintenance figures are from the regulatory accounts; 3) OPEX excludes items classified as non-controllable (e.g. ORR licence fee, British Transport Police, electricity traction costs, safety levy and cumulo rates); 4) enhancements include investments by third parties.

The table above outlines the outturn on the key areas of expenditure for the business over the last five years.

Table 6 compares the efficiencies we have achieved for 2007/08 with the previous year against the breakdown assumed in ACR 2003.

In 2007/08, we continued to surpass the OPEX and maintenance ACR 2003 efficiency assumptions although the rate of saving has slowed and we are expecting further savings to be increasingly difficult to achieve. With maintenance costs, we have been able to deliver more maintenance work for less money and our improved maintenance strategy has contributed to the good performance of our assets. This is partly due to the results of favourable commercial terms we have negotiated for plant, vehicles and material in previous years and also our maintenance teams undertaking more capital investment work. The latter has kept costs in-house and lower than if this work was delivered by outside contractors.

Work on the Maintenance Unit Costs (MUC) continued with information on 22 separate key work activities covering 65 per cent of maintenance functional costs. We have been working on obtaining consistent data and improving the accuracy of data across the network and during the year the definitions and financial regulations for MUCs were re-issued.

Efficiencies with renewals, which are identified through our unit costs and the budget variance analysis, are worse than the ACR 2003 assumptions. This is due in part to a particularly challenging economic climate for construction work due to steep increases in raw material prices (such as steel and copper cable) and very high fuel prices. Increases in traffic on the network are also making engineering access more restricted and more expensive in terms of compensation payments to operators. Also for track renewals, there were one-off costs incurred in 2007/08 to enable major changes to the future delivery that have impacted on efficiency. These included the transition from six contractors to four, the redesign of the end to end planning process and the redesign of the production process for plain line renewals. It is clear that the pace of unit cost efficiency in the area of track renewals is behind schedule and will cause us, for the first time, to fall behind our targeted efficiencies. Consequently it looks likely that we will miss the ORR overall challenge of a 31 per cent reduction in costs by March next year.

Table 6 Overall efficiency improvement assessment (%)

	By end 2006/07		By end 2007/08	
	ACR assumption	Actual achieved	ACR assumption	Actual achieved
Controllable Opex	22	25	26	28
Maintenance	22	26	28	31
Renewals	22	23	26	18

Introduction

The Annual Return reports on Network Rail's performance in the stewardship of the rail network. It describes our operational performance, asset management, activity volumes, investment and expenditure. This year's Annual Return is structured similarly to last year but we have added some sections and extended other areas. As well as striving to improve our performance we are working on improving our measures, where appropriate, so that we may improve our accountability to customers, stakeholders and the public.

The principal changes in the year reflect this and are largely due to improvements in the method for reporting measures and the processes supporting them. e.g. for electrification condition measures and signalling renewals. These changes do not affect the substance of the measures, which can still be compared year on year. We have also introduced a new Station Stewardship Measure to replace the Station Condition Measure. In addition, this year's Annual Return does not include information on station facilities as we are currently in the process of developing an improved measure with the industry. We will report on this in next year's Annual Return.

As in previous years we have included a network total for each measure and where appropriate more detailed information is provided by the 26 strategic routes and the 8 operating routes. The map of the network Figure 1 illustrates these. There is also information and commentary on variances and issues of interest from the year. Throughout the document '0' represents rounded numbers less than 0.5.

As 2007/08 was the penultimate year of the Control Period we have included previous year's data for comparisons and trends for more indicators, so that our progress in the Control Period can be seen. It should be noted that end of year figures are taken at a specific point in time for publication. Therefore some figures have been restated from last year. Most figures have not been adjusted.

Scope of reporting against targets

This Annual Return reports on the fourth year of the third Control Period (CP3) with outputs and regulatory targets as specified in the Access Charges Review 2003: Final Conclusions (ACR 2003). In order to facilitate comparisons of our performance, we measure our performance against these regulatory targets each year and this is reported in this document together with our Business Plan targets where appropriate.

Most asset condition information is based on assessments from a sample of assets and as more surveys are carried out, the reliability of the data reported for each asset category will improve, hence facilitating better comparisons against our requirements.

Confidence reporting

We have assessed the quality of the data and information presented and described this by the use of confidence grades. Those included in this Annual Return for 2007/08 data and information are provided by Network Rail and used as a basis for discussion with the Reporter. Following the Reporter's audits, the Reporter may either agree with this assessment or provide their reasoning for wanting to change this in the Reporter's report available in August. The confidence grades for last year included within this Annual Return have been updated with the confidence grades from Halcrow's report from 2007.

The confidence grades consist of two aspects, an alpha part indicating the reliability of the data (A-D) where A is the most reliable, being based on sound documented records, procedures, investigations and/or analysis, and D relies on at best unconfirmed verbal reports, cursory inspections or analysis; and a numeric part describing the accuracy (1-6 where 1 is within ± 1 per cent and 6 indicates poor accuracy defined as within the band ±50 per cent - ±100 per cent). Most measures are reported as at A2, A3, B2 or B3 confidence; however there are some reported outside this typical range. For small numbers where accuracy cannot be properly ascribed an 'X' is substituted in the numeric part of the confidence grade.

The tables below summarise the gradings:

Table 7 Reliability band description

A	Sound textual records, procedures, investigations or analysis properly documented and recognised as the best method of assessment.
B	As A but with minor shortcomings. Examples include old assessment, some missing documentation, some reliance on unconfirmed reports, some use of extrapolation.
C	Extrapolation from limited sample for which Grade A or B data is available.
D	Unconfirmed verbal reports, cursory inspections or analysis.

Table 8 Accuracy band (%)

	Accuracy to within +/-	But outside +/-
1	1	–
2	5	1
3	10	5
4	25	10
5	50	25
6	100	50
X	Accuracy outside +/- 100	small numbers or otherwise incompatible

Table 9 Compatible confidence grades

	Reliability band			
Accuracy band	A	B	C	D
1	A1			
2	A2	B2	C2	
3	A3	B3	C3	D3
4	A4	B4	C4	D4
5			C5	D5
6				D6
X	AX	BX	CX	DX

Independent reporter

Since October 2002, the company together with the Office of Rail Regulation (ORR) have had independent Reporters. The role of the Reporters is to provide independent technical audit services for ORR and Network Rail. Whilst undertaking this role, they are expected to deliver benefits to Network Rail through suitable recommendations about how we can improve our business processes. For Annual Return work, the Reporter is expected to provide an independent view on the accuracy and significance of the data and related processes that we use for reporting our performance during the year.

The Reporter for the Annual Return, Halcrow, is in the final year of a three year contract with ORR and ourselves. As with last year we have continued to refine the Annual Return process, which includes the Reporter audits. More preparation has been done during the year to enable audits to be undertaken earlier. These audits are done in three parts: with the HQ champions (the business owners of data and processes) to discuss the process; out-based audits in Territories and Areas to see processes in practice and sample data; and finally HQ champion audits to discuss data and information. In addition, both ORR and ourselves have proposed areas for Halcrow to specifically focus on this year. i.e. areas where there have been changes during the year and areas of potential concern.

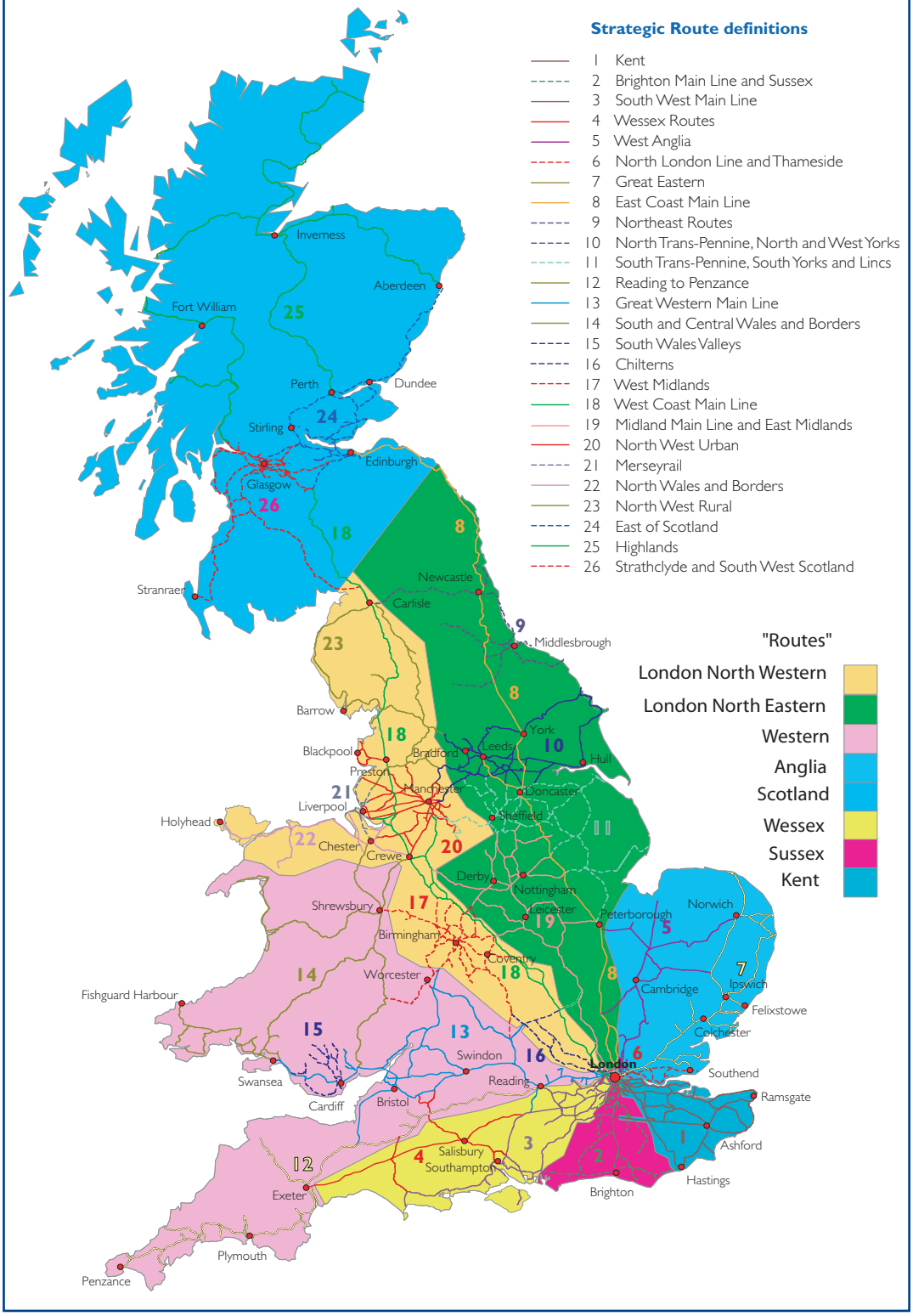
The earlier audits will enable the Reporter's report to be produced earlier, which in turn will enable the ORR's Annual Assessment to be produced earlier. The Reporter will publish their Report on this year's Annual Return with progress on recommendations from last year as well as new recommendations where appropriate. Our aim is that the recommendations process is continuous and we seek to close off many recommendations during the year. This year Halcrow have been asked to specifically consider the recommendations as part of their audits to see which can be closed off before new recommendations are added. As in previous years, we have taken into consideration the Reporter and the ORR recommendations both in

improving our processes and in the compilation of this Annual Return.

Regulatory accounts

The ORR reporting regime includes a requirement to prepare a set of Regulatory Accounts to report information that is relevant to setting access charges and which allows Network Rail's financial performance compared to ACR 2003 to be monitored. Regulatory Accounts for 2007/08 are not included in this Annual Return, but are submitted to ORR in a separate document that is also made publicly available. As details of operating expenditure are included in the Regulatory Accounts, this information has not been duplicated in the Annual Return. Where there is common information between the Regulatory Accounts and the Annual Return, the related processes and data have been aligned, unless otherwise stated. This is also the case between the Annual Return and, as far as possible, all other Network Rail reports.

Figure 1 The map of the Network



Targets

Network Rail's regulatory targets for CP3 cover the period 1 April 2004 to 31 March 2009 and were established in ACR 2003.

The company also sets itself internal targets each year. These internal targets are generally tougher than the regulatory ones as we are continuously working to improve performance over and above that expected by ORR. Some of these measures also contribute towards the company incentive regime and provide a means of additional remuneration to employees if the company improves on certain baseline levels of performance. This is covered in more detail in the section on Key Performance Indicators (KPIs).

The following table summarises our regulatory targets for CP3 established in ACR 2003. A number of these targets for assets and network capability are specified relative to performance in earlier years (e.g. condition for electrical condition etc. to be returned to that at 2001/02).

Table 10 Regulatory targets for the five year period 2004/05 to 2008/09

Name of measure	Regulatory targets
Total Network Rail attributed delay (million minutes)	2004/05: 12.3 2005/06: 11.3 2006/07: 10.6 2007/08: 9.8 2008/09: 9.1
Train delay minutes/100 train kms (franchised passenger operators)	2004/05: 2.34 2005/06: 2.12 2006/07: 1.97 2007/08: 1.80 2008/09: 1.65
Broken rails	Reduction in the number of broken rails to no more than 300 per annum by 2005/06. No increase thereafter.
Track geometry	Reduction in the number of L2 exceedences per track mile to no greater than 0.9 by 2005/06. No increase thereafter. Track geometry (standard deviations) – the regulatory target is to maintain 2003/04 levels.
Temporary speed restrictions	Annual reduction required.
Structures and electrification	Condition and serviceability to return to 2001/02 levels.
Other measures	Other asset condition and serviceability measures to show no deterioration from 2003/04 levels.
Network capability	Maintain the capability of the network for broadly existing use at April 2001 levels (subject to network changes authorised under the Network Code).

We have translated these targets into values for our measures as reported in the Annual Return. The table below illustrates this. It also includes the annual regulatory target for 2007/08 where one exists and/or our own business plan targets.

This enables comparisons and trends to be established, so that our progress during the Control Period can be seen as well informing the Periodic Review process to determine targets for the next Control Period. These targets are also included with the detailed reports for each of the measures within this document to illustrate our progress this year.

All infrastructure output measures are subject to statistical variability caused by random fluctuation and the accuracy of data measurement. The ORR has stated that it will take into account statistical variations when assessing performance against regulatory targets.

Table 11 Summary of targets

Measure	Regulatory target for CP3	Internal target/ Business Plan target for 2007/08
Public Performance Measure	No regulatory target	89.5 %
Total Network Rail caused delay (million minutes)	9.8 for 2007/08	9.115
M1 Broken rails)	Reduction in the number of broken rails to no more than 300 per annum by 2005/06. No increase thereafter.	200
M2 Rail defects	No regulatory target.	–
M3 Track geometry	The regulatory target is to maintain 2003/04 levels (see section 3 for further details); no deterioration from this level during this Control Period.	0.81
M5 Level 2 exceedences	Reduction in the number of L2 exceedences per track mile to no more than 0.9 by 2005/06. No increase thereafter.	0.725
M4 Temporary speed restrictions	Annual reduction required from 2003/04 levels, i.e. from 1,199 for track, structures and earthworks TSRs.	710
M6 Earthwork failures and derailments	This is covered by 'Other asset condition and serviceability' with no deterioration	–
M8 Bridge Condition	Condition and serviceability to return to 2001/02 levels, which was approximately 2.0, but the full target (and tolerance) cannot be firmly established until all bridges have undergone bridge surveys and given an SCMI score (Structures Condition Monitoring Index), which is anticipated to be in April 2009.	2.0
M9 Signalling failures	This is covered by 'Other asset condition and serviceability' with no deterioration from 2003/04 levels, i.e. 28,098 signalling failures (equivalent to 59 per million	20,685

Table 11 Summary of targets (continued)

Measure	Regulatory target for CP3	Internal target/ Business Plan target for 2007/08
M10 Signalling asset Condition	This is covered by 'Other asset condition and serviceability' with no deterioration from 2003/04 levels, i.e. 2.5.	2.5
M11 AC Traction Power Incidents causing train delays	No deterioration from number of incidents reported in 2001/02, i.e. 107.	59
M12 DC Traction Power Incidents causing train delays	No deterioration from number of incidents reported in 2001/02, i.e. 30.	6
M13 AC Feeder stations and track sectioning points	Condition and serviceability to return to 2001/02 levels, i.e. 2.1.	2.1
M14 DC Traction substations	Condition and serviceability to return to 2001/02 levels, i.e. 2.3.	2.3
M15 AC Traction contact systems	Condition and serviceability to return to 2001/02 levels, i.e. 1.8.	1.8
M16 DC Traction contact systems	Condition and serviceability to return to 2001/02 levels, i.e. 1.8.	1.8
M17 Station condition index	This is covered by 'Other asset condition and serviceability' with no deterioration from 2003/04 levels, i.e. 2.25.	2.25
M18 Station facility score	No regulatory target	Not reported in 2007/08
M19 Light maintenance depots – condition index	This is covered by 'Other asset condition and serviceability' with no deterioration from 2003/04 levels, i.e. 2.7.	2.7
Asset Stewardship Incentive Index	0.90	0.7
C1 Linespeed capability	The regulatory target for each of the network capability measures is to maintain the capability of the network for broadly existing use at April 2001 levels (subject to network changes authorised under the Network Code).	Same as regulatory target
C2 Gauge capability	Same as C1	Same as regulatory target
C3 Route availability value	Same as C1	Same as regulatory target
C4 Electrified track capability	Same as C1	Same as regulatory target
M20 Rail renewals (km)	No regulatory target	965
M21 Sleeper renewals (km)	No regulatory target	657
M22 ballast renewals (km)	No regulatory target	812
M25 S&C renewals (equivalent units)	No regulatory target	470
M24 Signalling renewals (SEUs)	No regulatory target	1,357
Financial Efficiency Index	No regulatory target	77.9
Debt to RAB %	Under Licence Condition 29 the company is not to incur financial indebtedness in excess of 100% of the RAB and must take all reasonable endeavours to keep the ratio below 85%.	73.1% –

Note: The Track Renewals and Signalling renewals Business Plan targets exclude WCRM.

Key Performance Indicators (KPIs)

Network Rail's performance and achievement of the company's corporate goals is measured through a set of high level key performance indicators (KPIs). These are supported by a set of secondary KPIs. The full set has been embedded into the Business Plan and included within the internal reporting cycle. An agreed selection of the high level KPIs is also used as part of the performance incentive regime throughout the company. The ORR has also used many of these KPIs to form the Network Rail Monitor which is published quarterly on its website.

During 2007/08 there has been a lot of preparation for Control Period 4 (CP4) which has also included work on our reporting and measures. This has not affected what is reported in 2007/08 but will affect future years. The work is based on the existing measures and trends and making improvements to these to align with expectations in CP4.

The following table provides the results for the KPIs for 2007/08.

As regards our KPIs, our performance for the year has been relatively good. Although there are some internal targets missed, they are only slightly missed and in all areas except customer satisfaction, we have performed better than last year.

A description of each KPI is set out on the following page.

Table 12 Key performance indicators

	Unit of measure	2007/08 Target	2007/08 Actual	Variance to target	Relative
Train performance					
Public performance measure	%	89.5	89.9	0.4	Good
Train delay minutes	Minutes (millions)	9.115 (regulatory target 9.8)	9.5	0.385 (against internal target) -0.3 (against regulatory target)	Bad (against internal target) Good (against regulatory target)
Reliability	Index	1.375	1.353	-0.022	Bad
Asset failure					
Asset failures	No. of incidents	52,293	53,579	1,286	Bad
Asset quality					
Asset Stewardship Incentive Index(ASII)	%	0.70 (regulatory target 0.9)	0.63	-0.07 (against internal target) -0.27 (against regulatory target)	Good
Activity volumes					
Activity volumes: % of activity compared with plan	%	100	93	-7	N/a
Finance and efficiency					
Debt to RAB ratio	%	73.1	69.4	-3.7	Good
Financial Efficiency Index (FEI)	Index	77.9	78.1	0.2	Bad
RAB adjustment for passenger volume incentive	£m	N/a	374.0	N/a	N/a
RAB adjustment for freight volume incentive	£m	N/a	8.6	N/a	N/a
Expenditure variance	£m	6,380	5,953	-6.7%	N/a
Customer satisfaction					
Customer satisfaction – train operators	Index from -2 to +2	+0.14	-0.21	-0.93	Bad
Customer satisfaction – freight operators	Index from -2 to +2	0.00	-0.85	-0.15	Bad

Public performance measure

This indicator monitors performance of the railway network for passengers. It is defined as the percentage of trains arriving on time. 'On time' is defined as planned and arriving less than 5 minutes late at final destination or less than 10 minutes late for inter-city operators. Therefore the higher the percentage the better.

Train delay minutes

This is the primary supporting measure in the delivery of improved PPM punctuality for franchised passenger operators, and as the main measure of network performance delivery to other operators (including freight). Delay minutes provide detailed management information on the location, cause and nature of disruption leading to poor PPM performance. As such it provides crucial management information to allow the prioritisation of management action and resources.

Reliability

This index measures improvements in train performance, comprising separate elements for passenger and freight services weighted by traffic volumes. It therefore takes account of improvements in delay minutes as well as PPM.

Asset failure

This indicator measures the total number of asset failure incidents causing train delay where the cause is the responsibility of Network Rail. Therefore the performance of the assets can be measured where failure directly delays trains.

Asset stewardship incentive index

This indicator shows how asset stewardship is being improved. The asset stewardship incentive index reflects the overall status of a number of contributory indicators that have been selected to provide an incentive for our stewardship of the rail network. The contributors are track geometry, number of broken rails, level 2 exceedences, number of signalling failures, points/track circuit failures, structure and earthwork TSRs and traction power supply failures. The asset stewardship incentive index is the weighted sum of these individual components.

Activity volumes

This measure reports the volume of track renewal actually delivered compared to the planned volume and is based on the sum of rail renewal, sleeper renewal and ballast renewal for core track renewal activity (excluding WCRM).

Debt to RAB ratio

This financing indicator measures Network Rail's net debt as a percentage of its regulatory asset base. This can be considered as a proxy for the financial gearing of the company.

Financial efficiency index

This indicator is a measure of the efficiency of Network Rail's expenditure on operating costs, maintenance (normalised for traffic) and renewal unit cost (plain line, S&C and major signalling).

Regulatory asset base (RAB) adjustment for passenger and freight volume incentives

The passenger and freight volume incentives provide a RAB addition in 2009 for growth above a baseline level and thus give an incentive for Network Rail to facilitate growth in traffic on the network.

The passenger volume incentive is based on incentive rates multiplied by the growth over and above a baseline level of growth in:

1. actual passenger train miles; and
2. farebox revenue.

The freight volume incentive is based on incentive rates multiplied by the growth over and above a baseline level of growth in:

1. actual freight train miles; and
2. gross tonne miles.

Expenditure variance

This indicator measures the percentage overspend/underspend on total expenditure with the aim to encourage more effective cost control at both a Territory and central level. The overspend/ underspend measure is relative to the final budget agreed prior to the start of the year.

Customer satisfaction – train operators and freight operators

This indicator measures views of the TOCs and FOCs in respect to their satisfaction with the service being provided by Network Rail.

Supplier satisfaction – major suppliers

This indicator measures the views of major suppliers towards Network Rail. The index is calculated by measuring responses from major suppliers using the advocacy rating.

Section 1 – Operational performance and stakeholder relationships

Introduction

The main cross-industry measure of operational performance for franchised passenger services is PPM (Public Performance Measure), which is a measure of the overall punctuality and reliability of train services delivered to passengers. Network Rail is accountable for the reporting of industry train performance, and PPM figures are shown in this section at national and operator level.

Delay minutes remain the main operational performance measure underpinning the punctuality of passenger and freight train services. Delays to train journeys experienced by passenger and freight companies are broken down into Network Rail attributed delays and those attributed to train operators. Those attributable to Network Rail typically relate to infrastructure, timetabling and operation of the network or external events impacting the network. Those attributable to train operators typically relate to train operations, fleet reliability, problems with train crew resources or external causes affecting trains. This Annual Return provides data on Network Rail attributed delays only. Figures are presented for 2007/08 in delay minutes and in minutes delay per 100 train kilometres, with disaggregated results split by cause, by Network Rail route and into those delays affecting passenger and freight trains.

This section also reports on our stakeholder relationships, including information on our customer and supplier satisfaction results as well as progress on the RUSs and JPIPs. We have also provided information on our Dependent Persons Code of Practice for parties interested in doing business with Network Rail. The end of the section also reports on regulatory enforcement during the year.

Overview: PPM and delay minutes

PPM punctuality increased by 1.8 percentage points to 89.9 per cent for the full year 2007/08. This represents a reduction of 15 per cent in the number of trains running late, and compares to a reduction in total delays to franchised passenger operators (whether attributable to Network Rail or to train operators) of 12 per cent after allowing for the change in train kilometres run. Part of the improvement in PPM arose from initiatives specifically targeting punctuality and small delays (such as improved timetables), which resulted in a greater improvement in PPM than the equivalent improvement in above-threshold delays.

There is no regulatory target for PPM but we work to our Business Plan target, which for 2007/08 was 89.5 per cent.

Table 1.1 Public Performance Measure (PPM) for franchised passenger services

Network Rail-attributed delays	2003/04	2004/05	2005/06	2006/07	2007/08
PPM (%)	81.2	83.6	86.4	88.1	89.9

Table 1.2 National delays to all train services

Network Rail-attributed delays	2003/04	2004/05	2005/06	2006/07	2007/08
Total delay minutes (including minor operators)	13,716,937	11,402,720	10,464,387	10,531,216	9,499,583
Train km	481,268,141	478,038,920	487,317,190	487,603,246	486,224,904
Delay per 100 train km	2.85	2.39	2.15	2.16	1.95
Regulatory target (total delay minutes)	–	12,300,000	11,300,000	10,600,000	9,800,000

Notes:

- Total delay minutes include delays to a number of minor operators and some unallocated minutes, which are excluded from the main measure of Major Operators (Passenger and Freight).
- The number of Train km run excludes empty coaching stock movements, and is as recorded in the performance database (PALADIN).
- The Delay per 100 train km is based on total delay minutes, divided by the train kilometres run, multiplied by 100.
- Total delay minutes include delays to a number of minor operators and some unallocated minutes, which are excluded from the main measure of Major Operators (Passenger and Freight). They are nevertheless included in the total Network Rail delay minutes. These include LUL Bakerloo line services, charter operations and miscellaneous services.
- Train km have been updated for 2003/04 and 2005/06 to exclude LUL District Line from Minor Operators (i.e. an operator that is not franchised and is not an open access operator and does not run scheduled services to a regular timetable all year round), as there are no NR delays recorded for this.

We have reduced delay minutes attributable to Network Rail by about one million delay minutes, compared to the previous year, to 9.5 million minutes in 2007/08. This is a substantial reduction and one of the reasons behind this is the good performance of our assets during the year. The level of delay achieved was better than the regulatory target for the year (9.8 million minutes) but higher than our internal target of 9.115 million minutes.

Public Performance Measure (PPM)

PPM combines figures for punctuality and reliability into a single performance measure covering all scheduled services operated by franchised passenger operators. PPM measures the performance of individual trains against their planned timetable for the day, and shows the percentage of trains 'on time' compared to the total number of trains planned. PPM for the year is expressed as a moving annual average (MAA).

A train is defined as 'on time' if it arrives at its planned destination station within five minutes (i.e. 4 minutes 59 seconds or less) of the planned arrival time. For longer distance operators a criterion of arrivals within 10 minutes (i.e. 9 minutes 59 seconds or less) is used. Where an operator runs a mixed service (shorter and longer distance), an aggregation of within five minutes and within ten minutes is used for 'on time' (i.e. taking the number of trains that actually arrive within the five minutes (short distance) and adding this to the number of trains actually arriving within ten minutes (long distance) and then dividing by the total number of trains booked).

Table 1.3 shows the network total for 2007/08 as well as the individual results for each of the franchised passenger operators.

Table 1.3 PPM: network total and by train operating company (%)

EA	First Transpennine Express	91.7
EB	National Express East Anglia	90.5
ED	Northern Rail	88.5
EF	First Great Western	83.1
EG	First Capital Connect	90.6
EH	CrossCountry*	87.0
EJ	London Midland*	88.9
EK	London Overground*	91.4
EM	East Midllands Trains*	87.1
HA	First ScotRail	90.6
HB	National Express East Coast	82.6
HE	Merseyrail	94.7
HF	Virgin Trains	86.2
HL	Arriva Trains Wales	92.4
HO	Chiltern Railway	95.0
HT	c2c	94.5
HU	Southeastern	90.6
HV	Gatwick Express	92.2
HW	Southern	89.9
HY/ HZ	Stagecoach South Western	92.0
Total franchised operators		89.9

* The figures shown for the new franchises are indicative only as they have operated only for part of the year. The MAA figures shown are calculated from an analysis of the PPM results of the services which then formed part of the new franchises.

Summarised network-wide data (delays to major operators)

The delay minutes data presented in the remainder of this section are Network Rail attributed delays to the main scheduled passenger train services and freight operators. This is consistent with data presented for previous years and excludes delays to other types of operator (such as London Underground services and charter operations), which account for around 0.4 per cent of the total Network Rail attributed delays.

National delays to passenger train services

Total Network Rail-attributed delays to passenger trains reduced in 2007/08 by 8 per cent. Traffic volumes, measured in train kilometres run, increased by 0.7 per cent compared to 2006/07. This resulted in a combined impact of a 9.1 per cent improvement in delay minutes per 100 train km, which fell to 1.74 minutes. Within this total, delays to franchised passenger operators also fell to 1.75 minutes per 100 train km, which was 3 per cent better than the regulatory target for this measure.

The trends in delays to passenger trains (measured as delay per 100 train km) over the last five years is illustrated in Figure 1.1. This highlights the general improvement over this time-frame, together with the impact of particular periods of poor performance, which generally coincide with unusually severe weather impacts, which were not as numerous as in previous years.

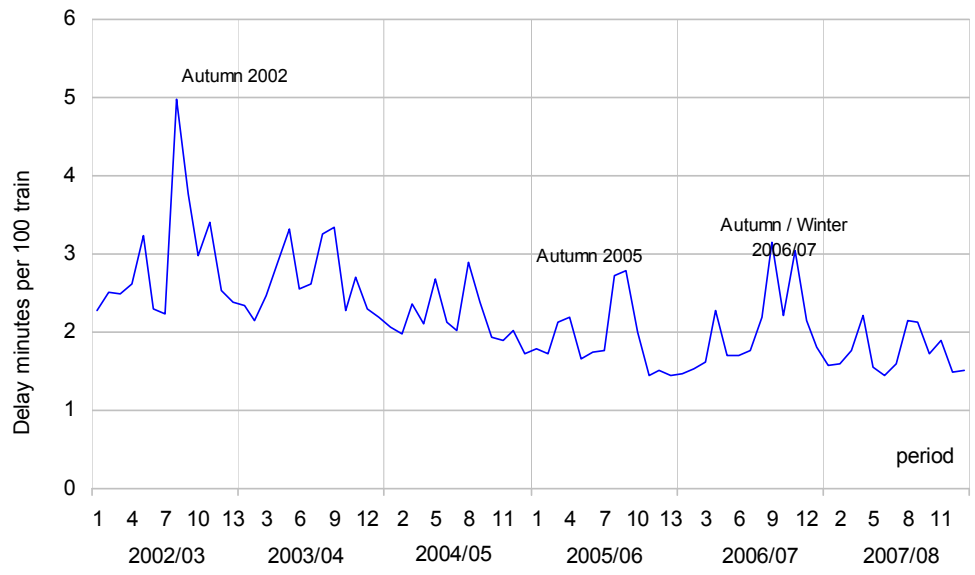
Table 1.4 Delays to passenger train services

Network Rail -attributed delays	2003/04	2004/05	2005/06	2006/07	2007/08
Delay minutes	11,394,367	9,311,884	8,386,939	8,403,701	7,695,360
Train km	430,472,798	428,829,386	437,524,953	439,123,839	442,271,678
Delay per 100 train km	2.65	2.17	1.92	1.91	1.74
Delay minutes to franchised operators per 100 train km					
Actual	2.66	2.18	1.93	1.92	1.75
Regulatory target	–	2.34	2.12	1.97	1.80

Notes:

- The Delay minutes totals are based on all PfPI delays, affecting applicable passenger operators (main scheduled operators).
- Train km run are for trains of applicable operators, excluding empty coaching stock movements, as recorded in PALADIN.
- Delay per 100 train km are based on all PfPI Delay minutes, divided by the train kilometres run, multiplied by 100.
- From 2004/05 onwards, regulatory targets were set based on delay to franchised passenger operators only. This excludes the non-franchised operators i.e. Eurostar, Grand Central, Heathrow Express, First Hull Trains and Nexus. However non-franchised operators are included in the remaining figures in this table above.

Figure 1.1 Delay minutes per 100 train km over time



National delays to freight train services

Delays to freight trains decreased by 16 per cent to 1.8 million minutes. When combined with a reduction of 10 per cent in train kilometres run, this represents an improvement of 6 per cent in delay minutes per 100 train km.

Table 1.5 National delays to freight train services

Network Rail-attributed delays	2003/04	2004/05	2005/06	2006/07	2007/08
Delay minutes	2,279,360	2,057,063	2,036,592	2,088,205	1,762,932
Train km	47,828,365	45,519,096	46,727,870	45,258,631	40,700,435
Delay minutes per 100 train km	4.77	4.52	4.36	4.61	4.33

Notes:

- The Delay minutes totals are based on all PfPI delays affecting applicable freight operators (main scheduled operators).
- Train km run are for trains of applicable operators, excluding empty coaching stock movements, as recorded in PALADIN.
- Delay minutes per 100 train km are based on all PfPI delay minutes, divided by the train kilometres run, multiplied by 100.

Breakdown of performance data by operator

Table 1.6 Delays to individual operators 2007/08

Passenger operators		Delay minutes	Train Kilometres (million)	Delay per 100 train km
EA	First Transpennine Express	283,748	15.16	1.87
EB	National Express East Anglia	593,214	30.2	1.96
EC	Grand Central	3,460	0.18	1.94
ED	Northern Rail	1,041,045	40.42	2.58
EF	First Great Western	841,801	39.66	2.12
EG	First Capital Connect	271,680	22.33	1.22
EH	CrossCountry*	530,531	28.52	1.86
EJ	London Midland*	419,330	18.42	2.28
EK	London Overground*	68,847	2.95	2.33
EM	East Midlands Trains*	348,562	18.97	1.84
GA	Eurostar (UK)	7,283	0.64	1.14
HA	First Scotrail	472,223	37.35	1.26
HB	National Express East Coast	233,747	18.46	1.27
HE	Merseyrail	55,878	5.49	1.02
HF	Virgin Trains	562,785	26.03	2.16
HL	Arriva Trains Wales	297,571	21.57	1.38
HM	Heathrow Express	42,058	1.47	2.86
HO	Chiltern Railways	93,217	8.96	1.04
HT	c2c	48,117	6	0.8
HU	Southeastern	404,066	28.04	1.44
HV	Gatwick Express	33,429	2.43	1.37
HW	Southern	527,228	27.69	1.9
HY	Stagecoach South Western	486,600	37.08	1.31
PF	First Hull Trains	20,916	1.41	1.48
PG	Nexus	8,024	2.84	0.28
Total		**7,695,360**	**442.27**	**1.74**
of which franchised operators		**7,613,619**	**435.73**	**1.75**
Freight operators				
WA	EWS	945,952	23	4.11
DB	Freightliner Intermodal	410,480	8.43	4.87
D2	Freightliner Heavy Haul	293,724	5.62	5.23
PE	First GB Railfreight	68,430	1.8	3.79
XH	Direct Rail Services	44,346	1.85	2.4
Total		**1,762,932**	**40.7**	**4.33**
Combined total for all applicable operators		**9,458,292**	**482.97**	**1.96**

* During the year the new Midlands franchises commenced operation. The figures shown are based on an analysis of the delays to the services which then formed part of the new franchises.

Table 1.7 Delays per 100 train kilometres to individual operators 2007/08

	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8	Period 9	Period 10	Period 11	Period 12	Period 13	Full year total
Passenger operators														
First Transpennine Express	1.78	1.59	2.04	2.54	1.55	1.60	1.48	2.25	2.14	1.75	2.35	1.78	1.56	1.87
National Express East Anglia	1.15	1.82	1.63	2.07	1.75	1.89	2.26	2.18	3.00	2.08	2.35	1.77	1.62	1.96
Grand Central	–	–	–	–	–	–	–	–	–	1.48	1.81	1.54	2.35	1.94
Northern Rail	2.29	2.14	3.02	3.34	2.29	2.13	2.31	3.64	3.19	2.36	2.58	2.22	2.05	2.58
First Great Western	2.14	1.89	2.09	3.25	2.33	1.61	1.75	2.17	2.38	2.13	2.28	1.83	1.77	2.12
First Capital Connect	1.12	1.26	1.25	1.90	0.91	0.88	1.38	1.36	1.55	1.12	1.39	0.86	0.87	1.22
CrossCountry*	1.84	1.53	2.26	2.33	1.94	1.70	1.66	2.38	1.87	1.60	1.91	1.67	1.53	1.86
London Midland*	1.74	1.75	2.51	2.64	2.06	2.41	1.85	2.51	2.99	2.62	2.09	2.12	2.39	2.28
London Overground*	1.85	2.98	3.12	3.30	2.28	1.56	2.15	2.85	3.08	1.95	1.93	1.83	1.73	2.33
East Midlands Trains*	1.78	1.70	2.15	2.52	2.00	1.78	2.09	1.96	1.59	1.49	1.51	1.75	1.59	1.84
Eurostar (UK)	0.62	0.85	0.57	1.65	1.99	0.46	0.75	1.74	2.79	–	–	–	–	1.14
First Scotrail	1.06	1.19	1.38	1.06	0.92	1.04	1.07	1.81	1.50	1.24	2.20	1.09	0.93	1.26
National Express East Coast	0.87	0.95	1.53	2.91	1.05	1.19	0.99	1.21	1.00	0.92	1.50	1.11	1.16	1.27
Merseyrail	0.98	0.99	0.88	1.47	0.79	0.71	0.72	1.17	0.91	1.17	1.04	1.26	1.11	1.02
Virgin Trains	1.90	1.92	2.26	2.14	1.77	1.74	1.92	2.35	2.70	2.55	2.55	1.99	2.33	2.16
Arriva Trains Wales	1.63	0.98	1.29	1.91	1.32	1.41	1.06	1.64	1.44	1.50	1.29	1.20	1.31	1.38
Heathrow Express	2.09	3.73	2.95	4.56	1.96	1.25	2.36	2.39	3.42	3.69	2.87	3.16	2.81	2.86
Chiltern Railways	1.10	1.03	1.41	1.21	1.16	0.76	0.84	1.25	1.16	0.73	0.92	0.92	0.96	1.04
c2c	1.45	0.87	0.53	0.30	0.83	0.84	0.97	0.43	0.75	0.52	1.19	0.95	0.84	0.80
Southeastern	1.63	1.97	1.07	1.35	1.09	1.09	1.21	2.23	2.11	1.40	1.28	1.07	1.25	1.44
Gatwick Express	1.55	1.46	0.81	3.14	0.68	1.20	1.61	1.88	1.66	1.07	1.38	0.84	0.65	1.37
Southern	1.59	1.98	1.45	2.63	1.25	1.47	1.99	2.45	2.71	2.41	2.26	1.26	1.40	1.90
Stagecoach South Western	1.24	1.24	1.09	1.57	1.13	0.74	1.27	2.06	1.97	1.33	1.07	1.10	1.28	1.31
First Hull Trains	0.93	0.86	1.91	4.29	1.12	1.53	1.00	1.47	1.23	0.74	1.62	1.26	1.31	1.48
Nexus	0.34	0.27	0.23	0.36	0.14	0.19	0.16	0.32	0.20	0.36	0.35	0.26	0.50	0.28
Total	**1.58**	**1.60**	**1.77**	**2.21**	**1.54**	**1.45**	**1.60**	**2.14**	**2.14**	**1.73**	**1.89**	**1.50**	**1.50**	**1.74**
Freight operators														
EWS	3.87	3.18	4.49	5.48	4.60	3.72	3.50	4.15	4.14	3.60	4.90	4.01	3.83	4.11
Freightliner Intermodal	3.86	3.73	5.71	5.21	6.01	4.06	4.28	5.07	7.04	5.22	5.09	4.00	3.85	4.87
Freightliner Heavy Haul	5.38	4.64	5.36	8.35	6.00	5.01	4.30	4.59	5.37	4.94	6.48	4.38	4.08	5.23
First GB Rail Freight	3.31	3.04	3.59	5.65	3.11	3.21	4.77	2.59	5.16	3.33	3.66	3.76	3.64	3.79
Direct Rail Services	1.48	2.10	3.56	2.21	1.62	2.22	1.54	1.67	2.80	3.78	4.07	2.06	2.71	2.40
Total	**3.92**	**3.42**	**4.77**	**5.61**	**4.87**	**3.87**	**3.74**	**4.23**	**4.92**	**4.12**	**5.07**	**3.97**	**3.81**	**4.33**

Table 1.8 Delay minutes to all trains split by Route and by four-weekly period 2007/08

Route	Sussex	Wessex	Western	LNE	Anglia	Scotland	Kent	LNW	National Total
P1	36,704	45,438	119,071	155,496	45,473	40,486	40,721	168,908	652,297
P2	37,662	44,982	94,591	149,708	65,051	40,707	60,167	163,151	656,019
P3	33,010	40,445	105,350	205,040	60,200	50,788	29,859	236,361	761,053
P4	70,853	55,039	163,882	288,221	75,430	42,989	34,511	200,671	931,596
P5	28,827	40,392	146,899	168,840	65,546	32,888	31,198	173,341	687,931
P6	35,817	30,928	85,666	161,921	73,492	39,072	29,076	166,897	622,869
P7	44,050	52,494	89,664	165,736	83,306	36,289	35,485	162,531	669,555
P8	54,096	76,157	111,739	194,275	74,780	63,992	62,314	228,125	865,478
P9	59,693	79,668	111,464	175,107	107,626	53,291	57,528	252,982	897,359
P10	50,251	45,360	89,203	128,432	59,841	38,903	32,285	184,099	628,374
P11	52,057	46,217	115,525	194,577	78,048	83,712	34,540	205,950	810,626
P12	26,018	47,154	96,556	165,056	67,009	44,763	30,943	172,567	**650,066**
P13	32,144	51,693	96,192	155,222	63,033	34,714	34,378	198,984	666,360
Year total	561,182	655,967	1,425,802	2,307,631	918,835	602,594	513,005	2,514,567	9,499,583

Period dates:
P1 Sunday 01 April 2007 − Saturday 28 April 2007
P2 Sunday 29 April 2007 − Saturday 26 May 2007
P3 Sunday 27 May 2007 – Saturday 23 June 2007
P4 Sunday 24 June 2007 – Saturday 21 July 2007
P5 Sunday 22 July 2007– Saturday 18 August 2007
P6 Sunday 19 August 2007 – Saturday 15 September 2007
P7 Saturday 16 September 2007 – Saturday 13 October 2007
P8 Sunday 14 October 2007 – Saturday 10 November 2007
P9 Sunday 11 November 2007 – Saturday 08 December 2007
P10 Sunday 09 December 2007 – Saturday 05 January 2008
P11 Sunday 06 January 2008 – Saturday 02 February 2008
P12 Sunday 03 February 2008 – Saturday 01 March 2008
P13 Sunday 02 March 2008 − Monday 31 March 2008

National data by delay category grouping

The trends in delay minutes by broad category groupings are shown below, followed by a detailed commentary focusing on these groups and the individual delay categories.

Table 1.9 Network delays to passenger and freight trains by summarised category groups (delay minutes)

Category group[1]	2003/04	2004/05	2005/06	2006/07	2007/08
Track defects and TSRs[2]	2,128,394	1,399,184	1,505,947	1,281,003	1,134,840
Other asset defects[3]	4,510,007	3,667,027	3,388,263	3,344,609	2,858,534
Network management/other[4]	3,884,869	3,601,440	3,124,193	2,844,547	2,740,266
Autumn leaf fall and adhesion[5]	469,113	287,282	313,941	231,860	182,844
Severe weather/structures[6]	737,445	796,378	458,122	1,002,044	865,584
External factors[7]	1,943,899	1,617,636	1,633,065	1,787,843	1,676,215
Total minutes	13,673,727	11,368,947	10,423,531	10,491,906	9,458,292
Train km (millions)	478.30	474.35	484.25	484.38	482.97

Table 1.10 Network delays to passenger and freight trains by summarised category groups (delay mins/100 train km)

Category group[1]	2003/04	2004/05	2005/06	2006/07	2007/08
Track defects and TSRs[2]	0.44	0.29	0.31	0.26	0.23
Other asset defects[3]	0.94	0.77	0.70	0.69	0.59
Network management/other[4]	0.81	0.76	0.65	0.59	0.57
Autumn leaf fall and adhesion[5]	0.10	0.06	0.06	0.05	0.04
Severe weather/structures[6]	0.15	0.17	0.09	0.21	0.18
External factors[7]	0.41	0.34	0.34	0.37	0.35
Total	2.86	2.40	2.15	2.17	1.96

Notes:
1. Delay totals are based on all delays recorded for attribution of responsibility to Network Rail, divided by train kilometres run where applicable.
2. Track defects and TSRs include broken rails, other track faults and speed restrictions for condition of track and rolling contact fatigue.
3. Other asset defects include points, track circuits, signal and signalling system failures, overhead power/third rail supply etc.
4. Network management/other delays include possessions, signalling errors, timetabling, dispute resolution and unexplained.
5. Autumn leaf fall and adhesion include leaf fall related delays and Network Rail's share of industry adhesion delays.
6. Severe weather/structures includes direct delays due to severe weather and all structures delays, which include weather related delays due to embankment instability risks, bridge scour and flooding. Heat-related speed restrictions are also shown within this category.
7. External factors include road-related incidents, fires, trespass and vandalism, security alerts, suicides and other external events.

Commentary

Overview

In 2007/08 delays caused by Network Rail's infrastructure and operations improved by 10 per cent, while delays caused by adverse weather and external events improved by 9 per cent. Delays fell across all the main category groups, but with the largest contributions coming from improved performance in the asset categories. Smaller contributions came from network management, autumn leaf fall and adhesion, severe weather and external causes of delay.

The largest improvements in Network Rail attributed delay minutes in 2007/08 (compared to 2006/07) were in the 'Other asset defects' categories of delay (see Tables 1.9 and 1.10), with substantial improvements evident in points failures, overhead line / third rail faults and signalling failures. In percentage terms, autumn delays saw the largest improvement (21 per cent).

While delays due to adverse weather fell compared to the previous year (by 14 per cent), they still remained higher than expected, due primarily to several episodes of severe flooding during the year.

Similarly while track-related delays fell by 11 per cent and network management delays fell by 4 per cent, these improvements were less than had been anticipated.

At an individual category level (see Tables 1.11 and 1.12), the most significant improvements (in absolute minutes terms) were as follows:

- 'External weather impact': 137,330 minutes (16 per cent better)
- 'Network Rail commercial: dispute take-back': 128,594 minutes (26 per cent better)
- 'Overhead line/third rail faults': 122,510 minutes (36 per cent better)
- 'Track circuit failures': 102,025 minutes (12 per cent better)
- 'Points failures': 99,693 minutes (12 per cent better).

By contrast, the largest increases in delay were in the following categories:

- 'Other infrastructure': +46,665 minutes (+14 per cent)
- 'Unexplained': +17,112 minutes (+5 per cent)
- 'External fatalities & trespass': +14,088 minutes (+2 per cent).

Detailed results

The detailed results and key influences by category grouping were as follows:

- Track-related delay ('Track defects and TSRs') fell by 146,163 (11 per cent). The improvement rate was slightly greater for track TSRs, although the larger category of 'track faults (including broken rails)' contributed a greater overall minutes improvement. Around two-thirds of this improvement occurred on Western Route, while LNE and LNW routes also saw an improvement. This was offset by modest increases on Anglia, Wessex and Sussex routes.
- Points, track-circuits, other signalling and power supplies etc. ('Other asset defects') fell by 486,066 minutes (15 per cent). Part of this improvement reflects the cooler summer, with the absence of high temperatures and the associated increased delays which occurred in the previous year. Within this group, improvements included:
  a) a 36 per cent reduction for 'overhead line/third rail faults' (122,510), with significant reductions on Anglia, LNW and Kent (reversing the increases the previous year on these routes)
  b) a 12 per cent reduction in 'track circuit failure' delays (102,025 minutes), with improvements on all routes except Western
  c) a 12 per cent reduction in 'points failure' delays (99,693 minutes), with improvements on all routes except LNW and Wessex
  d) improvements in delays across the remaining signalling categories (signal failures and signalling system and equipment failures), with a combined improvement of 117,558 minutes or 14 per cent.
- 'Network management/other' delays fell by 104,281 minutes (4 per cent). Within this group, improvements included:
  a) unexplained, disputes take-back and other commercial categories combined reduced by 116,763 minutes (14 per cent)
  b) possessions management categories, where delays fell by 32,837 minutes (9 per cent) on a like-for-like basis
  c) 'train planning' delays reduced by 25,768 minutes (6 per cent).

  These were offset by increases in:
  a) The 'Other infrastructure' and 'Infrastructure – mishaps' categories, where delays increased by 54,356 minutes (13 per cent) on a like-for-like basis. Part of this increase (up to 19,403 minutes) reflects the

introduction of a new code within this category for 'Safety issue – no fault found' with these delays being previously spread across a number of categories. Delays arising from track patrolling are included within this total but were broadly stable across the two years at around 80,000 minutes pa.

b) The 'Network Rail operations' category rose by 13,392 minutes (2 per cent). This increase is entirely attributed to the 'Joint Enquiry' reason code within this category (which rose to 40,746 minutes in 2007/08). These incidents are temporarily coded to this category pending the resolution of a technical enquiry into the underlying root-cause.

- Autumn leaf fall and adhesion delays fell by 49,016 minutes (21 per cent). This includes a number of categories of delay including 'Wheel slip due to leaf fall', 'Network Rail share of industry leaf fall/adhesion delays', and 'Track circuit failures – leaf fall'.
- 'Severe weather/structures': This category saw a decline in delays of 136,460 minutes (14 per cent). This reflected the balance between an increase in flooding delays:
  a) in the early Summer, particularly in LNE and LNW and
  b) in January across LNE, LNW, Western and Scotland

  offset by comparisons with the adverse weather of the previous year, which included
  c) extreme heat and flooding in summer 2006,
  d) poor weather in late autumn 2006, and
  e) January 2007 gales which resulted in severe weather delays of some 315,000 minutes.
- 'External factors' delays fell back by 111,628 minutes (6 per cent) but remained higher than in the previous two years (2004/05 – 2005/06). Within this total:
  a) The category for 'External infrastructure damage – vandalism/ theft', which includes the impact of cable theft, saw a 6 per cent decline, but remained at a historically high level (nearly 150,000 minutes higher than the average level of 2004/05 – 2005/06). This has continued to be a major problem on LNE route and to a lesser extent on LNW.
  b) Most other categories were broadly stable compared with the previous year, with the exception of 'External other' category which fell by 47,882 minutes to the lowest level for many years. This category includes incidents arising due to external power supplies and gas leaks, for which there was a marked reduction in major incidents in the year.

Table 1.11 National delays to passenger and freight trains by detailed cause category 2007/08 (delay minutes)

No	Category	Passenger Trains		Freight Trains		Combined Total	
		Delay Mins.	Delay per 100 tr. km	Delay Mins.	Delay per 100 tr. km	Delay Mins.	Delay per 100 tr. km
101	Points failures	567,915	0.13	161,708	0.40	729,623	0.15
102	Problems with trackside signs, TSR boards	36,168	0.01	5,611	0.01	41,779	0.01
103	Level crossing failures	92,626	0.02	15,237	0.04	107,863	0.02
104A	TSRs due to condition of track	175,527	0.04	108,673	0.27	284,200	0.06
104B	Track faults (including broken rails)	671,563	0.15	163,461	0.40	835,024	0.17
104C	Rolling contact fatigue	11,620	0.00	3,996	0.01	15,616	0.00
105	Lineside structure defects (inc. weather impact)	93,286	0.02	52,132	0.13	145,418	0.03
106	Other infrastructure	306,732	0.07	80,512	0.20	387,244	0.08
107A	Possession over-run and related faults	203,468	0.05	67,738	0.17	271,206	0.06
107B	Possession work left incomplete	49,124	0.01	9,722	0.02	58,846	0.01
108	Mishap – infrastructure causes	75,308	0.02	23,905	0.06	99,213	0.02
109	Animals on line	103,275	0.02	12,053	0.03	115,328	0.02
110	External weather impact	562,598	0.13	157,568	0.39	720,166	0.15
111A	Wheel slip due to leaf fall	73,049	0.02	7,067	0.02	80,116	0.02
111B	Vegetation management failure	13,585	0.00	2,704	0.01	16,289	0.00
112	Fires on Network Rail infrastructure	19,591	0.00	7,022	0.02	26,613	0.01
150B	Network Rail share of industry leaf fall/adhesion delays	93,159	0.02	4,385	0.01	97,544	0.02
201	Overhead line/third rail faults	184,409	0.04	29,677	0.07	214,086	0.04
301A	Signal failures	253,525	0.06	34,481	0.08	288,006	0.06
301B	Track circuit failures	627,345	0.14	88,991	0.22	716,336	0.15
302A	Signalling system and power supply failures	328,900	0.07	62,869	0.15	391,769	0.08
302B	Other signal equipment failures	48,491	0.01	11,080	0.03	59,571	0.01
303	Telephone failures	45,971	0.01	8,295	0.02	54,266	0.01
304	Cable faults (signalling and telecoms)	137,962	0.03	35,744	0.09	173,706	0.04
304A	Change of aspects – no fault found	7,004	0.00	985	0.00	7,989	0.00
305	Track circuit failures – leaf fall	4,733	0.00	451	0.00	5,184	0.00
401	Bridge strikes	194,657	0.04	26,611	0.07	221,268	0.05
402	External infrastructure damage – vandalism/theft	362,840	0.08	110,766	0.27	473,606	0.10
403	External level crossing/road incidents (not bridges)	70,145	0.02	9,035	0.02	79,180	0.02
501	Network Rail operations responsibility	603,699	0.14	119,738	0.29	723,437	0.15
502A	Train planning	288,020	0.07	138,609	0.34	426,629	0.09
502B	Network Rail commercial: other	8,109	0.00	1,670	0.00	9,779	0.00
502C	Network Rail commercial: dispute take-back	316,040	0.07	54,093	0.13	370,133	0.08
503	External fatalities and trespass	548,466	0.12	76,512	0.19	624,978	0.13
504	External police on line/security alerts	38,633	0.01	8,978	0.02	47,611	0.01
505	External fires	66,292	0.01	15,783	0.04	82,075	0.02
506	External other	103,258	0.02	17,626	0.04	120,884	0.03
601	Unexplained	308,267	0.07	27,444	0.07	335,711	0.07
	Total minutes	**7,695,360**	**1.74**	**1,762,932**	**4.33**	**9,458,292**	**1.96**
	Train kilometres	**442,271,678**		**40,700,435**		**482,972,113**	

Table 1.12 Network total delays to passenger and freight trains by detailed cause category (delay minutes)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08
101	Points failures	1,065,887	882,872	834,976	829,316	729,623
102	Problems with trackside signs, TSR boards	72,769	61,106	43,132	41,673	41,779
103	Level crossing failures	142,037	134,181	126,421	115,817	107,863
104A	TSRs due to condition of track	809,947	530,427	566,211	347,642	284,500
104B	Track faults (including broken rails)	1,244,069	849,711	925,259	924,108	835,024
104C	Rolling contact fatigue	74,378	19,046	14,477	9,253	15,616
105	Lineside structure defects (inc. weather impact)	234,619	124,904	144,548	332,341	145,418
106	Other infrastructure	610,463	441,227	386,547	340,579	387,244
107A	Possession over-run and related faults	304,992	305,317	259,164	282,445	271,206
107B	Possession work left incomplete	117,898	95,636	90,826	85,259	58,846
108	Mishap – infrastructure causes	107,970	80,707	72,018	86,707	99,213
109	Animals on line	162,510	148,178	141,102	152,548	115,328
110	External weather impact	462,477	561,759	333,218	857,496	720,166
111A	Wheel slip due to leaf fall	124,301	87,761	96,945	68,798	80,116
111B	Vegetation management failure	12,542	18,734	11,709	13,056	16,289
112	Fires on Network Rail infrastructure	81,642	45,887	41,766	33,513	26,613
150	Network Rail share of industry leaf fall/adhesion delays	305,232	178,960	195,089	148,957	97,544
201	Overhead line/third rail faults	395,062	292,970	244,346	336,596	214,086
301A	Signal failures	510,991	434,036	390,671	345,314	288,006
301B	Track circuit failures	1,269,960	1,058,772	985,535	818,361	716,336
302A	Signalling system and power supply failures	572,099	410,155	368,535	434,195	391,769
302B	Other signal equipment failures	130,046	106,218	72,289	77,395	59,571
303	Telephone failures	48,806	42,513	56,409	45,071	54,266
304	Cable faults (signalling and telecoms)	193,616	141,302	155,919	175,480	173,706
304A	Change of aspects – no fault found	18,993	15,830	12,060	14,516	7,989
305	Track circuit failures – leaf fall	39,580	20,561	21,907	14,105	5,184
401	Bridge strikes	335,176	324,015	245,463	255,753	221,268
402	External infrastructure damage – vandalism/theft	341,241	319,781	338,433	504,472	473,606
403	External level crossing/road incidents (not bridges)	123,666	92,057	89,014	80,857	79,180
501	Network Rail operations responsibility	963,008	826,272	716,343	710,045	723,437
502A	Train planning	496,376	646,738	612,231	452,397	426,629
502B	Network Rail commercial: other	22,965	13,074	8,554	15,060	9,779
502C	Network Rail commercial: dispute take-back	756,976	741,959	588,167	498,727	370,133
503	External fatalities and trespass	611,448	554,319	641,675	610,890	624,978
504	External police on line/security alerts	50,776	42,452	83,460	45,421	47,611
505	External fires	124,129	56,553	69,421	88,171	82,075
506	External other	275,821	182,572	123,833	168,766	120,884
601	Unexplained	418,910	370,670	335,502	318,599	335,711
	Total minutes	**13,673,727**	**11,368,947**	**10,423,531**	**10,491,906**	**9,458,292**
	Train kilometres	**478,301,163**	**474,348,482**	**484,252,823**	**484,382,470**	**482,972,113**

Note: During the year a slight change in attribution coding has reduced category 107A and increased category 106. Prior year figures above have not been adjusted, but the minutes in 2006/07 for category 107A would have been 4,815 minutes lower on a consistent basis with 2007/08 data. The impact on the previous 3 years was even lower, at an average of less than 3,000 minutes pa.

Table 1.13 Network total delays to passenger and freight trains by detailed cause category (delay minutes per 100 train km)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08
101	Points failures	0.22	0.19	0.17	0.17	0.15
102	Problems with trackside signs, TSR boards	0.02	0.01	0.01	0.01	0.01
103	Level crossing failures	0.03	0.03	0.03	0.02	0.02
104A	TSRs due to condition of track	0.17	0.11	0.12	0.07	0.06
104B	Track faults (including broken rails)	0.26	0.18	0.19	0.19	0.17
104C	Rolling contact fatigue	0.02	0.00	0.00	0.00	0.00
105	Lineside structure defects (inc. weather impact)	0.06	0.05	0.03	0.03	0.03
106	Other infrastructure	0.13	0.09	0.08	0.07	0.08
107A	Possession over-run and related faults	0.06	0.06	0.05	0.06	0.06
107B	Possession work left incomplete	0.02	0.02	0.02	0.02	0.01
108	Mishap – infrastructure causes	0.02	0.02	0.01	0.02	0.02
109	Animals on line	0.03	0.03	0.03	0.03	0.02
110	External weather impact	0.10	0.12	0.07	0.18	0.15
111A	Wheel slip due to leaf fall	0.03	0.02	0.02	0.01	0.02
111B	Vegetation management failure	0.00	0.00	0.00	0.00	0.00
112	Fires on Network Rail infrastructure	0.02	0.01	0.01	0.01	0.01
150	Network Rail share of industry leaf fall/adhesion delays	0.06	0.04	0.04	0.03	0.02
201	Overhead line/third rail faults	0.08	0.06	0.05	0.07	0.04
301A	Signal failures	0.11	0.09	0.08	0.07	0.06
301B	Track circuit failures	0.27	0.22	0.20	0.17	0.15
302A	Signalling system and power supply failures	0.12	0.09	0.08	0.09	0.08
302B	Other signal equipment failures	0.03	0.02	0.01	0.02	0.01
303	Telephone failures	0.01	0.01	0.01	0.01	0.01
304	Cable faults (signalling and telecoms)	0.04	0.03	0.03	0.04	0.04
304A	Change of aspects – no fault found	0.00	0.00	0.00	0.00	0.00
305	Track circuit failures – leaf fall	0.01	0.00	0.00	0.00	0.00
401	Bridge strikes	0.07	0.07	0.05	0.05	0.05
402	External infrastructure damage – vandalism/theft	0.07	0.07	0.07	0.10	0.10
403	External level crossing/road incidents (not bridges)	0.03	0.02	0.02	0.02	0.02
501	Network Rail operations responsibility	0.20	0.17	0.15	0.15	0.15
502A	Train planning	0.10	0.14	0.13	0.09	0.09
502B	Network Rail commercial: other	0.00	0.00	0.00	0.00	0.00
502C	Network Rail commercial: dispute take-back	0.16	0.16	0.12	0.10	0.08
503	External fatalities and trespass	0.13	0.12	0.13	0.13	0.13
504	External police on line/security alerts	0.01	0.01	0.02	0.01	0.01
505	External fires	0.03	0.01	0.01	0.02	0.03
506	External other	0.06	0.04	0.03	0.03	0.03
601	Unexplained	0.09	0.08	0.07	0.07	0.07
	Total minutes	**2.86**	**2.40**	**2.15**	**2.17**	**1.96**

Results for operating routes by delay category

Commentary on operating routes

The delays by cause category across Network Rail's eight routes are shown in tables 1.14 to 1.21. These show delays to passenger and freight services, and delay per 100 train kilometres. From these it can be seen that:

- overall delay per 100 train km is highest on London North Western (2.29 minutes per 100 train km) and lowest on Scotland (1.26 minutes per 100 train km).
- four out of eight routes have minutes per 100 km of less than 2. These routes are Kent, Scotland, Sussex and Wessex.
- track delays have more impact on London North Eastern and London North Western. Together these account for 61 per cent of total national track delays in the year.
- London North Western experiences the most delays due to points or signalling failures and makes up 32 per cent of national delays for these categories.
- external delays represent 18 per cent of all Network Rail delays nationally. This proportion varies from 21 per cent in Kent, 20 per cent in LNE to 11 per cent in Scotland. Relative to train miles run, the impact of external delays is highest on LNE route.

Table 1.14 Western delays to passenger and freight trains by detailed cause 2007/08

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	95,582	34,403	129,985	0.19
102	Problems with trackside signs, TSR boards	4,348	518	4,866	0.01
103	Level crossing failures	14,734	2,646	17,380	0.03
104A	TSRs due to condition of track	7,260	1,193	8,453	0.01
104B	Track faults (including broken rails)	73,830	12,269	86,099	0.13
104C	Rolling contact fatigue	293	6	299	0.00
105	Lineside structure defects (inc. weather impact)	16,912	4,107	21,019	0.03
106	Other infrastructure	33,819	9,408	43,227	0.06
107A	Possession over-run and related faults	36,455	15,480	51,935	0.08
107B	Possession work left incomplete	914	71	985	0.00
108	Mishap – infrastructure causes	9,003	1,918	10,921	0.02
109	Animals on line	20,887	3,241	24,128	0.04
110	External weather impact	93,674	40,794	134,468	0.20
111A	Wheel slip due to leaf fall	7,600	646	8,246	0.01
111B	Vegetation management failure	1,136	138	1,274	0.00
112	Fires on Network Rail infrastructure	552	39	591	0.00
150	Network Rail share of industry leaf fall/adhesion delays	12,339	676	13,015	0.02
201	Overhead line/third rail faults	2,616	92	2,708	0.00
301A	Signal failures	42,037	4,975	47,012	0.07
301B	Track circuit failures	128,924	19,191	148,115	0.22
302A	Signalling system and power supply failures	58,601	10,822	69,423	0.10
302B	Other signal equipment failures	12,076	2,613	14,689	0.02
303	Telephone failures	11,455	995	12,450	0.02
304	Cable faults (signalling and telecoms)	11,816	1,520	13,336	0.02
304A	Change of aspects – no fault found	1,062	107	1,169	0.00
305	Track circuit failures – leaf fall	117	0	117	0.00
401	Bridge strikes	34,252	5,108	39,360	0.06
402	External infrastructure damage – vandalism/theft	35,954	5,104	41,058	0.06
403	External level crossing/road incidents (not bridges)	9,727	591	10,318	0.02
501	Network Rail operations responsibility	75,752	17,740	93,492	0.14
502A	Train planning	61,563	25,038	86,601	0.13
502B	Network Rail commercial: other	261	70	331	0.00
502C	Network Rail commercial: dispute take-back	82,842	18,781	101,623	0.15
503	External fatalities and trespass	99,664	12,296	111,960	0.17
504	External police on line/security alerts	7,095	642	7,737	0.01
505	External fires	4,685	2,136	6,821	0.01
506	External other	8,229	1,253	9,482	0.01
601	Unexplained	43,980	3,395	47,375	0.07
	Total	**1,162,046**	**260,022**	**1,422,068**	**2.11**
	Train kilometres			**67,309,163**	

Table 1.15 London North Eastern delays to passenger and freight trains by detailed cause category 2007/08

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	67,607	25,611	93,218	0.09
102	Problems with trackside signs, TSR boards	10,446	2,199	12,645	0.01
103	Level crossing failures	28,743	7,571	36,314	0.03
104A	TSRs due to condition of track	89,643	79,168	168,811	0.16
104B	Track faults (including broken rails)	179,682	84,170	263,852	0.24
104C	Rolling contact fatigue	41	71	112	0.00
105	Lineside structure defects (inc. weather impact)	26,087	34,411	60,498	0.06
106	Other infrastructure	37,352	22,256	59,608	0.06
107A	Possession over-run and related faults	30,571	12,750	43,321	0.04
107B	Possession work left incomplete	12,624	3,530	16,154	0.01
108	Mishap – infrastructure causes	47,857	19,631	67,488	0.06
109	Animals on line	23,705	4,106	27,811	0.03
110	External weather impact	151,874	53,395	205,269	0.19
111A	Wheel slip due to leaf fall	12,691	1,243	13,934	0.01
111B	Vegetation management failure	2,419	766	3,185	0.00
112	Fires on Network Rail infrastructure	2,160	389	2,549	0.00
150	Network Rail share of industry leaf fall/adhesion delays	16,058	802	16,860	0.02
201	Overhead line/third rail faults	54,813	8,128	62,941	0.06
301A	Signal failures	33,658	8,622	42,280	0.04
301B	Track circuit failures	47,719	13,383	61,102	0.06
302A	Signalling system and power supply failures	77,861	20,724	98,585	0.09
302B	Other signal equipment failures	9,643	2,798	12,441	0.01
303	Telephone failures	14,448	4,188	18,636	0.02
304	Cable faults (signalling and telecoms)	45,263	15,145	60,408	0.06
304A	Change of aspects – no fault found	972	191	1,163	0.00
305	Track circuit failures – leaf fall	2,677	350	3,027	0.00
401	Bridge strikes	37,106	9,645	46,751	0.04
402	External infrastructure damage – vandalism/theft	136,160	75,980	212,140	0.20
403	External level crossing/road incidents (not bridges)	19,274	3,778	23,052	0.02
501	Network Rail operations responsibility	109,673	35,614	145,287	0.13
502A	Train planning	58,680	43,167	101,847	0.09
502B	Network Rail commercial: other	384	498	882	0.00
502C	Network Rail commercial: dispute take-back	58,094	11,151	69,245	0.06
503	External fatalities and trespass	98,617	18,334	116,951	0.11
504	External police on line/security alerts	5,602	2,017	7,619	0.01
505	External fires	3,599	2,345	5,944	0.01
506	External other	43,880	11,096	54,976	0.05
601	Unexplained	53,850	10,982	64,832	0.06
	Total	**1,651,533**	**650,205**	**2,301,738**	**2.13**
	Train kilometres			**108,193,172**	

Table 1.16 London North Western delays to passenger and freight trains by detailed cause category 2007/08

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	194,164	70,011	264,175	0.24
102	Problems with trackside signs, TSR boards	13,422	1,910	15,332	0.01
103	Level crossing failures	13,710	1,080	14,790	0.01
104A	TSRs due to condition of track	40,509	23,738	64,247	0.06
104B	Track faults (including broken rails)	163,099	29,695	192,794	0.18
104C	Rolling contact fatigue	391	548	939	0.00
105	Lineside structure defects (inc. weather impact)	23,330	10,116	33,446	0.03
106	Other infrastructure	99,707	23,590	123,297	0.11
107A	Possession over-run and related faults	49,481	26,956	76,437	0.07
107B	Possession work left incomplete	14,649	4,557	19,206	0.02
108	Mishap – infrastructure causes	3,045	439	3,484	0.00
109	Animals on line	27,919	2,856	30,775	0.03
110	External weather impact	109,744	45,497	155,241	0.14
111A	Wheel slip due to leaf fall	19,753	2,609	22,362	0.02
111B	Vegetation management failure	5,822	741	6,563	0.01
112	Fires on Network Rail infrastructure	5,942	4,968	10,910	0.01
150	Network Rail share of industry leaf fall/ adhesion delays	26,529	947	27,476	0.03
201	Overhead line/third rail faults	51,420	15,993	67,413	0.06
301A	Signal failures	80,828	12,275	93,103	0.09
301B	Track circuit failures	218,270	38,964	257,234	0.24
302A	Signalling system and power supply failures	67,794	14,152	81,946	0.08
302B	Other signal equipment failures	11,717	3,587	15,304	0.01
303	Telephone failures	3,835	840	4,675	0.00
304	Cable faults (signalling and telecoms)	42,447	14,555	57,002	0.05
304A	Change of aspects – no fault found	1,341	200	1,541	0.00
305	Track circuit failures – leaf fall	825	101	926	0.00
401	Bridge strikes	57,091	6,279	63,370	0.06
402	External infrastructure damage – vandalism/theft	109,768	22,759	132,527	0.12
403	External level crossing/road incidents (not bridges)	12,570	2,424	14,994	0.01
501	Network Rail operations responsibility	95,980	33,637	129,617	0.12
502A	Train planning	69,071	27,499	96,570	0.09
502B	Network Rail commercial: other	6,905	801	7,706	0.01
502C	Network Rail commercial: dispute take-back	92,432	10,960	103,392	0.10
503	External fatalities and trespass	128,225	22,170	150,395	0.14
504	External police on line/security alerts	3,943	2,181	6,124	0.01
505	External fires	12,842	2,836	15,678	0.01
506	External other	17,022	1,913	18,935	0.02
601	Unexplained	101,497	8,132	109,629	0.10
	Total	**1,997,039**	**492,516**	**2,489,555**	**2.29**
	Train kilometres			**108,604,883**	

Table 1.17 Scotland delays to passenger and freight trains by detailed cause category 2007/08

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	47,116	11,134	58,250	0.12
102	Problems with trackside signs, TSR boards	2,035	364	2,399	0.01
103	Level crossing failures	4,208	466	4,674	0.01
104A	TSRs due to condition of track	7,961	2,494	10,455	0.02
104B	Track faults (including broken rails)	26,860	5,714	32,574	0.07
104C	Rolling contact fatigue	61	0	61	0.00
105	Lineside structure defects (inc. weather impact)	5,442	1,404	6,846	0.01
106	Other infrastructure	17,549	4,340	21,889	0.05
107A	Possession over-run and related faults	10,342	3,031	13,373	0.03
107B	Possession work left incomplete	3	0	3	0.00
108	Mishap – infrastructure causes	1,035	244	1,279	0.00
109	Animals on line	7,702	1,093	8,795	0.02
110	External weather impact	44,103	9,121	53,224	0.11
111A	Wheel slip due to leaf fall	6,274	940	7,214	0.02
111B	Vegetation management failure	1,900	482	2,382	0.01
112	Fires on Network Rail infrastructure	619	0	619	0.00
150	Network Rail share of industry leaf fall/adhesion delays	11,694	738	12,432	0.03
201	Overhead line/third rail faults	7,515	1,187	8,702	0.02
301A	Signal failures	27,937	3,207	31,144	0.07
301B	Track circuit failures	41,181	4,375	45,556	0.10
302A	Signalling system and power supply failures	26,339	5,397	31,736	0.07
302B	Other signal equipment failures	2,795	796	3,591	0.01
303	Telephone failures	4,690	1,068	5,758	0.01
304	Cable faults (signalling and telecoms)	7,725	1,915	9,640	0.02
304A	Change of aspects – no fault found	1,296	72	1,368	0.00
305	Track circuit failures – leaf fall	0	0	0	0.00
401	Bridge strikes	7,701	2,049	9,750	0.02
402	External infrastructure damage – vandalism/theft	10,892	2,153	13,045	0.03
403	External level crossing/road incidents (not bridges)	4,150	468	4,618	0.01
501	Network Rail operations responsibility	41,673	5,232	46,905	0.10
502A	Train planning	23,584	5,888	29,472	0.06
502B	Network Rail commercial: other	171	48	219	0.00
502C	Network Rail commercial:dispute take-back	27,549	2,301	29,850	0.06
503	External fatalities and trespass	21,271	2,379	23,650	0.05
504	External police on line/security alerts	1,316	959	2,275	0.00
505	External fires	1,379	1,016	2,395	0.01
506	External other	7,947	822	8,769	0.02
601	Unexplained	52,995	2,595	55,590	0.12
	Total	**515,010**	**85,492**	**600,502**	**1.26**
	Train kilometres			**47,573,979**	

Table 1.18 Kent delays to passenger and freight trains by detailed cause category 2007/08

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	30,369	1,426	31,795	0.10
102	Problems with trackside signs, TSR boards	415	14	429	0.00
103	Level crossing failures	3,562	60	3,622	0.01
104A	TSRs due to condition of track	0	0	0	0.00
104B	Track faults (including broken rails)	41,680	2,747	44,427	0.14
104C	Rolling contact fatigue	275	95	370	0.00
105	Lineside structure defects (inc. weather impact)	4,074	265	4,339	0.01
106	Other infrastructure	22,445	2,348	24,793	0.08
107A	Possession over-run and related faults	9,548	1,986	11,534	0.04
107B	Possession work left incomplete	7,089	103	7,192	0.02
108	Mishap – infrastructure causes	4,536	130	4,666	0.01
109	Animals on line	2,639	140	2,779	0.01
110	External weather impact	39,597	868	40,465	0.12
111A	Wheel slip due to leaf fall	10,254	47	10,301	0.03
111B	Vegetation management failure	266	24	290	0.00
112	Fires on Network Rail infrastructure	1,245	0	1,245	0.00
150	Network Rail share of industry leaf fall/adhesion delays	7,898	160	8,058	0.02
201	Overhead line/third rail faults	9,034	323	9,357	0.03
301A	Signal failures	8,461	205	8,666	0.03
301B	Track circuit failures	41,929	858	42,787	0.13
302A	Signalling system and power supply failures	27,492	1,107	28,599	0.09
302B	Other signal equipment failures	2,983	804	3,787	0.01
303	Telephone failures	1,701	262	1,963	0.01
304	Cable faults (signalling and telecoms)	5,133	165	5,298	0.02
304A	Change of aspects – no fault found	152	0	152	0.00
305	Track circuit failures – leaf fall	277	0	277	0.00
401	Bridge strikes	17,334	272	17,606	0.05
402	External infrastructure damage – vandalism/theft	17,327	735	18,062	0.06
403	External level crossing/road incidents (not bridges)	1,832	33	1,865	0.01
501	Network Rail operations responsibility	74,275	3,069	77,344	0.24
502A	Train planning	15,199	3,727	18,926	0.06
502B	Network Rail commercial: other	50	18	68	0.00
502C	Network Rail commercial:dispute take-back	3,714	687	4,401	0.01
503	External fatalities and trespass	24,088	2,309	26,397	0.08
504	External police on line/security alerts	2,040	56	2,096	0.01
505	External fires	32,700	837	3,3537	0.10
506	External other	6,784	417	7,201	0.02
601	Unexplained	6,227	193	6,420	0.02
	Total	**484,624**	**26,490**	**511,114**	**1.56**
	Train kilometres			**32,711,011**	

Table 1.19 Wessex delays to passenger and freight trains by detailed cause 2007/08

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	56,095	6,054	62,149	0.14
102	Problems with trackside signs, TSR boards	1,274	314	1,588	0.00
103	Level crossing failures	8,814	1,599	10,413	0.02
104A	TSRs due to condition of track	0	0	0	–
104B	Track faults (including broken rails)	75,847	12,782	88,629	0.20
104C	Rolling contact fatigue	9,784	3,266	13,050	0.03
105	Lineside structure defects (inc. weather impact)	6,364	115	6,479	0.01
106	Other infrastructure	22,984	4,895	27,879	0.06
107A	Possession over-run and related faults	18,813	1,629	20,442	0.05
107B	Possession work left incomplete	1,707	342	2,049	0.00
108	Mishap – infrastructure causes	1,043	399	1,442	0.00
109	Animals on line	5,427	119	5,546	0.01
110	External weather impact	36,203	2,766	38,969	0.09
111A	Wheel slip due to leaf fall	5,476	411	5,887	0.01
111B	Vegetation management failure	693	36	729	0.00
112	Fires on Network Rail infrastructure	5,265	168	5,433	0.01
150	Network Rail share of industry leaf fall/adhesion delays	3,664	88	3,752	0.01
201	Overhead line/third rail faults	7,586	198	7,784	0.02
301A	Signal failures	27,614	1,642	29,256	0.07
301B	Track circuit failures	74,682	6,190	80,872	0.18
302A	Signalling system and power supply failures	16,661	810	17,471	0.04
302B	Other signal equipment failures	3,210	123	3,333	0.01
303	Telephone failures	844	206	1,050	0.00
304	Cable faults (signalling and telecoms)	14,163	466	14,629	0.03
304A	Change of aspects – no fault found	22	0	22	0.00
305	Track circuit failures – leaf fall	508	0	508	0.00
401	Bridge strikes	12,656	554	13,210	0.03
402	External infrastructure damage – vandalism/theft	24,967	1,798	26,765	0.06
403	External level crossing/road incidents (not bridges)	6,774	415	7,189	0.02
501	Network Rail operations responsibility	37,773	3,773	41,546	0.10
502A	Train planning	22,473	5,725	28,198	0.06
502B	Network Rail commercial: other	158	8	166	0.00
502C	Network Rail commercial:dispute take-back	13,161	2,931	16,092	0.04
503	External fatalities and trespass	56,434	3,872	60,306	0.14
504	External police on line/security alerts	5,630	41	5,671	0.01
505	External fires	38	4	42	0.00
506	External other	3,877	340	4,217	0.01
601	Unexplained	2,325	154	2,479	0.01
	Total	**591,009**	**64,233**	**655,242**	**1.50**
	Train kilometres			**43,726,610**	

Table 1.20 Sussex delays to passenger and freight trains by detailed cause category 2007/08

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	34,780	868	35,648	0.12
102	Problems with trackside signs, TSR boards	675	0	675	0.00
103	Level crossing failures	4,891	23	4,914	0.02
104A	TSRs due to condition of track	0	0	0	0.00
104B	Track faults (including broken rails)	34,437	512	34,949	0.12
104C	Rolling contact fatigue	756	10	766	0.00
105	Lineside structure defects (inc. weather impact)	1,260	30	1,290	0.00
106	Other infrastructure	26,872	632	27,504	0.09
107A	Possession over-run and related faults	8,285	381	8,666	0.03
107B	Possession work left incomplete	5,385	65	5,450	0.02
108	Mishap – infrastructure causes	4,692	36	4,728	0.02
109	Animals on line	3,949	17	3,966	0.01
110	External weather impact	52,169	1,452	53,621	0.18
111A	Wheel slip due to leaf fall	4,596	16	4,612	0.02
111B	Vegetation management failure	582	103	685	0.00
112	Fires on Network Rail infrastructure	1,595	44	1,639	0.01
150	Network Rail share of industry leaf fall/adhesion delays	7,688	34	7,722	0.03
201	Overhead line/third rail faults	17,249	948	18,197	0.06
301A	Signal failures	10,547	43	10,590	0.04
301B	Track circuit failures	33,248	606	33,854	0.11
302A	Signalling system and power supply failures	17,153	138	17,291	0.06
302B	Other signal equipment failures	1,860	23	1,883	0.01
303	Telephone failures	1,918	19	1,937	0.01
304	Cable faults (signalling and telecoms)	5,302	168	5,470	0.02
304A	Change of aspects – no fault found	1,413	3	1,416	0.00
305	Track circuit failures – leaf fall	27	0	27	0.00
401	Bridge strikes	13,362	72	13,434	0.04
402	External infrastructure damage – vandalism/theft	7,274	177	7,451	0.02
403	External level crossing/road incidents (not bridges)	4,746	46	4,792	0.02
501	Network Rail operations responsibility	86,302	2,096	88,398	0.29
502A	Train planning	15,321	1,530	16,851	0.06
502B	Network Rail commercial: other	0	0	0	0.00
502C	Network Rail commercial:dispute take-back	28,020	832	28,852	0.10
503	External fatalities and trespass	54,968	533	55,501	0.18
504	External police on line/security alerts	5,015	26	5,041	0.02
505	External fires	1,904	62	1,966	0.01
506	External other	8,047	194	8,241	0.03
601	Unexplained	41,542	789	42,331	0.14
	Total	**547,830**	**12,528**	**560,358**	**1.86**
	Train kilometres			**30,122,825**	

Table 1.21 Anglia delays to passenger and freight trains by detailed cause category 2007/08

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	42,202	12,201	54,403	0.12
102	Problems with trackside signs, TSR boards	3,553	292	3,845	0.01
103	Level crossing failures	13,964	1,792	15,756	0.04
104A	TSRs due to condition of track	30,154	2,080	32,234	0.07
104B	Track faults (including broken rails)	76,128	15,572	91,700	0.21
104C	Rolling contact fatigue	19	0	19	0.00
105	Lineside structure defects (inc. weather impact)	9,817	1,684	11,501	0.03
106	Other infrastructure	46,004	13,043	59,047	0.13
107A	Possession over-run and related faults	39,973	5,525	45,498	0.10
107B	Possession work left incomplete	6,753	1,054	7,807	0.02
108	Mishap – infrastructure causes	4,097	1,108	5,205	0.01
109	Animals on line	11,047	481	11,528	0.03
110	External weather impact	35,234	3,675	38,909	0.09
111A	Wheel slip due to leaf fall	6,405	1,155	7,560	0.02
111B	Vegetation management failure	767	414	1,181	0.00
112	Fires on Network Rail infrastructure	2,213	1,414	3,627	0.01
150	Network Rail share of industry leaf fall/adhesion delays	7,289	940	8,229	0.02
201	Overhead line/third rail faults	34,176	2,808	36,984	0.08
301A	Signal failures	22,443	3,512	25,955	0.06
301B	Track circuit failures	41,392	5,424	46,816	0.10
302A	Signalling system and power supply failures	36,999	9,719	46,718	0.10
302B	Other signal equipment failures	4,207	336	4,543	0.01
303	Telephone failures	7,080	717	7,797	0.02
304	Cable faults (signalling and telecoms)	6,113	1,810	7,923	0.02
304A	Change of aspects – no fault found	746	412	1,158	0.00
305	Track circuit failures – leaf fall	302	0	302	0.00
401	Bridge strikes	15,155	2,632	17,787	0.04
402	External infrastructure damage – vandalism/theft	20,498	2,060	22,558	0.05
403	External level crossing/road incidents (not bridges)	11,072	1,280	12,352	0.03
501	Network Rail operations responsibility	82,271	18,577	100,848	0.23
502A	Train planning	22,129	26,035	48,164	0.11
502B	Network Rail commercial: other	180	227	407	0.00
502C	Network Rail commercial:dispute take-back	10,228	6,450	16,678	0.04
503	External fatalities and trespass	65,199	14,619	79,818	0.18
504	External police on line/security alerts	7,992	3,056	11,048	0.02
505	External fires	9,145	6,547	15,692	0.04
506	External other	7,472	1,591	9,063	0.02
601	Unexplained	5,851	1,204	7,055	0.02
	Total	**746,269**	**171,446**	**917,715**	**2.05**
	Train kilometres			**44,730,470**	

Asset failure

Infrastructure incidents recorded for attribution of delay

The number of performance incidents in asset related categories is shown in this section. These incidents are recorded for the purpose of identifying the cause and responsibility of delays and cancellations, whilst providing valuable management information on the causes of and trends in delays and hence an indication of where to maintain or renew the network assets. The records do not seek to represent a catalogue of every single physical component or system failure occurring on the network.

Bridge strikes represent externally caused incidents (road vehicles hitting bridges). However, Network Rail has some influence over prevention measures, and is able to mitigate the impact to either prevent or reduce the train delays arising.

Commentary

Total infrastructure incidents fell by 8 per cent in 2007/08 and more than reversed the deterioration seen the previous year. Most individual categories saw improvements, and all routes except Sussex saw a reduction in overall incident numbers. Sussex was essentially unchanged year-on-year.

Points failures fell by 14 per cent, re-establishing the downward trend of the last five years after a temporary increase in 2006/07.

Signal failures and track circuit failures continued to improve, falling by 11 per cent and 18 per cent respectively. These categories have improved consistently each year over the last five years.

The number of signalling system and power supply failures fell marginally following the sharp increase

Network-wide totals

Table 1.22 Network infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08
101	Points failures	9,802	8,769	8,717	9,079	7,828
103	Level crossing failures	2,794	2,725	2,657	2,365	2,201
104A	TSRs due to condition of track	3,860	3,134	2,800	2,201	1,878
104B	Track faults (including broken rails)	7,450	5,778	6,293	7,681	6,721
104C	Gauge corner cracking	219	98	71	91	74
105	Lineside structure defects (including weather impact)	1,090	840	611	695	650
106	Other infrastructure	8,219	7,951	7,960	8,556	9,664
108	Mishap – infrastructure causes	308	379	468	741	853
112	Fires starting on Network Rail infrastructure	513	282	314	285	230
201	Overhead line/third rail faults	1,475	1,616	1,493	1,706	1,358
301A	Signal failures	9,119	8,301	8,141	7,369	6,566
301B	Track Circuit failures	9,935	9,232	8,568	7,964	6,554
302A	Signalling system & power supply failures	3,719	3,449	3,272	3,998	3,943
302B	Other signal equipment failures	2,653	2,354	1,735	1,706	1,419
303	Telephone failures	994	1,060	1,067	1,220	1,127
304	Cable faults (signalling & comms)	535	445	470	628	667
304A	Change of aspects – no fault found	342	274	231	242	160
401	Bridge strikes	2,009	1,889	1,593	1,688	1,686
	Total above	**65,036**	**58,576**	**56,461**	**58,215**	**53,579**

Notes:

- Incidents are recorded for the attribution of delays and cancellations. In a small number of cases more than one incident will be created for the same physical incident, to reflect different phases of an incident or responsibilities for contractual delay attribution purposes. For example, the number of bridge strike incidents created for attribution purposes (as shown above) historically tended to overstate the actual number of physical incidents causing delay, due to contractual requirements (by 12% in 2003/04). By comparison in the 2006/07 and 2007/08 data, there is no material overstatement for bridge strikes.
- Due to a change in attribution practice over the last year, the definition of Category 106 'Other infrastructure' has changed slightly in 2007/08. Prior year figures have not been restated, but this change would have increased this category by 2% (211 incidents) in 2006/07; the impact on earlier years is lower (e.g. falling to <1% in 2003/04).

in 2006/07. The number of cable faults rose by 6 per cent compared to the previous year. Both categories remain relatively high compared to the previous five years.

The number of track-related incidents (categories 104a – c) fell by 13 per cent, with significant improvements in each individual category.

Traction power supply incidents (overhead line/third rail faults) fell by 20 per cent, more than reversing the increase seen the previous year. The number of incidents was 13 per cent lower than the average of the previous five years. The largest contributor to the reduction in incidents was LNW Route with a reduction of 121 incidents (27 per cent).

Other infrastructure incidents (category 106) increased by 10 per cent (after allowing for the slight change in definition – see note 2 above). Around one half of this increase is due to a rise in the number of incidents relating to trains delayed due to track patrolling activities (although this did not result in a corresponding increase in delay minutes). These incidents represent an estimated one third of the category overall.

Bridge strike incidents causing delay were unchanged in number compared with the previous year.

Operating routes

Table 1.23 Western infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08
101	Points failures	1,513	1,344	1,316	1,219	1,224
103	Level crossing failures	362	401	411	307	349
104A	TSRs due to condition of track	433	233	235	389	108
104B	Track faults (including broken rails)	982	662	828	1,101	709
104C	Gauge corner cracking	28	17	6	11	6
105	Lineside structure defects (including weather impact)	189	79	112	132	117
106	Other infrastructure	667	704	927	995	1164
108	Mishap – infrastructure causes	43	44	39	28	68
112	Fires starting on Network Rail infrastructure	6	5	8	7	6
201	Overhead line/third rail faults	9	7	11	16	15
301A	Signal failures	876	876	940	752	917
301B	Track circuit failures	1,280	1,100	1,090	952	929
302A	Signalling system & power supply failures	440	344	357	518	368
302B	Other signal equipment failures	533	404	316	383	267
303	Telephone failures	184	238	235	305	261
304	Cable faults (signalling & comms)	65	60	56	79	75
304A	Change of aspects – no fault found	52	42	5	43	13
401	Bridge strikes	305	319	282	290	239
	Total above	**7,967**	**6,879**	**7,174**	**7,527**	**6,835**

Table 1.24 London North Eastern infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08
101	Points failures	2,037	1,697	1,741	1,579	1,287
103	Level crossing failures	899	824	839	807	756
104A	TSRs due to condition of track	2,118	1,526	1,354	1,138	1,035
104B	Track faults (including broken rails)	1,911	1,734	1,832	2,230	2,346
104C	Gauge corner cracking	86	9	7	1	4
105	Lineside structure defects (including weather impact)	403	244	202	194	189
106	Other infrastructure	2,400	2,753	1,962	1,880	2,149
108	Mishap – infrastructure causes	101	218	328	614	662
112	Fires starting on Network Rail infrastructure	50	20	24	37	45
201	Overhead line/Third rail faults	342	361	324	332	268
301A	Signal failures	1,791	1,819	1,642	1,373	1,199
301B	Track circuit failures	1,577	1,383	1,239	905	706
302A	Signalling system & power supply failures	1,036	764	839	1,227	1,182
302B	Other signal equipment failures	819	671	498	405	359
303	Telephone failures	350	351	331	368	392
304	Cable faults (signalling & comms)	203	114	171	322	297
304A	Change of aspects – no fault found	47	60	44	47	23
401	Bridge strikes	388	457	343	366	365
	Total above	**16,558**	**15,005**	**13,720**	**13,825**	**13,264**

Table 1.25 London North Western infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08
101	Points failures	2,757	2,327	2,319	2,748	2,461
103	Level crossing failures	353	345	355	369	288
104A	TSRs due to condition of track	830	950	839	526	458
104B	Track faults (including broken rails)	1,904	1,373	1,338	1,385	1,325
104C	Gauge corner cracking	74	29	24	10	6
105	Lineside structure defects (including weather impact)	255	267	138	122	145
106	Other infrastructure	2,943	2,427	2,189	2,002	2,017
108	Mishap – infrastructure causes	63	31	32	30	23
112	Fires starting on Network Rail infrastructure	72	49	52	33	38
201	Overhead line/Third rail faults	342	503	440	453	332
301A	Signal failures	2,501	2,157	2,199	2,103	1,982
301B	Track circuit failures	2,806	2,686	2,672	2,784	2,391
302A	Signalling system & power supply failures	865	911	763	856	815
302B	Other signal equipment failures	460	523	330	415	306
303	Telephone failures	112	117	108	143	134
304	Cable faults (signalling & comms)	129	112	103	62	89
304A	Change of aspects – no fault found	118	101	93	58	23
401	Bridge strikes	529	477	388	375	423
	Total above	**17,113**	**15,385**	**14,382**	**14,474**	**13,256**

Table 1.26 Scotland infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08
101	Points failures	1,048	1,071	1,066	1,261	916
103	Level crossing failures	231	276	231	176	153
104A	TSRs due to condition of track	146	110	148	63	80
104B	Track faults (including broken rails)	417	401	453	374	346
104C	Gauge Corner Cracking	15	15	5	6	3
105	Lineside structure defects (including weather impact)	139	176	107	38	67
106	Other infrastructure	301	244	309	314	537
108	Mishap – infrastructure causes	12	23	12	11	15
112	Fires starting on Network Rail infrastructure	0	0	1	0	7
201	Overhead line/Third rail faults	199	212	167	167	157
301A	Signal failures	1,403	1,268	1,334	1,263	971
301B	Track circuit failures	1,032	1,046	991	945	748
302A	Signalling system & power supply failures	320	361	336	364	386
302B	Other signal equipment failures	300	291	237	167	140
303	Telephone failures	113	145	133	141	131
304	Cable faults (signalling & comms)	11	26	44	45	67
304A	Change of aspects – no fault found	3	4	6	9	43
401	Bridge strikes	206	146	110	139	106
	Total above	**5,896**	**5,815**	**5,690**	**5,483**	**4,873**

Table 1.27 Kent infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08
101	Points failures	578	605	527	498	365
103	Level crossing failures	101	110	121	89	78
104A	TSRs due to condition of track	0	0	0	0	0
104B	Track faults (including broken rails)	392	300	445	525	392
104C	Gauge corner cracking	2	14	7	9	2
105	Lineside structure defects (including weather impact)	19	20	8	28	55
106	Other infrastructure	349	313	532	584	763
108	Mishap – infrastructure causes	19	9	6	13	27
112	Fires starting on Network Rail infrastructure	85	42	59	48	27
201	Overhead line/Third rail faults	76	80	57	92	83
301A	Signal failures	625	483	574	447	249
301B	Track circuit failures	787	647	590	595	395
302A	Signalling system & power supply failures	308	244	286	266	321
302B	Other signal equipment failures	149	90	87	93	78
303	Telephone failures	33	28	34	51	49
304	Cable faults (signalling & comms)	49	54	18	34	27
304A	Change of aspects – no fault found	19	21	24	12	6
401	Bridge strikes	131	128	116	137	140
	Total above	**3,722**	**3,188**	**3,491**	**3,521**	**3,057**

Table 1.28 Wessex infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08
101	Points failures	629	696	827	796	634
103	Level crossing failures	251	235	242	203	216
104A	TSRs due to condition of track	0	0	0	0	0
104B	Track faults (including broken rails)	816	498	574	1,152	708
104C	Gauge corner cracking	2	8	9	50	46
105	Lineside structure defects (including weather impact)	28	15	6	40	20
106	Other infrastructure	895	640	785	1,172	1,235
108	Mishap – infrastructure causes	35	15	5	18	23
112	Fires starting on Network Rail infrastructure	183	93	68	71	42
201	Overhead line/Third rail faults	90	102	93	104	72
301A	Signal failures	641	658	539	632	488
301B	Track circuit failures	1,054	1,176	928	888	696
302A	Signalling system & power supply failures	233	282	222	192	242
302B	Other signal equipment failures	198	154	107	86	115
303	Telephone failures	37	30	58	55	33
304	Cable faults (signalling & comms)	34	41	22	32	53
304A	Change of aspects – no fault found	40	11	4	3	3
401	Bridge strikes	142	120	140	161	193
	Total above	**5,308**	**4,774**	**4,629**	**5,6551**	**4,819**

Table 1.29 Sussex infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/087
101	Points failures	512	411	299	342	420
103	Level crossing failures	161	131	111	112	90
104A	TSRs due to condition of track	1	10	2	0	0
104B	Track faults (including broken rails)	178	145	193	251	322
104C	Gauge corner cracking	0	2	10	4	5
105	Lineside structure defects (including weather impact)	13	11	1	92	15
106	Other infrastructure	178	208	375	579	639
108	Mishap – infrastructure causes	16	14	30	17	19
112	Fires starting on Network Rail infrastructure	94	64	67	52	24
201	Overhead line/Third rail faults	54	57	113	128	66
301A	Signal failures	506	471	324	295	312
301B	Track circuit failures	478	397	394	325	293
302A	Signalling system & power supply failures	200	162	204	233	243
302B	Other signal equipment failures	50	80	68	53	64
303	Telephone failures	22	22	32	19	27
304	Cable faults (signalling & comms)	23	17	40	39	32
304A	Change of aspects – no fault found	15	14	13	37	19
401	Bridge strikes	175	100	74	73	70
	Total above	**2,676**	**2,316**	**2,350**	**2,651**	**2,660**

Table 1.30 Anglia infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08
101	Points failures	728	618	622	636	521
103	Level crossing failures	436	403	347	302	271
104A	TSRs due to condition of track	332	305	222	85	197
104B	Track faults (including broken rails)	850	665	630	663	573
104C	Gauge corner cracking	12	4	3	0	2
105	Lineside structure defects (including weather impact)	44	28	37	49	42
106	Other infrastructure	486	662	881	1,030	1,160
108	Mishap – infrastructure causes	19	25	16	10	16
112	Fires starting on Network Rail infrastructure	23	9	35	37	41
201	Overhead line/Third rail faults	363	294	288	414	365
301A	Signal failures	776	569	589	504	448
301B	Track circuit failures	921	797	664	570	396
302A	Signalling system & power supply failures	317	381	265	342	386
302B	Other signal equipment failures	144	141	92	104	90
303	Telephone failures	143	129	136	138	100
304	Cable faults (signalling & comms)	21	21	16	15	27
304A	Change of aspects – no fault found	48	21	42	33	30
401	Bridge strikes	133	142	140	147	150
	Total above	**5,796**	**5,214**	**5,025**	**5,079**	**4,815**

Customer satisfaction – passenger and freight operators

Definition and reporting method

We have a measure for customer satisfaction both for passenger and freight operators, which is based on a questionnaire administered by MORI. One of the questions on the questionnaire is used for this measure (it is a general measure and provides an indication of advocacy for Network Rail) and asks:

'Which of these best describes how you feel about Network Rail?'

The respondent chooses an answer from the following list, with a numerical value assigned to the response (as shown in brackets), but which is not explicit to the respondent:

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 think so much that I would speak highly of them without being asked (2)

By summing the scores and dividing by the number of respondents a weighted index score is derived.

As described below, the survey is wider than the above question and has various questions and components to it so that we can better determine our customers' views. This also helps us to focus our work on areas of priority for our customers.

Commentary

The survey was carried out between mid October and late November 2007 and represents changes in customers' perceptions (based on interviews with 236 senior managers) in the twelve months since the last survey. Perceptions of customers' relationship with Network Rail are measured using a four point advocacy scale (+2 to -2 as above), where zero indicates a neutral view of performance.

Since Autumn 2006, the survey sampled the opinions of a wider cross-section of managers than previously, concentrating the effort here rather than on the driver community. This approach has yielded substantially more detailed material than before, permitting a more specific response for Network Rail teams. In particular the availability of some 3,500 verbatim comments has prompted detailed action plans to address the issues raised. Further, results have been analysed by customer, by Network Rail route and by function, to enable a more widespread understanding than previously.

Results

Table 1.31 Customer satisfaction − passenger operators

Unit of measure		Spring 2006	Autumn 2006	Autumn 2007	Variance 06/07
Customer satisfaction	Index -2 to 2	-0.30	-0.14	-0.21	-0.07

Table 1.32 Customer satisfaction − freight operators

Unit of measure		Spring 2006	Autumn 2006	Autumn 2007	Variance 06/07
Customer satisfaction	Index -2 to 2	-0.99	0.0	-0.85	-0.85

Analysis of the results indicates that the perceptions by both TOCs and FOCs have declined since the previous survey was completed. Overall perceptions for the TOC community dipped from -0.14 to -0.21; this is in contrast to the general trend of improvements from previous surveys. Freight customer perceptions saw a more marked decline, from a neutral score of 0.00 in Autumn 2006 to -0.85.

There are improvements this time in terms of Network Rail being seen as valuing the relationship with customers and being open and honest with customers. However, there has been a decline in customers' perceptions of Network Rail delivering on its promises, as well as in terms of customers trusting Network Rail.

Around three-fifths of managers sampled agreed with the view that 'Network Rail is doing its best for the rail industry'.

During 2007 the programme of joint working in partnership with TOCs and FOCs continued to be developed. Examples of this include: workshops between Network Rail and operating companies being held to identify key issues that are of importance for our customers which are then progressed, joint stations working groups being created in each route to agree strategies for stations, and for the freight sector, a group to agree how the Strategic Freight Network should be specified and developed. In addition, Network Rail has improved the speed of the development and authorisation of enhancement schemes, which has brought financial and certainty benefits to the funders and beneficiaries of those schemes.
We are still in discussion with ORR on improvement to the measures being used to record customer satisfaction.

Supplier satisfaction

Definition and reporting method

The supplier satisfaction survey is also carried out by Ipsos MORI on behalf of Network Rail and is based on the same methodology as that for the passenger and freight surveys. Suppliers are asked 'Which of these best describes how you feel about Network Rail?'

The respondent chooses an answer from the following list, with a numerical value assigned to the response (as shown in brackets), but which is not explicit to the respondent:

I would be critical of Network Rail without being asked (-2)

I would be critical of Network Rail if someone asked my opinion (-1)

I would be neutral about Network Rail if someone asked my opinion (0)

I would speak highly of Network Rail if someone asked my opinion (1)

I think so much of Network Rail I would speak highly of them without being asked (2)

By summing the scores and dividing by the number of respondents a weighted index score is derived.

Commentary

This year's survey has shown a further rise in satisfaction levels amongst the supplier base. This reflects the 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.

Results

Table 1.33 Supplierer satisfaction

Unit of Measure	Unit of Measure	2005/06	2006/07	2007/08	Variance 07/08
Supplier satisfaction	Index -2 to 2	-0.06	+0.33	+0.51	+0.18

Doing business with Network Rail

Network Rail aims to respond to anyone wishing to do business with us in a timely, efficient, competent and coordinated manner. To help us achieve this aim, Network Rail has produced a Code of Practice which sets out what those who express a serious and credible interest in providing or funding railway services can expect from us.

In accordance with Condition 25 of our network licence, the Code of Practice has been in place and complied with since June 2003. In 2007/08, Network Rail received one complaint from a supplier to Network Rail that the requirements of the Code of Practice had not been complied with. Network Rail was able to fully resolve this complaint to the satisfaction of our supplier in accordance with the principles set out under our Code of Practice.

In the 2007 Annual Return, Network Rail stated that during 2007/08 and in consultation with our stakeholders we would review the terms of our Code of Practice and update it and modify it as necessary. However, during 2007/08, this proposed activity was superseded by ORR's ongoing review of our network licence. This review may result in substantial changes to the regulatory obligations that are placed on Network Rail under Condition 25 of its existing network licence. As a consequence we have deferred this review until such a time as it can also have regard to any revised network licence obligations.

Joint Performance Process

Introduction

The Joint Performance Process (JPP) is the rail industry's process for bringing together performance improvement throughout the network and aligning this with output to passengers.

The objective of the JPP is to bring together, through collaborative working, performance improvement across the industry and align all actions to the provision of punctual train services for passengers. The prime target is to improve PPM with sub-targets based on delay minutes split by company cause and other key inputs to PPM.

The key output is the production of an annual Joint Performance Improvement Plan (JPIP) against which monitoring and review takes place through the year – a plan, do, review cycle.

This is the fourth year for completing JPIPs. The first JPIPs for the year 2005/06 simply combined individual plans from Network Rail and operators with a broad statement of intent to develop more collaborative working. JPIPs compiled for franchised operators since that time have developed this more collaborative theme with the focus changing over the years reflecting changing ambitions for the industry.

This section highlights progress made during 2007/08.

Contractual status

Condition LA – the contractual precedent for JPIPs was brought into use on 27 March 2006, with franchised operators switching from a Local Output Commitment (LOC) approach to a JPP approach effective from 1 April 2006. No other operators have formally switched to a JPIP approach.

Process development

The Annual Return for 2007 recognised that the development of the 2007/08 JPIPs had a number of challenges including:

- late start to action planning
- significant change of people through the process and other priorities – refranchises, reorganisation
- Network Rail performance worsenment through the planning process.

These issues were thoroughly reviewed by the industry in accordance with the process identified in the overarching Joint Performance Process and including feedback from other activity including the Forward Review Assessment (FRA) process operated through NTF (National Task Force).

The key objectives for change were recognised as:

- create a continuous planning process with JPIPs being the simple output at any moment in time from this process
- enable teams to properly deliver the process outputs beyond simple delivery to timescales
- establish an improved challenge process.

Detailed process improvements underpinned these objectives:

- process brought forward
- increased specified team activity and joint review
- increased checks
- delivery of steps through the process
- specific focus on the JPIP interfaces with joint submission for FRA10 in April/May
- making use of metrics and benchmarking, and specific analysis to create challenge and focus on key areas.
- expectation of change to a continuum:
  - link with CP4 work; and
  - focus on plan development and maintenance.

In addition to the above, process ambitions were strengthened by the output from the 2007 Annual Return as identified below.

The refreshed process was endorsed by NTF in September 2007.

The production of the 2007 Annual Return and accompanying review by Network Rail's Reporter built on the new process review in 2006. The reviews focussed on generic development of the process and were accordingly pitched at a slightly reduced level from the 2006 process. We have made progress on the Reporter recommendations which have further contributed to our progress during the year.

The following recommendations were made and actions taken:

Focus	Process
We recommend the continued development of the challenge process for standard and stretch targets. We also recommend the continuing development of reporting such that forecasting accuracy can be monitored enabling routes that may require support in this area to be identified.	Challenge processes have been developed with more metrics in general and challenge being put in place for the 2008/09 JPIP agreement process. These have comprised softer actions focussing on plan quality and engagement between Network Rail and TOCs and metrics driven actions focussing on producing higher quality targets for 2008/09, with engagement across a range of management levels up to NTF level.
Focus	**Process**
We recommend that the links between the JPIP process and infrastructure maintenance and renewal plans be formally strengthened. The JPIP has the potential to become a powerful tool for driving performance improvement, but is at risk of being seen as a bolt-on, rather than a process that could be influential in business planning.	We Links have been improved this year, but there is more do. There has been much greater exposure of infrastructure reliability in 2007/08 including presentations by the Group Infrastructure Director and his team at cross industry fora such as NTF. For the 2008/09 planning round there has been much greater engagement by other functions in the planning process and targets are being produced by Responsible Manager together with underlying measures (e.g. Responsible Manager by TOC) for reporting in 2008/09. The key developments have, however, been in the CP4 challenge with defining performance benefits from asset policies and in developing the Performance Management Process. Specifically, asset stewards have been challenged to deliver 'more for performance' in the CP4 development work and there has been a significant amount of work focussing on benchmarking and other underlying measurement of performance to produce higher quality targeting. All of the above activity has taken place in arenas with ORR engagement and with wider recognition that further delivery will take some time.

Outputs

The product of JPP development in 2007/08 has in general terms:

- been of a higher quality and with planning significantly brought forward compared to 2006/07
- delivered a refreshed, higher target for 2008/09 PPM at 90.6 per cent – 0.4 per cent higher than the level forecast a year earlier
- delivered improved challenge and recognition at more senior levels
- widened the focus on performance improvement in Network Rail.

Development has further been in coordination with CP4 focussed work with performance improvement planning being mutually drawn forward in the process.

Overall, the output has been recognised by the industry as a significant improvement on the 2007/08 JPIP planning process.

Next steps

In line with expectations for a continuously improving process with a planned annual review, improvement opportunities have been identified in the process. These are focussed on more detailed issues than identified a year earlier, including:

- higher quality challenge processes
- adding structure to exchanges on targets
- more work on joint work and making TOC on TOC management work.

Beyond this:

- a range of issues have been escalated to ORR for more formal review; and
- specific issues were identified with the new franchises where experience and operating history made sound planning harder, albeit that this issue should not occur next year.

These issues will be added to output from the FRA review and planned development of long term performance plans as part of CP4 work to create change to the overall Joint Performance Process ready for planning for the 2009/10 JPIPs.

Other operators

All substantive operators have the option to move to a JPIP approach under Condition LA. Whereas there has also been wider, non-contractual development of a joint approach with other operators at a variety of levels, no further operators have formally moved to the JPIP approach. It is anticipated that development of plans for CP4 will draw both more ambition and more formality into other operators' performance improvement plans, although formal move to a JPIPs approach may take time to follow.

Below is a list of TOCs with JPIPs, and commentary on the practical position of joint planning with other operators.

List of operators with JPIPs and position of other operators

Table 1.34 Passenger operators with JPIPs

Operator	Type of operator	Lead Network Rail route	Notes
With JPIPs			
Arriva Trains Wales	Franchised	Western	
CrossCounrty	Franchised	LNW	
c2c	Franchised	Anglia	
East Midlands Trains	Franchised	LNE	
First Capital Connect	Franchised	LNE	
First Great Western	Franchised	Western	
First Scot Rail	Franchised	Scotland	
Gatwick Express	Franchised	Sussex	
London Midland	Franchised	LNW	
London Overground	Franchised	Anglia	
Merseyrail Electrics 2002 Ltd	Franchised	LNW	
Northern Rail	Franchised	LNE	
NXEA	Franchised	Anglia	
NXEC	Franchised	LNE	
Southeastern	Franchised	Kent	
Southern	Franchised	Sussex	
Stagecoach South West Trains	Franchised	Wessex	
Chiltern Railways	Franchised	LNW	
First Transpennine Express	Franchised	LNE	
Virgin Trains	Franchised	LNW	
Other operators			
Eurostar (UK)	Open	Kent	Only operates on approx. one mile of historic network, special arrangements apply on HS1
Heathrow Express	Open	Western	Effective joint plan being agreed
First Hull Trains	Open	LNE	Remaining on LOC approach
Nexus	Open	LNE	
Grand Central	Open	LNE	Taking a LOC approach
Freight operators	Freight	HQ	Some joint planning as part of wider ambition for performance improvement including work on CP4

Route Utilisation Strategies (RUSs)

Network Rail continues to develop RUSs in accordance with its obligations under Licence Condition 7, the regulatory guidelines and the recommendations of the Rail Industry Planning Group.

Objectives

RUSs seek to achieve the 'route utilisation objective' as defined in section 8 of Licence Condition 7, that is, 'the effective and efficient use and development of the capacity available, consistent with the funding that is, or is likely to become, available during the period of the route utilisation strategy and with the licence holder's performance of the duty' [to operate, maintain, renew and develop the network].

Process

The process being used to develop RUSs in accordance with the ORR RUS Guidelines was published in the RUS Manual. This consists of a Consultation Guide and a Technical Guide, both of which are available on the Network Rail website.

A programme showing target establishment dates for each RUS, in accordance with paragraph 3A.2(a) of Licence Condition 7, was drafted, discussed and reviewed during 2005/06 with input from industry parties, Governments and ORR, and was subsequently formally submitted. The programme was approved by ORR on 23 June 2006.

A revised programme was submitted to ORR and was approved on 18 January 2008.

Programme and progress

The position at the end of 2007/8 was:

Table 1.35 Progress and RUS development

South West Main Line RUS	Established
Cross London RUS	Established
Scotland RUS	Established
Freight RUS	Established
North West RUS	Established
Greater Anglia RUS	Established
East Coast Main Line RUS	Published in February 2008, awaiting establishment
South London RUS	Published in March 2008, awaiting establishment
Yorkshire and Humberside RUS	In process
Lancashire and Cumbria RUS	Draft consultation published April 2008
Wales RUS	Draft consultation published May 2008
Network RUS	In process
Merseyside RUS	In process
East Midlands RUS	In process
South Midlands RUS	In process
Great Western RUS	In process
Kent RUS	In process
Sussex RUS	In process
West Coast Main Line RUS	In process

Subsequent to the year end the East Coast Main Line RUS has become established.

Inclusion

Network Rail leads and is responsible for the development of RUSs, but the process adopted continues to emphasise the widest possible inclusion of industry and wider stakeholder groups.

Each RUS is overseen by an industry stakeholder management group (SMG) comprising TOCs, FOCs, ATOC, Government(s), Passenger Focus and other parties where relevant. TfL and PTEs are members of appropriate SMGs.

The practice of organising wider stakeholder group meetings at intervals throughout the development of each RUS has continued including 'Baseline Roadshows', exhibitions of the baseline data displayed for explanation and discussion.

We have also continued the local and regional government conferences, held six-monthly in Birmingham. As appreciation of the openness of the process has increased there has been a consequent increase in the requests for individual or bespoke briefings; every effort is made to meet these requests and the RUSs benefit from them.

Regulatory enforcement

Portsmouth resignalling scheme

On 5 June 2007 ORR concluded that Network Rail had breached Condition 7 of its network licence following delays to the completion of the Portsmouth resignalling scheme. In reaching this conclusion, ORR stated that between September and December 2006, Network Rail had made decisions which put it at risk of failing to meet the reasonable requirements of its customers without taking all reasonable steps to evaluate and mitigate the risks involved. Network Rail was fined £2.4m by ORR as a result of this breach. This licence breach was highlighted in the 2007/08 Annual Return.

January 2008 engineering overruns

In January 2008 planned engineering works at Rugby, London Liverpool Street and Shields Junction (near Glasgow) overran. These overruns regrettably caused significant disruption to our passenger and freight customers.

As a result ORR commenced an investigation into Network Rail's management of engineering projects, the results of which were published on 28 February 2008.

ORR concluded that Network Rail had breached Condition 7 of its network licence for failing to plan and execute projects for the renewal, replacement, improvement, enhancement and/ or development of

the network which require possessions in an efficient and economical manner and in accordance with best practice so as to satisfy the reasonable requirements of persons providing services relating to railways and funders in respect of the quality and capability of the network.

As a consequence of this licence breach ORR on 22 April 2008 confirmed a 'final order' requiring Network Rail to produce a plan demonstrating how it would implement measures to ensure that its planning and execution of projects for the renewal, replacement, enhancement and development of the network will be undertaken in an efficient and economic manner and in accordance with best practice. On 13 May 2008 Network Rail published a consultation document within which our proposals to remedy the problems that had been identified by ORR were set out. The consultation document also sought to take into account the findings of our own internal investigations into the overruns and the subsequent incident at Shenfield following the Easter Bank Holiday. Following consideration of consultee comments, our final plan was delivered to ORR on 27 June 2008 and will be implemented by 31 December 2008.

ORR imposed a fine of £14m on Network Rail as a result of this licence breach.

West Coast Main Line

As a result of the overrunning engineering works at Rugby on the West Coast Main Line, ORR issued a 'provisional order' requiring Network Rail to produce a plan (following consultation) setting out how the West Coast Route Modernisation programme would be completed. This plan was delivered to ORR on 31 March 2008 and on 2 May 2008 ORR confirmed that Network Rail had satisfied the requirements of this provisional order.

In relation to the works at Rugby, ORR also concluded that Network Rail had breached Condition 9 of its Network Rail by extending the Rugby possession over the Christmas period by one day at short notice and failing to complete procedures to revise the national timetable for temporary changes 12 weeks before the planned possession date. Whilst Network Rail was found to be in breach of its network licence for taking this short notice possession, ORR subsequently stated that 'Network Rail was justified in taking the action that it did' and decided that it would not be appropriate to impose any penalty fine in relation to this licence breach. Network Rail is seeking modifications to its network licence so as to mitigate against the future possibility of justifiable action giving rise to technical licence breaches in relation to timetable change.

Section 2 – Network capability, traffic and possessions

Introduction

This section reports on capability of the network, passenger and freight traffic and late notice possessions.

The position on congested infrastructure is described in the 2009 Network Statement. The 2010 Network Statement will be published in October 2008 and this will describe the current status as regards congested infrastructure.

Network capability

Data on four capability measures, including changes during the year, are reported:
C1 – linespeed
C2 – gauge
C3 – route availability value
C4 – electrified track

The 'running lines' for network capability purposes are derived from about a quarter of a million GEOGIS records. The linespeed and electrification information is part of that data, whereas gauge and route availability are assigned via reference tables. The capability data presented in this section include actual changes to the network as well as changes as a result of data cleansing (review and subsequent amendment to data where necessary).

The Infrastructure Capability Programme is reviewing our capability measures, improving data integrity and reviewing how network capability should be published in the future. The recovery plan part of the Programme was completed on 30 September 2007. The improvement plan part which focuses on measurement of capability has continued to progress well during 2007/08 with proposals for changes in measures due to be made later in 2008/09. Any changes that will affect future reporting will be reported in the Annual Return 2009.

The regulatory target for each of the network capability measures is to maintain the capability of the network for broadly existing use at April 2001 levels (subject to network changes authorised under the Network Code).

Linespeed capability (C1)

This is a measurement of the length of running track in kilometres in the following speed bands:

- up to 35 miles per hour
- 40-75 miles per hour
- 80-105 miles per hour
- 110-125 miles per hour
- over 125 miles per hour

The measure includes running lines and loops but excludes sidings and depots. Where differential speeds apply to a section of track, the highest linespeed applies for that section.

Results

Table 2.1 Linespeed capability

Speed band (mph)	March 2004 km of track in each speed band	March 2005 km of track in each speed band	March 2006 km of track in each speed band	March 2007 km of track in each speed band	March 2008 km of track in each speed band
Up to 35	5,570	4,163	3,821	3,787	3,783
40 – 75	16,585	16,927	16,895	16,856	16,890
80 – 105	6,994	7,650	7,482	7,488	7,450
110 – 125	2,415	2,741	2,907	2,932	2,959
Over 125	0	0	0	0	0
Total	**31,564**	**31,482**	**31,105**	**31,063**	**31,082**

Table 2.2 Linespeed capability by operating route (track km)

Speed band (mph) Operating routes	Up to 35	40-75	80-105	110-125	Over 125	Total
London North Eastern	925	3,938	1,354	1,248	0	7,465
London North Western	974	3,958	1,155	998	0	7,085
South East – Anglia	262	1,397	627	0	0	2,286
South East – Kent	192	1,038	531	0	0	1,761
South East – Sussex	113	757	257	0	0	1,127
South East – Wessex	171	1,029	883	0	0	2,083
Western	679	2,393	1,561	492	0	5,125
England & Wales	3,316	14,510	6,368	2,738	0	26,932
Scotland	467	2,380	1,082	221	0	4,150
Network total	**3,783**	**16,890**	**7,450**	**2,959**	**0**	**31,082**

Table 2.3 Linespeed change: increases

Territory	Operating route	ELR	Track	Start mileage	Length (miles. yds)	Old speed band	New speed band
LNE	LNE	HDB	2100	4.1496	0.0352	0-35	40-75
LNE	LNE	MVN2	1200	43.0453	0.0289	new	0-35
LNE	LNE	RUD	3400	92.0570	0.0420	new	0-35
LNE	LNE	SHB	2100	161.1144	1.1626	0-35	40-75
LNE	LNE	SPC1	1301	5.0610	0.0654	0-35	40-75
LNE	LNE	BBM	3100	11.1204	0.0666	new	0-35
LNE	LNE	CGJ1	2200	170.0940	1.1246	new	110-125
LNW	LNW	CMP1	2100	175.0340	0.0229	new	80-105
LNW	LNW	HNR	2100	83.1211	0.1111	new	40-75
LNW	LNW	HNR	2191	84.0562	0.0417	new	40-75
LNW	LNW	HNR	3736	83.1300	0.0244	new	40-75
LNW	LNW	LEC1	1200	82.1122	0.0774	0-35	40-75
LNW	LNW	LEC1	1280	81.1719	0.0637	new	0-35
LNW	LNW	LEC1	2191	82.0328	1.0026	0-35	40-75
LNW	LNW	LEC1	2190	81.1672	1.0468	40-75	110-125
LNW	LNW	LEC1	2753	82.0664	0.0221	new	40-75
LNW	LNW	LEC1	3734	81.0384	0.0296	new	40-75
LNW	LNW	LEC2	1100	116.0506	0.0836	new	40-75
LNW	LNW	LEC2	2190	83.0495	1.0029	new	110-125
LNW	LNW	LEC2	2785	84.0524	0.0226	new	40-75
LNW	LNW	LSC2	2100	6.0309	1.1351	new	80-105
LNW	LNW	LSC2	3100	0.0158	0.0238	40-75	80-105
LNW	LNW	MAJ	3100	6.0450	0.1567	0-35	80-105
LNW	LNW	NWO	1100	6.0484	0.0726	0-35	40-75
LNW	LNW	RBS1	1100	91.0000	2.1232	80-105	110-125
LNW	LNW	RBS1	1100	94.1320	3.0946	80-105	110-125
LNW	LNW	RBS1	1100	98.0924	3.1166	80-105	110-125
LNW	LNW	RBS1	1200	93.1496	0.0524	0-35	40-75
LNW	LNW	RBS1	2100	91.0000	2.1298	80-105	110-125
LNW	LNW	RBS1	2100	98.1012	3.1188	80-105	110-125
LNW	LNW	RBS1	2191	83.0495	0.0409	new	40-75
LNW	LNW	RBS1	3802	104.1474	0.0202	new	40-75
LNW	LNW	RYH1	1100	178.0723	0.1147	0-35	40-75
LNW	LNW	RYH1	2100	178.0723	0.1147	0-35	40-75
LNW	LNW	SKN	1100	46.0440	0.0550	0-35	40-75
LNW	LNW	WLL	3500	6.0383	0.0207	new	0-35
SCO	SCO	ANI1	3300	6.0790	0.1228	new	0-35
SCO	SCO	CNL	1100	1.0136	0.0237	0-35	40-75
SCO	SCO	GMH	3400	-0.0055	0.0208	new	0-35
SCO	SCO	KNE1	3400	0.0000	3.1034	new	0-35
SCO	SCO	NNH	1100	106.0880	0.1320	0-35	40-75
SCO	SCO	PMT	2100	23.1340	0.0260	0-35	40-75
SCO	SCO	SAA	1100	0.0762	0.0314	new	0-35
SCO	SCO	SAA	1100	0.1076	0.0787	new	40-75
SCO	SCO	SAA	1500	4.1476	0.1127	new	40-75
SCO	SCO	SAA	1500	7.0788	0.1090	new	0-35

Table 2.3 Linespeed change: increases (continued)

Territory	Operating route	ELR	Track	Start mileage	Length (miles. yds)	Old speed band	New speed band
SCO	SCO	SAA	2100	0.0762	0.0277	new	0-35
SCO	SCO	SAA	2100	0.1039	0.0824	new	40-75
SCO	SCO	SAA	2500	4.1476	0.1127	new	0-35
SCO	SCO	SAA	2500	7.0788	0.1090	new	0-35
SCO	SCO	SAA	3400	1.0103	3.1373	new	40-75
SCO	SCO	SAA	3400	5.0843	1.0299	new	40-75
SCO	SCO	SAA	3400	6.1142	0.1406	new	0-35
SCO	SCO	SAA	3600	6.1468	0.0321	new	0-35
SEA	AN	NCW	3400	0.0000	0.0651	new	0-35
SEA	AN	TLL	3901	9.0681	0.0219	new	0-35
SEA	AN	TLL	3903	10.0242	0.0275	new	0-35
SEA	KE	ESJ	1100	21.0200	1.0387	0-35	40-75
SEA	KE	ESJ	2100	21.0836	1.0090	0-35	40-75
SEA	WE	VIR	2200	16.0264	1.0000	40-75	80-105
SEA	WE	BML1	1100	47.0660	0.0440	40-75	80-105
SEA	WE	WPH2	2100	41.0528	1.1584	40-75	80-105
SEA	WE	WPH2	2100	43.0660	0.1738	0-35	40-75
SEA	WE	WPH2	2100	40.0836	0.0990	40-75	80-105
WES	WES	DJP	3100	102.0484	0.0792	0-35	40-75
WES	WES	EBW	3100	14.0453	0.0977	new	0-35
WES	WES	EBW	3100	14.1430	3.0770	new	40-75
WES	WES	EBW	3100	18.0440	0.0479	new	0-35
WES	WES	WVL	1100	1.0308	0.0572	0-35	40-75
WES	WES	WVL	1100	4.0193	0.0335	new	40-75
WES	WES	WVL	1100	4.0528	2.1555	new	0-35
WES	WES	WVL	2100	4.0193	0.0335	new	40-75
WES	WES	WVL	2100	4.0528	2.1555	new	0-35
WES	WES	WVL	3100	1.1008	2.0945	new	40-75
WES	WES	WVL	3100	7.0323	3.1041	new	0-35
WES	WES	WVL	3100	10.1364	1.0220	new	40-75
WES	WES	WVL	3100	11.1584	2.0629	new	0-35

Table 2.4 Linespeed change: decreases

Territory	Operating route	ELR	Track	Start mileage	Length (miles. Yds)	Old speed band	New speed band
LNE	LNE	AJM1	3400	144.1672	0.0651	40-75	0-35
LNE	LNE	BTJ	1300	161.0437	0.0358	0-35	removed
LNE	LNE	BTJ	1500	159.0828	0.0448	0-35	removed
LNE	LNE	BTJ	2851	159.0828	0.0448	0-35	removed
LNE	LNE	CPM1	2500	56.0924	0.0374	40-75	0-35
LNE	LNE	DOL2	2100	175.1144	0.0220	40-75	0-35
LNE	LNE	ECM1	1201	58.1221	0.0229	40-75	0-35
LNE	LNE	ECM1	3200	19.1515	0.0607	40-75	0-35
LNE	LNE	ECM5	2300	75.0764	0.0853	40-75	0-35
LNE	LNE	ECM5	2800	30.1306	0.0300	40-75	0-35
LNE	LNE	HEM	3100	20.1131	0.0849	40-75	0-35
LNE	LNE	HUL1	1600	10.0584	0.0340	0-35	removed
LNE	LNE	HUL1	2600	10.0564	0.0250	0-35	removed
LNE	LNE	KWS	2100	58.1056	0.0506	40-75	0-35
LNE	LNE	LEN3	1100	71.0110	0.0506	40-75	0-35
LNE	LNE	MAC3	1801	55.1377	0.1263	40-75	0-35
LNE	LNE	MAC3	1802	55.1364	0.0526	40-75	0-35
LNE	LNE	MAC3	2850	55.1320	0.0572	40-75	0-35
LNE	LNE	MAC3	2851	56.0132	0.0704	40-75	0-35
LNE	LNE	MJT2	1100	125.1342	0.0484	80-105	0-35
LNE	LNE	MJT2	1100	126.0066	4.0748	80-105	40-75
LNE	LNE	MJT2	1100	130.0814	0.0396	80-105	0-35
LNE	LNE	MJT2	2100	125.1342	0.0484	80-105	0-35
LNE	LNE	MJT2	2100	126.0066	4.0748	80-105	40-75
LNE	LNE	MJT2	2100	130.0814	0.0396	80-105	0-35
LNE	LNE	MVN2	1500	43.1307	0.0592	40-75	0-35
LNE	LNE	NEK	2100	0.0660	1.0264	40-75	0-35
LNE	LNE	NOC	2100	5.0902	0.1738	110-125	80-105
LNE	LNE	PHC	3300	0.0000	0.1463	40-75	0-35
LNE	LNE	SAN	3850	0.0066	1.0242	0-35	removed
LNWE	LNE	SAN	3851	0.1694	0.0330	0-35	removed
LNE	LNE	SAN	3852	0.1056	0.0682	0-35	removed
LNE	LNE	TNC	1100	0.0000	0.0550	0-35	removed
LNE	LNE	TNC	2100	0.0000	0.0550	0-35	removed
LNW	LNW	CCS1	1100	13.1290	0.1670	0-35	removed
LNW	LNW	CCS1	2100	13.1290	0.1670	0-35	removed
LNW	LNW	CCS1	3400	13.0666	0.0624	0-35	removed
LNW	LNW	CCS1	3400	13.0666	0.0624	0-35	removed
LNW	LNW	CCS2	2100	14.1200	0.1443	0-35	removed
LNW	LNW	CGJ1	2100	170.0752	1.1580	110-125	0-35
LNW	LNW	CGJ3	2200	182.0557	0.0323	40-75	0-35
LNW	LNW	CMP2	3800	188.0352	0.0550	40-75	0-35
LNW	LNW	FJH	2100	0.0000	0.0374	40-75	0-35
LNW	LNW	HNR	3100	83.1211	0.1380	40-75	removed
LNW	LNW	LEC1	1180	82.0610	0.0798	40-75	0-35

Table 2.4 Linespeed change: decreases (continued)

Territory	Operating route	ELR	Track	Start mileage	Length (miles. yds)	Old speed band	New speed band
LNW	LNW	LEC1	1180	82.0610	0.0798	40-75	0-35
LNW	LNW	LEC1	2200	83.0059	0.0295	40-75	removed
LNW	LNW	LEC1	3200	82.0342	0.1506	40-75	removed
LNW	LNW	LEC1	3200	83.0136	0.0218	40-75	removed
LNW	LNW	LEC1	3603	82.1053	0.0298	0-35	removed
LNW	LNW	LEC1	3606	82.1053	0.0429	0-35	removed
LNW	LNW	LEC1	3607	82.0515	0.0359	0-35	removed
LNW	LNW	LEC1	3608	82.0342	0.0532	0-35	removed
LNW	LNW	LEC1	3801	82.0657	0.0723	0-35	removed
LNW	LNW	LEC2	1700	125.0536	0.0664	0-35	removed
LNW	LNW	LEC2	2100	84.0066	0.0684	110-125	removed
LNW	LNW	LEC2	2200	83.0354	0.0277	40-75	removed
LNW	LNW	LEC2	3200	83.0354	0.0246	40-75	removed
LNW	LNW	LEC2	3300	116.0617	0.0680	40-75	removed
LNW	LNW	LEC4	1700	138.0952	0.0229	0-35	removed
LNW	LNW	RBS1	2100	83.0429	0.1199	40-75	removed
LNW	LNW	RBS1	2100	83.1628	0.0652	110-125	removed
LNW	LNW	RBS1	2100	94.0484	0.0792	80-105	40-75
LNW	LNW	WNS	1100	0.0000	0.0210	40-75	removed
LNW	LNW	WNS	2100	0.0000	0.0210	40-75	removed
SCO	SCO	ECN4	2500	30.0921	0.0563	0-35	removed
SCO	SCO	NBE	3300	25.0191	0.0861	0-35	removed
SEA	AN	DWW2	1100	3.1496	0.0286	40-75	0-35
SEA	AN	DWW2	1100	4.0220	0.0792	40-75	0-35
SEA	AN	DWW2	2100	3.1496	0.0286	40-75	0-35
SEA	AN	DWW2	2100	4.0220	0.0792	40-75	0-35
SEA	AN	LTN1	2300	3.0462	0.0880	40-75	removed
SEA	AN	LTN1	2300	3.1342	0.0251	0-35	removed
SEA	SU	BBR	2100	22.0960	0.0404	40-75	0-35
SEA	SU	RED2	2600	22.0651	0.0229	0-35	removed
SEA	SU	RTT	1300	22.1323	0.0613	0-35	removed
SEA	SU	VTB3	3700	27.0639	0.0201	40-75	removed
SEA	WE	SDP2	1100	90.0946	0.0832	40-75	0-35
SEA	WE	SDP2	2100	90.0946	0.0832	40-75	0-35
SEA	WE	WPH1	1100	52.0242	1.1342	80-105	40-75
SEA	WE	WPH1	2100	62.1474	0.0440	80-105	40-75
SEA	WE	WPH2	1100	40.0386	0.1430	80-105	40-75
WES	WES	BAW	3100	128.1692	0.1366	0-35	removed
WES	WES	BDO	3301	6.1452	1.0968	0-35	removed
WES	WES	BDO2	3300	7.1030	0.0827	0-35	removed
WES	WES	BHL	3800	44.0105	0.1357	0-35	removed
WES	WES	BHL	3801	44.0238	0.0617	0-35	removed
WES	WES	DCL	1300	53.0275	0.1130	0-35	removed
WES	WES	ESB	3100	4.1241	0.1575	0-35	removed
WES	WES	HIW	3100	0.0176	0.1555	0-35	removed
WES	WES	HLL	2100	11.0078	0.0248	80-105	removed

Table 2.4 Linespeed change: decreases (continued)

Territory	Operating Route	ELR	Track	Start mileage	Length (miles. yds)	Old speed band	New speed band
WES	WES	LAN1	3100	242.1274	0.1223	0-35	removed
WES	WES	MLN1	1500	53.0064	0.0211	0-35	removed
WES	WES	MLN1	2800	118.1412	0.0546	0-35	removed
WES	WES	MLN1	3301	4.0557	0.0925	0-35	removed
WES	WES	MLN1	3302	4.0518	0.0912	0-35	removed
WES	WES	MLN1	3303	4.0464	0.0918	0-35	removed
WES	WES	MLN1	3801	118.1124	0.0288	0-35	removed
WES	WES	MLN1	3803	3.0043	0.0496	0-35	removed
WES	WES	MLN1	3900	3.0592	0.0233	0-35	removed
WES	WES	SWB	3600	111.0832	0.0314	0-35	removed
WES	WES	SWM2	3800	181.0942	0.0717	0-35	removed
WES	WES	SWM2	1100	203.1320	0.0242	80-105	40-75
WES	WES	THA	1300	15.1153	0.0706	0-35	removed
WES	WES	THA	3100	15.0330	0.1540	0-35	removed
WES	WES	TOR	3100	222.0592	0.1168	0-35	removed
WES	WES	VON	3100	26.1518	0.0572	0-35	removed
WES	WES	VON	3500	22.0898	0.0530	0-35	removed

Reporting confidence

This data taken from GEOGIS aligns with the Sectional Appendix and has an accuracy well within Band 1 (within +/-1 per cent). Although the volume of change is generally insignificant to affect this there are minor shortcomings in the updating procedures and thus Reliability Band B and overall confidence grading of B2 is applicable.

Commentary

The increase in size of the reported network by 19 track kilometres represents actual change and some GEOGIS data quality improvement initiatives. Changes include:

Additions (shown in the Linespeed increases table, Table 2.3, where old speed band is 'new')

- 32km reopening of Ebbw Vale branch (WVL & EBW)
- 21km reopening of Stirling to Alloa, Kincardine route (SAA & KNE1)
- 3km track doubling Coventry to Leamington Spa (LSC2)
- 3km new fourth track Acton Bridge (CGJ1)
- 1km Raiths Farm/Dyce track doubling (ANI1)
- 1km Ripple Lane changes (TLL).

Removals (shown in the Linespeed decreases table, Table 2.4, where new speed band is 'removed')

- 21km Western Territory review of boundaries, track configuration/sidings status. Includes Barry Docks (BDO), Santon Ore branch (SAW), Thame Branch (THA), Aldermaston (BHL)
- 6km Rugby and other WCRM remodelling (LEC1 & 2)
- 6km exclusion of closed line Rock Ferry to Canning Street (CCS1 & 2)
- 3km track & boundary review Santon Ore branch (SAN)
- 2km track & boundary review Tinsley yard (BTJ & TNC).

As well as the 'additions' and 'removals', there are a few significant speed band changes to existing track to be noted:

- Coventry towards Birmingham International (RBS1) increases to within 110-125 band (previously limited to 100mph)
- Multiple changes associated with Rugby remodelling (LEC1 & 2, HNR)
- Increases to within 80-105 band, Farlington Junction (Jct) towards Portsmouth (WPH2)
- Increases to within 40-75 band at Wincobank viaduct (SHB)
- Radford Jct to Trowell Jct (MJT2) reduced from previous 80-105 band
- Acton Bridge (CGJ1) some reductions to within 0-35 band
- 60mph hence reduction to 40-75 band near Liss (WPH1).

Gauge capability (C2)

This is a measurement of the length of route in kilometres capable of accepting different freight vehicle types and loads by reference to size (gauge). This measurement is reported against five gauge bands measuring height (h) and width (w) of the vehicle:

- W6 3338mm (h) and 2600mm (w)
- W7 3531mm (h) and 2438mm (w)
- W8 3618mm (h) and 2600mm (w)
- W9 3695mm (h) and 2600mm (w)
- W10 3900mm (h) and 2500mm (w)

A definition of these individual Freight Gauges can be found in Railway Group Standard GE/RT8073 (April 2008) 'Requirements for the Application of Standard Vehicle Gauges'. Reference to W6 in this report is actually to the W6A profile in the Standard. W6 or W6A, W7, W8 and W9 are broadly incremental.

Reporting confidence

This data applied to GEOGIS aligns with the Sectional Appendix and has an accuracy well within Band +/-1 per cent. Although the volume of change is generally insignificant to affect this, the current process of publishing gauge in the Sectional Appendix is still exposing minor discrepancies in the data, and thus Reliability Band B and overall confidence grading of B2 is applicable.

Commentary

The increase in size of the reported network by 25 route kilometres represents actual change and some GEOGIS data quality improvement initiatives. Changes include:

Additions

- 26km of W9 gauge, reopening of Ebbw Vale branch
- 12km of W9 gauge and 6 km W6A, reopening of Stirling to Alloa /Kincardine route.

Results

Table 2.5 Gauge capability

Gauge band	March 2004 km of route in each gauge band	March 2005 km of route in each gauge band	March 2006 km of route in each gauge band of	March 2007 km of route in each gauge band	March 2008 km of route in each gauge band
W6	5,223	4,955	4,771	4,746	4,669
W7	2,284	2,794	2,741	2,720	2,829
W8	6,340	5,648	5,504	5,496	5,408
W9	2,483	1,714	1,615	1,618	1,698
W10 and W6	–	6	6	6	6
W10 and W8	–	60	73	65	65
W10 and W9	163	939	1,100	1,138	1,139
Total	**16,493**	**16,116**	**15,810**	**15,789**	**15,814**

Table 2.6 Gauge capability by operating route

Gauge band	W6	W7	W8	W9	W10 & W6	W10 & W8	W10 & W9	Total
London North Eastern	913	543	1,309	644	–	–	–	3,409
London North Western	876	683	669	256	–	2	831	3,317
South East – Anglia	292	5	531	154	6	63	146	1,197
South East – Kent	478	80	70	190	–	–	–	818
South East – Sussex	300	120	61	32	–	–	–	513
South East – Wessex	549	189	299	5	–	–	–	1,042
Western	1,137	377	1,302	44	–	–	–	2,860
England & Wales	4,545	1,997	4,241	1,325	6	65	977	13,156
Scotland	124	832	1,167	373	–	–	162	2,658
Network total	**4,669**	**2,829**	**5,408**	**1,698**	**6**	**65**	**1,139**	**15,814**

Removals

- 3km formerly W8 gauge, Barry Docks boundaries etc.
- 3km formerly W6A gauge, Canning Street lines closed
- 2km formerly W6A gauge, Santon branch boundaries etc.
- 2km formerly W8 or W6A gauge, Tinsley yard boundaries etc.

Ongoing gauge assessment and re-certification together with some data quality improvements have changed the distribution, principally:

Improvements

- 31km now W7 formerly W6A, St Catherines Jct to Manton Colliery
- 31km now W9 formerly W8, Templehurst Jct to Colton Jct
- 21km now W9 formerly W8, Kilwinning Jct to Falkland Jct
- 17km now W8 formerly W6A, Stafford Jct (Wellington) to Severn Bridge Jct
- 14km now W7 formerly W6A, Retford S Jct to West Burton.

Worsements (all resulting from data cleanse)

- 26km formerly W8 now W7, Chester E Jct to Acton Grange
- 19km formerly W8 and 4 Km formerly W9 now W7, Stoke Jct towards Colwich
- 14km formerly W9 now W8, Crofton W Jct to Knottingley
- 13km formerly W8 now W7, Lostock Hall Jct to Blackburn Bolton Jct.

Route availability value (C3)

The infrastructure capability Route Availability measure is used to check the compatibility of the weight of trains with the strength of underline bridges.

The C3 measure is a measurement of the length of track in kilometres capable of accepting different loaded vehicle types by reference to the Route Availability (RA) value. There are three RA value bands:

- RA1-6
- RA7-9
- RA10

This measure represents the lesser of the maximum single axle weight or the maximum equivalent load effect of a whole vehicle for the capability of underline bridges on a route, specified in the definitive operating publication.

Vehicles are compatible with the capability of the infrastructure where the vehicle RA is less than or equal to the route RA. If not, it is necessary to consider more detailed information on the loading characteristics of the vehicle and detailed information on the strength of individual bridges to check compatibility.

This measure includes running lines only on Network Rail's infrastructure and excludes sidings and depots.

Results

Table 2.7 Structures route availability

Route availability band	March 2004 km of track in each RA band	March 2005 km of track in each RA band	March 2006 km of track in each RA band	March 2007 km of track in each RA band	March 2007 km of track in each RA band
RA1-6	2,375	2,529	2,309	2,296	3,991
RA7-9	26,297	26,319	25,935	25,928	25,060
RA10	2,585	2,634	2,861	2,839	2,031
Total	**31,257**	**31,482**	**31,105**	**31,063**	**31,082**

Table 2.8 Structures route availability by operating route

RA bands/ Operating routes	RA 1-6	RA 7-9	RA 10	Total
London North Eastern	538	6,862	65	7,465
London North Western	173	6,912	–	7,085
South East – Anglia	236	2,050	–	2,286
South East – Kent	231	1,530	–	1,761
South East – Sussex	346	781	–	1,127
South East – Wessex	361	1,722	–	2,083
Western	972	4,153	–	5,125
England and Wales	2,857	24,010	65	26,932
Scotland	1,134	1,050	1,966	4,150
Network total	**3,991**	**25,060**	**2,031**	**31,082**

Commentary

The changes in the extent of the network reported in the C1 Linespeed capability measure are also reflected in the C3 measure with a net increase of 19 track kilometres. The principal effects are the reopening of the Ebbw Vale branch which adds 32km of RA1-6 and Stirling Alloa 22km of RA10 (plus a further 3km previously treated as RA7-9). Network size reductions include 6km RA7-9 Canning Street lines closure and 5km of RA7-9 from the Rugby remodelling.

This year's Annual Return for the C3 measure incorporates the findings of the work done to verify Route Availability which was undertaken as part of the Infrastructure Capability programme that was reported to FOC and TOC representatives and the ORR last autumn. The differences in Route Availability identified in these findings largely account for the net extra 1695km of RA1-6 track and corresponding reduction of 868km of RA7-9 and 808km of RA10 bands and correspond to a change in RA on 5 per cent of the network. The findings reflect the historic asset management approach of managing infrastructure for the traffic that ran, whereas with today's approach we also manage assets against published capability.

London North Eastern, Scotland and Southern have the greatest changes, the principal changes being:

- 174km RA7-9 vice RA10 Edinburgh to Dundee (these lines are effectively limited by the unchanged published RA8 capability of the Forth and Tay Bridges) and a further 150 km Arbroath towards Aberdeen
- 58km RA7-9 vice RA10 Haymarket to Carstairs
- 92km RA1-6 vice RA7-9 Stranraer to Ayr
- 72km RA1-6 vice RA7-9 Arundel Jct to Horsham
- 61km RA1-6 vice 45 km RA7-9 and 16 km RA10 Paisley to Gourock
- 56km RA1-6 vice RA7-9 sections of Charing Cross to London Bridge
- 53km RA1-6 vice RA10 Inverness to Invergordon.

We are currently working with FOC and TOC representatives to identify the preferred options for addressing the identified differences in Route Availability. Options being considered range from restoration of capability to short term network change and actual network change.

In all cases there was no effect on the flow of regular traffic. We are currently working with FOC and TOC representatives to ensure that these traffic flows can be maintained, e.g. by using the heavy axle weight procedures that permit freight traffic flows in excess of the published Route Availability. These studies are also indicating the potential for a reduction in the changes in Route Availability reported in the above table.

Electrified track capability (C4)

This is a measurement of the length of electrified track in kilometres in the following bands:

- overhead line at 25kV A.C.
- overhead line at 1,500V D.C.
- 3rd rail 650/750V D.C.

The measurement includes the length of running track, including loops but excluding sidings and depots. Lengths of track with dual electrification are not double counted here, i.e. they are not also shown within the respective electrification types. In addition, line that is not energised and permanently earthed is counted as non-electrified.

Results

Table 2.9 Electrification capability (km of electrified track)

	March 2004	March 2005	March 2006	March 2007	March 2008
25 kV AC overhead	7,780	7,748	7,882	7,980	7,974
Third rail 650/750V DC	4,483	4,497	4,493	4,484	4,481
Dual AC, overhead/3rd rail DC	33	35	39	38	40
1500V DC overhead	19	39	39	39	39
Total electrified	12,315	12,319	12,453	12,541	12,534
Non-electrified	19,249	19,163	18,652	18,522	18,548
Total	**31,564**	**31,482**	**31,105**	**31,063**	**31,082**

Table 2.10 Electrification capability by operating route

Electrification capability/Operating route	25 kV AC overhead	3rd rail 650/ 750V DC	Dual AC, overhead/ 3rd rail DC	1500V DC overhead	Total electrified	Non electrified	Total
London North Eastern	2,378	9	1	39	2,427	5,038	7,465
London North Western	2,785	291	9	–	3,085	4,000	7,085
South East – Anglia	1,449	25	15	–	1,489	797	2,286
South East – Kent	8	1,650	13	–	1,671	90	1,761
South East – Sussex	1	1,033	2	–	1,036	91	1,127
South East – Wessex	–	1,473	–	–	1,473	610	2,083
Western	103	–	–	–	103	5,022	5,125
England & Wales	6,724	4,481	40	39	11,284	15,648	26,932
Scotland	1,250	–	–	–	1,250	2,900	4,150
Network Total	**7,974**	**4,481**	**40**	**39**	**12,534**	**18,548**	**31,082**

Reporting confidence

This data is taken from GEOGIS and extensive quality assurance activity was undertaken ahead of the 2007 Annual Return. The relatively small volume of network change means the accuracy remains within Band 1. Some errors can however arise when other GEOGIS parameters are edited and other process factors merit a reliability band of B, which leads to a confidence grade of B2.

Commentary

The C1 Linespeed capabilities tables show where the extent of the Network has changed with a net increase of 19 track kilometres. The major additional routes to Ebbw Vale & Stirling – Alloa are however not electrified. The net 7km decrease in electrification relates principally to other network size change plus some coding data cleanse and quality issues. Changes include:

Additions

- 3km dual AC/DC and 0.7 DC now energised at Ebbsfleet
- 3km AC, new fourth track Acton Bridge
- 1km AC, recoding near Nuneaton.

Removals

- 6km AC, Rugby and other WCRM remodelling
- 2km DC, recoding Chandlers Ford
- 2km dual AC/DC recoding Syston
- 2km AC erroneous exclusion Burnmouth track renewals.

Passenger and freight mileage

Passenger train miles

Passenger train mileage is defined as the number of miles travelled by passenger trains. The passenger trains are derived from PALADIN (the computerised performance system used for recording performance data).

There was an increase of 0.74 per cent in total passenger train miles between 2006/07 and 2007/08: twice the total passenger train miles percentage increase between 2005/06 and 2006/07 but not as much as the 1.49 per cent growth experienced between 2004/05 and 2005/06. Open access services also experienced positive growth, increasing by 2.44 per cent between 2006/07 and 2007/08.

Table 2.11 Train Mileage for passenger operators (millions)

Train operator	2004/05	2005/06	2006/07	2007/08
Arriva Trains Wales	11.9	12.5	13.3	13.4
c2c Rail	3.6	3.6	3.6	3.7
Central Trains	17.4	17.8	17.7	10.8
Chiltern Railways	5.0	5.1	5.4	5.6
Cross Country Trains (New franchise from November)	–	–	–	6.8
East Midlands Trains (New franchise from November)	–	–	–	4.6
FGW Link (Inc. Heathrow Connect)	7.9	7.8	5.2	0.2
First Capital Connect	0.0	0.0	11.7	13.9
First Great Western	10.0	10.4	14.5	24.5
Gatwick Express	1.5	1.5	1.5	1.5
Great North Eastern Railway	11.2	11.3	11.1	11.5
London Midland (New franchise from November)	–	–	–	4.3
London Overground (New franchise from November)	–	–	–	0.8
Merseyrail Electrics	3.4	3.4	3.4	3.4
Midland Mainline	6.5	6.2	6.2	3.8
Northern Rail	25.0	26.0	25.1	25.1
One	18.3	18.5	18.9	18.8
ScotRail Railways	22.7	23.1	23.0	23.2
Silverlink Train Services	5.5	5.5	5.6	3.4
South Eastern	17.2	17.2	17.2	17.4
South West Trains	22.3	23.1	22.9	23.0
Southern (formally South Central)	15.9	16.4	16.7	17.2
Thameslink Rail	6.8	6.7	1.1	–
Transpennine Express	8.8	7.9	8.6	8.9
Virgin Trains CrossCountry	16.7	16.8	16.9	10.6
Virgin Trains West Coast	11.3	13.3	13.2	14.4
Wessex	6.7	6.9	5.0	–
West Anglia Great Northern Railway	7.2	6.9	1.0	–
Total franchised passenger	**262.9**	**267.8**	**268.8**	**270.8**
Eurostar (UK)	0.5	0.5	0.6	0.6
Heathrow Express	1.0	0.9	0.9	0.9
Hull Trains	0.6	0.8	0.8	0.9
Nexus	1.4	1.8	1.8	1.8
Total passenger (open access)	**3.6**	**4.1**	**4.1**	**4.2**
Total passenger (franchised and open access)	**266.4**	**271.9**	**272.9**	**275.0**

Note: Empty coaching stock movements have been excluded.
Grand Central commenced operating towards the end of the year and accumulated minimal mileage.

Table 2.12 Train mileage for freight operators (thousands)

Freight operator	2004/05	2005/06	2006/07	2007/08
Advenza	–	51	73	114
Direct Rail Services Ltd	802	1,022	1,255	1,285
EWS International	1,683	1,702	1,659	1,525
EWS Railway Ltd	17,393	18,588	16,855	13,978
Freightliner Heavy Haul	2,803	3,310	3,584	4,126
Freightliner Ltd	4,739	5,541	5,519	5,427
GB Railfreight	505	740	852	997
Fastline	–	–	95	110
FM Rail	–	–	20	83
AMEC	–	–	10	127
Total	**27,925**	**30,954**	**29,922**	**27,772**

Train mileage by freight operator

Freight train mileage is defined as the number of miles travelled by freight trains. The freight data is derived from the Billing Infrastructure Freight System (BIFS). BIFS is a centrally managed computerised system that invoices freight operators, based on information generated by train reporting systems.

Million GTMs by freight train operator

Gross tonne miles (GTMs) is the mileage for each locomotive, wagon or coaching stock multiplied by the weight for each relevant vehicle. This data is also derived from BIFS.

Commentary on freight gross tonne miles and freight train miles

The Both freight gross tonne miles and freight train miles decreased between 2006/07 and 2007/08. The decrease in freight miles was 7.4 per cent and that for gross tonne miles was 5.3 per cent. The increasing variance between GTMs and train miles is due to operators using fewer but longer trains. The most significant categories of freight that experienced growth during the year were domestic automotive and European automotive, with the area of greatest decline being general merchandise traffic.

Table 2.13 Million GTMs by freight train operators

Freight operator	2004/05	2005/06	2006/07	2007/08
Advenza	–	8	12	23
Direct Rail Services Ltd	497	608	901	1,090
EWS International	1,290	1,187	1,157	1,035
EWS Railway Ltd	18,268	19,685	18,260	15,459
Freightliner Heavy Haul	3,068	3,395	3,851	4,476
Freightliner Ltd	4,748	5,223	5,179	5,241
GB Railfreight	521	667	828	1,145
Fastline	–	–	52	75
FM Rail	–	–	7	38
AMEC	–	–	5	68
Total	**28,392**	**30,773***	**30,252**	**28,650**

* This has been re-stated from 2005/06 Annual Return.

Late Disruptive Possessions

A Late Disruptive Possession (LPD) is defined as any restriction on the availability of the network, which requires a TOC/FOC to bid for a short-term, planned alteration to a WTT (Working Timetable) service or existing offered STP (short term planned) service. It is any such possession requested after the publication of the CPPP (Confirmed Period Possession Plan) which is 26 weeks before the work is due to go ahead.

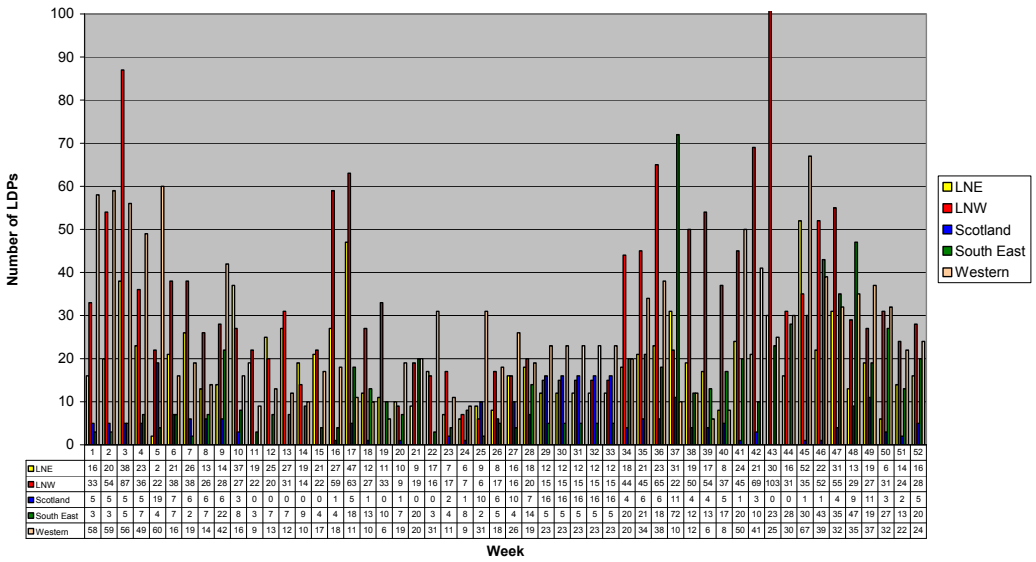
The measure we use counts the number of Late Disruptive Possessions that Network Rail has taken in each week and is shown below by Territory.

Reporting method

This measure is taken from data extracted from PPS (Possessions Planning System). Every Possession that is flagged as 'disruptive' and set to the 'Agreed' status less than 6 months before the possession start date is counted for this measure.

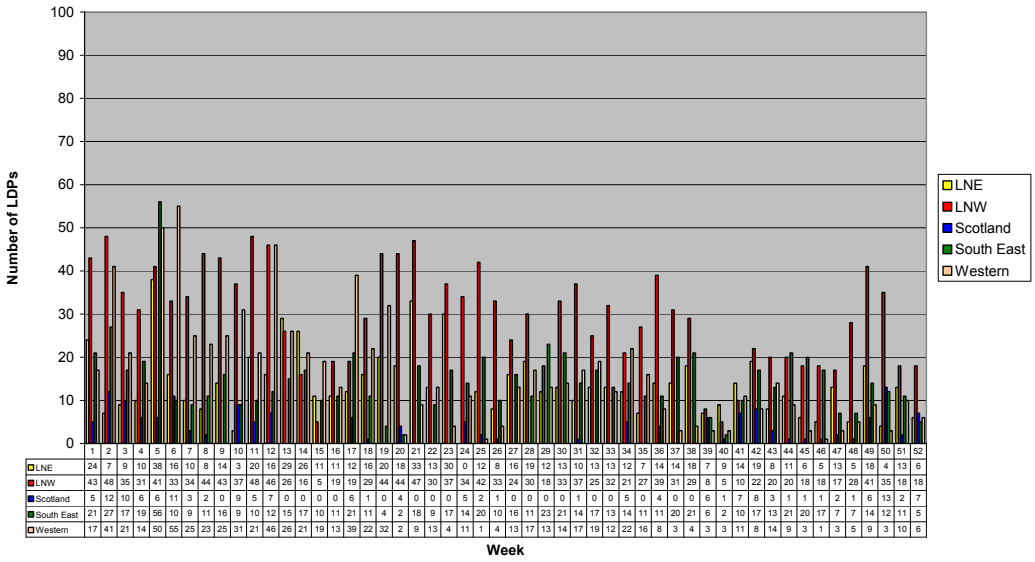
Results

Figure 2.1 Number of agreed late disruptive possessions 2006/07



Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
LNE	16	20	38	23	2	21	26	13	14	37	19	25	27	19	21	27	47	12	11	10	9	17	7	6	9	8	16	18	12	12	12	12	18	21	23	31	19	17	8	24	21	30	16	52	22	31	13	19	6	14	16
LNW	33	54	87	36	22	38	38	26	28	27	22	20	31	14	22	59	63	27	33	9	19	16	17	7	6	17	16	20	15	15	15	15	44	45	65	22	50	54	37	45	69	103	31	35	52	55	29	27	31	24	28
Scotland	5	5	5	5	19	7	6	6	6	3	0	0	0	0	0	0	1	5	1	0	1	0	0	2	1	10	6	10	7	16	16	16	16	4	6	6	11	4	4	5	1	3	0	0	1	1	4	9	11	3	2	5
South East	3	3	5	7	4	7	2	7	22	8	3	7	7	9	4	4	18	13	10	7	20	3	4	8	2	5	4	14	5	5	5	5	20	21	18	72	12	13	17	20	10	23	28	30	43	35	47	19	27	13	20
Western	58	59	56	49	60	16	19	14	42	16	9	13	12	10	17	18	11	10	6	19	20	31	11	9	31	18	26	19	23	23	23	23	20	34	38	10	12	6	8	50	41	25	30	67	39	32	35	37	32	22	24

Figure 2.2 Number of agreed late disruptive possessions 2007/08



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
LNE	24	7	9	10	38	16	10	8	14	3	20	16	29	26	11	11	12	16	20	18	33	13	30	0	12	8	16	19	12	13	10	13	13	12	7	14	14	18	7	9	14	19	8	11	6	5	13	5	18	4	13	6
LNW	43	48	35	31	41	33	34	44	43	37	48	46	26	16	5	19	19	29	44	44	47	30	37	34	42	33	24	30	18	33	37	25	32	21	27	39	31	29	8	5	10	22	20	20	18	18	17	28	41	35	18	18
Scotland	5	12	10	6	6	11	3	2	0	9	5	7	0	0	0	0	6	1	0	4	0	0	0	5	2	1	0	0	0	0	1	0	0	5	0	4	0	0	6	1	7	8	3	1	1	1	2	1	6	13	2	7
South East	21	27	17	19	56	10	9	11	16	9	10	12	15	17	10	11	21	11	4	2	18	9	17	14	20	10	16	11	23	21	14	17	13	14	11	11	20	21	6	2	10	17	13	21	20	17	7	7	14	12	11	5
Western	17	41	21	14	50	55	25	23	25	31	21	46	26	21	19	13	39	22	32	2	9	13	4	11	1	4	13	17	13	14	17	19	12	22	16	8	3	4	3	3	11	8	14	9	3	1	3	5	9	3	10	6

Reporting confidence

This is the first time this measure has been recorded for the Annual Return. As such, the reporting process only involves automatic data collection from PPS. Next year's data will be collected and analysed weekly as part of Network Rail's possession planning process.

There are some shortcomings in the PPS data. In particular, some possessions are not flagged with the correct disruptive status. Also, some possessions showing as 'Agreed' at a late stage may only be a new record in PPS, not an entirely new possession request.

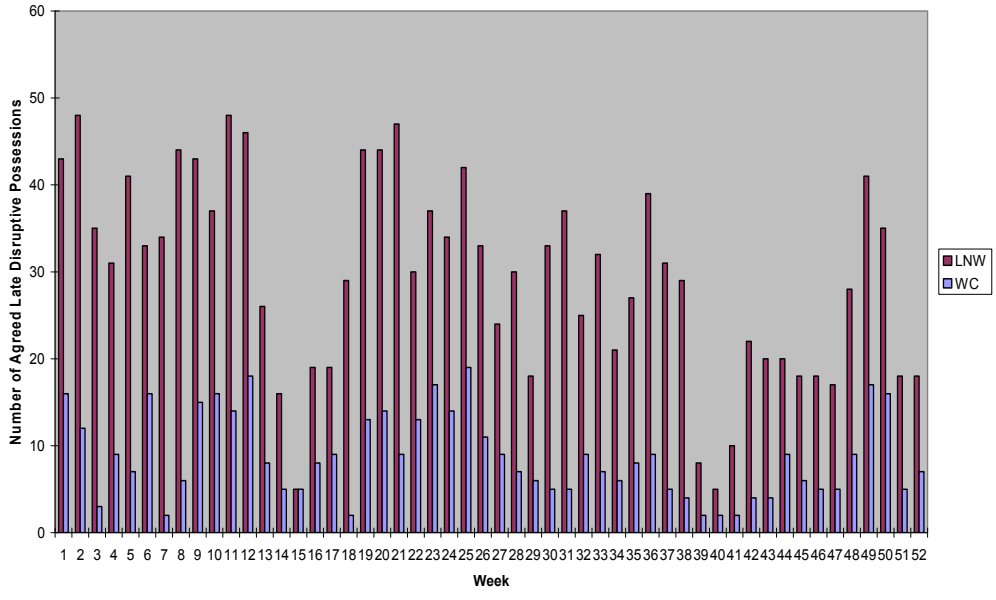
The data for 2006/07 is shown for comparison purposes. The accuracy of this data is less than that of the 2007/08 data as this is a new measure and we are making improvements every year.

Commentary

Western Territory has shown a significant reduction in numbers over the past year. This is due to the effects of better long term possession planning initiated in 2006 and due to improved relations with the TOC's planning team.

LNW Territory has experienced the greatest number of Late Disruptive Possessions. Analysing the LNW figures shows that about a third of the possessions throughout the year are directly related to the West Coast project.

Figure 2.3 West Coast % of LNW total



Section 3 – Asset management

Introduction

This section reports data on the condition and quality of our assets. It provides an indication of our asset stewardship and provides trends over time as well as progress against targets. The following measures are reported:

- Broken rails
- Rail defects
- Track geometry
- Condition of asset TSRs
- Level 2 exceedences
- Earthwork failures
- Bridge condition
- Signalling failures
- Signalling asset condition
- AC traction power incidents
- DC traction power incidents
- AC traction substation condition
- DC traction substation condition
- AC contact system condition
- DC contact system condition
- Station stewardship measure
- Light maintenance depots
- Asset Stewardship Incentive Index

There have been changes during 2007/08 to improve some of our measures. This has principally involved the electrification and power supply measures with the aim of reducing the subjectivity of these measures. In addition, the Station Condition Measure has been improved to become the Station Stewardship Measure. The new measure is aligned to the Stations Code and provides more useful information for the management of this asset, which is reflected in its change of name. Further improvements to these measures will be made in 2008/09. The Station Facilities Measure is not reported this year as we are working with the industry to develop an improved measure.

All infrastructure output measures are subject to statistical variability caused by random fluctuation and the accuracy of data measurement. Tolerances were not established by ORR in ACR 2003. However, ORR has stated that it will take into account statistical variations when assessing performance against regulatory targets.

Number of broken rails (M1)

Definition

A broken rail is one which, before removal from the track, has a fracture through the full cross-section, or a piece broken out of it, rendering it unserviceable. This includes broken welds. Only broken rails occurring in running lines are included in this measure (i.e. sidings, depots, etc are excluded).

Reporting method

This is in accordance with the company procedures for measuring and reporting broken rails, with a minor change to reporting processes to accommodate the phased implementation of a new system for managing rail defects, including broken rails (see commentary under Defective rails M2).

Commentary

Work has continued to reduce the number of broken rails with volumes of re-railing and renewals being maintained. In addition, improved rail management, particularly inspection equipment and procedures and the increased volume of grinding and train based ultrasonic testing being delivered on the network, has contributed to improvements.

Initiatives put in place to improve the management of dipped joints and welds have helped to reduce the number of rail breaks. We have also benefited from a relatively mild winter without extremes of temperature.

The final number of broken rails for the year was 181, a 5.7 per cent reduction over the previous year's total of 192. This continues the year on year reduction from 952 in 1999/00, an overall reduction of over 80 per cent.

Results

Table 3.1 Number of broken rails

Operating Routes	2002/03	2003/4	2004/05	2005/06	2006/07	2007/08
London North Eastern	119	77	101	98	62	67
London North Western	120	88	61	52	44	28
South East – Anglia	31	29	26	23	13	26
South East – Kent	28	22	19	17	8	10
South East – Sussex	15	11	9	7	13	6
South East – Wessex	47	30	43	37	18	17
Western	44	42	31	37	13	13
England & Wales	**404**	**299**	**290**	**271**	**171**	**167**
Scotland	**40**	**35**	**32**	**46**	**21**	**14**
Network total	**444**	**334**	**322**	**317**	**192**	**181**
CG	**–**	**A2**	**A1**	**A2**	**A1**	**A1**
Regulatory target (Network)	**705**	**675**	**300**	**300**	**300**	**300**

Regulatory target

The regulatory target is to reduce the number of broken rails to no more than 300 per annum by 2005/06 and have no increase thereafter. The regulatory target has been met.

Reporting confidence

The procedure for reporting broken rails is proven and robust, and this data justifies an A1 confidence grade. The difficulties surrounding the implementation of a new system for managing rail defects have not impacted on the robustness of this data. The existing interim procedure for collecting, confirming and collating the numbers of broken rails has been in place for three reporting years.

Rail defects (M2)

Definition

A defective rail is a rail that has any fault requiring remedial action (repair or replacement) to make it fit for purpose in accordance with NR/SP/TRK/001 and other Network Rail standards. This measure is reported split between isolated defects (those defects with a length of less than 1 yard, e.g. midrail, welds, isolated wheelburns, etc) and continuous defects (those defects with a length of 1 yard or more, e.g. RCF, wheelburns, hydrogen shatter cracking, vertical longitudinal splits etc).

Reporting method

This is in accordance with the company procedures for measuring and reporting defective rails, with a minor change to reporting processes to accommodate the difficulties and failure to implement a new system for managing rail defects (see commentary below).

Results

Table 3.2 Number of isolated rail defects 2007/08

Type of defect	Net data correction	New defects detected	Weld repairs and defects removed	Defects remaining
Rail ends	-296	1,215	1,235	472
Welds	-468	3,498	3,754	1,145
Midrail	-5,624	15,777	17,449	5,362
Switches and Crossings	-591	2,358	2,708	2,153
Incorrectly classified	-27	3	4	18
Total number	**-7,006**	**22,851**	**25,150**	**9,150**
Confidence grade				**B3**

Table 3.3 Number of isolated rail defects remaining

Type of defect	2003/4	2004/05	2005/06	2006/07	2007/08
Rail ends	1,358	1,146	729	788	472
Welds	3,735	4,208	2,141	1,869	1,145
Midrail	21,852	19,994	14,751	12,658	5,362
Switches and Crossings	4,274	5,259	2,932	3,094	2,153
Incorrectly classified	82	171	52	46	18
Total number	**31,301**	**30,778**	**20,605**	**18,455**	**9,150**
Confidence grade	**B2**	**B4**	**B4**	**B3**	**B3**

Table 3.4 Isolated rail defects by operating route

Operating routes	Defects discovered 2006/07	Defects removed /repaired 2006/07	Defects remaining 2006/07	Defects discovered 2007/08	Defects removed/ repaired 2007/08	Defects remaining 2007/08
London North Eastern	5,117	5,152	2,353	5,042	5,903	1,492
London North Western	5,952	6,460	6,013	6,680	7,888	1,925
South East – Anglia	2,255	2,122	560	1,949	1,997	498
South East – Kent	640	604	146	770	803	107
South East – Sussex	449	423	102	626	635	100
South East – Wessex	922	806	309	1,272	1,150	295
Western	3,551	3,415	5,201	3,862	4,126	1,224
England & Wales	18,886	18,982	14,684	20,201	22,502	5,641
Scotland	2,546	2,544	3,771	2,650	2,648	3,509
Network total	**21,432**	**21,526**	**18,455**	**22,851**	**25,150**	**9,150**

Table 3.5 Lengths of continuous rail defects

	Net data correction	New RCF defects detected	New other defects detected	Defective rail removed/ repaired	Defects remaining at year end
Total length (yards)	-242,913	174,456	165,517	281,770	2,010,831
Total length (km)	-222.1	159.5	151.3	257.7	1,839

Table 3.6 Lengths of continuous rail defects remaining

	2003/04	2004/05	2005/06	2006/07	2007/08
Total length (yards)	2,042,032	2,423,367	2,013,319	2,195,541	2,010,831
Total length (km)	1,867	2,216	1,841	2,008	1,839

Table 3.7 Continuous rail defects by operating route (yards)

Operating Routes	Defects discovered 2006/07	Defects removed/ repaired 2006/07	Defects remaining 2006/07	Defects discovered 2007/08	Defects removed/ repaired 2007/08	Defects remaining 2007/08
London North Eastern	55,213	24,920	356,968	12,768	11,677	358,059
London North Western	103,810	49,336	387,078	98,470	63,578	319,721
South East – Anglia	39,857	24,874	123,238	23,745	22,250	125,462
South East – Kent	13,302	9,121	181,581	10,464	10,812	176,611
South East – Sussex	43,961	34,470	75,618	56,191	31,724	103,026
South East – Wessex	23,723	9,040	146,500	22,988	6,682	156,982
Western	122,962	67,829	276,139	81,970	58,448	172,313
England & Wales	**402,828**	**219,590**	**1,547,122**	**306,596**	**205,171**	**1,412,174**
Scotland	**48,114**	**31,342**	**648,419**	**33,377**	**76,599**	**598,657**
Network total	**450,942**	**250,932**	**2,195,541**	**339,973**	**281,770**	**2,010,831**

Regulatory target

There is no regulatory target for this measure.

Reporting confidence

The procedure for reporting defective rails is now well established, and this data justifies a B3 confidence grade. The difficulties surrounding the implementation of a new system for managing rail defects have impacted on the efficiency and robustness of reporting this data. The existing interim procedure for collecting, confirming and collating the numbers of defective rails has been in place for three reporting years.

Commentary

The number of isolated defects remaining in track has significantly reduced due to improved data quality and the removal of duplicate and erroneous data. The number of new defects detected showed a significant increase in a number of Areas such as Wessex and Sussex due to localised increases in the number of actionable defects in RCF following the introduction of new vehicles.

Rail defect reporting continues to be sourced from the existing databases that were adapted when maintenance transferred in-house in 2004 and now includes some data from the Rail Defect Tracker system. The number of and variations between these databases have continued to cause logistical problems with defect reporting. This has resulted in inconsistencies in the classification and mapping of the defective rail data to the central Raildata reporting system.

To resolve these reporting difficulties, a new purpose built rail defect management and reporting system (RDMS) was developed. Significant data cleanse of the existing databases was undertaken to facilitate data migration to RDMS. The existing multi-sourced approach, established in 2005/06, has been used to compile these figures for 2007/08. The replacement Rail Defect Management System (RDMS) is currently being implemented and is scheduled for complete rollout by December 2008. This system will enable a consistent process to capture all isolated and continuous defect data including categorisation of rolling contact fatigue (RCF) and any remedial work undertaken. This system links directly with the Ellipse work planning tool to ensure that all remediation work is included.

Data for RCF is still reported via spreadsheets as it is still not possible to report for all areas by track chain. This also means that all RCF sites, including a number which have been re-railed, may be included in the 'continuous remaining' figure as re-railed sites are recorded for additional visual inspection purposes. Much of the remaining continuous figures are made up of 'Light' or 'Moderate' RCF which is a condition that requires no remediation or increased minimum action other than preventative cyclic grinding.

Track geometry – national standard deviation data (M3)

Definition

This section is concerned with track geometry condition and trends in terms of the four principal standard deviation (SD) parameters expressed as percentages achieving good, satisfactory and poor track geometry. Results are expressed for the network as a whole, England and Wales (E&W), Scotland and the remaining seven operating routes.

Reporting method

The assessment of track geometry is performed by track recording vehicles which measure and record the relative positions of the rail running faces, both vertically and horizontally. The resulting raw measurements are processed through high-pass wavelength filters which adjust the measured values to correspond to 35 and 70 metre chord lengths. The 35 metre values are determined for all routes whereas the 70 metre values are only applied to sections of route having a linespeed of 80mph and above. The resulting measurements are used in two ways:

- Identification of discrete imperfections or faults (known as Level 2 exceedences) used for the front-line monitoring and correction of track geometry. These are the subject of measure M5, dealt with in a later section.
- As reported in this section, combined into standard deviation (SD) values indicative of the smoothness of track geometry over each eighth-mile length (220 yards) of track. Lower SD values indicate less imperfections and therefore smoother track.

The resulting principal parameters of track geometry quality are 35m top (35 metre vertical position) and 35m alignment (35 metre horizontal alignment) and, for higher speed routes, 70m top and 70m alignment. For each of these parameters, linespeed-dependant target SD values are specified, within Railway Group Standards, to be achieved or bettered by 50 per cent (Good), 90 per cent (Satisfactory or better) and 100 per cent (Poor or better) respectively of recorded track.

The percentages of track across the network meeting these target SD values, and compared against these defining percentages, is shown in the following tables:

- Table 3.8, which compares 31/3/08 network total condition with that for the previous six years
- Table 3.9, which displays the 31/3/08 condition for each of the seven E&W operating routes, E&W as a whole, Scotland and network total. Tables 3.10 and 3.11 provide comparison with 31/3/07.

Results

Table 3.8 Track geometry: network total standard deviations (%)

	35m top (vertical displacement)			35m alignment (horizontal displacement)			70m top (vertical displacement)			70m alignment (horizontal displacement)			CG
Standard	50	90	100	50	90	100	50	90	100	50	90	100	
Actuals													
31-3-02	62.3	89.4	97.3	72.6	92.9	96.2	62.0	92.4	95.5	80.1	95.9	97.3	
31-3-03	61.9	88.9	97.0	74.7	93.6	96.7	62.2	92.1	95.2	80.9	96.2	97.5	
31-3-04	62.3	89.2	97.0	72.6	92.9	96.5	63.4	92.3	95.3	79.2	95.7	97.2	A2
31-3-05	66.0	90.9	97.7	76.9	94.1	97.0	67.7	93.6	96.2	82.8	96.9	98.0	A1
31-3-06	67.9	91.8	98.0	78.8	94.8	97.3	70.5	94.3	96.5	83.2	97.1	98.2	A1
31-3-07	70.0	92.3	98.1	79.0	95.0	97.5	72.2	94.7	96.7	82.9	97.3	98.3	A1
31-3-08	73.6	93.8	98.6	82.1	95.8	97.9	74.7	95.5	97.3	87.9	98.1	98.7	A1

Table 3.9 Track geometry: standard deviations 2008 (%)

	35 mm top (vertical displacement)			35mm alignment (horizontal displacement)			70m top (vertical displacement)			70m alignment (horizontal displacement)		
Standard	50	90	100	50	90	100	50	90	100	50	90	100
Actuals:												
London North Eastern	74.4	93.9	98.7	84.3	96.2	98.0	74.5	95.4	97.3	90.5	98.2	98.9
London North Western	74.0	93.9	98.7	84.9	96.6	98.2	74.3	96.3	97.8	89.9	99.0	99.3
South East – Anglia	72.0	92.3	97.7	78.5	94.3	97.1	70.3	91.3	94.1	76.7	94.6	96.4
South East – Kent	69.2	94.4	99.0	75.0	93.6	96.8	67.3	95.7	97.6	75.0	95.6	97.2
South East – Sussex	71.2	92.3	98.2	75.9	92.6	96.4	67.9	93.4	96.0	73.3	94.8	95.9
South East – Wessex	66.5	90.3	97.3	78.9	94.5	97.3	75.2	95.4	97.2	83.5	97.0	98.0
Western	75.3	94.2	98.6	84.7	96.8	98.4	78.2	96.2	97.9	93.1	98.9	99.3
England & Wales	**73.2**	**93.5**	**98.5**	**82.7**	**95.8**	**97.8**	**74.4**	**95.5**	**97.3**	**88.0**	**97.9**	**98.6**
Scotland	**76.4**	**95.8**	**99.2**	**78.7**	**95.7**	**98.0**	**76.6**	**95.9**	**97.4**	**87.6**	**98.8**	**99.2**
Network total	**73.6**	**93.8**	**98.6**	**82.1**	**95.8**	**97.9**	**74.7**	**95.5**	**97.3**	**87.9**	**98.1**	**98.7**

Note: A higher percentage indicates better performance

Table 3.10 Track geometry: standard deviations 2007 (%)

	35m top (vertical displacement)			35m alignment (horizontal displacement)			70m top (vertical displacement)			70m alignment (horizontal displacement)		
Standard	50	90	100	50	90	100	50	90	100	50	90	100
Actuals:												
London North Eastern	71.3	92.9	98.4	81.0	95.3	97.5	73.5	95.3	97.0	86.3	97.4	98.4
London North Western	70.2	92.7	98.3	81.2	95.7	97.9	70.9	95.3	97.1	81.7	97.7	98.7
South East – Anglia	67.4	90.4	96.9	74.9	93.1	96.5	67.4	89.7	92.6	77.3	94.2	96.2
South East – Kent	64.4	92.0	98.6	74.7	93.3	96.6	60.5	93.6	96.3	75.7	96.2	97.3
South East – Sussex	67.0	89.3	96.9	74.0	92.1	95.9	65.1	92.9	95.8	75.7	95.6	97.1
South East – Wessex	61.0	86.7	96.0	78.8	94.3	97.0	71.7	94.4	96.7	84.3	96.8	98.0
Western	71.0	92.5	98.1	79.4	95.5	98.0	74.5	94.9	96.8	83.5	97.5	98.6
England & Wales	**69.2**	**91.8**	**98.0**	**79.4**	**94.9**	**97.4**	**71.6**	**94.6**	**96.6**	**82.8**	**97.1**	**98.2**
Scotland	**75.0**	**95.1**	**99.1**	**76.7**	**95.4**	**97.9**	**76.6**	**95.6**	**97.3**	**83.4**	**98.2**	**98.9**
Network total	**70.0**	**92.3**	**98.1**	**79.0**	**95.0**	**97.5**	**72.2**	**94.7**	**96.7**	**82.9**	**97.3**	**98.3**

Table 3.11 Comparison of track geometry standard deviations 31/03/08 with 31/03/07 (%)

	35m top (vertical displacement)			35m alignment (horizontal displacement)			70m top (vertical displacement)			70m alignment (horizontal displacement)		
Standard	50	90	100	50	90	100	50	90	100	50	90	100
Actuals:												
London North Eastern	3.1	1.0	0.3	3.3	0.9	0.4	1.0	0.2	0.3	4.2	0.7	0.5
London North Western	3.8	1.3	0.4	3.7	0.9	0.3	3.4	0.9	0.7	8.2	1.2	0.6
South East – Anglia	4.6	1.9	0.8	3.5	1.2	0.6	2.9	1.5	1.5	-0.6	0.4	0.2
South East – Kent	4.8	2.4	0.4	0.4	0.3	0.1	6.8	2.1	1.3	-0.7	-0.6	-0.1
South East – Sussex	4.1	3.0	1.2	1.9	0.6	0.5	2.8	0.5	0.2	-2.4	-0.9	-1.1
South East – Wessex	5.5	3.6	1.3	0.1	0.2	0.4	3.5	1.1	0.5	-0.8	0.2	0.0
Western	4.3	1.7	0.5	5.3	1.3	0.4	3.7	1.4	1.1	9.5	1.4	0.7
England & Wales	**4.0**	**1.7**	**0.5**	**3.3**	**0.9**	**0.4**	**2.9**	**0.9**	**0.7**	**5.1**	**0.8**	**0.4**
Scotland	**1.4**	**0.7**	**0.1**	**2.0**	**0.3**	**0.1**	**0.0**	**0.3**	**0.1**	**4.1**	**0.6**	**0.3**
Network total	**3.6**	**1.5**	**0.5**	**3.1**	**0.8**	**0.4**	**2.5**	**0.8**	**0.6**	**5.0**	**0.8**	**0.4**

Regulatory target

1. To maintain the 2003/04 levels of achievement; with no deterioration from this level to be permitted during the current control period
2. In addition, to reduce as far as reasonably practical the amount of track not achieving the 100 per cent standard for the four main parameters

Reporting confidence

National SD data is reported to a high degree of accuracy consistent with the assessment of A1 confidence limits applied to the poor track geometry measure dealt with in the next section. Enhancements continue to be made to both the track recording systems and associated data storage and processing to underpin the high levels of confidence that can be attributed to the track geometry data reported in this and subsequent sections covering M3 and M5 data. In addition the parameters used and the intervention limits applied are also currently being reviewed for application within technical standards and policies, thereby providing the opportunity to enhance and focus the track geometry measures to be applied in the next Control Period.

Commentary

Table 3.8 demonstrates improvement across all 12 parameters in the year, with significant improvements in the four 100 per cent parameters contributing to the aspiration expressed in Part 2 of the regulatory target.

Table 3.9 generally reinforces this view, with the exception of some deterioration compared to 06/07 in South East operating routes on the 70m alignment parameter, the reasons for which will be investigated to prevent further deterioration. The 70m parameters, of which the top is improving, cover a relatively small percentage of track on these routes. Significant improvement in the other parameters and to PTG and L2 exceedences demonstrates that work has been targeted towards these routes.

Reported change in the four 100 per cent parameter categories is reinforced and discussed in the next section which deals with the poor track geometry measure (M3). This in turn is followed by the Speed Band Data section which provides further evidence, analysis and commentary on trends in SD-related track geometry.

Track geometry – poor track geometry (M3)

Definition

This measure focuses upon the monitoring of track geometry where current performance exceeds SD values corresponding to the 100 per cent target ('very poor' track geometry) and to the 35 metre parameter maximum values ('super-red' track geometry).

Poor track geometry (PTG) reflects combinations of underlying poor component condition and undesirable geometrical features such as severely constrained junction layouts and tight and irregular curve radii. Such conditions can give rise to a severe anomaly which dominates the SD result over an entire 220 yards length (also possibly to a discrete and immediately actionable fault of the type identified in measure M5). Rectification can often only be achieved by significant design alterations, treatment of underlying ground and other environmental conditions, and wholesale renewal. Their location is often in the vicinity of major junctions and switches and crossings. This compounds the scope and complexity of any effective remediation and results in a relatively high cost compared to the overall benefits achieved, especially on rural and freight routes.

Table 3.12 presents PTG results for each of the seven E&W operating routes, E&W as a whole, Scotland and network total for 31/3/08 and the four preceding years.

Results

Table 3.12 Poor track geometry (%)

Operating routes	2003/04	2004/05	2005/06	2006/07	2007/08
London North Eastern	3.62	2.82	2.71	2.46	2.00
London North Western	3.89	3.19	2.74	2.28	1.78
South East – Anglia	6.15	4.33	3.95	4.32	3.41
South East – Kent	4.57	3.50	3.35	2.94	2.53
South East – Sussex	4.78	3.97	3.92	4.29	3.40
South East – Wessex	4.97	4.07	3.40	3.69	2.91
Western	3.45	2.56	2.28	2.29	1.70
England & Wales	4.07	3.17	2.87	2.73	2.16
Scotland	2.60	2.56	2.07	1.77	1.65
Network total	**3.87**	**3.09**	**2.77**	**2.60**	**2.09**
Confidence grade	**A2**	**A1**	**A1**	**A1**	**A1**

Note: A lower percentage indicates better performance

Regulatory target

There is no regulatory target for this measure. Targets are set internally to promote a greater understanding of the drivers affecting PTG and progress made towards reducing, as far as reasonably practical, the amount of track not achieving the 100 per cent standard for the four main SD parameters.

Reporting confidence

Poor Track Geometry is reported to A1 confidence limits.

The track geometry measurement systems which provide the base data used both for the real-time management of the network and also feeding into these measures, are progressively being improved. In addition the parameters used and the intervention limits applied are also currently being reviewed for application within the technical standards and policies. This will also provide the opportunity to enhance and focus the track geometry measures to be applied in the next Control Period.

Commentary

Extensive work had been necessary to restore poor track geometry over a large part of southern and central England following the formation problems caused by the hot weather conditions during summer 2006.

A much milder summer in 2007 ensured that this work could be built upon, and this, combined with effective planned maintenance and renewals, has resulted in an improvement on all routes.

Track geometry – speed band data (M3)

This section presents standard deviation values, in millimetres (mm), for each of the four parameters broken down into linespeed ranges as follows:

- For the 35m parameters: 15-40, 45-70, 75-110 and 115-125 mph
- For the 70m parameters: 80-110 and 115-125 mph

The information is presented in both graphical and tabular format for the whole network, and in tabular form only for each of the seven E&W operating routes, E&W as a whole, Scotland and network total.

Explanation

For each of the four parameters and for each linespeed range the standard deviation in mm for each eighth-mile of track is determined. An overall SD value is calculated, for each speed range, from these individual values. The results are displayed in tabular form as follows:

- Table 3.13 displays results for the total network at 31/3/08 with six previous years for comparison. The right-most column displays track kilometres in each linespeed range. Differences in overall SD of 0.003 mm or less are close to the limits of accuracy of the data and should not be regarded as significant.
- Tables 3.14 and 3.15 display the 31/03/08 data for each of the seven E&W operating routes, E&W as a whole, Scotland and the network total, with comparison to the previous year's data.

Results for the total network are displayed in greater detail as standard deviation distribution charts. The charts, preceded by an explanation, follow Tables 3.13 to 3.15 and their associated text.

Results

Table 3.13 Track geometry: Network total overall standard deviations

Parameter	Linespeed range mph	31/3/02	31/3/03	31/3/04	31/3/05	31/3/06	31/3/07	31/3/08	Track km
35m Top	15-125	3.031	3.036	3.023	2.933	2.873	2.809	2.697	29,678
	15-40	4.240	4.243	4.276	4.227	4.160	4.091	3.984	3,809
	45-70	3.309	3.340	3.338	3.245	3.195	3.117	2.987	11,901
	75-110	2.513	2.517	2.497	2.395	2.340	2.296	2.180	11,701
	115-125	1.799	1.819	1.808	1.728	1.678	1.628	1.589	2,267
35m Line	15-125	2.033	1.965	1.981	1.893	1.841	1.816	1.727	29,678
	15-40	4.331	4.089	4.082	4.055	3.933	3.847	3.759	3,809
	45-70	2.061	2.009	2.042	1.944	1.879	1.855	1.735	11,901
	75-110	1.229	1.224	1.267	1.169	1.141	1.147	1.082	11,701
	115-125	0.837	0.832	0.895	0.788	0.757	0.749	0.716	2,267
70m Top	80-125	3.261	3.263	3.208	3.064	2.969	2.916	2.819	10,345
	80-110	3.363	3.368	3.325	3.188	3.122	3.071	2.970	8,168
	115-125	2.424	2.482	2.489	2.428	2.347	2.286	2.217	2,267
70m Line	80-125	2.234	2.191	2.226	2.071	2.030	2.025	1.847	10,435
	80-110	2.326	2.284	2.326	2.181	2.154	2.159	1.984	8,168
	115-125	1.478	1.476	1.609	1.488	1.516	1.482	1.247	2,267
Confidence grade				**A2**	**A1**	**A1**	**A1**	**A1**	

Table 3.14 35m Overall SD by operating route

35m Top – Overall SD mm					31/3/08					
	Linespeed range (mph)					Compared to previous year-end (%)				
						Linespeed range (mph)				
Operating routes	15-125	15-40	45-70	75-110	115-125	15-125	15-40	45-70	75-110	115-125
London North Eastern	2.671	3.946	2.946	2.227	1.561	3.37	1.21	4.53	3.68	1.77
London North Western	2.721	4.022	3.150	2.081	1.606	4.24	3.42	4.01	5.41	2.43
South East – Anglia	2.740	4.045	2.874	2.366	No track	5.45	5.15	6.01	4.58	No track
South East – Kent	2.848	3.977	2.976	2.335	No track	4.86	5.60	4.44	4.58	No track
South East – Sussex	2.763	3.908	2.901	2.398	No track	5.75	4.88	3.74	8.20	No track
South East – Wessex	2.730	3.984	3.017	2.370	No track	6.07	5.44	5.77	6.02	No track
Western	2.611	4.108	2.976	2.013	1.602	3.82	0.18	3.95	7.07	6.05
England & Wales	**2.699**	**4.014**	**3.004**	**2.193**	**1.586**	**4.31**	**2.54**	**4.47**	**5.38**	**2.86**
Scotland	**2.682**	**3.845**	**2.884**	**2.091**	**1.618**	**1.88**	**2.65**	**2.14**	**2.64**	**-2.67**
Network total	**2.697**	**3.984**	**2.987**	**2.180**	**1.589**	**4.00**	**2.60**	**4.17**	**5.06**	**2.44**

35m Line – Overall SD mm					31/3/08					
	Linespeed range (mph)					Compared to previous year-end (%)				
						Linespeed range (mph)				
Operating routes	15-125	15-40	45-70	75-110	115-125	15-125	15-40	45-70	75-110	115-125
London North Eastern	1.676	3.724	1.651	1.072	0.726	5.67	3.24	8.74	7.38	5.47
London North Western	1.660	3.617	1.721	0.992	0.688	6.29	3.70	8.05	7.88	2.49
South East – Anglia	1.814	4.055	1.788	1.237	No track	7.25	5.61	7.44	2.59	No track
South East – Kent	1.975	4.301	1.855	1.241	No track	0.53	0.84	-0.88	-2.26	No track
South East – Sussex	1.906	4.374	1.902	1.333	No track	5.25	5.67	2.51	1.66	No track
South East – Wessex	1.730	4.172	1.852	1.221	No track	1.32	-2.33	1.04	0.23	No track
Western	1.639	3.646	1.678	0.948	0.748	6.30	-1.42	9.13	10.06	5.95
England & Wales	**1.712**	**3.784**	**1.732**	**1.087**	**0.715**	**5.39**	**2.51**	**6.71**	**5.58**	**4.56**
Scotland	**1.817**	**3.641**	**1.752**	**1.045**	**0.734**	**2.12**	**0.94**	**5.16**	**6.57**	**1.66**
Network total	**1.727**	**3.759**	**1.735**	**1.082**	**0.716**	**4.93**	**2.29**	**6.49**	**5.68**	**4.33**

35m Track km in each linespeed range					31/3/08					
	Linespeed range (mph)					Compared to previous year-end (%)				
						Linespeed range (mph)				
Operating routes	15-125	15-40	45-70	75-110	115-125	15-125	15-40	45-70	75-110	115-125
London North Eastern	7166.9	915.7	2984.3	2371.3	895.5	0.29	1.42	0.31	-0.07	0.02
London North Western	6631.1	798.8	2643.5	2365.8	822.9	0.12	-0.23	-0.02	-0.46	2.68
South East – Anglia	2187.5	269.1	856.7	1062.0	0.0	0.03	0.66	-0.75	0.51	No track
South East – Kent	1679.3	204.8	880.0	594.5	0.0	0.18	-0.41	0.01	0.64	No track
South East – Sussex	1079.0	99.3	548.2	431.4	0.0	0.02	0.46	-0.05	0.00	No track
South East – Wessex	2010.8	174.2	766.5	1070.1	0.0	0.01	1.72	-0.38	0.02	No track
Western	4946.7	751.9	1569.1	2254.9	370.7	0.14	0.21	0.42	-0.05	0.00
England & Wales	**25701.1**	**3213.9**	**10247.9**	**10150.1**	**2089.2**	**0.16**	**0.52**	**0.06**	**-0.04**	**1.05**
Scotland	**3976.8**	**594.9**	**1652.7**	**1551.4**	**177.8**	**-0.01**	**0.07**	**0.03**	**-0.03**	**0.00**
Network total	**29677.9**	**3808.8**	**11900.6**	**11701.4**	**2267.1**	**0.14**	**0.45**	**0.05**	**-0.04**	**0.97**
						Positive result indicates increased track km				

Note: A lower overall SD indicates an improvement

Table 3.15 70m Overall SD by operating route

70m Top – Overall SD mm				31/3/08		
	Linespeed range (mph)			Compared to one year ago (%)		
				Linespeed range (mph)		
Operating routes	**80-125**	**80-110**	**115-125**	**80-125**	**80-110**	**115-125**
London North Eastern	2.763	3.053	2.117	1.40	1.12	2.67
London North Western	2.641	2.828	2.323	4.27	4.63	2.54
South East – Anglia	–	3.278	No track	–	3.15	No track
South East – Kent	–	3.285	No track	–	5.09	No track
South East – Sussex	–	3.319	No track	–	1.76	No track
South East – Wessex	–	2.977	No track	–	4.49	No track
Western	2.640	2.738	2.161	3.82	5.43	7.74
England & Wales	**2.817**	**2.980**	**2.208**	**4.31**	**3.59**	**3.51**
Scotland	**2.835**	**2.911**	**2.316**	**1.88**	**1.15**	**-2.27**
Network total	**2.819**	**2.970**	**2.217**	**4.00**	**3.28**	**3.04**

70m Line – Overall SD mm				31/3/08		
	Linespeed range (mph)			Compared to one year ago (%)		
				Linespeed range (mph)		
Operating Routes	**80-125**	**80-110**	**115-25**	**80-125**	**80-110**	**115-125**
London North Eastern	1.688	1.910	1.157	10.38	9.86	14.47
London North Western	1.587	1.745	1299	16.92	16.51	17.59
South East – Anglia	–	2.481	No track	–	-1.18	No track
South East – Kent	–	2.600	No track	–	-3.99	No track
South East – Sussex	–	2.631	No track	–	-5.77	No track
South East – Wessex	–	2.229	No track	–	-3.35	No track
Western	1.550	1.607	1.264	18.78	19.37	17.60
England & Wales	**1.852**	**2.002**	**1.234**	**8.53**	**7.74**	**16.37**
Scotland	**1.810**	**1.869**	**1.392**	**10.66**	**10.72**	**10.10**
Network total	**1.847**	**1.984**	**1.247**	**8.80**	**8.11**	**15.81**

70m Track km in each linespeed range				31/3/08		
	Linespeed range (mph)			Compared to one year ago (%)		
				Linespeed range (mph)		
Operating Routes	**80-125**	**80-110**	**115-125**	**80-125**	**80-110**	**115-125**
London North Eastern	2619.2	1723.7	895.5	-0.01	-0.02	0.02
London North Western	2155.5	1332.5	822.9	0.28	-1.14	2.68
South East – Anglia	–	626.9	No track	–	0.00	No track
South East – Kent	–	529.7	No track	–	1.03	No track
South East – Sussex	–	257.8	No track	–	0.00	No track
South East – Wessex	–	883.3	No track	–	0.19	No track
Western	2059.9	1689.2	1.602	-0.04	-0.05	0.00
England & Wales	**9132.4**	**7043.2**	**2089.2**	**0.13**	**-0.13**	**1.05**
Scotland	**1302.3**	**1124.5**	**177.8**	**0.00**	**0.00**	**0.00**
Network total	**10434.7**	**8167.7**	**2267.1**	**0.12**	**-0.12**	**0.97**
				Positive result indicates increased track km		

* No track with linespeed above 100 mph, hence same as 80-110

Note: A lower overall SD indicates an improvement

Reporting confidence

Reporting of individual and overall SDs is to a very high degree of precision consistent with the assessment of A1 confidence limits for PTG (see previous section).

Commentary

Table 3.13 demonstrates substantial improvements in overall SD on a network-wide basis for all parameters and linespeed ranges, giving by far the best set of figures since April 2001 when data was first compiled in this format. Most noteworthy improvements are in 35m alignment up to 110mph and 70m alignment generally where, in previous years, year-on-year improvement has been minimal. This is particularly effectively demonstrated by the standard deviation distribution charts at the end of this section.

Tables 3.14 and 3.15 demonstrate general all-round improvement in the top parameters with the exception of Scotland in the 115-125mph speed range. As the table below demonstrates, however, these recent deteriorations in top parameters (the alignment parameters show an improvement) represent a slight settling-in following the large renewals-led improvements of the previous two years (the healthy state of TG in Scotland is further borne out by the figures reported in Table 3.9, earlier in this section).

The reason for the increases in 70m alignment overall SD for the South East operating routes has been commented upon earlier in this section in the context of SD percentage data. However, 35m alignment on these routes shows a healthy improvement. Elsewhere 35m and 70m alignment show significant improvement.

Standard deviation distribution charts – explanation

The charts on the following pages relate to the total network and show, for each parameter and speed range, the total length of track (in kilometres) for each SD value in 0.1 mm increments. Corresponding results for 12 months ago are superimposed as a dashed line on each chart. The boundaries between the 'Good', 'Satisfactory', 'Poor' and 'Very Poor' areas of the graphs are representative of the 50 per cent, 90 per cent and 100 per cent SD target values, allowing for the fact that the speed ranges for the graphs are wider than those specified in the company standard. Where necessary for visual clarity, the graphs have been smoothed using curve-fitting techniques on the raw data. The overall standard deviation values quoted in Tables 3.13 to 3.15 are, however, calculated from the raw, not the smoothed, data.

Displacement of the current graph to the left of that for the previous year, i.e. towards lower SD values, indicates improvement in track geometry, displacement to the right indicates deterioration. Unlike earlier years, the improvement is such as to be clearly visible in all the pairs of curves, confirming the numerical evidence in Tables 3.13 to 3.15.

As always, the 35m alignment 15-40mph chart displays a significant amount of track with SD 10mm or more. Most of this is attributable to constraining track features and geometry, especially in the vicinity of urban junctions, and also to spurious readings caused by features such as guard-rails and high ballast to which the alignment measurement system remains susceptible.

Overall SD (mm)	31/3/05	31/3/06	31/3/07	31/3/08
35m top	2.334	1.747	1.576	1.618
70m top	3.166	2.550	2.264	2.316

Figure 3.1 & 3.2 35m top and alignment 15−40 mph

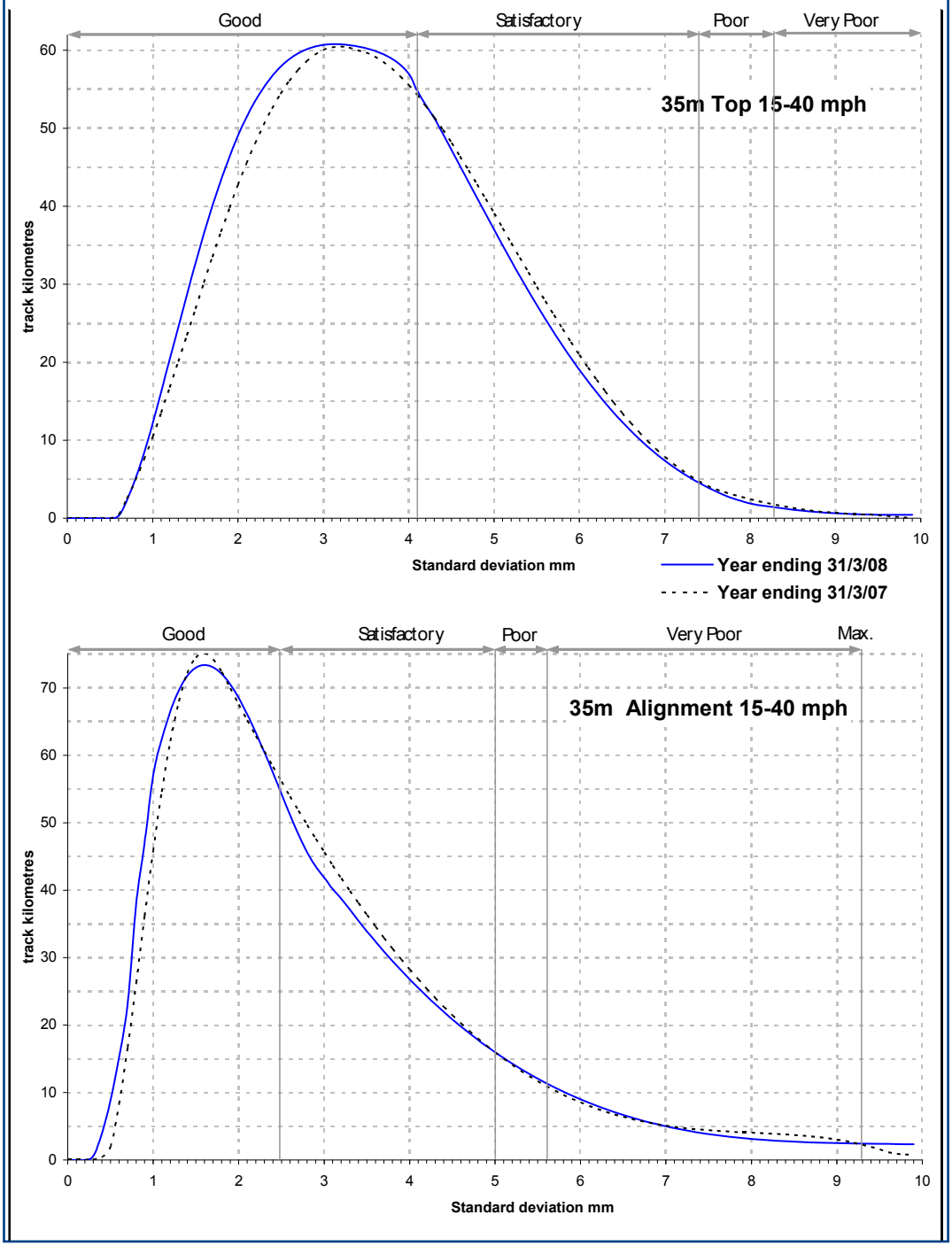


Figure 3.3 & 3.4 35m top and alignment 45−70 mph

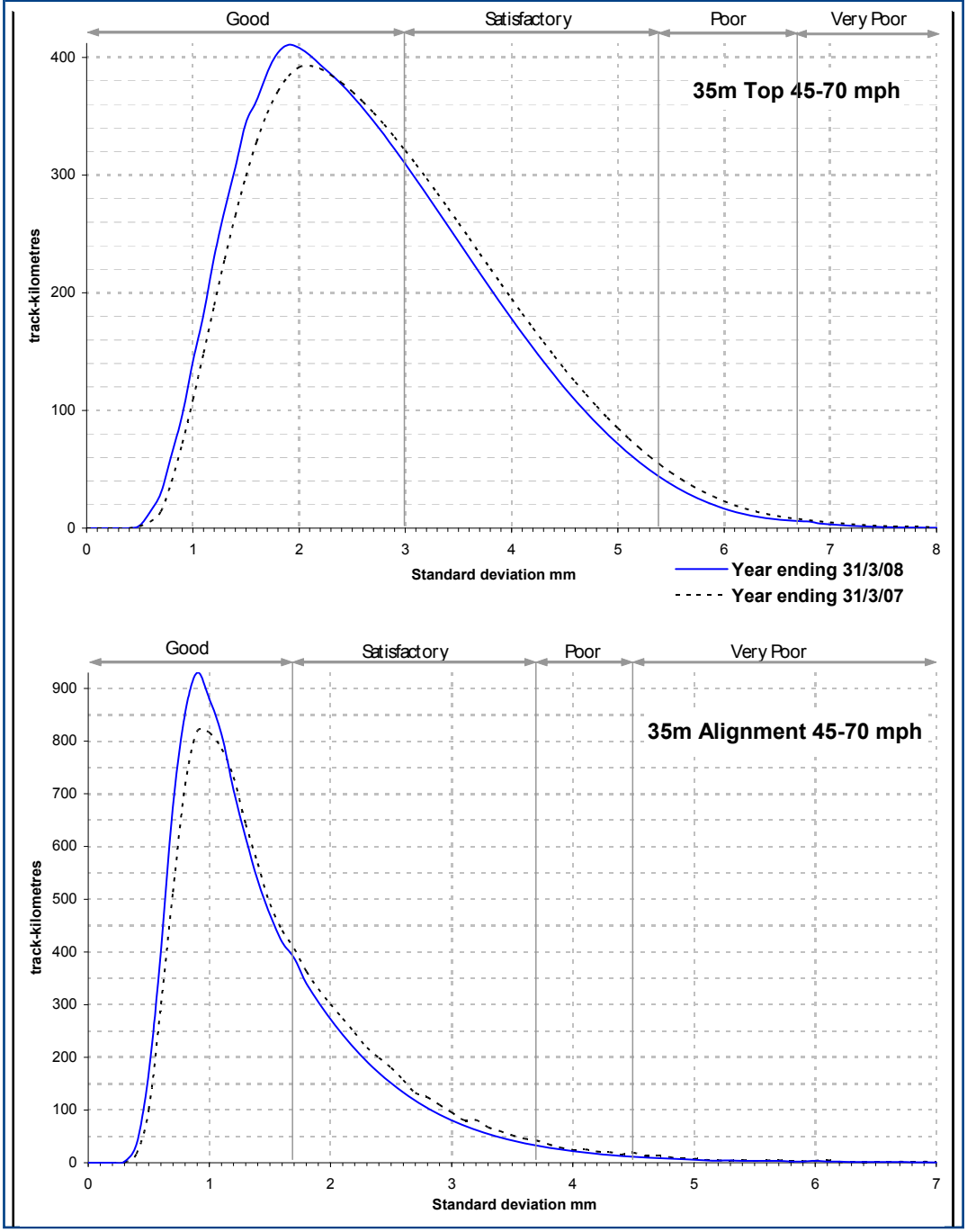
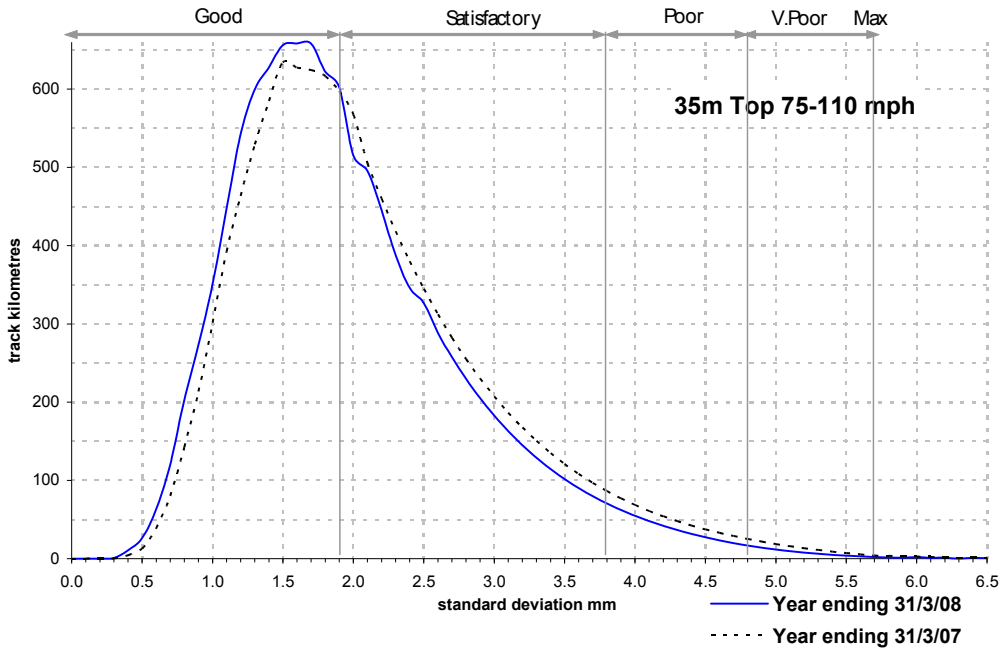


Figure 3.5 & 3.6 35m top and alignment 75 – 110 mph



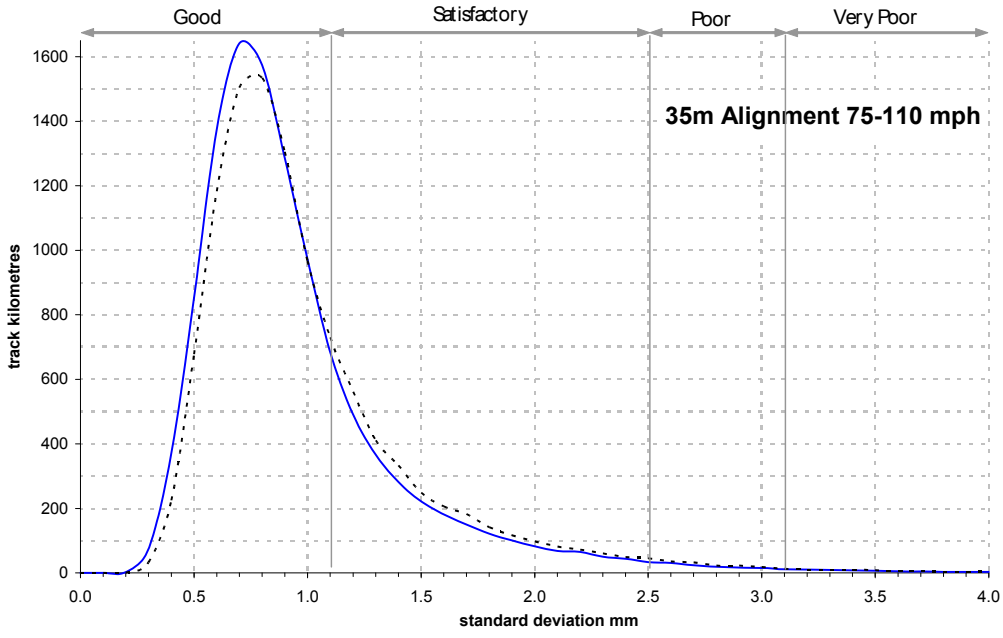


Figure 3.7 & 3.8 35m top and alignment 115 mph and over

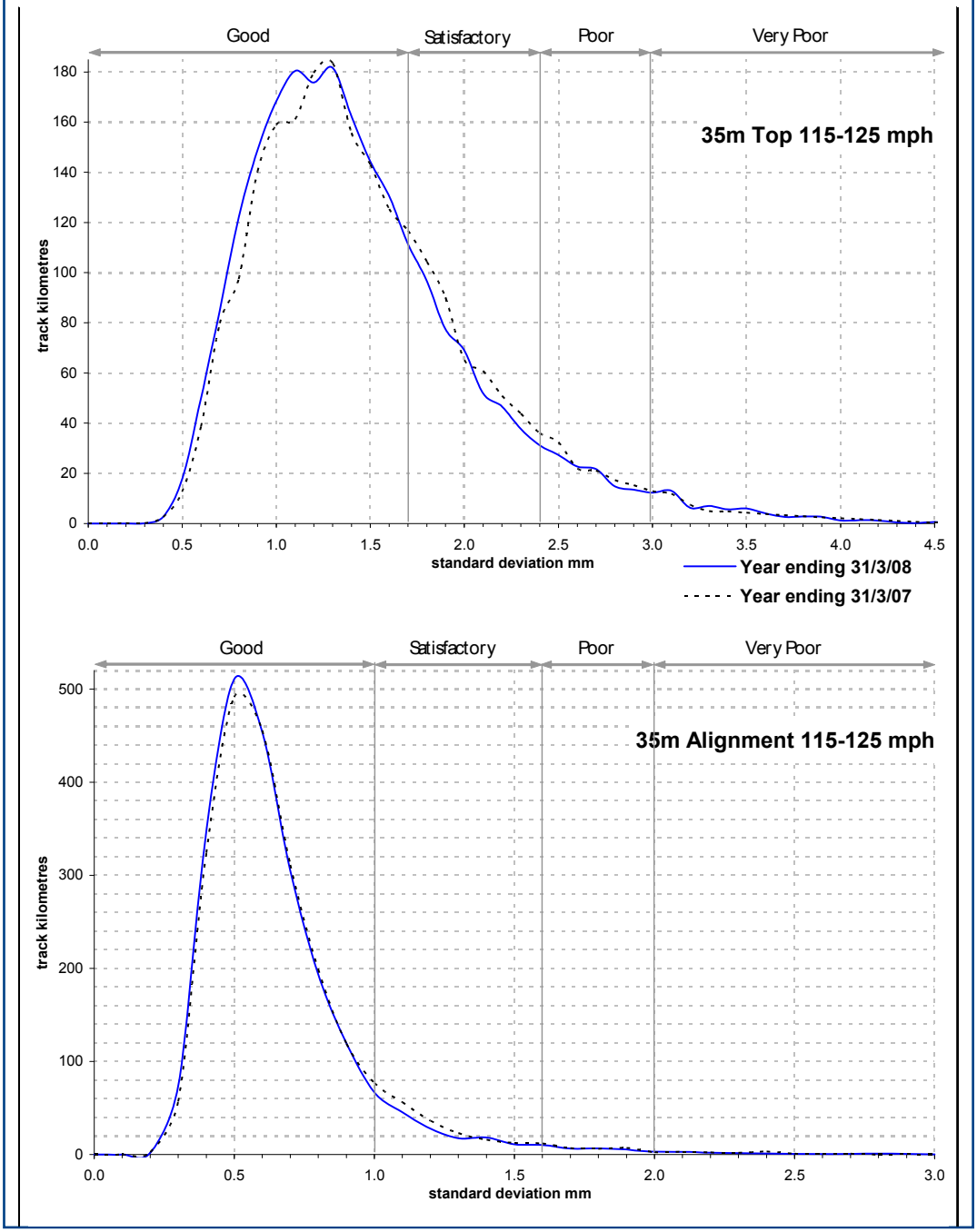


Figure 3.9 & 3.10 70m top and alignment 80 – 110 mph

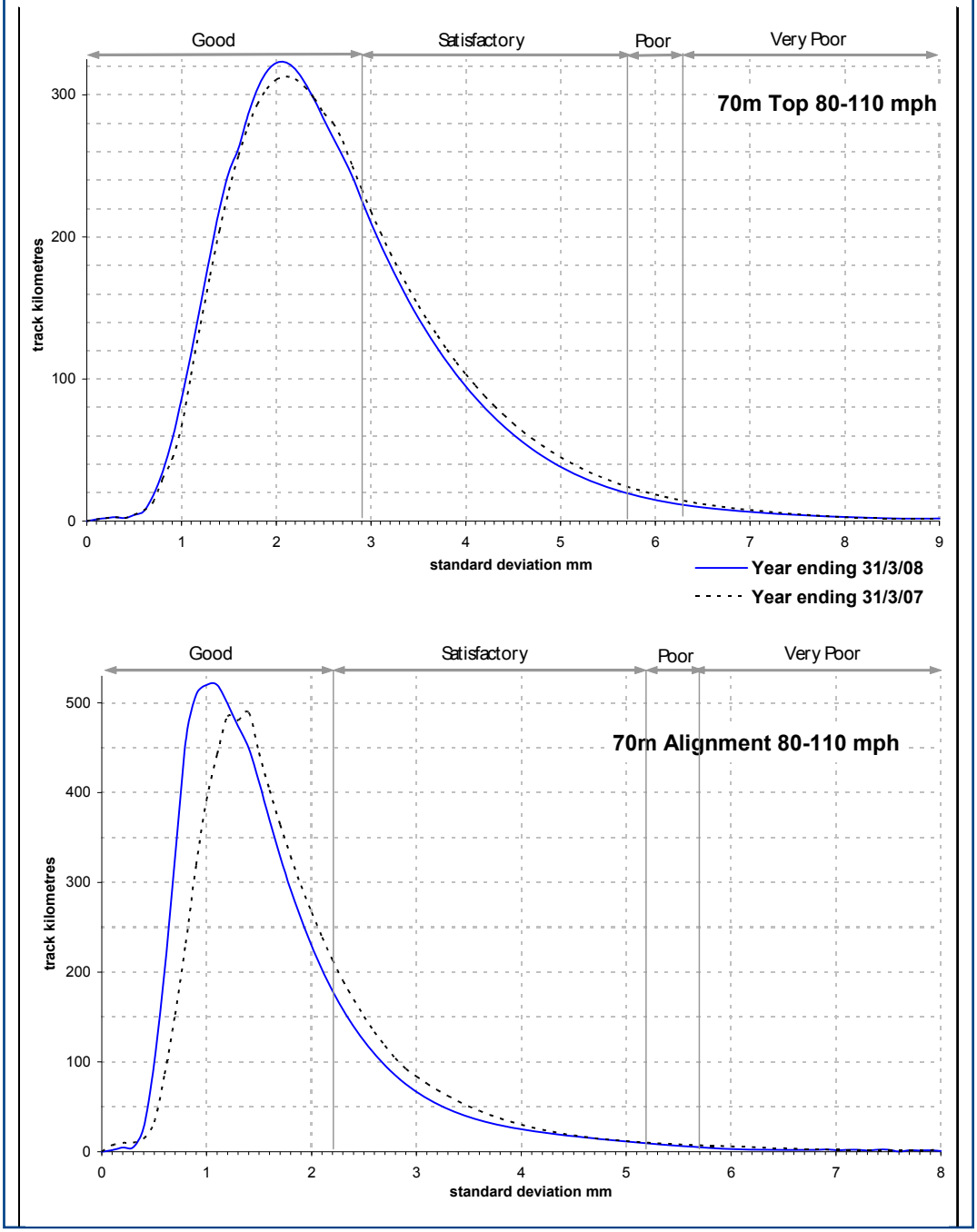
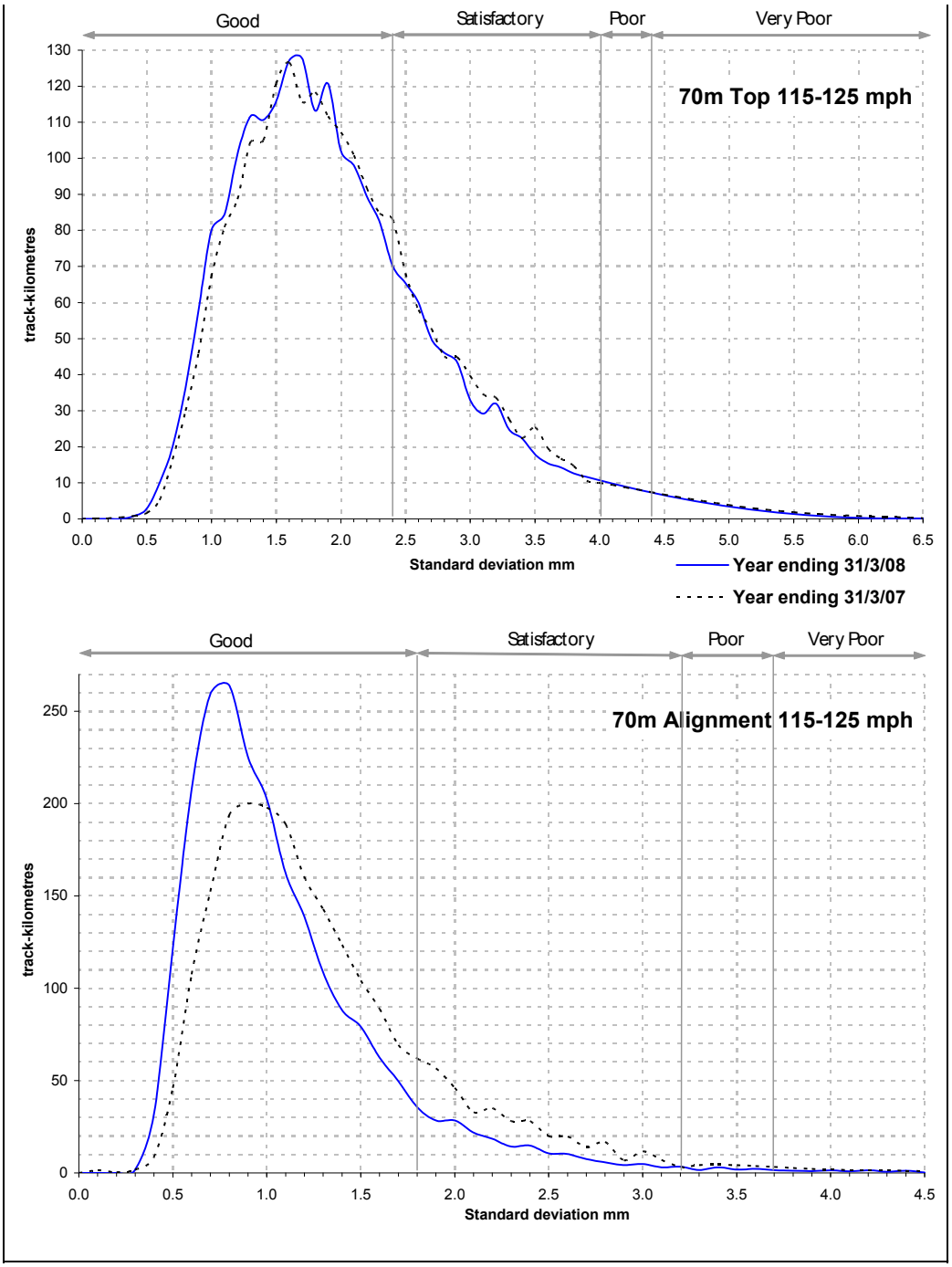


Figure 3.11 & 3.12 70m top and alignment 115 mph and over



Condition of asset temporary speed restriction sites (M4)

Definition

This measure provides an assessment of the quality of stewardship of track, structures and earthworks by identifying the number of sites where track geometry or asset condition has fallen sufficiently below that required for the route speed and traffic type to require the imposition of a temporary speed restriction (TSR) or an emergency speed restriction (ESR). It is a cumulative measure indicating the annual number of sites where an ESR or TSR has been imposed for a duration of four weeks or more due to a degradation in the condition of the asset (track, structure or earthworks). As an additional indicator of stewardship, a severity score is calculated to measure the degree and the duration of the deterioration. The severity score is calculated using the formula below.

Formula for severity score

The total severity score reported is the sum of the individual severity scores for all of the speed restriction sites in force during the year which is within the scope of the measure. The severity score for an individual speed restriction site is calculated using the following formula:

Severity score = LT(1-F)

where:

- L is the length of the speed restriction site measured to 3 decimal points (miles)
- T is the duration of the speed restriction in weeks, measured by the day (e.g. 2 days are 2/7 = 0.286 weeks). For the purpose of calculating the annual severity score only days that the site is active during the reporting year are included in the duration (i.e. days in prior years are not included in the severity calculation, although days in prior years are included for the purpose of determining if the site has been active for 4 weeks or more)
- F is the fraction of the imposed (restricted) speed divided by the linespeed

$$i.e.\ F = \frac{Imposed\ speed}{linespeed}$$

Where there are differential speeds for different traffic types (e.g. different freight and passenger speeds):

$$F = \left(\frac{lowest\ Imposed\ speed}{lowest\ Linespeed} + \frac{highest\ Imposed\ speed}{highest\ Linespeed} \right)^{/2}$$

If the imposed speed or linespeed varies along the length of the speed restriction site, then the severity is calculated separately for each distance, and summed to give the total severity for that speed restriction.

If the length, speed or linespeed changes during the life of the speed restriction, then the severity is calculated separately for each time interval, and summed to give the total severity for that speed restriction.

The annual number of sites and the severity score is reported, by route, individually for track, structures and earthworks. The reporting year begins on 1 April and ends on 31 March.

Reporting method

For Condition of Track speed restrictions, all TSR data is captured in a single information system Possession Planning System (PPS). This data is used to produce the Weekly Operating Notice (WON) and thus is checked against operational conditions every week. At the end of the year, the data is extracted from PPS and copied onto a spreadsheet that contains various automatic checks as to the validity of the data. It is then subject to further manual checking, with addition of linespeed data from the Sectional Appendix to allow the severity score to be calculated.

For Structures and Earthworks speed restrictions, each of the five Territory Assurance Engineers submit a spreadsheet containing details of all Structures and Earthworks speed restrictions, both Temporary and Emergency, planned and unplanned, that are in force on their territory each period. Each successive period is cumulative, with removal dates, new speeds, alterations to existing sites added as necessary, so that the Period 13 spreadsheets contain a complete history of each site from 1st April or the date of imposition. Each period is sense checked and any ambiguity as to whether a site should be included in the measure is taken up with the Territory concerned. After the receipt of the Period 13 spreadsheets, the data is copied onto spreadsheets containing various checks as to the validity of the data, whereby any errors that could affect the number or severity of speeds are corrected.

Results

Table 3.16 Track temporary speed restrictions

Operating routes	2006/07 TSR sites	2006/07 Severity score	CG	2007/08 TSR sites	2007/08 Severity score	CG
London North Eastern	196	1548		147	1,116	
London North Western	251	941		248	983	
South East – Anglia	24	34		12	233	
South East – Kent	22	24		29	20	
South East – Sussex	7	10		10	4	
South East – Wessex	58	83		50	109	
Western	70	409		51	224	
England & Wales	**628**	**3,049**		**547**	**2,688**	
Scotland	**41**	**84**		**46**	**57**	
Network total	**669**	**3,133**	**B2**	**593**	**2,745**	**B2**

Table 3.17 Structures temporary speed restrictions

Operating routes	2006/07 TSR sites	2006/07 Severity score	CG	2007/08 TSR sites	2007/08 Severity score	CG
London North Eastern	3	9		2	9	
London North Western	2	6		1	1	
South East – Anglia	0	0		0	0	
South East – Kent	0	0		0	0	
South East – Sussex	0	0		0	0	
South East – Wessex	0	0		0	0	
Western	1	0		8	1	
England & Wales	**6**	**15**		**11**	**11**	
Scotland	**2**	**0**		**2**	**0**	
Network total	**8**	**15**	**B2**	**13**	**11**	**B2**

Table 3.18 Earthworks temporary speed restrictions

Operating routes	2006/07 TSR sites	2006/07 Severity score	CG	2007/08 TSR sites	2007/08 Severity score	CG
London North Eastern	7	28		7	18	
London North Western	4	4		4	5	
South East – Anglia	3	3		0	0	
South East – Kent	0	0		1	4	
South East – Sussex	2	0		0	0	
South East – Wessex	1	0		0	0	
Western	16	63		10	6	
England & Wales	**33**	**98**		**22**	**33**	
Scotland	**0**	**0**		**0**	**0**	
Network total	**33**	**98**	**B2**	**22**	**33**	**B2**

Regulatory target

Whilst the ORR has not historically set a regulatory target for this measure to ensure that there is no disincentive to applying a speed restriction when it is judged to be necessary on safety grounds, it indicated in the ACR 2003 that an 'annual reduction (was) required'. We have assumed therefore that the regulatory target is for a reduction from 2006/07 levels, when there were 669 TSRs due to condition of track, 8 due to condition of structures and 33 due to condition of earthworks.

Reporting confidence

Condition of Track − the reporting confidence is at a similar level to the 2006/07 return and a grade of B2 remains appropriate. The method used is very similar to last year, with some improvements in data handling and quality as follows:

- All TSR data is captured in a single information system Possession Planning System (PPS) which eliminates any potential for duplication at the boundaries of areas.
- With a single system there is a reduced requirement for human intervention required to compile the reporting information and, therefore, less potential for error.
- A national list of all TSRs on the network is distributed each week to the Area teams who check to ensure that the list is correct. Further information checks are provided due to the data being published in the Weekly Operating Notice (WON).

Structures and Earthworks – due to the low numbers involved, a close watch can be kept on the TSRs to ensure all changes are recorded accurately. We consider a confidence grade of B2 is appropriate.

Commentary

Track TSRs

In 2007/08 there was a greater than 10 per cent reduction in the number of TSR sites and a 10 per cent reduction in the severity score for Condition of Track TSRs compared to the previous year. An increased focus on removing TSRs with a high performance impact, in conjunction with several major renewals, has greatly contributed to this trend. In particular, both Western and LNE Routes have reduced their TSR count by about 25 per cent and severity by 45 per cent and 28 per cent respectively.

On London North Western, 44 per cent of the severity score arises from TSRs on only three secondary routes: the Bedford to Bletchley line (26 per cent), the Buxton freight branch (at Dovehole Tunnels, 11 per cent) and the Settle & Carlisle line (7 per cent). Both the Bedford to Bletchley and the Settle & Carlisle lines have seen significant improvements on last year's severity score. This is due to increased renewals work being undertaken on these routes.

In Anglia, 95 per cent of the severity score is for TSRs on the Ely to Norwich route. These TSRs have little impact on services (being 75mph restrictions on a non-high speed line) but last for greater than 25 miles. The prime reason for these restrictions continuing throughout the year has been the need to use the route as a freight diversionary route due to the six month bridge closure following the Soham derailment.

Structures and earthworks TSRs

The overall number of condition of structures related TSR sites and associated severity score remains very low but has increased on Western Territory. However, just two of the overall total of 13 sites remain at year-end. Both of these are on London North Eastern Territory, one having also been in place throughout 2006/07 and accounting for 7.8 within the overall 2007/08 severity score.

Despite extreme weather conditions, the overall number of condition of earthworks related TSR sites and associated severity have reduced, principally on South East and Western Territories. Only one site, on Western Territory, remains at year-end having also been in place throughout 2006/07 and accounting for 2.1 within the overall 2007/08 severity score. The highest individual severity score was 7.2 for a site on London North Eastern Territory, removed in November 2007 having been in place throughout 2006/07 with a then contribution of 12.6. (The 2006/07 total also included sites removed within that year that individually contributed 29.6, 7.4, 6.1, 5.5 and 4.9 severity scores, which is why the overall severity score for 2007/08 has reduced).

Track geometry – level 2 exceedences (M5)

Definition

This measure is based upon the incidence of discrete faults identified against four principal parameters of top (relative vertical position), alignment (relative horizontal position), gauge (the distance between the rails) and twist (relative vertical position across the opposite corners of a three metre bogie or vehicle). These form part of the real-time output from the track recording vehicles to front-line maintenance employees and will prompt intervention and rectification actions to fixed timescales. Both the Level 2 trigger values and these specified timescales are mandated within Railway Group Standards.

The measure records the incidence of these discrete faults per track mile thereby complementing the standard deviation measures (M3) dealt with in earlier sections. Unlike M3 parameters, however, trigger values for these L2 exceedence categories are not currently speed related. The population of Level 2 exceedences covers a wide range from serious primary defects, of Twist and Gauge, requiring immediate response (block the line or reduce speeds) to relatively minor Top and Alignment anomalies on low speed track requiring only review and monitoring. The highest incidence of Level 2 exceedences is predominantly on lower speed and category routes therefore measure M5 may be less indicative than M3 of overall network stewardship. One effect of proposed changes to track standards, announced in the Reporting Confidence section below, will be to re-classify L2 exceedences in terms of linespeed thereby improving the sensitivity of measure M5 as a safety parameter, whilst retaining M3 as a measure of passenger comfort and overall track asset performance.

Results

Table 3.19 Level 2 exceedences per track mile

Operating Routes	2003-04	2004-05	2005-06	2006-07	2007/08
London North Eastern	1.02	0.83	0.75	0.67	0.56
London North Western	1.36	1.10	1.01	0.76	0.63
South East – Anglia	1.77	1.24	1.06	0.93	0.74
South East – Kent	0.86	0.60	0.59	0.49	0.43
South East – Sussex	1.02	0.93	0.80	1.01	0.63
South East – Wessex	1.22	0.95	0.93	0.98	0.74
Western	1.08	0.92	0.75	0.67	0.55
England & Wales	**1.19**	**0.95**	**0.85**	**0.74**	**0.60**
Scotland	**0.72**	**0.67**	**0.63**	**0.57**	**0.46**
Network total	**1.13**	**0.91**	**0.82**	**0.72**	**0.58**
Confidence grade	**A2**	**A1**	**A1**	**A1**	**A1**

Note: A lower number indicates better performance

The table above displays achievement at 31/3/08, and for the previous four years, for each of the seven operating routes in England & Wales, England & Wales as a whole, Scotland and the network total.

Regulatory target

Network total Level 2 exceedences should not exceed 0.9 per track mile during the current control period.

Reporting confidence

Level 2 exceedences are reported to an accuracy within A1 confidence limits.

As reported for measure M3, the track geometry measurement systems which provide the base data used both for the real-time management of the network and also for feeding into these measures are progressively being improved. In addition the parameters used and the intervention limits applied are also currently being reviewed for application within the technical standards and policies. This will also provide the opportunity to enhance and focus the track geometry measures to be applied in the next Control Period.

Commentary

The significant reduction in L2 exceedences compared to 31/3/07 has been achieved consistently throughout the network, demonstrating the success of rigorous maintenance procedures for the effective treatment of recurring faults and targeting of renewals. The moderate weather has not caused the clay formation problems seen in previous years and this has allowed the deteriorations seen in those years to be both recovered and improved upon.

Earthwork failures (M6)

Definition

This measure reports the annual number of embankment or cutting failures and separately identifies the number of failures causing a passenger or freight train derailment on running lines.

Reporting method

This involves details of incidents, which fall under the above definition, to be captured in the Daily National Incident Log and from Hazard Reports. These are checked with the Territory Civil Engineers every three periods for their agreement and for discrepancies to be addressed.

Regulatory target

This is covered by other asset condition and serviceability measures and should be no deterioration from the 2003/04 levels, which is 47 earthwork failures.

Reporting confidence

The number of failures and derailments is supported by Territory data. Given that the hazard reporting system that generated the data has been running since August 2003, we believe that a rating of A2 is appropriate both for the operational route split and for the total.

Commentary

All earthwork failures are reported, regardless of the amount of delay caused. The term earthwork for this reporting measure includes embankments, cuttings, rock cuttings and natural slopes. There were no slope failures causing derailment in 2007/08.

The increase in earthwork failures to 107 in 2007/08 (up from 90 in 2006/07 and against a target of 47 which was the number reported in 2003/04) is attributed to flooding events during summer 2007 on LNE, LNW and Western operating routes which led to a large number of failures in the flooded areas. The actions we are taking to reduce earthwork failures involve earthworks examination and repair work, and drainage inspections and remediation work.

Results

Table 3.20 Earthworks failures

Operating routes	2003-04	2004-05	2005-06	2006-07	2007/08
London North Eastern	3	4	8	11	28
London North Western	8	21	3	5	20
South East – Anglia	7	5	2	6	2
South East – Kent	1	1	1	5	0
South East – Sussex	0	1	0	10	2
South East – Wessex	0	0	2	5	5
Western	21	11	18	37	42
England & Wales	**40**	**43**	**34**	**79**	**99**
Scotland	**7**	**11**	**7**	**11**	**8**
Network total	**47**	**54**	**41**	**90**	**107**
CG	**AX**	**AX**	**A2**	**A2**	**A2**

Bridge condition (M8)

Definition

The bridge condition grade is a measure from 1 to 5, with 1 representing good condition and 5 poor condition. Each bridge is graded from a structures condition marking index (SCMI) value determined using the scoring tool set out in the SCMI handbook. The SCMI process is a marking methodology that grades the condition of each bridge on a 1-100 scale and involves defining the elements of the bridge and determining the extent and severity of defects in each of the elements. The bridge scores are collated into 5 bands: (1) 100-80, (2) 79-60, (3) 59-40, (4) 39-20 and (5) 19-1.

Reporting method

The reported measure is presented as a distribution graph (see Figure 18) showing the cumulative number of bridges assessed since 2000 on a 1-100 scale. Additionally, bridge SCMI data is collated into each of the 5 condition grades, and numbers of bridges reported by grade (Table 3.21).

Progress of the bridge condition measure is monitored against the cumulative number of bridges entered on the SCMI tool compared to the total population from GEOGIS.

Results

Table 3.21 Bridge condition index (annual assessments)

Bridge condition grade	Equivalent SCMI value	2003/04	2004/05	2005/06	2006/07	2007/08
1	80-100	733	793	855	603	615
2	60-79	2,067	3,193	3,263	2,582	2,545
3	40-59	789	923	1,217	1,030	924
4	20-39	126	90	94	122	83
5	1-19	3	5	1	7	1
Total no. examined		**3,718**	**5,004**	**5,430**	**4,344**	**4,168**
Average condition grade		**2.1**	**2.1**	**2.1**	**2.2**	**2.1**

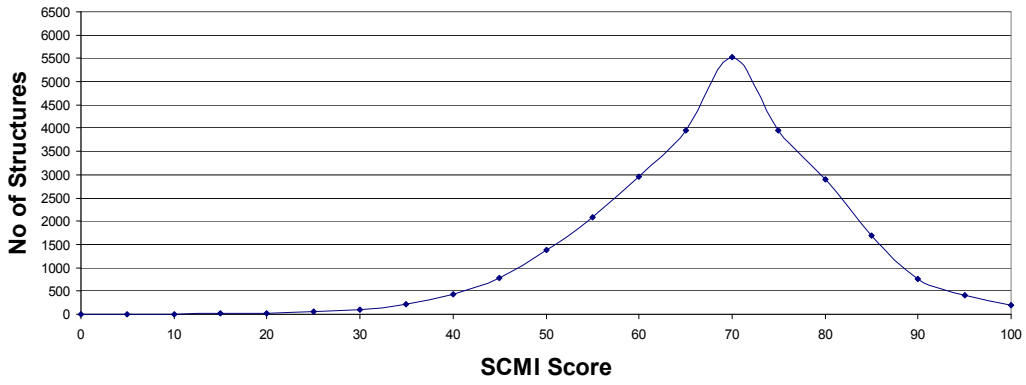
Table 3.22 Bridge condition index

Bridge condition grade	Equivalent SCMI value	Adjustments	2005/06	2000/06	CG	Adjustments	2006/07	2000-07	CG
1	80-100	-41	603	4,423	B3	-345	615	4,693	B3
2	60-79	-188	2,582	14,730	B3	-752	2,545	16,523	B3
3	40-59	-81	1,030	4,969	B3	-247	924	5,646	B3
4	20-39	-14	122	502	B3	-34	83	551	B3
5	1-19	0	7	20	B3	-1	1	20	B3
Total no. examined		**-324**	**4,344**	**24,644**		**-1,379**	**4,168**	**27,433**	**A1**
Average condition grade			**2.2**	**2.1**			**2.1**	**2.1**	**B2**

Table 3.23 2007/08 Territory breakdown by bridge condition grade

	1	2	3	4	5	Total
TLNE	84	513	257	22	0	876
TLNW	141	520	192	17	0	870
TSCO	58	379	120	6	0	563
TSEA	243	793	143	2	0	1,181
TWES	89	340	212	36	1	678
Total	**615**	**2,545**	**924**	**83**	**1**	**4,168**

Figure 3.13 SCMI Score distribution - 27,433 structures



Regulatory target

It has been discussed and agreed with ORR that a full target and tolerance cannot be established until all bridges have undergone SCMI which is anticipated to be 2008/9.

Reporting confidence

The confidence grades allocated for this measure are B3 for numbers of bridges in each condition grade (1-5) and B2 for the average condition grade for the inspected bridges stock.

Significant changes since Annual Return 2007

The Civils Asset Register and Reporting System (CARRS) Phase 1 was introduced across all Territories during the last quarter of 2007/08. CARRS allows the detailed examination report as well as the SCMI data to be received electronically from the Structures Examination Contractors in PDF format. The processing of the SCMI score, however, will remain part of the National SCMI tool until CARRS functionality is further developed in future phases but the SCMI score and date of examination are recorded within CARRS. The immediate benefits of the introduction of CARRS are:

- a national list of bridges and other civil engineering structures and associated exam and works data held in one system (with the use of GEOGIS being replaced)
- all reports now received in electronic format with new national front sheet to standardise sign off process.

A new Level 3 Standard NR/L3/CIV/305 Application of the Structures Condition Marking Index to Masonry Bridges was published October 2007. The purpose of the Standard is to improve the consistency of condition ratings given to Masonry Bridges by defining a change to and expanding upon the information given in NR/GN/CIV/041 SCMI handbook for Bridges.

Network Rail is introducing Risk Based Asset Management and this will change the intervals between detailed examinations for specific structures. This interval will be related to the potential of the structure to deteriorate and for its functionality to be affected. In the future, this is likely to result in the SCMI examination to be undertaken at variable intervals.

Commentary

The data available for 2007/08 is for 27,433 bridges in all Territories and includes:

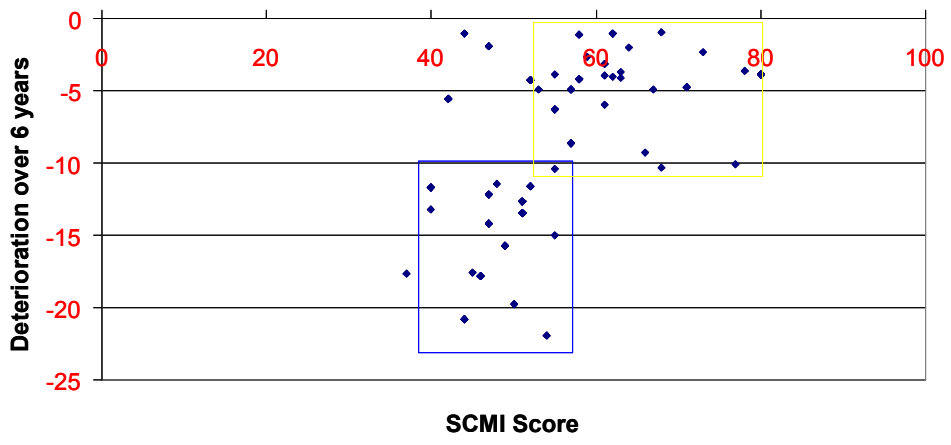
- 20,013 underbridges
- 7,274 overbridges
- 146 side bridges.

During 2007/08 the Civil Engineering Organisation has undergone restructuring at both HQ and Territory level and this along with introduction of CARRS has impacted on earlier plans made for resources to audit this measure. The Structures Examination Contractors (SEC), however, have continued to undertake a desk top review of all reports as well as a sample of on site checks.
It was agreed at the April 2008 Territory Structures Engineers meeting that the SCMI user group meeting including SEC and Territory Process Owners will be run at regular intervals during 2008/09 to look at a number of key areas as follows:

- review progress to complete SCMI first cycle completion
- SCMI second cycle examination procedures
- competency standards
- desktop review and technical check procedures.

SCMI second cycle data for repeat scores on metal bridges has been analysed to establish true deterioration rates and results plotted on a scatter graph of SCMI score against deterioration rate over six years as shown in Figure 3.14. The figure shows deterioration rates for two groups of metal bridges: those in good/fair condition having a relatively high initial (first cycle) SCMI score, and those in poorer condition. The data indicates that metal bridges with a lower initial SCMI score deteriorate more rapidly than those with a higher initial score. We have assessed the overall average deterioration rate as about one SCMI mark per year.

Figure 3.14 Metal bridge deterioration with respect to initial SCMI score



Signalling failures (M9)

Definition

This measure reports the total number of signalling failures on Network Rail owned infrastructure causing a cumulative total train delay of more than 10 minutes per incident.

Reporting method

The data was compiled from the TRUST system (Train Running System) and shows the number of signalling failures where train delays in excess of 10 minutes have been recorded. This data was merged with the reported train mileage then allocated to the business operating routes.

Regulatory target

The ORR target is for no deterioration of the asset from the 2003/04 levels (28,098 signalling failures at 59 per million train km). In 2007/08 we met both our regulatory target and our business plan target (20,685 signalling failures).

Reporting confidence

Train running information is reported in TRUST. All signalling failures are also reported in FMS (Fault management System) and are allocated to the operating routes. FMS is used to manage failures and produce data on the reasons for equipment failure. The reported values allow for any minor errors in attribution of data between areas within the overall value given.

Commentary

The Network total number of failures has fallen to 71 per cent of the 2003/4 baseline figure. At the same time the number of train miles run has reduced by 4 per cent from the 2003/4 baseline figures. These figures show a significant and steady improvement since the 2003/4 baseline and are a further improvement over the 2005/6 values.

There was an overall reduction of 12 per cent in the number of failures in 2007/8 compared with 2006/7 and of 28 per cent compared with the 2003/4 baseline value. There was an overall reduction of train running mileage of 6 per cent in 2007/8 compared with 2006/7 and of 4 per cent compared with the 2003/4 baseline value. The comparative value of failures per million train kilometres run shows a slight reduction of 1 from the 2006/7 value. Seven routes showed an improvement with Kent showing a significant improvement but one route was slightly worse.

Following the introduction of LED ground signals and the consequent reduction in the number of failures, LED long range signals which give improved performance are now being installed in increasing numbers on all new schemes and other sites where significant benefits are expected. The LED signals have considerably reduced the number of signal failures across the network, some of which will be reflected in these figures.

The 'high performance switch system' point operating mechanism has been further developed and is being installed across the network. The Hy-Drive in sleeper clamp points system has also been developed and several sets have been installed. Initial shortcomings have been identified and remedial actions put in place. These points are now subjected to monitoring of their performance in service.

During the past 12 months the number of major failures due to the theft of cables has increased. The nature of these failures will mean large delays to trains will occur.

Network Rail remains comfortably within the regulatory target.

Results

Table 3.24 Number of signalling failures

Operating routes	2006/07 No.	No. per million train km	CG	2007/08 No.	No. per million train km	CG
London North Eastern	4,607	41	B3	3,968	41	B3
London North Western	6,554	60	B3	5,807	54	B3
South East – Anglia	1,775	39	B3	1,506	36	B3
South East – Kent	1,341	41	B3	1,014	32	B3
South East – Sussex	832	28	B3	858	30	B3
South East – Wessex	1,816	41	B3	1,611	36	B3
Western	3,082	44	B3	2,953	46	B3
England & Wales	**20,007**	**–**	**B3**	**17,717**	**–**	**B3**
Scotland	**2,697**	**54**	**B3**	**2,183**	**50**	**B3**
Network total	**22,704**	**46**	**B2**	**19,900**	**43**	**B3**
Regulatory target	**28,098**	**59**		**28,098**	**59**	

Signalling asset condition (M10)

Definition

The purpose of this measure is to assess the condition of signalling assets in terms of a 1-5 grading system, where a condition grade of 1 is good and 5 poor. Condition grade is based on residual life of the equipment in a signalling interlocking area using the signalling infrastructure condition assessment (SICA) tool. While the assessment is dominated by the condition of the interlocking, the condition of lineside signalling equipment is also taken into account. This measure has not included level crossings, remote frames or ground frames in the past.

A separate SICA assessment for level crossings was introduced in August 2006. Since then a series of contracts have been let in order that full coverage of Primary SICAs for Level Crossings was complete by the end of the 2006/07 financial year. The results of these SICAs are being used mainly as a priority planning indication for where further Secondary SICAs need to be carried out. A separate table for level crossings is included below.

Reporting method

This Annual Return has been collated from SICA assessment records stored in the SICA Information System (SIS) which is the Network Rail repository for all SICA assessments. This tool stores information from all SICA records in a central repository. This allows improved visibility of the results from SICA surveys, produces up to date SICA assessment schedules for the territory's use and has multiple reporting functions of which the Annual Return is just one.

The total population of interlockings on Network Rail infrastructure is 1,636. Of these, 61 have been renewed in the last 5 years and as such do not require a current SICA assessment. This leaves a balance of 1,575 interlockings requiring a valid SICA assessment which is reflected in the tables above and as such shows that Network Rail has 100 per cent SICA coverage in compliance with the standard.

There are 215 level crossings for which a SICA has yet to be completed. In many cases the survey has been finished but the results provided by the consultant(s) are going through the territory acceptance processes.

The percentage coverage is 87 per cent.

Regulatory target

Network Rail is obliged to ensure that asset condition as defined by the M10 measure does not deteriorate from the 2003/04 baseline condition of 2.5. This year's average is 2.38, representing a slightly lower average interlocking age and thus surpassing the regulatory target.

Results

Table 3.25 Total number of interlocking areas with a SICA assessment at end of each financial year

Condition grade	Observed nominal residual life (in years)	2003/04	2004/05	2005/06	2006/07	2007/08	CG
1	>20	0	5	8	3	5	B3
2	10 to 20	736	782	1,024	965	1,022	B3
3	3 to 10	559	626	530	520	518	B3
4	<3	98	97	51	20	15	B3
5	At end of life	0	0	0	14	15	B3
Average condition grade		**2.5**	**2.5**	**2.39**	**2.39**	**2.38**	**B3**
Total number assessed		**1,393**	**1,510**	**1,613**	**1,522**	**1,575**	**B3**

Table 3.26 Signalling condition index by territory

Operating routes/ condition grade	1	2	3	4	5	Total 2006/07	CG	1	2	3	4	5	Total 2007/08	CG
London North Eastern	0	314	123	6	1	444	B3	2	279	140	4	1	426	B3
London North Western	0	196	145	2	0	343	B3	1	231	141	3	2	351	B3
South East – Anglia	0	60	26	4	3	93	B3	1	98	25	3	6	133	B3
South East – Kent	0	51	34	2	0	87	B3	0	51	31	1	2	85	B3
South East – Sussex	0	26	29	0	0	55	B3	0	40	12	0	1	53	B3
South East – Wessex	0	43	36	4	0	83	B3	0	55	26	3	1	85	B3
Western	1	143	92	2	9	247	B3	1	145	124	1	1	272	B3
England & Wales	**1**	**833**	**485**	**20**	**13**	**1,352**	**B3**	**5**	**899**	**472**	**15**	**14**	**1,405**	**B3**
Scotland	**2**	**132**	**35**	**0**	**1**	**170**	**B3**	**0**	**123**	**46**	**0**	**1**	**170**	**B3**
Network total	**3**	**965**	**520**	**20**	**14**	**1,522**	**B3**	**5**	**1,022**	**518**	**15**	**15**	**1,575**	**B3**

Table 3.27 Level Crossing condition index by operating route

Territory/route	Total LX population	Total LX surveyed	Condition grade 1	2	3	4	5
London North Eastern	643	641	49	521	68	2	1
London North Western	158	155	4	107	39	2	3
South East – Anglia	243	149	1	122	25	1	0
South East – Kent	99	37	0	27	10	0	0
South East – Sussex	66	33	0	27	6	0	0
South East – Wessex	82	70	0	49	21	0	0
Western	217	211	0	132	73	0	2
Scotland	101	98	1	73	24	0	0
Total	**1,609**	**1,394**	**55**	**1,058**	**266**	**5**	**6**

Reporting confidence

Reporting confidence is stated as B3. The nature of the SICA tool means that an accuracy band better than 3 cannot be realistically achieved. A reliability band of B is given as although there is no extrapolation of the data, there are still a number of older SICA assessments carried out to an earlier version and a small number of interlockings did not have assessments at the end of the reporting period.

Commentary

Since the last Annual Return, a major improvement has been achieved with the work to determine the condition of all of Network Rail's signalled level crossings. This information will be of use in determining a renewals work bank as well as demonstrating the way such work affects the overall condition of these assets.

In respect of the interlockings, it can be seen that the 100 per cent coverage of SICA surveys has now been achieved and it is envisaged that it will remain this way into the future as a steady programme of planned surveys is developed. With respect to level crossings, there are still some outstanding SICAs due. This is mainly down to the lack of confidence in some of the original SICAs carried out by third party contractors last year and as such whilst a SICA exists for the site it has not been deemed suitable to be loaded into SIS. These remaining sites and those already identified as requiring a Secondary SICA will form the bulk of the next years Level Crossing SICA survey programme.

The SICA process remains, and will continue to remain, Network Rail's prime tool for assessing the condition of its signalling assets. The results of the SICA surveys from both interlockings and level crossings are now being used to help develop a renewals work bank for all assets. Looking forward over the next 40 years, this allows a detailed proposal to be developed as part of Network Rail's plans for CP4.

Alternating current traction power incidents causing train delays (M11)

Definition

This measure reports the number of overhead line equipment (OLE) component related failures that lead to incidents of duration exceeding 500 train delay minutes. Incidents due to bird strikes and vegetation incursion are included but those proved to have been caused by defective train operating company (TOC) equipment, outside parties, vandalism and those arising as a direct result of extreme weather conditions are excluded.

Reporting method

This involves the Engineering Reporting Manager (ERM) monitoring failures reported in the Daily National Incident Report and at each period end the summary is sent to the Territory Electrification and Plant Engineers for their review and verification. It is they who investigate the cause of each traction power incident, and the verified figures are provided to the ERM.

Regulatory target

The CP3 regulatory target is for no deterioration from the number of incidents reported for 2001/02 (107).

Reporting confidence

Overall the confidence level is considered to be B2.

Commentary

The 2007/08 network total (63) is lower than 2006/07 (69) and 41 per cent lower than the regulatory target of 107 incidents.

Delivery of OLE renewals including fitment of over boom cantilevers, polymeric insulators on the WCML has contributed to the improved overhead line equipment reliability in LNW operating route although some construction delivery errors have had an adverse effect.

Failures in South East operating routes have reduced significantly from last year. A reduction in maintenance backlog of OLE defects and effective delivery of the campaign change programme are factors that have influenced this result.

Failures in LNE operating route have increased from last year. Construction delivery errors/early failures (burn in period) of new components are factors that have influenced this result.

Results

Table 3.28 Electrification failures: overhead line

Operating routes	2003/04	2004/05	2005/06	CG	2006/07	CG	2007/08	CG
London North Eastern	21	20	13	B3	16	B2	21	B2
London North Western	31	28	20	B3	30	B2	27	B2
South East – Anglia	24	17	10	B3	18	B2	10	B2
South East – Kent	0	0	0	BX	0	BX	0	BX
South East – Sussex	–	–	–		–			
South East – Wessex	–	–	–		–			
Western	0	0	0	BX	0	BX	0	BX
England & Wales	**76**	**65**	**43**	**B3**	**64**	**B2**	**58**	**B2**
Scotland	**3**	**6**	**6**	**BX**	**5**	**BX**	**5**	**B2**
Network total	**79**	**71**	**49**	**B3**	**69**	**B2**	**63**	**B2**

Direct current traction power incidents causing train delays (M12)

Definition

This measure reports the number of conductor rail component related failures that lead to incidents of duration exceeding 500 train delay minutes. It excludes incidents proved to have been caused by defective TOC equipment, outside parties, vandalism, animals and those arising as a direct result of extreme weather conditions.

Reporting method

This involves the Engineering Reporting Manager (ERM) monitoring failures reported in the Daily National Incident Report and at each period end the summary is sent to the Territory Electrification and Plant Engineers for their review and verification. It is they who investigate the cause of each traction power incident, and the verified figures are provided to the ERM for collation.

Regulatory target

The regulatory target is for no deterioration from the number of incidents reported for 2001/02 (30).

Reporting confidence

Overall the confidence level is considered to be BX (it should also be noted that the size of the data set is very small).

Commentary

The 2007/08 network total (9) is 70 per cent lower than the regulatory target of 30 and an improvement on the 2006/07 total (11). There were no failures reported in LNW operating route whilst the overall trend in Sussex, Wessex, and Kent of over 500 minutes delays has remained static.

Results

Table 3.29 Electrification failures: conductor rail

Operating routes	2003/04	2004/05	2005/06	CG	2006/07	CG	2007/08	CG
London North Eastern	0	0	0	BX	0	BX	0	BX
London North Western	2	1	0	BX	1	BX	0	BX
South East – Anglia	0	0	0	BX	0	BX	0	BX
South East – Kent	8	4	1	BX	2	BX	0	BX
South East – Sussex	11	5	3	BX	1	BX	5	BX
South East – Wessex	12	3	2	BX	7	BX	4	BX
Western	–	–	–	–	–	–	–	
England & Wales	**33**	**13**	**6**	**–**	**11**	**BX**	**9**	**BX**
Scotland	**–**	**–**	**–**	**–**	**–**	**–**	**0**	
Network total	**33**	**13**	**6**	**BX**	**11**	**BX**	**9**	**BX**

Electrification condition – AC traction feeder stations and track sectioning points (M13)

Definition

This is a measure of the condition of alternating current traction feeder stations and track sectioning points, on a scale of 1-5, based on visual inspection and the age, robustness of design, maintenance/ refurbishment history and operational performance of the 25kV switchgear:

- Band 1: equipment is free from defects with negligible deterioration in condition
- Band 2: evidence of minor defects and/or early stage deterioration that may require some remedial work to be undertaken
- Band 3: defects and/or a level of deterioration that requires remedial work to be undertaken
- Band 4: significant defects and/or a high level of equipment deterioration needing major repairs/heavy maintenance or complete renewal to be programmed
- Band 5: serious defects and deterioration of a level that, should the equipment still be in operation, has potential for service disruption.

The measure reports the percentage of feeder stations and track sectioning points falling within each of the defined condition grades.

Reporting method

The national report has been produced in accordance with the Network Rail Standard NR/L3/ELP/27240/MODC19a. Generally, condition assessment is done through a combination of visual inspections of 25kV switchgear at feeder stations and a selection of traction sectioning points, together with consideration of robustness of design and particular service, maintenance and refurbishment history aspects of the switchgear. Each inspection is based on a standard set of pre-determined questions.

Reporting confidence

The reporting confidence is BX as only 14 per cent of the assets have been assessed under the new measure.

Regulatory target

As this is the first year of the new measure, the regulatory target is set to this year's average condition score of 3.53 but this should be reviewed once a larger sample has been assessed.

Commentary

This is the first year of the new M13 measure and it has been piloted in two principal areas: LNW – West Coast South and LNE – North East. Experience gained from the piloted areas will be used to compile a work instruction for maintenance staff to conduct future assessments. The measure includes a total of 292 locations of which 41 (14 per cent) were assessed as part of the pilot. All locations will be assessed over a five year period.

The new measure takes advantage of having maintenance in-house and developments in technology to allow an element of non-intrusive measurements and therefore reducing the subjectivity within the assessment. The age and life expectancy of the equipment is also incorporated into the scoring system for the first time. Due to these factors, there is no direct correlation between the old and new measures for M13. Although the definition and reporting method is similar to previous years, it is our Maintenance teams who are testing and inspecting our assets using methods and equipment not previously used and the calculation of the score is also different to previous years.

Results

Table 3.30 Electrification condition – AC traction 2007/08 year total

Condition grade	Network	South East	London North East	London North West	Scotland
1	0%	n/a	0%	0%	n/a
2	10%	n/a	40%	0%	n/a
3	17%	n/a	60%	3%	n/a
4	71%	n/a	0%	94%	n/a
5	2%	n/a	0%	3%	n/a
Average condition grade	**3.53**	**n/a**	**2.56**	**3.85**	**n/a**

Note: The South East and Scotland were not trial areas and so no reports are available for these locations this year (see Commentary).

Electrification condition – DC traction substations (M14)

Definition

This is a measure of the condition of direct current traction substations including track paralleling locations on a scale of 1-5, based on visual inspection and the age, robustness of design, maintenance/refurbishment history and operational performance of the equipment:

- Band 1: equipment is free from defects with negligible deterioration in condition
- Band 2: evidence of minor defects and/or early stage deterioration that may require some remedial work to be undertaken
- Band 3: defects and/or a level of deterioration that requires remedial work to be undertaken
- Band 4: significant defects and/or a high level of equipment deterioration needing major repairs/heavy maintenance or complete renewal to be programmed
- Band 5: serious defects and deterioration of a level that, should the equipment still be in operation, has potential for service disruption.

Reporting method

The national report has been produced in accordance with the Network Rail Standard NR/L3/ELP/27240/MODC19b. Generally, condition assessment is done through a combination of visual inspections of DC substation buildings and associated equipment together with consideration of robustness of design and particular service, maintenance and refurbishment history aspects of the switchgear. Each inspection is based on a standard set of pre-determined questions.

Reporting confidence

The reporting confidence is BX as only 1 per cent of the assets have been assessed under the new measure.

Regulatory target

As this is the first year of the new measure, the regulatory target is set to this year's average condition score of 3.61 but this should be reviewed once a larger sample has been assessed.

Commentary

This is the first year of the new M14 measure and has been piloted in LNW – West Coast South. Experience gained from this piloted area will be used to compile a work instruction for maintenance staff to conduct future assessments. The measure includes a total of 671 locations of which five (1 per cent) were assessed as part of the pilot. All locations will be assessed over a five year period.

The new measure takes advantage of having maintenance in-house and developments in technology to allow an element of non-intrusive measurements and therefore reducing the subjectivity within the assessment. The age and life expectancy of the equipment is also incorporated into the scoring system. As a result the situation is similar to M13 with no direct correlation between the old and new measures for M14.

Results

Table 3.31 Electrification condition − DC traction substation 2007/08 year total

Condition grade	Network	South East	London North East	London North West	Scotland
1	0%	n/a	n/a	0%	n/a
2	0%	n/a	n/a	0%	n/a
3	20%	n/a	n/a	20%	n/a
4	80%	n/a	n/a	80%	n/a
5	0%	n/a	n/a	0%	n/a
Average condition grade	**3.61**	**n/a**	**n/a**	**3.61**	**n/a**

Note: The trial was conducted on London North Western assets so no reports are available for other locations this year (see Commentary).

Electrification condition – AC traction contact systems (M15)

Definition

This is a measure of the condition of AC contact systems, on a scale of 1-5, based on physical wear measurement of contact wire and visual inspection of key components including contact and catenary wires, registration assemblies and structures. A condition grade of 1 is good and 5 is poor. This measure excludes all earthing, bonding and traction return circuits.

Reporting method

This is in accordance with the company's Asset Reporting Manual procedures NR/ARM/M15PR.

Results

Regulatory target

The regulatory target is to return to the 2001/02 condition i.e. a network average of 1.8. This has been achieved.

Reporting confidence

This measure is given a B4 confidence grade.

Commentary

The method of asset condition assessment has changed for this measure. Base data is collected via routine maintenance inspections and entered into a workbank. A condition score is then derived from this data. 30 per cent of the total asset base has now been assessed. The additional 3 per cent surveyed this year has not changed the average condition score from 1.7.

Table 3.32 Electrification condition – AC traction contact system

Condition grade	2000-03 3-year total contact wire/key components	2000-04 4-year total contact wire/key components	2000-05 5-year total contact wire/key components	2000-06 6-year total contact wire/key components	2000-07 7-year total contact wire/key components	2000-08 8-year total contact wire/key components	CG
1	35%	39%	39%	38%	38%	42%	
2	55%	53%	53%	54%	54%	51%	
3	10%	9%	8%	7%	7%	7%	
4	0%	0%	0%	0%	0%	0%	
5	0%	0%	0%	0%	0%	0%	
Average condition grade	1.8	1.7	1.7	1.7	1.7	1.7	B3
Percentage of assets surveyed	11%	15%	17%	21%	27%	30%	

Table 3.33 Electrification condition − AC traction contact system

Condition grade	London North Eastern	London North Western	Scotland	South East	Western
1	39%	36%	57%	42%	80%
2	54%	57%	38%	53%	20%
3	7%	7%	5%	5%	0%
4	0%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%
Average condition grade	1.7	1.7	1.5	1.6	1.2
Percentage of assets surveyed	25%	41%	24%	23%	11%

Electrification condition – DC traction contact systems (M16)

Definition

This is a measure of the condition of DC contact systems, on a scale of 1-5, based on physical wear measurement of conductor rail. A condition grade of 1 is good and 5 is poor. The measure excludes any associated equipment (e.g. insulators, anchor assemblies, protective boarding, etc.).

Reporting method

This is in accordance with the company's Asset Reporting Manual procedures NR/ARM/M16PR

Regulatory target

The regulatory target is to return to the 2001/02 condition i.e. a network average of 1.8.

Reporting confidence

This measure is given a B3 confidence grade.

Commentary

71 per cent of the total asset base has now been assessed. The additional 1 per cent surveyed this year including conductor rail on London North West territory (Merseyrail), has not changed the average condition score from 1.9.

Results

Table 3.34 Electrification condition – DC traction contract system

Condition grade	2000-03 3-year total conductor rail	2000-04 4-year total conductor rail	2000-05 5-year total conductor rail	2000-06 6-year total conductor rail	2000-07 7-year total conductor rail	CG	2000-08 8-year total conductor rail	CG
1	37%	37%	35%	39%	35%		35%	
2	42%	44%	44%	41%	42%		42%	
3	16%	16%	18%	18%	19%		20%	
4	2%	2%	3%	2%	3%		3%	
5	0%	0%	0%	0%	0%		0%	
Average condition grade	**1.8**	**1.8**	**1.9**	**1.8**	**1.9**	**B3**	**1.9**	**B3**
Percentage of assets surveyed	**–**	**64%**	**68%**	**69%**	**70%**		**71%**	

Table 3.35 Electrification condition – DC traction contact system

Condition grade	London North Western	South East
1	40%	34%
2	30%	42%
3	14%	20%
4	7%	3%
5	8%	0%
Average condition grade	**2.1**	**1.9**
Percentage of assets surveyed	**29%**	**75%**

Note: There are no DC assets in Scotland and Western territories and London North Eastern only has a very small amount.

Station stewardship measure (M17)

Definition

This is the average condition rating of each station where trains make timetabled stops, summarised into categories (A – F, national hub – small unstaffed station) together with the overall condition rating for all stations.

This is calculated by assessing the condition of each element of a station by visual inspection. These condition scores are then combined into an overall score of each station. The scale represents a combination of the degree of deterioration. It has been adopted as a standard method for assessing the condition of a variety of asset types.

The condition rating score of each station is the average of the condition ratings of the individual assets rated on a scale of 1-5. The scale of 1-5 is a summary of the remaining asset life, expressed as a percentage of the expected full life of the asset, as in the table below.

It should be noted that a new station stewardship measure was developed and has replaced the station condition measure (see Commentary below).

Reporting method

The station condition index (SCI) (M17) measure was superseded in 2007/08 by the station stewardship measure (SSM) (M17). This has resulted in the asset score being ascertained from 14 categories consisting of 68 sub-categories, in place of the 34 elements previously captured.

Results

Table 3.36 Number of stations in each condition grade

Station category	Year	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Total
A – National Hub	2007/08	0	8	10	0	0	18
B – Regional Hub	2007/08	1	17	34	0	0	52
C – Important Feeder	2007/08	0	58	112	1	0	171
D – Medium, Staffed	2007/08	0	78	146	4	0	228
E – Small, Staffed	2007/08	0	151	375	10	0	536
F – Small, Unstaffed	2007/08	0	344	527	44	0	915
Total		**1**	**656**	**1,204**	**59**	**0**	**1,920**

Scoring scale: Grade 1 good, grade 5 poor

Table 3.37 Condition grade by operating route 2007/8

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

Table 3.38 Station numbers

		London North Eastern	London North Western	South East Anglia	South East Kent	South East Sussex	South East Wessex	Western	Scotland	Total
A	National Hub	2	6	2	1	4	0	2	1	18
B	Regional Hub	6	12	10	3	3	13	3	2	52
C	Important Feeder	19	25	30	17	20	38	17	5	171
D	Medium, Staffed	33	37	21	37	32	28	19	21	228
E	Small, Staffed	39	212	47	50	52	40	41	55	536
F	Small, Unstaffed	192	245	72	29	30	35	149	163	915
	Total	**291**	**537**	**182**	**137**	**141**	**154**	**231**	**247**	**1,920**

Regulatory target

This is covered by 'Other asset condition and serviceability' with no deterioration from 2003/04 levels of the Station Condition Index measure, i.e. 2.25.

Due to the change in methodology from the Station Condition Index to the Station Stewardship Measure the outputs cannot be directly compared. The new measure has determined a condition grade of 2.71 in its first year (2007/08).

Reporting confidence

Reporting of M17 – Station Stewardship Measure is confidence rated B2.

Commentary

The station condition index (SCI) (M17) measure was superseded in 2007/08 by the Station Stewardship Measure (SSM) (M17). This has resulted in the asset score being ascertained from 14 categories consisting of 68 sub-categories, in place of the 34 elements previously captured. The data formulating the SSM score was extrapolated from the Operational Property Asset System (OPAS) survey data collected from 1,920 stations throughout the year. The category numbers are:

- Category A 18
- Category B 52
- Category C 171
- Category D 228
- Category E 536
- Category F 915

The SSM score in its first year (2007/08) was 2.71. As this is a new measure the score cannot be directly compared with the higher score seen in 2006/07 under the SCI measure. The methodology for the SSM score and the strategy for the supporting data collection were developed in consultation with ORR. We also agreed that we would not continue to collect data under the previous method or report SCI for 2007/08 as this was deemed to be wasteful in terms of cost.

SSM, which introduced relative weighting between different assets according to their importance, was sourced from asset remaining life data collected under the OPAS programme at a much lower and hence more accurate level than SCI had been previously; the methodology features necessary consolidation to a higher level for reporting purposes.

The nature of the operational property asset portfolio and typical asset deterioration profiles seen are such that we would not normally expect to see substantive change from one year to the next. Although we cannot be specific about the relationship of the two measures we take the view that the larger part of the change from SCI at 2.24 to SSM at 2.71 is a product of the new measure and collection methodology rather than substantive deterioration.

Light maintenance depot – condition index (M19)

Definition

This measure assesses the overall average condition of light maintenance depots (LMDs) by providing, at each financial year-end, the number of depots in individual average condition ratings of 1-5.

Reporting method

The condition score is an average of the score from 11 elements in the light maintenance depots such as wheel lathes, structure and facilities. The elements are condition rated where one is 'as installed' and 'five' is no longer serviceable

Regulatory target

This is covered by 'Other asset condition and serviceability' with no deterioration from 2003/04 levels, i.e. 2.7. We have achieved this as the cumulative score is 2.49.

Reporting confidence

Reporting of M19 – Light maintenance depot condition index is confidence rated B2.

Commentary

The overall score has improved from last year's 2.58 to 2.49. The improvement reflects the work undertaken on the assets including renewal of plant as well as improved working relationships between Network Rail and the Depot Facility Owner. The new franchise commitments have also contributed to this improvement.

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).

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Results

Table 3.39 Light maintenance depot – Inspections and condition index

Condition grade	2001-03 2-year total no. of depots (in each grade)	2001-04 3-year total no. of depots (in each grade)	2001-05 4-year total no. of depots (in each grade)	2001-06 5-year total no. of depots (in each grade)	2001-07 6-year total no. of depots (in each grade)	2001-08 7-year total no. of 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**

Table 3.40 Light maintenance depot condition assessment in 2007/08

Operating routes/ condition grade	1	2	3	4	5	Total	Average condition grade 2007/08
London North Eastern	–	1	1	–	–	2	2.74
London North Western	–	1	2	–	–	3	2.57
South East – Anglia	–	1	–	–	–	1	2.43
South East – Kent	–	–	–	–	–	–	–
South East – Sussex	2	1	–	–	–	3	1.64
South East – Wessex	–	2	–	–	–	2	1.99
Western	–	1	–	–	–	1	1.98
England & Wales	**2**	**7**	**3**	**–**	**–**	**12**	**2.22**
Scotland	**–**	**–**	**1**	**–**	**–**	**1**	**2.73**
Network total	**2**	**7**	**4**	**–**	**–**	**13**	**2.25**

Scoring scale: 1 good, 5 poor

Asset Stewardship Incentive Index (ASII)

Definition

The ASII is a composite measure of overall asset stewardship that provides an incentive (a Regulatory Asset Base, abbreviated RAB, addition) for Network Rail if asset stewardship improves and the incentive target set in ACR 2003 is achieved. The composite index is an aggregate of seven separate asset measures covering track, signalling, electrification and structures assets. The lower the value of the index, the better the level of asset stewardship.

The results for the year together with values for the incentive target for the end of the control period (2008/09) and the previous year are as follows:

Commentary

The year 2007/08 has shown a further reduction in this index with improvements across all contributory indicators. The most notable improvements are track geometry and Level 2 exceedences (refer to sections on M3 and M5 in Section 3 for more details). The incentive targets for all contributory measures have been met and we are currently on course to achieving the maximum RAB addition.

Results

Table 3.41 Asset stewardship incentive index

Asset measure	Weightings	2005/06 actuals	2006/07 actuals	2007/08 actuals	2008/09 target
Track geometry	20%	0.835	0.806	0.723	1.0
Broken rails	15%	317	192	181	300
Level 2 exceedences	15%	0.820	0.720	0.580	0.9
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 failures	10%	55	80	72	133
Structures and earthworks temporary speed restrictions	10%	48	40	35	100
ASII		0.803	0.723	0.634	0.900*

* The incentive is capped such that the maximum RAB addition is awarded if an index of 0.90 is achieved at the end of the control period.

Results for 2007/08 and the previous year along with our Business Plan targets (more onerous than the regulatory incentive) are as follows:

Table 3.42 Results for ASII compared to internal business plan targets

	2006/07 Actual	2006/07 Target	2007/08 Actual	2007/08 Target
ASII	0.723	0.780	0.634	0.700

Section 4 – Activity volumes

Introduction

This section provides data on the level of renewal activity on the network by giving volumes of work undertaken specifically for ten separate measures, four for track renewals, one for signalling renewals and five for 'civils' (e.g. bridge) renewals. In addition, we have included our composite activity volumes measure which gives an indication of the overall renewals volume delivered for 2007/08. This includes information on renewals delivered for all asset types during 2007/08 compared to the volumes published in the Business Plan 2007.

For some of our measures, previous years' data from 2003/04 are not separated into the eight operating routes as the company was not structured this way. Also, due to the re-structuring of the company, only historical data for West Coast Route Modernisation and the network totals are included for the years before 2004/05.

With track activity volumes, a degree of variance from forecasts (as in the Business Plan) is expected as details of planned work are refined during the year in response to more detailed site knowledge and engineering priorities being adjusted to focus on key areas for improving asset condition and operational performance.

It should be noted that for 2007/08, the definition for signalling renewals and its related processes has been improved and consistently applied throughout the network. We have used this revised definition to restate 2006/07 Actuals as well, in line with the Reporter recommendations. We have also provided additional commentary on the principal projects involved for 2007/08.

With the civils activity volumes i.e:

- M23 Bridge renewals and remediation
- M26 Culverts renewals and remediation
- M27 Retaining walls remediation
- M28 Earthwork remediation
- M29 Tunnel remediation

it should be noted that final project volumes and costs are reported in the Cost Analysis Framework templates (CAF) by the commercial teams 16 weeks after the end of GRIP stage 6 at substantial completion. In order to improve the accuracy of the data in the 2007/08 and future Annual Returns we are reporting from the start of Period 10 2006/07 to end of Period 9 2007/08; CAF reports for these projects have all been submitted in 2007/08. Additionally, where a CAF report should have been reported but is late, preliminary figures have been used from the number of project completions during the year. Projects completed during periods 10 to 13 of 2007/08 have not been included in the tables above.

Rail renewed (M20)

Definition

The total length of track in kilometres where re-railing has been carried out. This measure counts the total length of plain line track where both rails have been replaced; if one rail is replaced the length counts as half.

Results

Table 4.1 Rail renewed (kilometres)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Business Plan forecast 2007/08	Actual 2007/08
WCRM	236	132	44	10	51	48
Non-WCRM:						
London North Eastern	–	156	185	183	191	196
London North Western	–	141	237	189	191	202
Anglia	–		101	108		99
Kent	–	199	58	57	249	41
Sussex	–		27	52		29
Wessex	–		76	37		91
Western	–	139	265	283	239	237
England & Wales	–	635	949	909	870	895
Scotland	–	49	127	109	95	96
Network total	**1,401**	**816**	**1,120**	**1,028**	**1,016**	**1,039**

Sleepers renewed (M21)

Definition

The total length of track in kilometres where re-sleepering has been carried out.

Results

Table 4.2 Sleepers renewed: all types (kilometres)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Business Plan forecast 2007/08	Actual 2007/08
WCRM	223	152	91	7	41	48
Non-WCRM:						
London North Eastern	–	122	130	137	139	167
London North Western	–	91	114	146	146	166
Anglia	–		83	79		67
Kent		151	27	33	148	21
Sussex			12	23		17
Wessex			52	29		43
Western	–	121	177	211	167	177
England & Wales	–	485	595	658	600	658
Scotland	–	33			57	57
Network total	**837**	**670**	**744**	**738**	**698**	**763**

Table 4.3 Concrete sleepers (kilometres)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08
WCRM	190	148	91	7	48
Non-WCRM:					
London North Eastern	–	48	58	67	65
London North Western	–	38	41	108	126
Anglia	–		37		48
Kent	–	125	27	119	14
Sussex	–		12		11
Wessex	–		48		31
Western	–	78	138	167	142
England & Wales	–	289	361	461	437
Scotland	–	15	17	47	30
Network total	**486**	**452**	**469**	**515**	**515**

Table 4.4 Timber sleepers (kilometres)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08
WCRM	0	1	0	0	0
Non-WCRM:					
London North Eastern	–	22	16	9	7
London North Western	–	0	11	1	1
Anglia	–		0		0
Kent	–	4	0	1	0
Sussex	–		0		0
Wessex	–		0		0
Western	–	0	7	6	0
England & Wales	–	26	34	17	8
Scotland	–	0	2	1	1
Network total	**51**	**27**	**36**	**18**	**9**

Table 4.5 Steel sleepers (kilometres)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08
WCRM	33	3	0	0	0
Non-WCRM:					
London North Eastern	–	52	58	61	95
London North Western	–	53	60	36	39
Anglia	–		47		19
Kent	–	22	0	44	7
Sussex	–		0		5
Wessex	–		3		12
Western	–	43	32	38	36
England & Wales	–	170	200	179	213
Scotland	–	18	39	25	26
Network total	**300**	**191**	**239**	**204**	**239**

Ballast renewed (M22)

Definition

The total length of track, in kilometres, where re-ballasting has been carried out.

Results

Table 4.6 Ballast renewed: all types (kilometres)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Business Plan forecast 2007/08	Actual 2007/08
WCRM	205	122	81	12	39	48
Non-WCRM:						
London North Eastern	–	129	177	256	283	253
London North Western	–	97	128	179	168	176
Anglia	–		85	80		67
Kent	–	158	27	35	156	21
Sussex	–		12	23		17
Wessex	–		52	29		43
Western	–	143	178	162	137	156
England & Wales	–	527	659	764	744	733
Scotland	–	36	59	74	68	56
Network total	**812**	**685**	**798**	**850**	**851**	**837**

Table 4.7 Full ballast renewal by excavation (kilometres)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08
WCRM	88	113	81	12	48
Non-WCRM:					
London North Eastern	–	53	68	72	76
London North Western	–	43	40	89	115
Anglia	–		33		38
Kent	–	126	18	90	12
Sussex	–		11		25
Wessex	–		34		9
Western	–	74	86	71	48
England & Wales	–	296	290	322	323
Scotland	–	18	20	21	16
Network total	**388**	**427**	**391**	**355**	**387**

Table 4.8 Partial reballast-automatic ballast cleaning (kilometres)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08
WCRM	84	9	0	0	0
Non-WCRM:					
London North Eastern	–	22	50	123	91
London North Western	–	1	28	54	26
Anglia	–		5		1
Kent	–	10	2	33	0
Sussex	–		0		0
Wessex	–		3		0
Western	–	35	59	54	73
England & Wales	–	68	147	264	191
Scotland	–	2	0	28	13
Network total	**122**	**79**	**147**	**292**	**204**

Table 4.9 Scarify-reballast with steel sleeper relay (kilometres)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08
WCRM	32	0	0	0	0
Non-WCRM:					
London North Eastern	–	54	58	60	86
London North Western	–	53	61	36	37
Anglia	–		46		28
Kent	–	22	7	44	9
Sussex	–		2		18
Wessex	–		16		7
Western	–	34	32	37	34
England & Wales	–	163	222	177	219
Scotland	–	16	39	25	27
Network total	**299**	**179**	**261**	**202**	**246**

Switches and crossings renewed (M25)

Definition

This measure records the total number of switches and crossing (S&C) units that have been renewed.

The tables include data on the numbers of full renewals, the number of units renewed or recovered and the number where asset life has been extended through partial renewal or reballasting.

The business plan and our unit cost efficiency assessment include figures for S&C equivalent units to give a better reflection of activity delivered by including partial renewals and removed units as well as full renewals. For the 2007/08 business plan forecast an S&C equivalent counted a full renewal as 1.0, a removed unit as 0.5 and a life extension or partial/reballasted renewal as 0.33.

Results

Table 4.10 S&C full renewals (number of units)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Business Plan forecast 2007/08	Actual 2007/08
WCRM	138	170	151	22	77	63
Non-WCRM:						
London North Eastern	–	56	75	47	100	73
London North Western	–	99	95	129	111	109
Anglia	–		21	17		43
Kent	–	92	9	3	84	2
Sussex	–		7	9		3
Wessex	–		69	75		34
Western	–	75	80	82	64	70
England & Wales	–	322	356	362	359	334
Scotland	–	19	13	58	37	39
Network total	**373**	**511**	**520**	**442**	**473**	**436**

Table 4.11 S&C abandonment (number of units)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Business Plan forecast 2007/08	Actual 2007/08
WCRM	–	0	0	0		0
Non-WCRM:						
London North Eastern	–	0	0	11		48
London North Western	4	7	0	20		10
Anglia	–		0			8
Kent	–	0	0			0
Sussex	–		0	2		2
Wessex	–		2			8
Western	18	6	24	29		18
England & Wales	22	13	26	62		94
Scotland	–	0	0	0		14
Network total	**22**	**13**	**26**	**62**	**83**	**108**

Table 4.12 S&C partial renewals/reballasting (number of units)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Business Plan forecast 2007/08	Actual 2007/08
WCRM	–	46	0	0		0
Non-WCRM:			0			
London North Eastern	–	0	3	11		40
London North Western	2	0	0	1		9
Anglia	–	0	0			29
Kent	–	0	6			12
Sussex	–	0	5			0
Wessex	–	0	38			12
Western	2	2	0	6		9
England & Wales	4	2	52	18		111
Scotland	–	0	0	0		9
Network total	**4**	**48**	**52**	**18**	**96**	**120**

Note: All figures above are expressed as actual numbers of units. To convert these into equivalent S&C units we use a factor of 1.0 for full renewals, 0.5 for abandonment and 0.33 for partial renewal.

Signalling renewed (M24)

Definition

This measure reports the total number of signalling equivalent units (SEU) which were commissioned each year. An SEU is defined as each single trackside output function controlled by the interlocking, including every signal, each controlled point end, plungers and any other attribute that require a particular control function and each ground frame. Partial renewals are allocated partial values (50 per cent for external equipment and 45 per cent for an interlocking; the residual 5 per cent is 2 per cent for a control centre and 3 per cent for recontrol). The SEU recorded do not cover minor works and only include individual schemes with an anticipated forecast cost greater than £5m but with the exception of stand-alone level crossing projects where 1 SEU is recorded for renewal of the control circuitry interface (where applicable).

Commentary

2007/08 was a busy year for signalling commissionings. A total of 1,779 SEU were worked on, resulting in a volume of 1,441 equivalent SEU commissioned when adjusted for the type of work undertaken.

One significant scheme (Portsmouth) which was originally planned in 2006/07 was commissioned in 2007/08 following the problems with the original commissioning planned for February 2007. This resulted in an additional 287 SEU. Other variances were of a minor nature.

Other significant major schemes completed were: Port Talbot East Resignalling, Basingstoke Area Infrastructure Upgrade (Part 1), North Erewash Resignalling (1a), Leamington Corridor (Saltley PSB Phase 2), Coventry PSB Resignalling and Hither Green Interlocking Renewal.

A description of the types of schemes delivered is as follows:

Very large signalling renewals – framework contractor

- Basingstoke Area Upgrade
  The first stage of Basingstoke Area Infrastructure Upgrade (136 SEU) was completed in Easter 2007 on schedule, which included a new signalling centre and state of the art signalling system. Part 2 due in May 2008 will be reported in the Annual Return 2009 and Part 3 is due to be done in Easter 2010.

Results

Table 4.13 Signalling renewed (SEUs)

	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Business Plan forecast 2007/08	Actual 2007/08
WCRM	87	1,002	n/a	n/a	n/a	n/a
Non-WCRM:						
London North Eastern	105	246	3	322	342	311
London North Western	86	178	96	122	730	405
Anglia	19	14	1	15	0	0
Kent			63	18	0	77
Sussex	132	104	107	0	0	0
Wessex			0	0	0	429
Western	63	34	7	0	208	215
England & Wales	405	576	277	477	1,280	1,437
Scotland	112	100	1	4	77	4
Network total	**604**	**1,678**	**278**	**481***	**1,357**	**1,441**

* The 2006/07 figures have been restated.

Large signalling renewals – framework contractor

- Port Talbot East Resignalling
  The first stage of the £400m South Wales resignalling programme was completed on 14 April 2007. 215 SEU were resignalled using SSI (Solid State Interlocking) technology delivering significant volume efficiencies and improved operational capability. This was 7 SEU more than initially expected due to a SPAD indicator and several banners not being included in the original figures.

  Future stages of South Wales Resignalling are Newport (for 2012) and Cardiff (for 2014) Area Signalling renewals which are currently under development. The aim is for everything to be recontrolled from the new Signalling Control Centre currently under construction at Cardiff.

- North Erewash Resignalling (Part 1a)
  The first stage of the Erewash Valley resignalling programme (SSI) with 142 SEU was commissioned to programme on 5 August 2007. Subsequent stages will be North Erewash (Part 1b) and South Erewash (Part 2).

- Portsmouth Area Infrastructure Upgrade Project
  Originally programmed for Feb 2007, Portsmouth with 287 SEU was finally commissioned on October 2007 following technical and programme difficulties.

- Leamington Corridor (Saltley PSB Phase 2)
  Leamington was commissioned on 18 February 2008 delivering 251 SEU. In addition, 72 SEU were recontrolled at Moor St interlocking (2 SEU equivalent) (see below).

Re-signallings – tendered works

- Plean Signal Box Abolition (Part 1)
  Four additional auto signals were introduced on 16 March 2008 to provide improved headways to meet the January 2008 timetable requirements (therefore 4 SEU). Later stages will see the signalling control pass to Larbert.

- Coventry PSB Resignalling
  152 SEU were delivered under this project on 29 August 2007. This included 4 SEU associated with capacity enhancement work at Gibbet Hill.

- Wakefield Kirkgate/Oakenshaw resignalling
  This project delivered 67 SEU and an additional large element of recontrol at Kirkgate (i.e. 111 SEU).

- Durham Coast Resignalling (Part 1): Closure of Cliff House Signal Box
  On 9 July 2007 23 SEU were delivered under this project. This was the first stage of a series of medium sized renewals to deal with asset condition on the Durham coast.

- Stallingborough
  On 1 October 2007 this delivered 7 SEU.

Interfaced SSI

- Hither Green Interlocking Renewal
  168 SEU were re-interlocked on 8 May 2007 (i.e. 76 equivalent SEU). This was an important interfaced SSI re-interlocking project as it dealt with a specific type of asset problem.

RRI relock

- Brough East Interlocking Renewal.
- This small interlocking was renewed on 4 Feb 2008 delivering 12 SEU relocked (i.e. 5 equivalent SEU).

External equipment only

- Healey Mills
  Healey Mills (126 external items of signalling renewed, 63 SEUs) 28th May 2007

Recontrol

- Leamington was commissioned on 18 February 2008 and delivered 72 SEU recontrolled at Moor St interlocking (2 equivalent SEU).

Level crossings SEU element

The following projects were delivered:

- Egham level crossing
- Datchet MCB level crossing (2 SEU)
- May's MCB level crossing
- Camberley MCB level crossing
- Chertsey
- Strawberry Hill level crossing
- Grove Park MCB level crossing
- Ulceby level crossing.

Each of the above level crossings delivered 1 SEU associated with the Level Crossing renewal (LXEU).

Control systems and buildings

East Midlands Signalling Centre was completed and first available for operational use in November 2007. This building is designed to control 3,523 SEU of the East Midlands area under the national Control Strategy. At a 2 per cent rate this would be equivalent to 70 full-renewal SEU. This is not reported in the volumes above as the first signallers will be in residence and in control of North Erewash from August 2008.

Bridge renewals and remediation (M23)

Definition

The total number and square area of bridge decks that have been subject to renewal or remediation, with total cost per scheme greater than £100k. The term 'bridge' includes over- and under- bridges, side of line bridges and footbridges.

Summary (based on explanation on reporting in Section 4 Introduction):

- 2006/07 Bridge renewals and remediation number: 154
- 2007/08 Bridge renewals and remediation number: 201
- 2007/08 Period 10-13 (preliminary) bridge renewals and remediation number to be reported in 2008/09: 127.
- 2006/07 Bridge renewals and remediation area of deck replacement: 13,040m^2
- 2007/08 Bridge renewals and remediation area of deck replacement: 9,477m^2
- 2007/08 Period 10-13 (preliminary) bridge renewals and remediation area of deck replacement to be reported in 2008/09: 8,742m^2.

The number of bridge projects has increased in 2007/08 compared with last year. However, the overall square metre area in 2007/08 has reduced significantly. This is primarily driven by one project: Levens Viaduct with a volume of 3,875m^2 delivered in 2006/07.

Results

Table 4.14 Bridge renewals and remediation: number by task category

	Preventative	Repair	Strengthening	Replacement	Total
WCRM	–	–	–	–	6
Non-WCRM:					
London North Eastern	12	33	10	21	76
London North Western	5	27	13	9	54
Anglia	4	5	1	1	11
Kent	2	0	0	0	2
Sussex	2	0	1	0	3
Wessex	2	1	3	5	11
Western	1	3	3	8	15
England & Wales	28	69	31	44	172
Scotland	1	3	3	16	23
Network total	**29**	**72**	**34**	**60**	**201**

Table 4.15 Bridge renewals and remediation: square area of deck replacement (actual sq m)

	2004/05	2005/06	2006/07	2007/08
WCRM	0	0	0	0
Non-WCRM:				
London North Eastern	2,299	1,747	824	3,290
London North Western	3,202	1,866	6,993	2,000
Anglia		0	0	105
Kent	1,120	98	3,757	0
Sussex		18	155	0
Wessex		135	120	391
Western	630	1,079	218	2,000
England & Wales	7,251	4,943	12,067	7,785
Scotland	2,971	489	974	1,692
Network total	**10,222**	**5,432**	**13,041**	**9,477**

Culverts renewals and remediation (M26)

Definition

The total number of culverts that have been renewed or where major components have been replaced with a total cost per scheme greater than £50k.

Results

Table 4.16 Culvert renewals and remediation 2007/08: number by task category

	Preventative	Repair	Replacement	Total
WCRM	–	–	–	–
Non-WCRM:				
London North Eastern	0	13	3	16
London North Western	0	1	3	4
Anglia	0	0	0	0
Kent	0	0	0	0
Sussex	0	0	0	0
Wessex	0	0	0	0
Western	0	0	4	4
England & Wales	0	14	10	24
Scotland	0	0	1	1
Network total	**0**	**14**	**11**	**25**

Summary (based on explanation on reporting in Section 4 Introduction):

- 2006/07 Culverts renewed: 10
- 2007/08 Culverts renewed: 25
- 2007/08 Period 10-13 (preliminary) culverts renewed to be reported in 2008/09: 11.

Retaining walls remediation (M27)

Definition

The total number and area in square metres of retaining walls of scheme value greater than £50k where renewal works have been carried out.

Results

The reported number of retaining walls is consistent over both years. However, there has been a reduction in overall renewed area from 2,240m^2 to 1,313m^2. The 2006/07 volume is driven by only one project, Medge Hall, and so this reduction does not reflect a general trend.

Table 4.17 Retaining wall renewed 2007/08 schemes (number)

	Preventative 2006/07	Repair 2006/07	Replacement 2006/07	Total 2006/07
WCRM		–	–	3
Non-WCRM:				
London North Eastern	1	0	0	1
London North Western	1	0	1	2
Anglia	0	0	0	0
Kent	0	0	0	0
Sussex	0	0	0	0
Wessex	0	0	0	0
Western	0	0	0	0
England & Wales	2	0	1	3
Scotland	0	1	0	1
Network total	**2**	**2**	**1**	**7**

Table 4.18 Retaining wall renewed: area (actual sq m)

	2003/04	2004/05	2005/06	2006/07	1007/08
WCRM	656	–	–	–	–
Non-WCRM:	8,155	–	–	–	
London North Eastern	–	336	200	2,240	388
London North Western	–	99	–	–	881
Anglia	–	–	–	–	–
Kent	–	1,800	800	–	–
Sussex	–	–	6	–	–
Wessex	–	–	70	–	–
Western	–	400	940	–	0
England & Wales	–	2,635	2,016	2,240	1,269
Scotland	–	–	–	–	44
Network total	**8,811**	**2,635**	**2,016**	**2,240**	**1,313**

Summary (based on explanation on reporting in Section 4 Introduction):

- 2006/07 Retaining wall renewed number: 7
- 2007/08 Retaining wall renewed number: 7
- 2007/08 Period 10-13 (preliminary) Retaining wall renewed number to be reported in 2008/09: 3.
- 2006/07 Retaining wall renewed area: 2,240m^2
- 2007/08 Retaining wall renewed area: 1,313m^2
- 2007/08 Period 10-13 (preliminary) retaining wall renewed area to be reported in 2008/09: 520m^2.

Earthwork remediation (M28)

Definition

The total number of earthwork schemes that have been subject to remediation, with total cost per scheme greater than £100k.

Results

Table 4.19 Earthwork renewals 2007/08 (number)

	Preventative	Repair	Actual
WCRM	–	–	–
Non-WCRM:			
London North Eastern	30	17	47
London North Western	23	2	25
Anglia	4	1	5
Kent	1	0	1
Sussex	4	1	5
Wessex	1	1	2
Western	9	0	9
England & Wales	72	22	94
Scotland	8	5	13
Network total	**80**	**27**	**107**

Summary (based on explanation on reporting in Section 4 Introduction):

- 2006/07 Earthwork renewals (excl. WCRM): 68
- 2007/08 Earthwork renewals (excl WCRM): 107
- 2007/08 Period 10-13 (preliminary) earthworks renewed to be reported in 2008/09: 45.

The number of earthwork projects (excluding WCRM) has increased from 68 to 107 between 2006/07 and 2007/08. Most of the increase comes from the repair emergency work activity which has risen from 6 in 2006/07 to 27 in 2007/08. The cause of this is likely to be the increased impact of flooding throughout 2007/08 and earthwork preventative projects have risen from 62 to 80 over the same period.

Tunnel remediation (M29)

Definition

The total number of remediation schemes on tunnels with a total cost per scheme greater than £50k.

Results

Table 4.20 Tunnel renewals 2007/08 (number)

	Preventative	Repair	Actual
WCRM	–	–	–
Non-WCRM:			
London North Eastern	3	10	13
London North Western	0	6	6
Anglia	0	0	0
Kent	0	0	0
Sussex	0	0	0
Wessex	0	0	0
Western	0	1	1
England & Wales	3	17	20
Scotland	0	2	2
Network total	**3**	**19**	**22**

Summary (based on explanation on reporting in Section 4 Introduction):

- 2006/07 Tunnel renewals: 19
- 2007/08 Tunnel renewals: 22
- 2007/08 Period 10-13 (preliminary) tunnels renewed to be reported in 2008/09: 34.

Composite activity volumes measure

This measure was introduced at the end of 2006/07 to provide a more complete picture of all asset renewals. During 2007/08 we have used this measure for our internal management purposes.

The various types of assets are weighted based on the proportion of expenditure on that asset and then this is expressed as a percentage of the total plan.

The 2007 Business Plan has published activity volume forecasts in the 'Route Plan Additional Information' for which the 'Budget Plan Volume' column in the tables align. It should be noted that the measures related to the forecasts for Civils below are slightly different to the 'Civils' activity volume measures (M23, M26-M29) reported earlier in this section. The 'Civils' activity volumes measures (M23, M26-29) do not have Business Plan targets and have continued to be reported to provide comparative trend data for this Control Period.

The details of the Composite activity volumes measure for 2007/08 are in the table below.

Table 4.21 Composite activity volume – actual delivered versus planned in 2007/8

	Unit of measure	Baseline unit cost (£k/unit)	Volume	Actuals weighted volumes	% of plan	Budget plan volume	Weighted volumes
Track							
Plain Line	Kms	225.0	2,229	501,525	92	2,434	547,650
S&C	Eq. Units	452.0	452	204,268	96	470	212,440
Total Track				705,793	93		760,090
Civils							
Underbridges	Sq m	2.22	51,179	113,679	80	63,629	141,333
Overbridges	Sq m	2.31	7,168	16,549	172	4,165	9,616
Bridgeguard 3	Sq m	3.79	6,773	25,681	76	8,865	33,614
Footbridges	Sq m	5.17	1,686	8,710	94	1,800	9,299
Earthworks	Sq m	0.09	485,331	45,754	94	514,358	48,491
Tunnels	Sq m	0.59	15,495	9,072	156	9,936	5,817
Culverts	Sq m	6.05	753	4,558	92	820	4,963
Coastal & Estuarial defences	L m	1.96	3,368	6,598	230	1,467	2,874
Retaining Walls	Sq m	0.25	542	134	76	710	175
Total Civils				230,734	90		256,181
Signalling							
Resignalling	SEUs	267.0	1,470	392,490	108	1,357	362,319
Telecoms							
Concentrators Large	No.	897.0	20	17,940	143	14	12,558
Concentrators Small	No.	82.0	69	5,658	186	37	3,034
DOO CCTV Systems	Systems	43.3	187	8,097	141	133	5,759
Voice Recorder	No.	25.9	104	2,694	128	81	2,098
CIS Systems	No. of Stations	95.8	45	4,311	141	32	3,066
PET Systems	No.	15.1	45	680	67	67	1,012
Clocks	No.	5.0	17	85	189	9	45
Long Line PA	No. of Stations	30.5	54	1,647	102	53	1,617
Total Telecoms				**41,111**	**141**		**29,188**

Table 4.21 Composite activity volume – actual delivered versus planned in 2007/8 (continued)

	Unit of measure	Baseline unit cost (£k/unit)	Volume	Actuals weighted volumes	% of plan	Budget plan volume	Weighted volumes
Electrification AC							
HV Switchgear	No	100.0	60	6,000	37	163	16,300
HV Cables	km	205.8	–	0	0	0	0
Booster transformers	No.	29.0	9	261	69	13	377
Grid Supply Points	No.	242.7	–	0	0	2	485
OLE re-wiring	Tension length	111.7	153	17,083	59	259	28,917
OLE campaign changes	Tension length	23.3	961	22,392	86	1,120	26,097
OLE Spanwires	No.	9.1	35	318	13	266	2,420
OLE Structures	No.	2.8	33	92	70	47	132
Electrification DC							
HV Switchgear	No.	72.8	76	5,534	67	114	8,301
HV Cables	km	205.8	32	6,504	85	37	7,616
LV Switchgear	No.	58.3	42	2,447	34	125	7,282
Transformers/Rectifiers	No.	257.3	10	2,573	77	13	3,345
Grid Supply Points	No.	135.2	–	0	0	–	0
Conductor Rail	km	145.6	46	6,743	178	26	3,786
Total Electrification				69,947	67		105,057
Plant & Machinery							
Points Heating	No.	13.6	1,085	14,756	101	1,069	14,538
Total Plant				14,756	101		14,538
Total				**1,454,831**	**95**		**1,527,374**

Note: All figures exclude volumes delivered by the WCRM project and via maintenance work.

Section 5 – Safety & environment

Introduction

This section reports on our principal safety KPIs, our environmental strategy and initiatives as well as the enhancements from our Safety & Environment Plan.

Safety

We are reporting on both Workforce safety using the Accident Frequency Rate and System safety using the following KPIs:

- Level crossing misuse
- Infrastructure wrong side failures (50+ severity score)
- Cat A SPADs
- Operating irregularities
- Criminal damage.

Workforce safety considers the safety of our people as they carry out their duties and System safety is an indication of the overall safety of passengers, workforce and the public in respect of the design, construction, maintenance and operation of the railway system.

Workforce safety

Accident Frequency Rate

Definition

All injuries that are statutorily reportable under RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations) for all Network Rail staff and contractors working on Network Rail's managed infrastructure, normalised per 100,000 hours worked. This measure provides information to help monitor and control accidents and injuries to the workforce.

Commentary

The Accident Frequency Rate for Network Rail employees and contractors for 2007/08 was 0.226. This is a 14 per cent reduction over the figure in 2006/07 and continues the downward trend seen in previous years. These figures compare favourably to the national rate for the UK construction industry which in 2006/07 stood at approximately 0.401.

Despite this generally improving trend there were two workforce fatalities, both involving track workers struck by trains.

Key initiatives during the year which contributed to the continued reduction of the Accident Frequency Rate were:

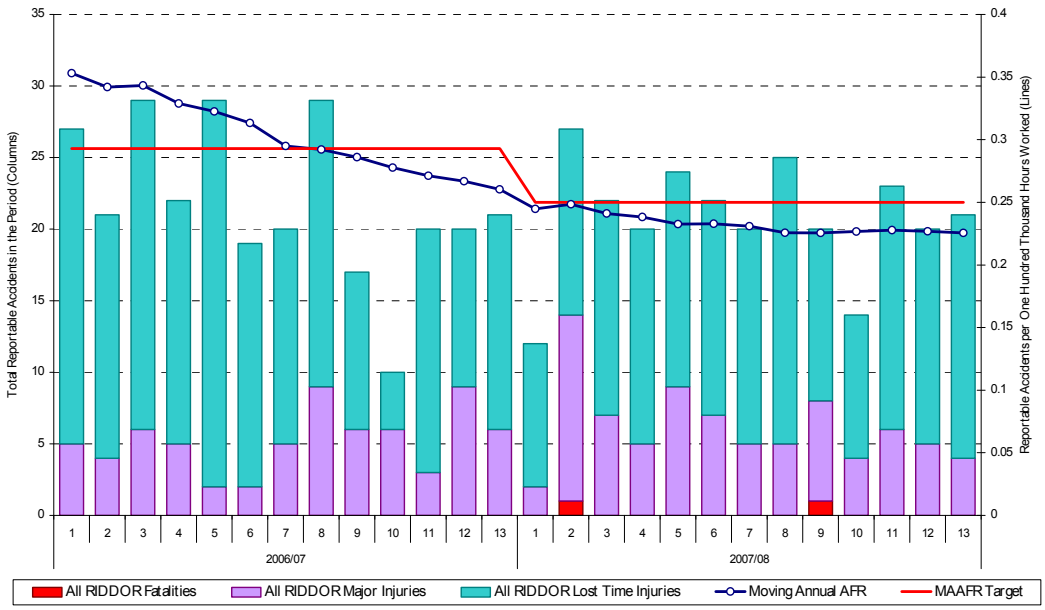
- All Maintenance Delivery Units have developed and implemented their own, local accident reduction plans. These are designed to focus on local issues that have been identified through work activity risk assessments and local accident investigations. They give local ownership on local issues and empower people to deliver local resolution of safety issues. Achievements against the plans are monitored within the line through the Monthly Business Review (MBR) process in an effort to achieve consistent application of best practice and delivery against plan commitments.
- A review and revision of the Controller of Site Safety (COSS) site briefing forms has been undertaken. This included considerable user consultation and testing. The revised forms are simpler to complete, focus on a reasonable number of key issues, and are much clearer.
- In order to increase the effectiveness of workforce briefings, a training module on 'effective briefing' was developed and introduced to the COSS training course. The object of the module is to raise the delivery standards for COSS briefings and increase knowledge transfer. The aims are to raise workforce awareness of worksite hazards and control measures and, indeed, to raise the workforce's expectations of a good briefing.

Results

Table 5.1 Workforce safety

	2005/06	2006/07	2007/08
AFR (MAA)	0. 359	0.263	0.226
Fatalities	4	0	2
Major injuries	98	69	79
Lost time injuries	301	216	189

Figure 5.1 Combined Workforce RIDDOR accident frequency rate – National performance



- New Lookout Operated Warning Systems (LOWS) technologies were trialled during 2007 and funding has been allocated for the purchase of equipment during 2008. The new equipment will enhance the safety of both the lookout and the group being protected by providing both audible and visual warning throughout the worksite using modern radio technologies. Whilst teething problems have been experienced, it is anticipated that this technology will have a positive safety impact.
- A national risk-based programme to install fixed lighting at 70 junctions, where a high risk to track workers from slips, trips and falls had been identified, was initiated in 2007. A trial site was identified and a variety of lighting equipment is being tested there. The testing explores the actual levels of light required on site to perform particular tasks and will check that all technical issues are identified prior to a national roll out (due to start in 2008).
- Work has been undertaken with Network Rail's small plant and tool suppliers to reduce exposure of track workers to noise and vibration, and to reduce the likelihood of musculoskeletal disorders (MSDs). This has included the redesign and modification of existing plant and tools, as well as the sourcing of new plant and tools. The methods of work employing the plant and tools have also been examined with a view to reducing exposure to hazards while maintaining or improving productivity.
- In order to improve the availability of suitable and sufficient welfare facilities for track workers, a phased plan has been developed and implemented for the provision of permanent welfare facilities at strategic locations. This plan was initiated in 2007 and will continue through 2008.
- The 'Safety 365' safety awareness campaign continued throughout 2007 with a variety of track worker and general safety topics covered using a variety of media. Subjects included: safety critical communications; slips, trips and falls; the use of mobile telephones on the infrastructure and buried services. The media used included: briefing packs for use by line managers; DVDs; posters; booklets and pocket cards. An impact survey was carried out in the latter half of 2007 to assess the effectiveness of the 'Safety 365' campaigns. This demonstrated that the messages of the campaigns were being communicated effectively and identified those campaigns that had been particularly successful. This information is being used in the development and delivery of the 'Safety 365 – Healthy 2008' campaigns.

System Safety
Infrastructure wrong side failures
Definition

The number of higher risk (hazard index of 50 or above) failures of infrastructure. This measure identifies failure areas where improvement to the infrastructure is required or perverse equipment behaviour manifests itself when new equipment is introduced.

Commentary

The continued improvement in the infrastructure wrong-side failure rate is a reflection of the general improvement in the Asset Stewardship Incentive Index (ASII) which has outperformed the expectations of the 2003 Access Charges Review, in spite of greater volumes of traffic on the network than anticipated.

We are now in the final phase of our three-phase transformation programme, which builds on reducing safety risks, standardising processes and delivering efficiencies by removing unnecessary costs.

The New Measurement Train (NMT) and other train-based measurement have improved detection of potential failures before they become serious from a safety perspective. We have also realised the early opportunities for improvement, such as accelerated re-railing programmes and rail grinding to tackle rolling contact fatigue.

The numbers of signals and telecoms high risk failures are very small. The 2007/08 autumn season produced a different pattern of leaf fall, which has led to a reduction in the number of leaf fall railhead contamination related signalling failures.

We are focusing increasingly on tackling the root causes of long-standing issues that affect asset performance. In particular, components that are not sufficiently reliable are being progressively replaced on a campaign basis.

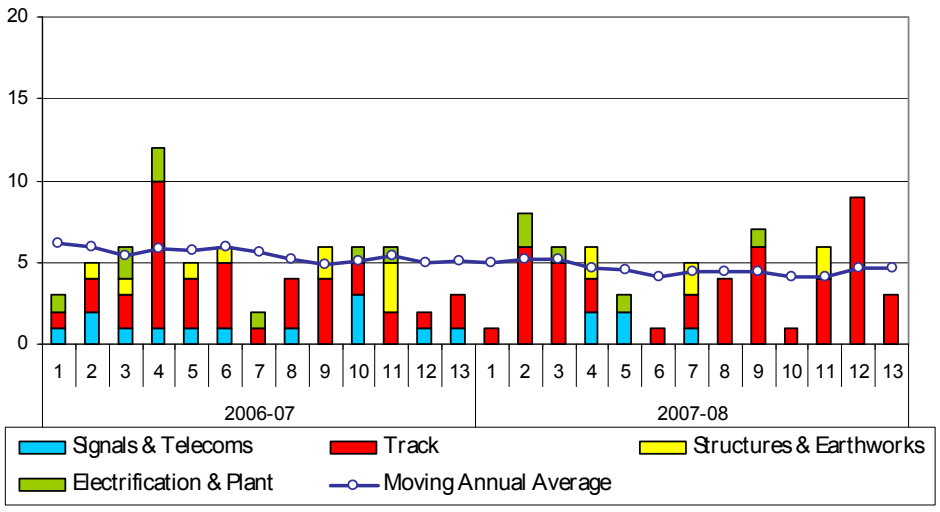
In 2007/08, we have seen a particularly strong performance in the reduction of broken rails which are at their lowest ever level. The major factors are the mild weather experienced this year and increased use of ultrasonic testing, supported by the ongoing impact of improvements due to targeted asset renewal and maintenance.

Results

Table 5.2 Infrastructure wrong side failures

	2005/06	2006/07	2007/08
Signals and Telecoms	9	13	5
Track	52	36	44
Structures and Earthworks	18	9	6
Electrification and Plant	n/a	8	8
Total	**79**	**66**	**63**

Figure 5.2 Infrastructure wrong side failures



Level crossing misuse

Definition

This measures all safety related incidents on level crossings. Any occurrence of a train striking a road vehicle on a level crossing is equal to 1 equivalent collision; other events are weighted at 0.1 equivalent collisions.

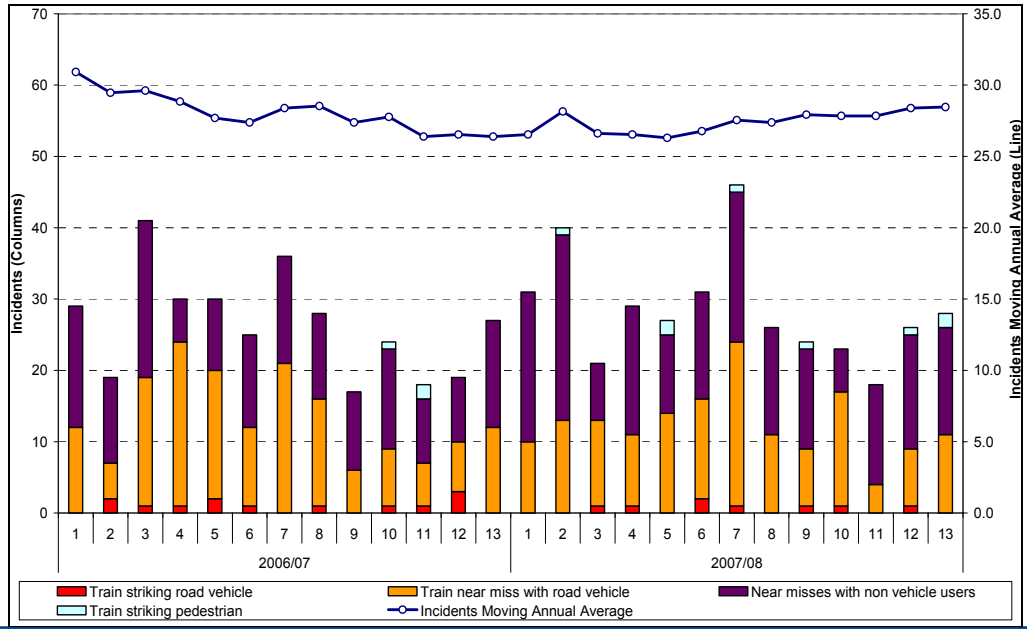
During 2007/08 Network Rail continued its strategy for reduction of risk at level crossings based on a programme of risk assessment to identify reasonably practicable measures for risk reduction; the continued reduction (i.e. closures) in the numbers of level crossings where justified; effective operation and maintenance; and education of the public on the risks of level crossing misuse.

Results

Table 5.3 Level crossing misuse

	2005/06	2006/07	2007/08
Level crossing misuse (MAA)	32.23	26.38	28.46
Collisions with road vehicles	16	13	8
Train striking pedestrian	8	3	8
Near miss with road vehicle	182	162	154
Near miss with non-vehicle users	213	165	200

Figure 5.3 Level crossing misuse



Commentary

Level crossing misuse continues to constitute the largest single category of train accident risk. Approximately 25 per cent of this risk is to people inside the train and 75 per cent of the risk to people inside the road vehicles.

During 2007/08 there has been an 8 per cent increase in level crossing misuse events. This increase has been driven by events involving pedestrian users of level crossings with eight pedestrian fatalities in 2007/08 compared with three the previous year. Road vehicle misuse events reduced by 7 per cent, and there were eight train collisions with road vehicles compared with 13 the previous year.

In January 2007, Network Rail commenced a programme of assessing the risks at all level crossings using the All Level Crossing Risk Model (ALCRM). By 31 December 2007 a total of 3,700 level crossings, including all public road crossings and all station foot crossings, had been risk assessed using the ALCRM. By 11 January 2010 all active level crossings will have been assessed using the ALCRM.

These assessments have provided a greater understanding and prioritisation of level crossing risk and allow Network Rail to better target investment for closure, upgrade or further risk mitigation where reasonably practicable.

Network Rail has continued to evolve and implement the 'Don't Run The Risk' public awareness campaign to educate users on how to use level crossings correctly and to warn them of the dangers of misuse. This included a hard hitting television advert on prime time television supported by national and local media. Local radio, regional press adverts, outdoor posters and direct marketing to local residents were used to target "hot spot" level crossings with the highest levels of misuse. Private farmers were also sent education packs reminding them of how to correctly use their crossings.

Signals passed at danger (SPADs)

Definition

This measure reports all Category A SPADs. This indicates the signals passed while displaying a stop aspect for intrusions into a non permitted route, which can lead to collision when a stop aspect or indication was displayed correctly, in sufficient time for the train to be stopped at the signal.

Commentary

Since the introduction of the Train Protection Warning System (TPWS) in 2002/03, the risk from Category 'A' Signals Passed at Danger (SPAD) has reduced by around 90 per cent. However, following a year-on-year reduction in the actual number of SPADs, there has been a slight increase in the annual number of SPADs in the last two years.

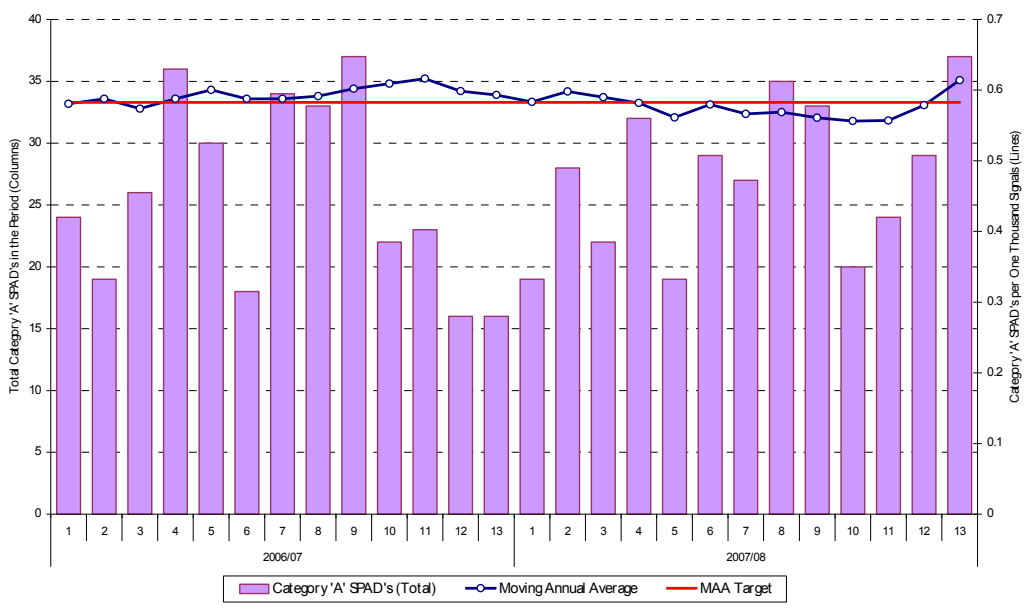
Notwithstanding this, the total number of SPADs remains at a low level, although the total for 2007/08 is 6.3 per cent higher than the previous year. During the initial part of the year the moving annual average continued to fall, and for 8 of the 13 periods was within the target level set. The comparatively high number of SPADs in Periods 12 and 13 compared to the low number in the equivalent period in the previous year has led to a rise in the moving annual average at the end of the year. This is the second consecutive year in which the overall SPAD numbers have increased following seven years of improvement.

Results

Table 5.4 Signals passed at danger

	2005/06	2006/07	2007/08
Cat A SPADs/1000 signals	0.583	0.594	0.614
Cat A SPADs	328	334	354

Figure 5.4 Signals passed at danger (SPADs)



The industry is currently considering the impact of a number of factors on SPAD performance, including:

- the focus of risk management diverted from SPAD risk towards other risks
- TPWS potentially being regarded as a 'safety net' and could be modifying driver behaviour
- an increased number of TPWS reset and continue events, whereby a train driver, following activation of the TPWS on-train equipment, may have reset the equipment and continued moving the train forward without firstly speaking to the signaller.

Specific actions/initiatives that are being taken to reduce Category 'A' SPAD risk are:

- adoption of local initiatives within area Operations Risk and Mitigation (OPSRAM) groups to address site specific SPAD related issues through selected improvement initiatives
- continued reporting and analysis of all SPAD incidents, following investigations at the appropriate level and addressing any recommendations that are generated as a result
- a continuing programme of signalling renewal schemes where opportunity is being taken to bring the signalling equipment and installation up to the latest design and implementation standards to minimise SPAD risk. This includes utilisation of new technology to optimise the visibility of signals (e.g. LED signal heads), consideration of the layout features and optimisation of TPWS installations
- sharing of best practice through the national Operations Focus Group and other industry forums. These involve a variety of stakeholders including Network Rail, Railway Safety & Standards Board and Train/Freight Operating Companies.

These efforts will continue, in conjunction with additional train operator led initiatives, over the next year where it is anticipated further benefit can be gained in order to attain the target level set.

Operating irregularities

Definition

This is the number of reported irregularities normalised by the number of signals, train miles and track miles.

Commentary

Operating irregularities occur when operational rules, processes or procedures are not correctly followed or adhered to. There was no specific target set for operating irregularities for 2007/08 other than to continue to reduce them. Despite a 17 per cent reduction in the number of events in 2006/07 compared to the previous year, levels during 2007/08 have essentially been maintained with a marginal increase of 1.5 per cent.

Monitoring the number and thereby the frequency of events provides a simple numeric measure, but does not measure the consequence and hence the risk associated with each event. To address this Network Rail, working with RSSB, have developed a method of risk ranking all irregular working events (of which operating irregularities are a subset) such that awareness is gained, and priority given, to tackling those incidents and trends that present the greatest risk. This method of risk ranking has now been implemented and is being applied to all new events from the start of 2008/09. The Safety Management Information System (SMIS) has been modified to include more comprehensive reporting and categorisation of irregular working events such that appropriate mitigations can be applied.

Other specific actions/initiatives being taken to reduce irregular working events include:

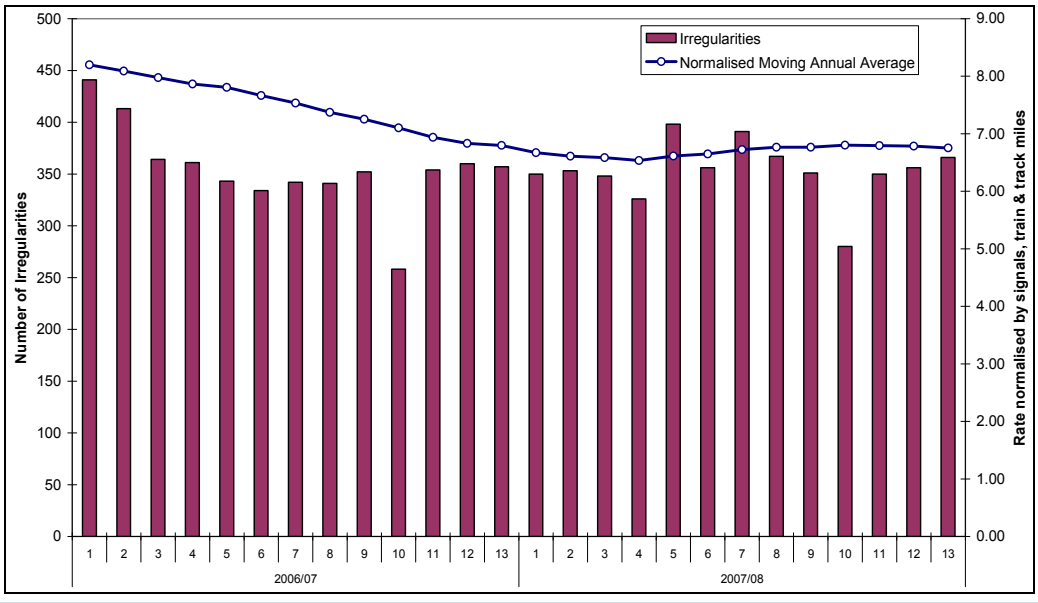
- continued implementation of the 'SAF6' national voice communications training programme to improve quality of communication between key railway roles such as signallers, drivers, contractors and maintenance staff
- realising the benefits of implementing the COGNISCO competence testing programme to improve competence and understanding of the Rule Book amongst key operating staff
- further improvements to the existing safety communications monitoring process, technology and management regime
- continued application of the existing 'Safety 365' campaign to promote safe working and giving teams ownership of, and the opportunity to take pride in, their safety performance.

Results

Table 5.5 Operating irregularities

	2005/06	2006/07	2007/08
Operating irregularities (MAA)	8.18	6.81	6.75
Operating irregularities	5,551	4,627	4,703

Figure 5.5 Operating Irregularities



Criminal damage

Definition

This is the number of malicious acts on or directly affecting Network Rail infrastructure, normalised per 100 route miles.

Commentary

The number of malicious acts during 2007/08 has improved significantly compared with previous years, with the normalised moving annual average 11.8per cent lower than in 2006/07.

We have continued to tackle crime on the railway, in co-operation with our industry partners, through a combination of public education, law enforcement and improved deterrents such as installation of CCTV cameras at more stations and crime hotspots, and continued improvements to lineside fencing. Last year we reported an increasing number of cable theft incidents, which have continued throughout 2007/08. These have been influenced by the significant rise in the price of copper. Direct action has been taken to tackle this issue through increased vigilance, increased security, collaborative working with the British Transport Police and civil police forces, and other initiatives such as establishing cable theft hotlines.

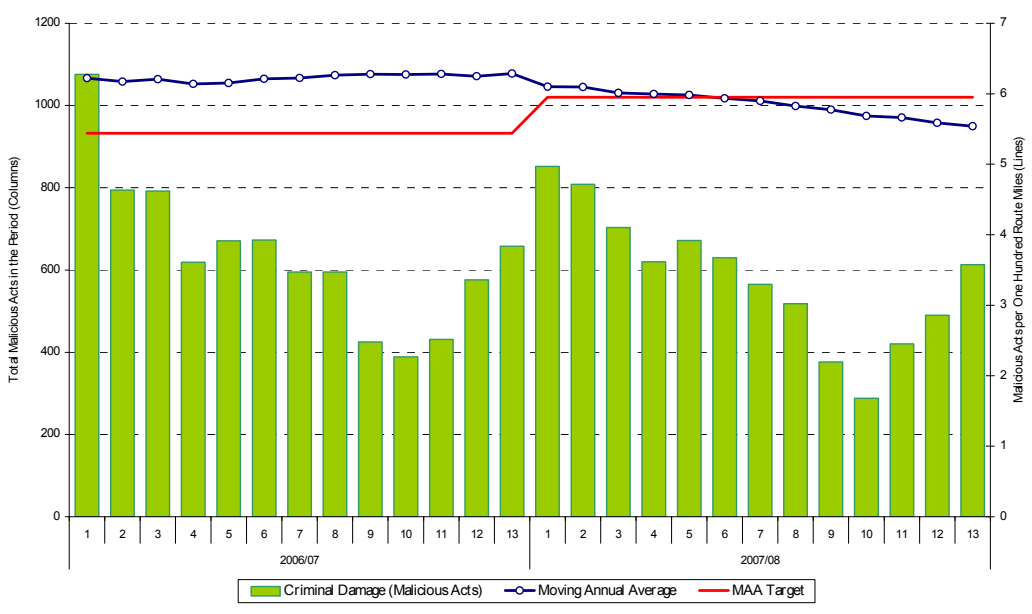
Specific initiatives to tackle railway crime include:

- Continuing to implement and evolve the 'No Messin!' campaign that seeks to educate 10 to 16 year olds in the dangers of playing on the railway, placing objects on the line and throwing stones at trains.
- Further realisation of the benefits of establishing the Community Safety Steering Group (CSSG), Community Safety Partnership Groups (CPSG) and Route Crime Working Groups (RCWG) which provide a multi-level, multi-stakeholder co-ordinated approach to managing risk associated with railway crime. These groups encourage nationwide learning from local initiatives and assure that location specific issues are tackled at the appropriate level. Stakeholders include Network Rail, Train Operating Companies and the British Transport Police.
- Use of the Network Rail helicopter, in conjunction with the British Transport Police, to monitor route crime hotspots, or follow up reported incidents, with a view to gaining increased success of securing prosecution.

Table 5.6 Criminal damage

	2005/06	2006/07	2007/08
Malicious acts / 100 route miles	6.154	6.285	5.539
Malicious acts	8,057	8,247	7,555

Figure 5.6 Criminal damage (malicious acts) – National performance



- Increased use of undercover surveillance cameras and other advancements in security technology at route crime hotspots to collect evidence of trespass and vandalism offences as they are committed.
- Investigation of the potential use of forward facing CCTV cameras in train driving cabs designed to monitor and record evidence of route crime in proximity of the running line.

Environment

Introduction

During 2007/08 we began to refocus our environmental strategies to deliver three aims:

- to achieve sustainable consumption
- to be more energy efficient and reduce reliance on fossil fuels in running the railway, and
- to protect the natural environment.

Sustainable consumption and production

Our focus on sustainable consumption is to address both material procurement and waste management.

Network Rail already has a significant programme of recycling track wastes via its National Delivery Service recycling centres. Taking ballast alone, of the 1.9 million tonnes over 90 per cent is recycled for reuse. Similarly, our construction projects have been addressing waste and achieve high levels of recycling and re-use. Our focus has therefore been on waste arising from our building stock – corporate offices, stations and depots. A target of 60 per cent waste recovery, re-cycling or re-use from that arising at stations corporate offices and depots has been set for 2014.

In addition, Network Rail has a programme to benchmark the sustainability of purchases of steel, ballast, concrete, paper, wood, fuels and oils. This will involve engaging with our suppliers and developing targets for improvement. A process by which the value of choosing a product that is more sustainable will also be developed for use in future procurement decision making.

Energy efficiency and reduced reliance on fossil fuels

Network Rail has set itself a target to reduce its non-traction carbon dioxide emissions by 20 per cent by 2014 based on a 2006/07 baseline. A corporate energy management strategy is being put in place which will enable more efficient energy use at offices, infrastructure maintenance units and Network Rail managed stations. The strategy will establish the baseline data and map out the system for measuring, monitoring and reporting across the company. Implementation of the strategy will lead to significant cost savings, particularly with energy costs rising sharply.

The Government is introducing an emissions trading scheme in 2009 and Network Rail will be required to participate. Implementation of the strategy will provide accurate and verifiable energy consumption data enabling Network Rail to manage its use of energy, achieve corporate responsibility goals and report its emissions to the Government.

Protection of the natural environment

Network Rail is pursuing a number of initiatives with regard to protection of the natural environment. In terms of the lineside environment, a project is being developed at ten trial sites to look at habitats for flora and fauna that are compatible with the operational railway, improve stability of cuttings and embankments and reduce the need for vegetation maintenance. The information gained from the project will provide guidance for the effective long term management of the lineside environment including management of sensitive habitats such as Sites of Special Scientific Interest and Sites of Important for Nature Conservation.

Another significant project aims to bring 21 Sites of Special Scientific Interest to favourable or recovering status by 2010.

Safety and environment enhancements

Introduction

Safety and environment enhancements, funded from the Safety & Environment Fund, include safety related projects to achieve particular safety criteria or that align with business objectives as well as various environment schemes.

Expenditure during the year is set out below.

Environment schemes

National Pollution Prevention Programme

One of the biggest environmental schemes is the National Pollution Prevention Programme (NPPP) mainly concerning light maintenance depots (LMDs) where fuel oil is stored. The NPPP is an amalgamation of a group of pollution prevention projects into a single national programme with the aim of achieving compliance with the Control of Pollution (Oil Storage) Regulations and the Groundwater Regulations. The main focus was on the 91 LMD sites around the country but work was also carried out at over 300 other small sites. The programme was substantially complete towards the end of 2007, handback procedures are currently being progressed along with work at a small number of LMD sites where work has taken longer than originally scheduled.

Adopting a national programme approach has enabled efficiencies in contracting the work resulting in significant cost savings and also a more consistent approach in achieving compliance with both sets of regulations.

Contaminated land programme

This is another sizable environmental scheme the aim of which is to deal with historic contamination of railway operational property now owned by Network Rail. To date work undertaken has comprised the investigation and monitoring of approximately 600 sites to establish the presence and degree of soil and water pollution. At around 100 of these sites detailed investigation and modelling has been undertaken with remediation measures put in place where necessary. At 10 sites full Effluent Treatment Plants (ETPs) have been installed in conjunction with environmental regulatory bodies. Due to previously unknown contamination being discovered during the course of Network Rail's extensive investment programme, in early 2008 the decision was taken to extend the programme to the end of Control Period 3 in order to be able to respond quickly to any new discoveries. This will help mitigate potential delays to other projects.

Landfill waste management

Network Rail holds waste management licences for four landfill sites which used to receive waste materials from track renewals and maintenance activities. The four sites concerned are Conington (near Peterborough), Hunslett (near Leeds), Newport Mon Bank (South Wales) and Shewalton (Ayrshire). Except for Shewalton, tipping at these sites ceased in the 1990s.

In 2001 an EC Landfill Directive came into force requiring all landfills to be upgraded to meet more strict environmental controls. The aim of the project is to surrender the waste management licences at three of the four sites, namely Conington, Hunslett and Newport Mon Bank. It is considered more advantageous to adopt a different approach at Shewalton. Early in 2008 the licences at Hunslett and Newport Mon Bank were successfully surrendered. Network Rail is continuing to work with the Environment Agency to surrender the licence at Conington.

Safety schemes

The 2007 Business Plan for safety schemes was based on a provision for future, as yet unidentified, safety enhancements that were justified and authorised throughout the year. The provision was also designed to fund compliance issues arising as a result of unanticipated legislation changes.

In the 2007 Business Plan, Network Rail committed to concentrate on three main areas that could potentially require safety enhancement funding:

- train accident risk
- other risk to passengers and the public
- workforce safety risk.

Table 5.7 S&E Fund expenditure 2007/08

	Plan	Actual	Variance
LMD national pollution prevention programme	20	26	(6)
Other S&E Funded shcemes	71*	42	29
Total	**91**	**68**	**23**

* Provision for emerging schemes.

Safety enhancement proposals are usually assessed in accordance with an agreed safety justification process. This is based on robust cost/benefit criteria; a successful scheme is one that demonstrates that the anticipated safety benefits, following implementation, are broadly equitable, or outweigh the costs, when calculated using the DfT's values for preventing a fatality. Due to the eligibility criteria, it is important to understand that S&E funding is by means of a 'provision' and not budget. During 2007/08, a total of 131 safety enhancements were authorised with a total cost of £81.4m.

The successful enhancements ranged from low cost site specific enhancements (such as a £4k level crossing closure) through to more significant (such as £23.3m for the upgrade of CCTV surveillance equipment on 'out of London' Managed Stations).

The authorised enhancements were spread in the three broad risk areas as:

- Train accident risk – 71 schemes were authorised in 2007/08 for a total cost of £23.9m (comprising of 49 level crossing risk reduction or eradication schemes, 12 signalling enhancements and 10 others).
- Other risk to passengers and the public – 35 enhancement schemes were authorised for a total cost of £44.5m (mainly comprising programmes of work to reduce child trespass and the effects of vandalism).
- Workforce safety risk – 25 enhancement schemes were authorised for a total cost of £13m (mainly comprising improved access arrangements, including signage and the provision of mechanised lifting equipment, and enhanced walking routes, asbestos removal from buildings, improved lighting for enhanced maintenance depot protection arrangements).

Section 6 – Expenditure and efficiency

Introduction

This section provides information on actual expenditure on renewals, enhancements and maintenance on the network during 2007/08 as compared to the forecasts reported in the Business Plan 2007.

All financial figures are in 2007/08 prices and are rounded to the nearest £1m (unless otherwise stated). As a result of this rounding, totals will therefore not necessarily be the exact sum of the individual lines.

Included within this section is:

- a network total for expenditure against the Business Plan 2007 provided together with reconciliations for each of the 26 strategic routes
- reconciliations for expenditure on West Coast Route Modernisation and Central
- a separate page for maintenance expenditure as maintenance on the network is conducted by territory rather than by strategic route.

Also included in this section is an update on our progress for work on efficiency. This includes information both on efficiencies made during the year as well as progress in developing our unit cost framework.

Network total expenditure

Table 6.1 Expenditure 2007/08 prices (£ million)

	Forecast	Actual	Variance
Maintenance	1,136	1,118	(18)
Renewals			
Track	876	923	47
Signalling	496	478	(18)
Structures	408	383	(24)
Electrification	115	94	(21)
Plant and Machinery	113	92	(21)
Information Technology	106	92	(14)
Telecoms	258	189	(70)
Stations	182	174	(8)
Depots	30	51	21
Lineside buildings	8	16	8
Other	311	42	(269)
Renewals (non-WCRM)	2,903	2,534	(369)
Renewals (WCRM)	382	372	(10)
Total renewals	**3,285**	**2,906**	**(379)**
Enhancements (non-WCRM)	891	815	(76)
Enhancements (WCRM)	180	246	66
Total enhancements	**1,071**	**1,061**	**(10)**

Commentary

A breakdown of this network total is shown in the remaining tables in this section giving details of expenditure for the 26 strategic routes, Central (other), West Coast Route Modernisation (WCRM) and Maintenance by territory. The commentary below relates to non-WCRM expenditure – WCRM has a separate page with commentary.

Reconciliation with regulatory accounts

The following explain the differences between the expenditure figures presented in this Annual Return and those in the Regulatory Accounts:

1. Enhancements − the Annual Return includes £318m of third party funded schemes that are not reported in our accounts. The Annual Return also includes expenditure of £74m through our Out-performance fund and £20m that we have excluded from the regulatory accounts because we consider it does not meet the ORR criteria for RAB additions;
2. Renewals − the Annual Return includes expenditure on WCRM power supply points (£13m) to be consistent with the renewals forecast in the Business Plan.

As reported in the regulatory accounts, total operating expenditure in the year was £1,179m compared with the ACR 2003 Final Determination of £1,166m. Within this total, controllable Opex was £878m compared with the ACR allowance of £908m.

Commentary

The following provides explanations which relate to many of the variances in the routes. For this reason they are not repeated under the Route commentaries and only additional route specific explanations are included for each route.

Renewals

Overall renewal expenditure during the year was slightly higher (approx. £130m) than spend in 2006/07 but was below the level forecast in the 2007 Business Plan. The main variances from the plan are described below.

Track

The variance on track renewals is primarily due to deliverability issues that have caused the pace of unit cost efficiencies to fall behind schedule as reported in the efficiency section later in this chapter.

Signalling

The £18m variance in the signalling programme is mainly due to a significant amount of re-scheduled activity (£38m) and increased costs (£20m net). The re-scheduled activity was due to a combination of re-prioritisation due to WCRM and deferral to allow work to be reviewed to achieve efficiencies. The increased costs are mainly on the Portsmouth and Coventry projects, net of efficiencies delivered on the Glasgow re-signalling project.

Structures

The variance on structures renewal expenditure is primarily due to activity efficiencies through managing risk, tendering arrangements and other cost reductions. In addition, some work was deferred from the back end of the year due to severe weather conditions.

Electrification

The variance in the electrification programme is mainly due to deferral of switchgear renewals (£16m) whilst more efficient delivery options are pursued. Also deferral of overhead line renewals mainly on MML and ECML (£8m) due to access constraints and resources re-prioritised to WCRM. Other works have been deferred due to a combination of resource issues and re-scheduling of works whilst more efficient delivery options are pursued.

Plant and machinery

The £21m variance is mainly due to the variances in the 'central (other)' category for the deferral of purchases of mobile plant (for example, the purchase of wagons has been deferred by the inability of the supplier to meet the level of demand at present) and re-scheduling of various projects into 2008/09 that were included as discretionary investment in the Business Plan.

Information technology

The variance is mainly due to re-prioritisation to reflect emerging business needs and to some activity efficiency in respect of IT spend at corporate offices.

Telecoms

The majority of the variance is because the strategy for the deployment of GSM-R masts changed during the year when we decided that mast height should be reduced from 29m to 15m. This change was made as it was felt that this would be more acceptable to local communities. The change in strategy resulted in the suspension of deployment of 29m masts and

the preparation of a revised cell-plan based on the shorter mast height. Work that was budgeted for this year has therefore slipped into later years. Additional savings were achieved due to activity efficiency.

Stations

Key variances include £12m additional expenditure at Kings Cross, offset by £15m underspend at London Victoria due to re-scheduling work to the roof while the timing of the overall Victoria Masterplan was considered and £5m of other deferrals.

Depots

The additional expenditure is primarily a result of our decision to implement an improvement programme for maintenance depots; this was originally shown in the Business Plan as discretionary investment in the 'central (other)' category.

Lineside buildings

The additional expenditure is primarily a result of our decision to implement schemes that were originally shown in the Business Plan as discretionary investments.

Other

The large variance in this category is because the Business Plan included an allowance for uncommitted discretionary investments, some of which were taken forward during the year and shown in specific asset category spend, and some of which did not progress. The Business Plan also included an allowance for contingency.

Enhancements

The variance on non-WCRM enhancements was due to the delay in progressing a number of schemes as quickly as anticipated, these schemes were deferred into 2008/09. This includes deferral of some expenditure on customer sponsored and third party schemes as a result of delays in agreeing the required scope with the client and also the deferral of some expenditure into 2008/09 to achieve efficiencies on the Thameslink programme.

Route 1 Kent

Table 6.2 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	14.0	13.5	-0.5
Signalling	14.7	9.1	-5.6
Structures	8.7	16.6	7.9
Electrification	25.0	20.2	-4.8
Plant and machinery	4.9	8.4	3.5
Information technology	0.0	0.0	0.0
Telecoms	0.1	0.0	-0.1
Stations	21.3	6.0	-15.3
Depots	0.0	0.5	0.5
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.0	0.0
Total renewals	88.7	74.3	-14.4
Total enhancements	19.9	23.2	3.3

Signalling

The £5.6m variance is mainly due to re-scheduling of activity on East Kent re-signalling (£3.7m), Canterbury West (£1.3m) and Aylesford level crossing (£1.3m).

Structures

This variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Electrification

The £4.8m variance is mainly due to re-scheduling of activity on DC switchgear renewals (£4.8m) and DC cable renewals (£1.1m) partially offset by increased costs on transformer rectifier renewals (£0.9m).

Plant and machinery

The £3.5m variance is mainly due to increased activity and costs on points heating (£2.8m).

Stations

Lower than forecast spend on Victoria station barrel roof renewals is due to delays in agreement of Victoria Masterplan (£14.9m). Requirement for renewal of Victoria station escalators was reviewed and considered unnecessary due to level of service and reliability confirms at serviceable level (£0.5m). Lewisham platform repairs were accelerated (£0.7m).

Depots

The variance is due to Ashford MDU £0.5m − MDU Accommodation programme, originally forecast under 'central (other)'.

Route 2 Brighton Main Line and Sussex

Table 6.3 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	13.7	13.0	-0.7
Signalling	19.1	17.9	-1.2
Structures	9.1	19.3	10.2
Electrification	10.5	9.1	-1.4
Plant and machinery	2.7	3.2	0.5
Information technology	0.0	0.0	0.0
Telecoms	0.0	0.1	0.0
Stations	6.9	4.7	-2.1
Depots	0.0	0.0	0.0
Lineside buildings	0.3	1.2	0.9
Other	0.0	0.0	0.0
Total renewals	62.4	68.6	6.2
Total enhancements	140.7	138.4	-2.3

Signalling

The £1.2m variance is mainly due to re-scheduling of activity on Barnham-Bognor re-signalling (£1.4m).

Structures

This variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Electrification

The £1.4m variance is mainly due to re-scheduling of activity on DC switchgear renewals (£1.7m).

Plant and machinery

The £0.5m variance is mainly due to increased activity and costs on points heating (£0.8m).

Stations

The variance is due to Denmark Hill footbridge repairs deferred until 2009/10 due to unavailability of suitable disruptive possession in 2007/08 (£0.54m). Gatwick station escalators were deleted as planned major works to redevelop the station removed the need for escalators in the current location (£0.64m). Increase in scope of works were required for Worthing platform repairs, £0.49m. Completed design works relating to London Bridge re-generation were not in original plan, £0.44m.

Lineside buildings

The variance is due to Three Bridges offices built on existing Network Rail land at Three Bridges depot, not in original plan, £1.07m.

Route 3 South West Main Line

Table 6.4 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	45.0	43.0	-2.0
Signalling	35.5	63.4	27.8
Structures	13.0	18.9	5.9
Electrification	17.4	12.3	-5.1
Plant and machinery	3.1	4.2	1.1
Information technology	0.0	0.0	0.0
Telecoms	2.0	0.6	-1.4
Stations	7.0	7.1	0.1
Depots	0.0	2.3	2.3
Lineside buildings	0.0	0.3	0.3
Other	0.0	0.0	0.0
Total renewals	123.1	152.1	28.9
Total enhancements	22.4	14.1	-8.3

Signalling

The £27.8m variance is mainly due to increased costs arising on the Portsmouth re-signalling project.

Structures

This variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Electrification

The £5.1m variance is mainly due to re-scheduling of activity on DC switchgear renewals (£6.1m) offset by increased costs on transformer rectifier renewals (£0.3m).

Plant and machinery

The £1.1m variance is mainly due to increased activity and costs on points heating (£1.4m).

Telecoms

The £1.4m variance is mainly due to re-scheduling of activity on Eastleigh concentrator renewal (£1.0m).

Depots

The renewal of the existing lighting within the yard area at Bournemouth LM depot, from the Roads 7 – 17 and car park and from the Walking Route to Branksome station, was bought forward from 2008/09, £1.4m. The variance is also because implementation of Clapham MDU, part of the MDU accommodation programme, was previously planned under 'central (other)', £0.85m.

Route 4 Wessex Routes

Table 6.5 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	5.0	4.8	-0.2
Signalling	5.8	3.0	-2.8
Structures	4.7	6.7	1.9
Electrification	0.0	0.0	0.0
Plant and machinery	0.0	0.0	0.0
Information technology	0.0	0.0	0.0
Telecoms	0.4	0.0	-0.4
Stations	0.1	0.8	0.6
Depots	0.0	0.9	0.9
Lineside buildings	0.4	0.0	-0.4
Other	0.0	0.0	0.0
Total renewals	16.4	16.1	-0.3
Total enhancements	4.4	0.4	-4.0

Signalling

The £2.8m variance is mainly due to re-scheduling of activity on Dean level crossing (£1.6m), and Sherbourne level crossing (£0.8m).

Structures

This variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Stations

The variance is due to increase in scope over several platform testle repairs.

Depots

The variance is due to scope increase on Westbury PSB Air Conditioning and Electrical Renewals, following review of requirements, £0.9m, also originally planned as Lineside buildings.

Route 5 West Anglia

Table 6.6 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	16.4	15.5	-0.9
Signalling	9.8	5.7	-4.1
Structures	8.1	3.7	-4.4
Electrification	4.4	3.2	-1.1
Plant and machinery	0.3	0.1	-0.1
Information technology	0.0	0.0	0.0
Telecoms	1.8	0.5	-1.3
Stations	1.9	1.8	-0.1
Depots	0.0	0.0	0.0
Lineside buildings	0.1	0.0	-0.1
Other	0.0	0.0	0.0
Total renewals	42.7	30.6	-12.1
Total enhancements	6.1	5.8	-0.4

Signalling

The £4.1m variance is mainly due to re-scheduling of activity on Cambridge CCTV signal box (£2.6m). It is also due to re-scheduling of activity whilst delivery options are reviewed on Norwich-Ely renewals (£2.2m) and Spooner Row level crossing (£1.1m). This is partially offset by final account settlement on the WARM re-signalling project.

Structures

This variance is largely due to scope being re-defined at Manea Bridges (£2.7m) and additional time taken in development of scheme at Regents Canal Bridge (£0.8m).

Electrification

The £1.1m variance is mainly due to re-scheduling of activity on SMOS replacement (£1.0m).

Telecoms

The £1.3m variance is mainly due to re-scheduling of activity on Cambridge concentrator renewal and long lead public address (£0.6m) and Peterborough to Ely concentrator renewal (£0.4m).

Route 6 North London Line and Thameside

Table 6.7 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	3.5	3.5	0.0
Signalling	1.3	0.9	-0.3
Structures	7.8	5.5	-2.3
Electrification	5.4	3.4	-2.0
Plant and machinery	0.4	0.5	0.0
Information technology	0.0	0.0	0.0
Telecoms	4.7	3.8	-0.9
Stations	2.3	1.8	-0.5
Depots	0.0	0.0	0.0
Lineside buildings	0.1	0.0	-0.1
Other	0.0	0.0	0.0
Total renewals	25.4	19.3	-6.1
Total enhancements	7.8	6.1	-1.6

Structures

This variance is largely due to scope being re-defined at Caledonian Road Sewer Drainage (£0.7m) leading to re-programming and projects deemed no longer required – Highbury Sewer Drainage (£0.8m), Seven Sister Road/St. Annes Road Bridge (£0.8m) and Dunton Bank (£0.4m).

Electrification

The £2.0m variance is mainly due to re-scheduling of activity on OLE campaign changes (£1.1m) and NLL OHLE Structure & DC Stray Current (£0.7m).

Telecoms

The £0.9m variance is mainly due to re-scheduling of activity on Bedford to Moorgate CCTV renewal.

Enhancements

This variance is mainly due to delays to Grays Bay Platform Extension and other small schemes.

Route 7 Great Eastern

Table 6.8 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	57.9	55.5	-2.4
Signalling	25.6	31.0	5.4
Structures	20.2	10.9	-9.3
Electrification	7.4	17.0	9.6
Plant and machinery	2.5	1.7	-0.8
Information technology	0.0	0.0	0.0
Telecoms	2.0	1.3	-0.7
Stations	3.1	1.8	-1.3
Depots	0.0	0.0	0.0
Lineside buildings	0.2	0.0	-0.2
Other	0.0	0.0	0.0
Total renewals	118.8	119.1	0.3
Total enhancements	30.9	16.4	-14.5

Signalling

The £5.4m variance is mainly due to acceleration of work on the Colchester-Clacton resignalling project.

Structures

This variance is largely due to the re-programming of Thrandeston Bog (£7.0m) to move delivery out of wet winter months, late design and scope changes at South of Manningtree (£1.1m) led to cost reductions and re-scheduling, late development of programme at Wickford station embankment (£0.6m) due to unresolved access agreements with adjacent supermarket resulted in re-scheduling, schemes at Hutton Road (£0.5m) and Wroxham Viaduct River Bure (£0.5m) were deferred to fund higher priority projects.

Electrification

The variance is mainly due to £12.4m expenditure on GE OLE that was included as discretionary investment in the 'central (other)' category in the business plan and re-scheduling of activity on OLE campaign changes (£0.8m), GE OLE structures (£1.1m) and Thrandeston Bog OLE structures (£1.0m).

Stations

The main reasons for the variance are that Ilford lift renewal was no longer required as previous investment has ensured the three lifts are suitable for continued service at this time (£0.63m), deferral of Forest Gate footbridge phase 2 (£0.55m) and Chadwell Heath footbridge renewal no longer required due to identification of DDA works which will replace the whole of the existing structure (£0.12m).

Enhancements

The variance is mainly due to lower than anticipated cost at Stratford regional station, efficiency savings at Ilford depot and deferral of work at Catford station.

Route 8 East Coast Main Line

Table 6.9 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	52.6	52.3	-0.2
Signalling	3.8	3.9	0.1
Structures	10.1	9.7	-0.4
Electrification	18.0	9.6	-8.4
Plant and machinery	4.4	5.6	1.2
Information technology	0.0	0.0	0.0
Telecoms	0.4	0.8	0.5
Stations	15.6	28.7	13.2
Depots	5.3	3.8	-1.5
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.0	0.0
Total renewals	110.2	114.5	4.3
Total enhancements	25.5	26.1	0.6

Electrification

The £8.4m variance is mainly due to re-scheduling of activity on catenary renewals (£3.0m), overhead line campaign changes (£1.8m), air circuit breaker renewals (£1.8m) and contact wire renewals (£1.4m).

Plant and machinery

The £1.2m variance is mainly due to slippage of work from 2006/07 on Bounds Green and Ferme Park depots.

Stations

The main variances are due to revised scope and acceleration within Kings Cross programme that resulted in £12.3m overspend compared to original budget and additional works completed on York platforms, £1.1m.

Depots

The main variance is because Hornsey Wheel Lathe was re-phased into 2008/09 (£0.5m).

Route 9 Northeast Routes

Table 6.10 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	7.5	7.6	0.1
Signalling	8.2	3.3	-4.9
Structures	24.1	24.1	0.0
Electrification	0.0	0.1	0.1
Plant and machinery	0.4	0.4	0.0
Information technology	0.0	0.0	0.0
Telecoms	0.9	0.4	-0.5
Stations	0.6	0.2	-0.4
Depots	0.0	3.7	3.7
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.0	0.0
Total renewals	41.8	39.8	-2.0
Total enhancements	11.6	15.0	3.4

Signalling

The £4.9m variance is due to re-scheduling of activity on Newcastle-Carlisle west line (£1.0m) and deferral of various level crossing works whilst efficient delivery methods are developed.

Depots

This variance is because Carlisle Upperby MDU Accommodation Programme was originally included in 'central (other)'.

Enhancements

The variance is due to some increased costs, such as on the Hull Dock branch and other schemes, and some lower than anticipated costs such as due to delays to the Effingham Junction station development.

Route 10 North Transpennine, North and West Yorks

Table 6.11 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	40.7	41.0	0.3
Signalling	10.6	9.8	-0.9
Structures	21.5	22.2	0.7
Electrification	2.2	1.3	-0.8
Plant and machinery	1.2	0.8	-0.4
Information technology	0.0	0.0	0.0
Telecoms	0.4	0.0	-0.4
Stations	2.5	1.1	-1.4
Depots	2.3	4.6	2.3
Lineside buildings	0.3	0.3	0.0
Other	0.0	0.0	0.0
Total renewals	81.7	81.1	-0.6
Total enhancements	17.6	15.6	-2.0

Signalling

The £0.9m variance is mainly due to re-scheduling activity on Greetland re-signalling (£1.2m).

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Stations

The variance is largely due to re-prioritising renewals planned at Huddersfield (£0.92m) and scope reduction on Leeds City rainwater disposal system (£0.83m).

Depots

The variance is due to additional scope completed at Neville Hill LMD, £1.5m, and Wakefield MDU £0.8m, part of MDU Accommodation Programme, originally forecast under 'central (other)'.

Route 11 South Transpennine, South and Lincs

Table 6.12 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	38.4	38.5	0.1
Signalling	51.9	41.8	-10.2
Structures	14.2	16.2	2.1
Electrification	0.0	0.0	0.0
Plant and machinery	1.6	1.0	-0.6
Information technology	0.0	0.0	0.0
Telecoms	0.5	0.5	0.0
Stations	2.8	2.3	-0.5
Depots	0.0	0.2	0.2
Lineside buildings	0.1	0.0	-0.1
Other	0.1	0.0	-0.1
Total renewals	109.6	100.6	-9.0
Total enhancements	24.5	5.7	-18.7

Signalling

The £10.2m variance is mainly due to re-scheduling of activity on Tapton resignalling following re-planning the main commissioning for October 2008.

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Plant and machinery

The £0.6m variance is mainly due to re-scheduling activity on lighting renewals (£0.4m).

Enhancements

The variance is mainly due to delays to the National Engineering Centre at Woodhouse Junction, but there were also delays and efficiency savings at Brigg Lane level crossing.

Route 12 Reading to Penzance

Table 6.13 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	52.9	51.5	-1.4
Signalling	0.8	0.6	-0.2
Structures	11.2	13.6	2.4
Electrification	0.0	0.0	0.0
Plant and machinery	0.9	0.5	-0.3
Information technology	0.0	0.0	0.0
Telecoms	1.5	1.8	0.3
Stations	2.0	0.5	-1.5
Depots	0.0	0.5	0.5
Lineside buildings	0.5	0.0	-0.4
Other	0.0	0.0	0.0
Total renewals	69.7	69.1	-0.6
Total enhancements	8.4	4.5	-3.8

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast. This spend was subsequently allocated over a number of sites and apportioned across territory routes.

Stations

The variance is due to deferrals of work at several stations.

Lineside buildings

The variance is due to the deferral of Exeter PSB Air-conditioning.

Enhancements

The variance is largely due to delay in funding agreements for Old Oak Common depot and other re-scheduling.

Route 13 Great Western Main Line

Table 6.14 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	88.0	85.1	-2.9
Signalling	27.9	25.8	-2.1
Structures	21.2	33.6	12.4
Electrification	0.0	0.0	0.0
Plant and machinery	5.8	3.4	-2.4
Information technology	0.0	0.0	0.0
Telecoms	1.7	1.6	-0.1
Stations	3.4	4.7	1.3
Depots	0.5	0.0	-0.5
Lineside buildings	0.1	0.0	-0.1
Other	0.0	0.0	0.0
Total renewals	148.4	154.2	5.7
Total enhancements	34.0	23.6	-10.4

Signalling

The £2.1m variance is mainly due to re-scheduling of activity on Newport Area re-signalling partially offset by work on Thames Valley signalling centre included in the Business Plan in the 'central (other)' category.

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast. Expenditure incurred on specific reactive/emergency schemes included: Hart Farm, Saltford Embankment, St. Annes cutting, Teignmouth culvert, Gatcombe, Langley Burrell, Little Somerford embankment and Doublebois embankment among many others. Due to these extra reactive works, Tredington embankment (£0.9m) was deferred into 2009/10.

Plant and machinery

The £2.4m variance is mainly due to re-scheduling of activity on point heating renewals (£0.6m), Sudbrook pumping station works (£0.5m) and national PSP renewals (£0.3m).

Stations

The variance is due to increased activity delivered throughout Paddington station, £0.5m, and additional development of Paddington Span 4, £0.6m.

Enhancements

The variance is mainly due to delays on the Newport station regeneration project, Swindon to Kemble re-doubling and others.

Route 14 South and Central Wales and Borders

Table 6.15 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	12.3	12.0	-0.3
Signalling	7.9	8.4	0.5
Structures	6.4	11.0	4.5
Electrification	0.0	0.0	0.0
Plant and machinery	0.9	0.6	-0.3
Information technology	0.0	0.0	0.0
Telecoms	0.2	0.8	0.6
Stations	0.0	0.3	0.3
Depots	0.0	0.0	0.0
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.0	0.0
Total renewals	27.8	33.2	5.4
Total enhancements	60.0	61.6	1.6

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Telecoms

The £0.6m variance is mainly due to works on SISS and cable renewals included in the 'central (other)' category in the Business Plan.

Route 15 South Wales Valleys

Table 6.16 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	2.3	2.2	-0.1
Signalling	2.1	1.5	-0.6
Structures	1.7	7.5	5.8
Electrification	0.0	0.0	0.0
Plant and machinery	0.1	0.0	0.0
Information technology	0.0	0.0	0.0
Telecoms	0.0	0.0	0.0
Stations	0.1	0.0	0.0
Depots	0.0	0.0	0.0
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.0	0.0
Total renewals	6.2	11.2	5.1
Total enhancements	24.2	23.9	-0.3

Signalling

The £0.6m variance is mainly due to re-scheduling of activity on Cardiff area re-signalling.

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast. Actual expenditure was incurred on some specific reactive/emergency work and there was overspend at Sebastopol for the advanced procurement of the steel for pile casings.

Enhancements

The variance was due to cost savings and delay on the South Wales platform extension scheme, in part offset by bringing forward expenditure on the Merthyr line enhancement.

Route 16 Chilterns

Table 6.17 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	3.9	3.7	-0.2
Signalling	0.2	0.0	-0.2
Structures	4.8	3.8	-1.0
Electrification	0.0	0.0	0.0
Plant and machinery	0.0	0.0	0.0
Information technology	0.0	0.0	0.0
Telecoms	0.0	0.2	0.2
Stations	0.0	1.1	1.1
Depots	0.0	0.0	0.0
Lineside buildings	0.0	0.0	0.0
Other	0.3	0.0	-0.3
Total renewals	9.1	8.8	-0.3
Total enhancements	1.8	0.5	-1.3

Structures

The variance was mainly due to underspend against forecast including Iverson Road (£0.3m) and Loveridge Road (£0.3m).

Stations

The variance is due to our contribution to Chiltern for additional works completed under reconstruction of Denham station.

Route 17 West Midlands

Table 6.18 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	49.7	46.7	-2.9
Signalling	47.7	51.7	4.1
Structures	5.8	15.4	9.5
Electrification	5.5	2.0	-3.5
Plant and machinery	1.5	0.8	-0.6
Information technology	0.0	0.0	0.0
Telecoms	0.8	2.0	1.3
Stations	1.6	2.5	0.8
Depots	0.3	3.3	3.0
Lineside buildings	0.0	0.2	0.1
Other	0.0	0.0	0.0
Total renewals	112.9	124.6	11.7
Total enhancements	31.2	28.0	-3.2

Signalling
The £4.1m variance is mainly due to increased costs arising on the Coventry re-signalling project.

Structures
The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast and various scope increases at: Bilston Lane (£1.6m) new abutments; Willenhall (£1.0m) retaining wall, TSB UB 20 Stratford on Avon (£0.8m) increase volume of deck area, Nechells Park Road (£0.6m) replacement rather than strengthening of deck plates and Harbury cutting (£0.8m) – emergency slip.

Electrification
The £3.5m variance is mainly due to re-scheduling of activity on OLE campaign changes (£0.8m), SMOS renewal (£0.7m) and OLE structure re-painting (£0.4m).

Plant and machinery
The £0.6m variance is mainly due to re-scheduling of activity on Tyseley depot carriage washer (£0.8m) to 2008/09.

Telecoms
The £1.3m variance is mainly due to increased costs arising on the Saltley concentrator renewal.

Stations
The variance is due to additional electrical works completed at Birmingham International station (£1.0m) offset by re-prioritisation of electrical works at Shrewsbury station (£0.3m), now to be implemented in 2008/09.

Depots
The variance is due to Sandwell & Dudley MDU, part of MDU Accommodation Programme, previously forecast under 'central (other)'.

Enhancements
The variance is mainly due to delays to Snow Hill linespeed improvement, Oxley power supply and Ferne Hill block signalling.

Route 18 West Coast Main Line

Table 6.19 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	58.1	55.4	-2.8
Signalling	4.1	3.0	-1.1
Structures	12.7	17.7	5.0
Electrification	6.6	2.3	-4.3
Plant and machinery	3.7	2.4	-1.3
Information technology	0.0	0.0	0.0
Telecoms	2.2	1.0	-1.2
Stations	7.1	3.2	-3.8
Depots	0.0	0.8	0.8
Lineside buildings	0.1	0.0	-0.1
Other	0.0	0.0	0.0
Total renewals	94.6	85.8	-8.9
Total enhancements	22.3	11.1	-11.2

Signalling

The £1.1m variance is mainly due to deferral of activity at Carterhouse (£0.8m).

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Electrification

The £4.3m variance is mainly due to re-scheduling of activity on overhead line renewals (£1.8m), conductor rail renewals (£0.6m) and OLE structure re-painting (£0.5m).

Plant and machinery

The £1.3m variance is mainly due to re-scheduling of activity on 11kv transformer renewals.

Telecoms

The £1.2m variance is mainly due to re-scheduling of activity on Silverlink retail renewals (£0.6m) and West Coast infrastructure remedial works (£0.4m).

Stations

The variance is due to several schemes being deferred to enable consultation with new TOC (TfL); Kensal Green Footbridge renewal (£1.6m), North Wembley canopy replacement (£1.4m), Kenton footbridge renewal (£1.4m), Hatch End footbridge renewal (£0.6m). This was partly offset by works brought forward; Euston Platform Lighting (£0.6m) and Crewe Fire Escape and Buildings repairs (£0.6m).

Depots

The variance is due to MDU Accommodation Programme works completed, previously forecast under 'central (other)' in the Business Plan.

Enhancements

The variance was principally caused by delays to the West Coast car park programme and the Tring car park scheme.

Route 19 Midlands Main Line and East Midlands

Table 6.20 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	74.2	74.7	0.5
Signalling	33.4	35.8	2.4
Structures	10.3	13.3	3.0
Electrification	3.9	1.9	-2.1
Plant and machinery	1.2	0.9	-0.3
Information technology	0.0	0.0	0.0
Telecoms	0.0	0.2	0.1
Stations	5.0	7.4	2.4
Depots	0.0	0.0	0.0
Lineside buildings	0.1	2.7	2.6
Other	0.0	0.0	0.0
Total renewals	128.2	136.9	8.6
Total enhancements	43.8	39.0	-4.8

Signalling

The £2.4m variance is mainly due to re-scheduling of work from 2006/07 on East Midlands Control Centre partially offset by re-scheduling of activity on South Erewash re-signalling.

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Electrification

The £2.1m variance is mainly due to re-scheduling of activity on Midland Main Line overhead line renewals due to resource constraints (£1.2m) and Westoning structures renewals (£0.4m).

Stations

The variance is due to Derby station canopy increase due to higher market costs than expected (£1.7m) and Nottingham Footbridge renewal scope increase after inspections uncovered structural issues with the listed structure (£1.5m).

Lineside buildings

The variance is mainly due to unbudgeted expenditure on the EMCC.

Enhancements

The variance is mainly due to re-phasing the Corby scheme and other minor changes in phasing.

Route 20 North West Urban

Table 6.21 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	38.2	36.9	-1.3
Signalling	6.6	2.2	-4.5
Structures	15.6	19.8	4.1
Electrification	4.8	3.1	-1.8
Plant and machinery	1.6	0.8	-0.8
Information technology	0.0	0.0	0.0
Telecoms	0.3	0.4	0.1
Stations	6.2	3.1	-3.1
Depots	0.0	0.1	0.1
Lineside buildings	0.0	0.1	0.1
Other	0.7	0.0	-0.7
Total renewals	74.1	66.3	-7.7
Total enhancements	21.7	14.3	-7.4

Signalling

The £4.5m variance is mainly due to deferral of work at Rainford signal box (£2.6m) and re-scheduling activity at Northwich & Greenbank (£0.9m). The remainder is re-scheduling of minor works at Blackpool and in the Manchester area.

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Electrification

The £1.8m variance is mainly due to re-scheduling activity on switchgear renewals (£0.8m) and overhead line renewals (£0.6m).

Plant and machinery

The £0.8m variance is mainly due to re-scheduling activity on Newton Heath carriage washer (£0.6m) whilst the project scope was finalised.

Stations

The variance is due to delay in the commercial development review of Manchester Victoria that led to postponement of roof renewal, now planned for 2010/11 (£4.3m). This was partly offset by additional scope at Deansgate Station, relating to steelworks and platform repairs.

Enhancements

The variance is due to re-phasing the ticket barrier scheme at Manchester Piccadilly and other schemes.

Route 21 Merseyrail

Table 6.22 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	6.6	6.5	-0.2
Signalling	0.0	0.0	0.0
Structures	1.6	1.6	0.0
Electrification	2.9	2.3	-0.6
Plant and machinery	0.5	0.2	-0.2
Information technology	0.0	0.0	0.0
Telecoms	1.3	0.8	-0.5
Stations	5.1	4.2	-0.9
Depots	0.7	0.0	-0.7
Lineside buildings	0.0	0.1	0.1
Other	0.0	0.0	0.0
Total renewals	18.8	15.8	-3.0
Total enhancements	9.8	5.1	-4.7

Electrification

The £0.6m variance is mainly due to re-scheduling activity on Liverpool 11kv feeder cable renewals (£0.5m).

Stations

The variance is mainly due to costs (post development) being lower than forecast for Southport roof renewal.

Enhancements

The variance was caused in part by re-scheduling of the Bootle Oriel Road station project and other re-scheduling.

Route 22 North Wales and Borders

Table 6.23 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	6.7	6.5	-0.1
Signalling	6.9	7.6	0.6
Structures	7.1	9.1	2.0
Electrification	0.3	0.3	0.0
Plant and machinery	0.1	0.1	0.0
Information technology	0.0	0.0	0.0
Telecoms	0.7	0.5	-0.1
Stations	4.6	4.6	0.0
Depots	0.0	0.1	0.1
Lineside buildings	0.0	0.0	0.0
Other	0.2	0.0	-0.2
Total renewals	26.5	28.7	2.2
Total enhancements	7.5	4.6	-2.9

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Enhancements

The variance is mainly due to efficiency savings on the Cambrian line project.

Route 23 North West Rural

Table 6.24 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	23.2	21.9	-1.3
Signalling	5.9	1.1	-4.8
Structures	15.4	18.7	3.3
Electrification	0.0	0.0	0.0
Plant and machinery	0.2	0.6	0.4
Information technology	0.0	0.0	0.0
Telecoms	0.0	0.0	0.0
Stations	0.0	0.0	0.0
Depots	0.0	0.0	0.0
Lineside buildings	0.2	0.0	-0.2
Other	0.0	0.0	0.0
Total renewals	44.9	42.3	-2.6
Total enhancements	6.6	6.6	-0.1

Signalling

The £4.8m variance is mainly due to re-scheduling of activity on Parton re-signalling (£2.3m), Grange-over-Sands (£0.9m) and Culgaith aster track circuits (£0.6m).

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as ‘central (other)’ in the forecast and the decision to accelerate works at Copy Pit (£0.7m) because of instability of ground conditions.

Route 24 East of Scotland

Table 6.25 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	15.2	15.0	-0.3
Signalling	5.8	6.1	0.2
Structures	27.2	31.3	4.1
Electrification	0.2	0.2	-0.1
Plant and machinery	1.0	0.5	-0.4
Information technology	0.0	0.0	0.0
Telecoms	2.4	1.8	-0.7
Stations	5.1	1.8	-3.4
Depots	0.0	0.0	0.0
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.0	0.0
Total renewals	57.1	56.6	-0.5
Total enhancements	126.9	123.8	-3.1

Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Telecoms

The £0.7m variance is mainly due to re-scheduling of activity on Edinburgh concentrator renewal.

Stations

The variance is due to re-phasing of major renewals at Edinburgh Waverley (station and bridge works) to 2008/09.

Enhancements

The variance was mainly due to postponing or re-scheduling of work on a number of schemes including Borders rail link, Edinburgh airport rail link, Edinburgh Waverley and the E&G electrification study. This was partly offset by bringing forward expenditure on Airdrie to Bathgate.

Route 25 Highlands

Table 6.26 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	9.4	8.8	-0.6
Signalling	0.9	1.0	0.1
Structures	12.1	13.8	1.7
Electrification	0.0	0.0	0.0
Plant and machinery	0.3	0.0	-0.2
Information technology	0.0	0.0	0.0
Telecoms	1.4	1.8	0.4
Stations	0.3	0.9	0.6
Depots	2.3	0.1	-2.2
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.0	0.0
Total renewals	26.8	26.6	-0.2
Total enhancements	0.4	1.3	0.9

Track Structures

The variance is largely due to minor, reactive, emergency and vegetation clearance schemes having been classified as 'central (other)' in the forecast.

Depots

This variance is due to delay in implementation works at Inverness depot due to contracting difficulties.

Route 26 Strathclyde and South West Scotland

Table 6.27 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	26.7	30.8	4.1
Signalling	56.7	45.2	-11.5
Structures	13.3	12.3	-1.0
Electrification	4.7	3.4	-1.3
Plant and machinery	0.6	0.8	0.1
Information technology	0.0	0.0	0.0
Telecoms	3.4	2.0	-1.4
Stations	7.9	0.7	-7.2
Depots	0.0	5.2	5.2
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.0	0.0
Total renewals	113.3	100.4	-12.9
Total enhancements	36.1	31.8	-4.2

Track

The variance was mainly caused by the Shields Junction overrun.

Signalling

The £11.5m variance is mainly due to a combination of efficient delivery and re-scheduling of activity on Glasgow Central re-signalling (£9.2m). Also re-scheduling of activity on Paisley Corridor re-signalling whilst enhancement options are incorporated (£0.7m) and Inverclyde lineside renewals whilst more efficient delivery opportunities are reviewed (£2.0m). This is offset by additional spend on South West Scotland Control Centre (£0.8m) that slipped from 2006/07.

Structures

Overall there was an underspend against forecast mainly due to variances at Enterkine Viaduct (£2.4m) – slippage because of environmental concerns with nesting Peregrine Falcons and Sumerlee Canal (£0.5m) – efficiencies identified on project. This was partly offset because minor, reactive, emergency and vegetation clearance schemes were classified as 'central (other)' in the Business Plan forecast.

Electrification

The £1.3m variance is mainly due to re-scheduling activity on overhead line renewals (£0.8m) and Shields-Gourock (£0.4m).

Telecoms

The £1.4m variance is mainly due to re-scheduling of activity on Ayrshire CIS/LLPA renewal (£0.6m) and Glasgow Central telecoms works (£0.5m).

Stations

The variance is mainly due to the deferral of the new station at Gourock to align with Scottish Executive proposals.

Depots

The variance is because the MDU Accommodation Programme works undertaken at Cowlairs (£4.2m), Irvine (£0.6m) and Dumfries (£0.5m) were forecast under 'central (other)' in the Business Plan.

Enhancements

The variance was mainly due to re-scheduling of work on Gretna Annan and Gourock interchange.

WCRM

Table 6.28 Expenditure in 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	136.7	91.7	-45.0
Signalling	135.8	128.9	-6.9
Structures	36.5	41.9	5.4
Electrification	68.6	91.4	22.8
Plant and machinery	-2.7	10.6	13.3
Information technology	0.0	0.0	0.0
Telecoms	7.5	7.8	0.3
Stations	0.0	0.0	0.0
Depots	0.0	0.0	0.0
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.0	0.0
Total renewals	382.4	372.3	-10.1
Total enhancements	179.7	245.5	65.8

Track

The main reason for this variance is re-classification of track work from renewal to enhancement on the Milton Keynes project.

Signalling

The main reason for the variance is due to re-phasing of the Northampton signalling re-control project.

Structures

The variance is driven by increased costs of work at Rugby and Nuneaton.

Electrification

The variance is largely due to additional work at Rugby.

Plant and machinery

The variance is due to internal transfers of plant and machinery that were planned for 2007/08 but which took place in 2006/07.

Enhancements

The classification between renewals and enhancements has been updated, particularly for the Milton Keynes and Line-Speed Profile projects to reflect a more accurate assessment of the enhancement versus renewal spend. In addition, there has been an increase in spend on the Rugby/Nuneaton project compared with that planned and an increase in compensation payments to train operators for possessions.

Central (Other)

Table 6.29 Expenditure 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Track	113.3	176.7	63.4
Signalling	103.0	98.4	-4.6
Structures	99.7	7.3	-92.4
Electrification	-4.3	2.5	6.9
Plant and machinery	73.1	54.7	-18.5
Information technology	106.4	91.9	-14.5
Telecoms	229.1	165.5	-63.5
Stations	70.0	82.6	12.7
Depots	18.6	24.9	6.3
Lineside buildings	5.1	10.8	5.6
Other	309.3	42.0	-267.3
Total renewals	1,123.4	757.4	-365.9
Total enhancements	145.2	168.8	23.6

Central specific projects

Table 6.30 Expenditure 2007/08 prices (£ million)

	Forecast	Actual	Variance
Renewals			
Telecoms − GSM-R/FTN	208.8	137.5	-71.3
Enhancements			
Telecoms − GSM-R/FTN	14.1	9.9	-4.2

Track

The variance on track renewals is primarily due to deliverability issues that have caused the pace of unit cost efficiencies to fall behind schedule as reported in the efficiency section later in this chapter.

Signalling

The £4.6m variance is mainly due to re-phasing of work on signalling development projects and efficiencies and re-phasing of minor works projects.

Structures

The variance is due to Business Plan elements for schemes like minor works, emergency works and associated project management being classed under 'other'. This was split out and allocated to specific routes, leaving only a small level of expenditure as non-route specific.

Electrification

The variance is largely due to over-planning overlays included in the Business Plan figure and offsets some of the underspend shown in some of the route tables.

Plant and machinery

The £18.5m variance is mainly due to deferral of purchases of mobile plant (e.g. wagons) due to contractual issues (£14.0m) and re-scheduling of various development projects.

Information technology

The variance is due to re-prioritisation to reflect emerging business needs and slippage of programmes into 2008/09.

Telecoms

The majority of the variance is because the strategy for the deployment of GSM-R masts changed during the year when we decided that mast height should be reduced from 29m to 15m. This change was made as it was felt that this would be more acceptable to local communities. The change in strategy resulted in the suspension of deployment of 29m masts and the preparation of a revised cell-plan based on the shorter mast height. Work that was budgeted for this year has therefore re-scheduled into later years. Additional savings were achieved due to activity efficiency.

Stations

The £12.7m variance is largely due to increase in emerging/reactive works which cannot be allocated over routes (£30.4m budgeted versus £40.6m actual).

Depots

The variance is largely due to increased emerging/reactive works (NDS) which cannot be allocated over routes.

Lineside buildings

Part of the variance is due to engineering overheads charged to Lineside buildings that were originally split across Stations, Depots and Lineside buildings. This was offset by OPAS project being similarly split in the forecast, but actually reported against Stations (£0.9m). Other elements of the variance shown are due to re-allocation from the 'other' line.

Other

The large variance in this category is because the Business Plan included an allowance for uncommitted discretionary investments, some of which were taken forward during the year and shown in specific asset category spend, and some of which did not progress. The Business Plan also included an allowance for contingency.

Maintenance expenditure

Table 6.31 Expenditure 2007/08 prices (£ million)

	Forecast	Actual	Variance
Route delivered maintenance			
London North East	196.0	194.0	-2.0
London North West	226.0	225.9	-0.1
South East Anglia	93.6	93.6	0
South East Kent	60.9	60.8	-0.1
South East Sussex	46.3	46.1	-0.2
South East Wessex	68.2	68.0	-0.2
South East – Other	6.5	6.8	0.3
Western	131.0	129.5	-1.5
England and Wales	828.5	824.7	-3.8
Scotland	81.4	80.4	-1.0
Total route delivered maintenance	909.9	905.1	-4.8
Centrally managed *	226.5	213.2	-13.3
Total maintenance expenditure	1,136.4	1,118.3	-18.1

* Includes structures examinations, major items of maintenance plant such as rail grinding and the measurement train, and other HQ managed maintenance activities

Commentary

Maintenance costs continue to reduce with more maintenance work being delivered for less money than in prior years. Expenditure has reduced as a result of embedding the more favourable commercial terms established two years ago, particularly on plant, vehicles and materials. Benefits were felt from enhanced planning and subsequent sharing of overheads as the capital investment portfolio delivered by maintenance increased. Additionally, we continued to release labour and specialist contractors and rely more on our own in-house staff.

Efficiency

Introduction

ACR 2003 set output targets and provided funding based on ORR's assessment of the expenditure needed to deliver these outputs. The expenditure determination included challenging targets for improving efficiency. The determination specified profiles for unit cost efficiency improvement over the control period, adding up to 35 per cent for maintenance and 30 per cent for controllable operating costs (opex) and renewals (excluding WCRM for which specific assumptions were made), equivalent to overall savings of 31 per cent over CP3. ACR 2003 assumed savings of 8 per cent in 2004/05, 2005/06 and 2006/07 for opex, maintenance and renewals and savings in 2007/08 of 5 per cent for opex and renewals and 8 per cent for maintenance. This section summarises our progress in delivering improvements in efficiency compared to the ACR 2003 targets.

It is important to note that the measurement of efficiency improvement against these targets is not, and will never be, a straightforward exercise. The determination did not define baseline volumes of activity or unit costs against which changes could be measured, and there is limited information on the unit costs of activities in 2003/04 to provide benchmarks. The assessment of efficiency improvement over the first four years of CP3 set out here must be treated with caution as firm conclusions on efficiency trends can only be drawn over a longer period of time.

Overall assessment

Efficiency improvement in controllable opex is assessed by comparing total expenditure with the ACR 2003 determination for 2007/08. For maintenance, we have compared expenditure with ACR 2003 and also taken account of the impact of traffic growth. For renewals expenditure, the assessment of efficiency is informed by the unit cost indices and budget variance analysis. The overall assessment is shown in the table below and explained further in the following sections. We continue to make good progress on opex and maintenance efficiency and to outperform the regulatory assumptions, but renewal efficiency has reduced and we are now behind the regulatory target as discussed in the renewals section later.

Table 6.32 Overall efficiency improvement assessment (%)

	By end 2006/07		By end 2007/08	
	ACR assumption	Actual achieved	ACR assumption	Actual achieved
Controllable Opex	22	25	26	28
Maintenance	22	26	28	31
Renewals	22	23	26	18

Operating costs

The table compares total controllable operating costs in 2005/06, 2006/07 and 2007/08 with the levels assumed by ORR in the ACR 2003 determination. Figures are quoted in nominal prices and so the pre-efficiency determination values have been uplifted by RPI from the 2002/03 base year. The comparison shows that in 2007/08 controllable opex was 28.5 per cent lower than the pre-efficient level assumed by ORR and therefore ahead of the 26 per cent ACR assumption (8 per cent per annum for the first 3 years and 5 per cent in 2007/08). Good progress on achieving savings in controllable opex continued in 2007/08 although the rate of saving has slowed compared to earlier in the control period and we are expecting further savings to be increasingly difficult to achieve. The year's outturn was adversely affected by the ORR fines for the Christmas and New Year overruns and Portsmouth resignalling licence breach.

Table 6.33 Controllable operating cost efficiency improvements

Controllable Opex Nominal prices	ACR pre-efficiency allowance (£m)	Actual Opex (€m)	Variance (£m)	Actual saving (%)	ACR efficiency assumption (%)
2005/06	1,134	865	-269	23.7	15
2006/07	1,178	878	-300	25.5	22
2007/08	1,228	878	-350	28.5	26

Maintenance

Table 6.34 compares the total level of maintenance expenditure in 2005/06, 2006/07 and 2007/08 with the levels assumed by ORR in the ACR 2003 determination. The comparison shows that in 2007/08 maintenance expenditure was 28.5 per cent lower than the pre-efficient level assumed by ORR and therefore marginally ahead of the 28 per cent ACR assumption (8 per cent per annum). The rate of cost reduction has slowed since earlier in the control period and we are expecting it to be increasingly difficult to achieve further savings.

The overall assessment of maintenance efficiency requires costs to be normalised to take account of the volume of traffic and size and complexity of the network, all of which are clearly cost drivers for maintenance expenditure. We therefore believe that the monitoring of efficiency over time should be based on costs per equated track mile (ETM) that takes account of these cost drivers. The main inputs to ETM are track length by type (continuous welded or jointed), numbers of S&C, linespeed and traffic tonnage. Table 6.35 shows the change in cost per ETM compared to previous years and the change compared to the pre-efficiency allowance assumed by ORR for 2004/05. This shows that the effect of normalising the cost is to increase the overall saving to date to 31 per cent (i.e. outperforming the ACR target of 28 per cent).

We also note that the continuing reductions in infrastructure caused delay minutes and broken rails and further improvements in track geometry measures provide evidence of improvements in the quality of maintenance work that is being undertaken, a key element of the overall improvement in efficiency.

Table 6.34 Maintenance efficiency improvements

Maintenance costs Nominal prices	ACR pre-efficiency	Actual maintenance (£m)	Variance (£m)	Actual saving (%)	ACR efficiency assumption (£m)
2005/06	1,443	1,192	-251	17.4	15
2006/07	1,499	1,146	-353	23.5	22
2007/08	1,563	1,118	-445	28.5	28

Table 6.35 Annual changes in maintenance costs per equated track mile

Costs at 2006/07 prices	ACR 2004/05 based on pre efficient allowance	2005/06	2006/07	2007/08	Variance on 2006/07 actual	Variance on 2004/05 ACR
Maintenance cost (£m)	1,563	1,291	1,195	1,118	-6%	-28.5%
Equated Track Miles (ETM)	21,896	22,599	22,770	22,782		4%
Cost per ETM (£k)	71.4	57.1	52.5	49.1	-6%	-31%

Unit cost indices

The Maintenance Unit Cost (MUC) framework continued to progress during 2007/08 with emphasis on three key areas:

- updating and re-issuing of the definitions and financial regulations for MUCs (which included the splitting of four key activities into Manual and Mechanical)
- the improvement in capture and recording of volume activity data and work on preparing for future organisational changes, and
- how MUCs are to established, captured and reported throughout Maintenance.

Information on 22 separate key work activities is now collected, as well as combined 'other' categories for Pway, S&T and E&P while a start on splitting off-track activities has also been commenced. The total coverage of these activities now totals about 65 per cent of maintenance functional costs. Obtaining consistent data from across the company has been, and continues to be, a huge challenge and we know that as a result there are data quality issues that we are still working to resolve. This has impacted on the availability of MUCs that can be robustly reported.

With the concerns raised during 2006/07 about the way standard jobs (subset of MUCs) are defined, planned and recorded and thus the accuracy and consistency of volumes and work hours, a significant piece of work was carried out which resulted in re-issuing the definitions and financial regulations surrounding MUCs in November 2007. As a consequence of this work four of the existing MUCs have now been split to be reported both for a 'manual' and 'mechanical' format. However these changes were made mid year and it was not possible to correct all the previous data back to 1 April (i.e. full year impact).

To further strengthen the capture, recording and especially checking of MUC volume activity data several steps were taken during the year, these included moving the MUC reporting model to a rolling 13 period basis, enhancing the analysis and reporting tools available as well as reporting a 'flash' result immediately at period end and thereby allowing additional corrections to be made for a 'final' periodic reporting result.

Based on our assessment of the 2007/08 MUC data we believe that 12 of the 22 MUCs are reasonably accurate at a network-wide level, compared to 9 in 2006/07. We want to publish these unit costs as we believe it is an important part of a transparent measurement framework but, as noted above and below, we recognise that there is still a lot more work to do before we can be fully confident that MUCs are based on

Table 6.36 Unit costs for the 12 most accurate network-wide MUCs

MUC Activity	Unit of measure	Network-wide per unit (£) 06/07[1]	Restated 06/07[2]	07/08	% Change
Rail changing	rail yards	74	78	78	0
Re-sleepering[3]	number	143	149	145	-3
S&C replace crossings & switch 1/2 units[4]	no of 1/2 switches	9,877	10,299	8,555	-17
Replacement of S&C bearer	number	271	283	306	8
Visual inspection (patrolling)[3]	track miles	40	42	47	12
Manual correction of plain line track geometry	track yards	14	14	15	8
Point end routine maintenance	service	156	69	58	-15
Signals routine maintenance	service	108	31	49	58
Track circuits routine maintenance	service	125	53	49	-8
S&C arc weld repairs[5]	no of repairs	n/a	n/a	404	n/a
Arc weld repair of defective rail[5]	no of repairs	n/a	n/a	471	n/a
Thermit welding[5]	no of repairs	n/a	n/a	267	n/a

Notes:
1 As reported in Annual Return 2006/07.
2 Restated figures to allow constant figures to be compared with 2007/08 (inflation figure of 4.28% used). Note that the Point End, Signals and Track Circuits Routine Maintenance figures have been amended with additional information.
3 Both Manual & Mechanical costs & volumes combined to compare to 2006/07.
4 Renamed previously shown as S&C unit renewal.
5 Emerging rates, certain variations still exist.

consistently prepared data across the network. It is for this reason that the 12 network-wide unit costs shown below, although reasonable, are not yet robust enough for rigorous benchmarking.

We do not consider that the change in costs shown in Table 6.36 from 2006/07 to 2007/08 reflect real changes in unit cost and expect further changes in rates to be reported as the data collection processes continue to improve and become more consistently embedded across the company.

Increased rates are shown on four of the above MUCs, the main reasons for these include: data accuracy (larger volumes errors reduced leading to increased MUCs) as well as changes in the overall attributable staff costs included in the model.

During the second half of 2007/08 a large part of the time of the MUC group has been focused on establishing future requirements for MUCs and how responsibility of data ownership (at entry as well as reporting levels) can be managed better. The main specifics are as below, noting however that while it is expected that the overall impact of these changes will add major benefits to overall MUC consistency and comparability it will not be until 2009/10 before a full year impact of these benefits will be seen:

- Phase 2a Maintenance restructure which is scheduled to take place 26 August 2008 and will homogenise the organisation and standardise the 40 Delivery Units below the network level. This will make comparisons to prior years difficult below the network level and as it is a mid year change it will inevitably take some time to settle in regarding data changes, but it will enable much sharper comparisons and internal benchmarking at the Delivery Unit level.
- Additional benefits associated with and being brought in at the same time as the Phase 2a reorganisation include the aligning of Network Rail's work scheduling tool (volumes & hours per activity data) with the financial hierarchy as well as the implementation of objectives and role profiles within Maintenance, Finance and Commercial positions at the Delivery Unit level to ensure the ownership of MUC data.
- Several new MUCs are to be added to the existing set and these include four new Pway, 10 off-track and additional S&T activities with a planned for introduction in mid 2008/09.
- One of the key issues for MUC accuracy has been the accuracy of the appropriation of labour costs across the MUC activities. To improve this a separate system aligned to payroll, which is being used to capture time booked against capital works delivered by Maintenance, will be trialled in 2 of the 5 Territories from April 2008. If the trial is successful a proposed implementation date across Maintenance is for the second half of 2008/09.

A description of each reported MUC activity is:

- Rail changing − Rail yards of plain line CWR or jointed rail replaced due to wear, corrosion, damage or defects
- Re-sleepering − Number of sleepers (irrespective of type) replaced
- Replace S&C half units − Number of single half set of switches or crossings (jointed or welded) renewed including associated closure rails
- Replacement of S&C bearers − Number of S&C bearers, irrespective of type and length replaced
- Visual inspection (patrolling) − Track miles inspected
- Manual correction of plain line track geometry − Track yards of manual correction of plain line track geometry
- Points − Number of services undertaken to carry out routine maintenance on point ends
- Signals − Number of services undertaken to carry out routine maintenance on signals
- Track circuits − Number of services undertaken to carry out routine maintenance on track circuits
- S&C arc weld repairs – Number of arc weld repairs to switch points
- Arc weld repair of defective rail – Number of rail defects repaired by arc welding
- Thermit welding – Joining of two rail ends using Alumino Thermic welding process.

Renewals

Assessing the efficiency of our renewals programme is complex. The level and nature of activity that is required (and for which we have been funded) over the control period is not constant and trends in total expenditure do not therefore provide any indication of efficiency. As in previous years the efficiency assessment draws on two key sources:

- budget variance analysis: our financial control process involves recording and categorising all changes in budgets during the year between activity efficiency, changes in the scope of work necessary to deliver the outputs, and deferral of planned activity into later years. This analysis provides insights for the efficiency assessment; and
- unit cost indices: where consistent data is available to compare the unit costs of specific activities over time, we have derived unit cost indices.

Budget variance analysis

Table 6.37 Budget financial variance year-end efficiency reconciliation

	Actual expenditure	Budget	Variance	Scope change	Activity efficiency	Rescheduled activity	Core renewals efficiency
Renewals	£m	£m	£m	£m	£m	£m	%
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	
Information technology	92	107	15	0	4	11	n/a
Telecoms	189	264	75	-6	27	54	32.2%
Stations	174	177	3	-26	10	18	
Depots	51	86	35	6	-2	31	17.8%
Other	58	170	112	3	81	28	
Renewals (less WCRM)	2,534	2,910	376	-74	126	324	18.3%
WCRM	372	377	5	5	2	-2	
Total renewals	2,906	3,287	381	-69	128	322	
Total enhancements inc WCRM*	743	749	6	-65	1	66	
Total expenditure	3,649	4,036	387	-134	129	388	

* Excludes third party funded schemes.

The consistent overall indicator of efficiency across Control Period 3 (CP3) has been the budget variance analysis which is summarised below for 2007/08. The annual budgets are set on the basis of meeting the overall efficiency improvement target of 26 per cent savings for 2007/08 compared to the ACR assumptions. For most asset categories the budgeted savings remained at 26 per cent. However, for track the budget assumed a saving of 15 per cent to reflect the impact of the specified work mix changes, inflationary factors above RPI and increases in technical specification.

During the year changes in project budgets and actual expenditure, whether increases or savings, are classified according to whether they represent changes in unit costs or other activity efficiencies, changes in scope of works or deferral. These changes are summarised in Table 6.37.

The scope changes cover a range of factors, some of which reflect improvements in efficiency, but the interpretation of these changes is not always clear cut. Rescheduled activity is the net of un-budgeted roll-over from previous years, work brought forward from later years in the plan, and work deferred to later years in the plan; this category of change is neutral on efficiency. The savings classified as

activity efficiency are a good indicator of additional efficiency improvements over and above those budgeted.

The final column of Table 6.37 indicates the derived overall efficiency percentage, based upon the sum of budgeted efficiency, scope change and additional activity efficiency. This is only presented for the core renewals activities excluding WCRM and FTN. The overall core renewals efficiency for 2007/08 is 18.3 per cent, below of the regulatory target of 26 per cent. This is due in part to a particularly challenging economic climate for construction work due to steep increases in raw material prices (such as steel and copper cable) and very high fuel prices. Increases in traffic on the network are also making engineering access more restricted and more expensive in terms of compensation payments to operators.

Unit cost indices

A key element of improving efficiency is reducing the unit costs of specific activities on the network. During 2007/08 we have continued the implementation of our Cost Analysis Framework (CAF). This aims to ensure that cost data is captured on a consistent basis across the company, providing a much more robust basis for estimating the costs of renewal projects and allowing trends in actual unit costs to be tracked.

Cost reporting under the CAF framework has covered a total of 43 different repeatable renewals activity types in 2007/08. This includes track unit cost data sourced from an equivalent process validated by the independent reporter. However, in some cases a relatively small number of projects may have been reported against a particular activity type, such that these are not considered representative for reporting within the Annual Return. Any Repeatable Work Item (RWI) with less than four accepted profiled CAF forms has been excluded due to the narrow range of comparable data. In addition, some activity types have predominantly included partial renewals activity, an example being E&P, such that the unit costs are not comparable between projects. In other cases, although we now have sufficient information we have not had a historic baseline to compare performance against; on this basis Estates' CAF data has been excluded from the final analysis. In each of these cases, although the full set of information has been made available to ORR and the independent reporter, Halcrow, it is not considered appropriate to include it within this Annual Return. Therefore, a total of 20 repeatable activity types are reported in this return, valued at £1,206m, representing 48 per cent of our total renewals expenditure (less WCRM). Compared to 2006/07, the number of RWIs has increased by three, and the percentage reported against total expenditure has increased from 40 per cent.

Unit cost improvements in 2007/08 are shown in Table 6.38 for those activities for which sufficient cost data had been collected during 2003/04 or subsequently to form a reliable baseline, and for which sufficient volumes of activity were completed in 2007/08. The actual costs in 2007/08 are expressed as an index (with costs in 2003/04 = 100) and are an average of the changes in unit costs across a range of activities, weighted by the volume of each activity in 2007/08. The table also indicates the approximate proportion of renewals expenditure for each asset that is covered by the unit cost analysis.

Table 6.38 2007/08 Final costs of profiled RWIs per asset as % of renewals spend and efficiency indices

Asset	Activity type	Activity costs reported 2007/08	Proportion of each asset total renewals spend (%)	Unit cost index
Signalling	101 – Re-signalling	135,509		68.6
	103 – Interlocking renewal	22,818		52.9
	108 – Level crossing renewals – AHBC Type	5,697		140.5
	108 – Level crossing renewals – MCB Type	6,435		86.0
	108 – Level crossing renewals – MCB Type with CCTV	11,376		116.7
	Total	181,836	45.9	69.5
Telecoms	501 – Large concentrator	7,209		73.7
	502 – DOO CCTV	6,528		78.6
	504 – Small signal box concentrator	3,123		58.3
	506 – Customer Info system	5,511		77.0
	Total	22,371	55.9	73.1
Civils	701 Overbridge	7,130		76.7
	702 Underbridge	63,904		67.1
	703 Overbridge – Bridgeguard 3	7,555		32.0
	704 Footbridge	3,747		87.4
	705 Tunnel	6,822		60.1
	706 Culvert	2,587		60.9
	707 Retaining Wall	2,201		179.4
	708 Earthworks	37,593		85.1
	709 Coastal & Estuarial Defences	1,696		20.4
	Total	133,235	35.8	72.4
Track	401 – Plain Line	641,638		90.2
	403 – Switches & Crossings	227,000		78.5
	Total	868,637	95.7	86.8
	Sub total	1,206,080		
Overall renewals total (less WCRM)		**2,530,000**	**47.7**	**83.7**

An overall unit cost index performance is indicated in Table 6.38. This is generated by weighting together the asset indices in proportion to spend. The overall index of 83.7 implies an aggregate unit cost efficiency of 16.3 per cent. However, it should be noted that this is dominated by the track renewals performance (unit cost data is based on 34 per cent of the total expenditure), and only represents 48 per cent of total renewals expenditure (less WCRM). The track data above reflects composite unit rates – see Tables 6.39 and 6.40.

Table 6.39 indicates for each asset either a small increase (improvements to efficiency) or a small decrease (degradation in efficiency) to the indices previously reported (in the 2006/07 Annual Return), and a trend relative to the 2003/04 baseline.

Structures renewals unit cost performance has achieved an overall efficiency of 27.6 per cent in 2007/08, ahead of the 26 per cent regulatory targeted efficiency. Most RWI types have either improved or maintained previous years' performance with the exception of Earthworks and Retaining Walls. Current analysis is on-going to examine these in more detail and to bring them inline with the 2007/08 target. Year on year improvement compared with 2006/07 is 3.1 per cent, largely reflecting adverse market conditions, as illustrated by the reported BCIS (Building Cost Information Service) index for 2007/08, which shows tender price inflation exceeding RPI by an average of 4.4 per cent over the same period. BCIS is used by many of Network Rail's suppliers and central government to provide a background to general level of prices and inflation in the construction industry.

Track renewals has reported across CP3 two measures of unit cost data and subsequently two efficiency indices: 1) unit costs based on measurable volumes and costs, and 2) composite rates (see following section). The unit cost data reports actual volumes and costs, but does not include central costs and non-volume reported activity, whereas the composite rate includes additional non-volume costs and is measured against a composite unit of measurement thereby making it a more robust measurement of efficiency. Therefore, though both efficiency indices are referred to in this section (with supporting documentation also provided to the ORR) Tables 6.39 and 6.40 reflect only the efficiency measured by year-end composite rates.

Track efficiency based on unit cost indices relative to the 2003/04 baseline is 10.1 per cent for plain line and is 9.2 per cent for S&C and is thus lower than the figures based on the composite rates reported in the tables. The reason for these differences are that in 2007/08 there were one-off costs of circa £19m incurred to enable major changes to the future delivery cost of track renewals. Projects include the acceleration of work specification to three years ahead of delivery, the transition from six contractors to four contractors, the redesign of the end to end planning process and the redesign of the production process for delivery of plain line renewals. In addition there were one off costs of £12m associated with the Shields Junction overrun, the transition of the High Output system from a central team to the LNE and Western territories and the reallocation of the company's possession management costs. Some of the track volumes were deferred due to

Table 6.39 Unit cost indices for CP3 to-date compared to 2003/04 benchmark

Index (100 = 2003/4)	2004/05	2005/06	2006/07	2007/08	2007/08 RWI costs as % of asset spend	Efficiency 2007/08 from base of 2003/04	UC indices movement 2006/07 to 2007/08
Structures	85	77	75	72	35.8%	27.6%	3.1%
Track – plain line (composite)**	91	91	91	90	70.7%	9.8%	0.8%
Track – S&C (equiv units)**	89	80	81	78	25.0%	21.5%	2.9%
Track – total **	91	88	88	87	95.7%	13.2%	1.5%
Major signalling	NA	NA	58	69	45.9%	30.5%	-20.7%
Telecoms			85	73	55.9%	26.9%	14.4%
Overall rating			**80**	**84**	**47.7%**	**16.3%**	**-4.3%**

* Re-stated figures to allow like-for-like comparison with 2007/08. Indices stated in previous years were based only on measurable volumes, whereas 2007/08 data is based on composite kms and equivalent S&C units

the prioritisation of resources and/or materials to the WCRM programme and other deliverability issues, therefore, due to the high level of fixed costs in the programme, the efficiency measure was impacted by these volume losses. All of the above have contributed to the increase in the indirect cost base, and as a result have significantly deflated the unit cost indices in year.

Unit costs have been reported against five signalling activity types in 2007/08. Four major re-signalling renewals (RWI 101) have been completed in 2007/08 achieving an overall efficiency of 31.4 per cent relative to 2003/04 benchmark. Interlocking renewals show an efficiency of 63 per cent with unit costs also reported for three types of level crossing renewals, and efficiency ranging from -41 per cent to +14 per cent relative to 2003/04 benchmark. Overall signalling renewals has achieved a unit cost efficiency of 30.5 per cent, with the reported projects representing 46 per cent of the total asset's expenditure, an increase of 28 per cent on the previous year.

Unit costs have been reported against six Telecoms activities in 2007/08, with only four of these with sufficient data to warrant reporting in this return. However, this is a marked improvement on 2006/07 when only one RWI was determined to have robust data. RWI 501 cost efficiencies were attained through bundling Colchester and Cambridge together and the taking advantage of geographical synergies. The implied efficiency for Telecoms is 26 per cent compared with the benchmark 2003/04 rate. This CAF and unit cost analysis is based on the telecoms core renewals and does not include GSM-R/FTN expenditure.

Track composite unit cost rates

The unit cost indices above show the reductions in unit cost for the work delivered, but do not provide insight into the efficiency of the mix of work undertaken. A further indicator of track renewal efficiency is the composite unit rates shown in Table 6.40. For plain line track this is the average expenditure per composite metre of rail, sleeper and ballast delivered, while for S&C it is average expenditure per equivalent unit renewed. These composite rates also allow for certain central overheads, and therefore provide a fuller picture of the actual unit cost rate and subsequent unit cost efficiency improvement.

Table 6.40 shows the year-end plain line unit rate per metre (at 07/08 prices) has reduced from £259 to £257, and S&C costs per equivalent unit reduced from £499k to £485k; both better than the previous year (and the plain line rate includes £13m spent on Engineering Acceleration). The final row in the table shows the composite rate efficiency aggregated for all track renewals activity, weighted by expenditure. Efficiency relative to 2003/04 is 13.2 per cent, while 2007/08 efficiency relative to 2006/07 is 1.5 per cent.

A significant amount of track renewals expenditure in 2007/08 (£93m for plain line and £9m for S&C) has been undertaken which does not contribute directly to measured volumes. This has had the result of increasing the plain line composite rate and is the main reason why the efficiency indicated above (9.8 per cent) is slightly poorer than that indicated by plain line unit cost index (10.1 per cent). Conversely for S&C, the composite rate based on weighted equivalent units includes abandonments and partial renewals which are highly efficient, resulting in a better efficiency (21.5 per cent) than that indicated by the unit cost index (9.2 per cent).

Table 6.40 Composite rate measures

Rate at 2007/08 prices	2003/04	2004/05	2005/06	2006/07	2007/08	07/08 efficiency saving from 03/04	07/08 efficiency saving from 06/07
Plain line (£/metre)	285	261	260	259	257	9.8%	0.8%
S&C equivalent unit renewal (£k/unit)	618	552	492	499	485	21.5%	2.9%
Aggregate efficiency						13.2%	1.5%

Comparison of variance analysis and unit costs

The efficiency indicated by the variance analysis for track of 11.8 per cent is below that indicated by the composite unit rate analysis of 13.2 per cent but above the 9.8 per cent identified by measurable volumes; the latter has been more impacted by changes in work mix.

The efficiency indicated by the variance analysis for structures renewals of 26.9 per cent is below that indicated by the unit costs analysis (27.6 per cent), partly reflecting additional scope inefficiencies. It should be noted that the latter index only covers 36 per cent of structures expenditure, so it is not fully representative.

For signalling renewals, the variance analysis indicates a lower level of efficiency (20.9 per cent) than the unit costs index (30.5 per cent). Though the latter is based upon 46 per cent of signalling expenditure, it may be distorted by performance on relatively few projects plus the exclusion of projects such as Portsmouth.

For example, the variance analysis shows 20.9 per cent which includes £28.5m inefficiency for Portsmouth. Excluding this from the model would result in efficiencies of 26.3 per cent.

Similarly the comparison of unit costs and variance analysis for telecoms renewals may be misleading in view of the omission of RWI coming in below the benchmark rate but for which no CAFs have been completed as yet.

Overall, we consider the variance analysis more representative, although the unit cost indices provide a helpful comparison of performance achieved, where the coverage is greater. The variance analysis table (Table 6.37) indicates that overall efficiency savings across the entire renewals programme to be around 18.3 per cent, and therefore below the 26 per cent regulatory target for 2007/08.

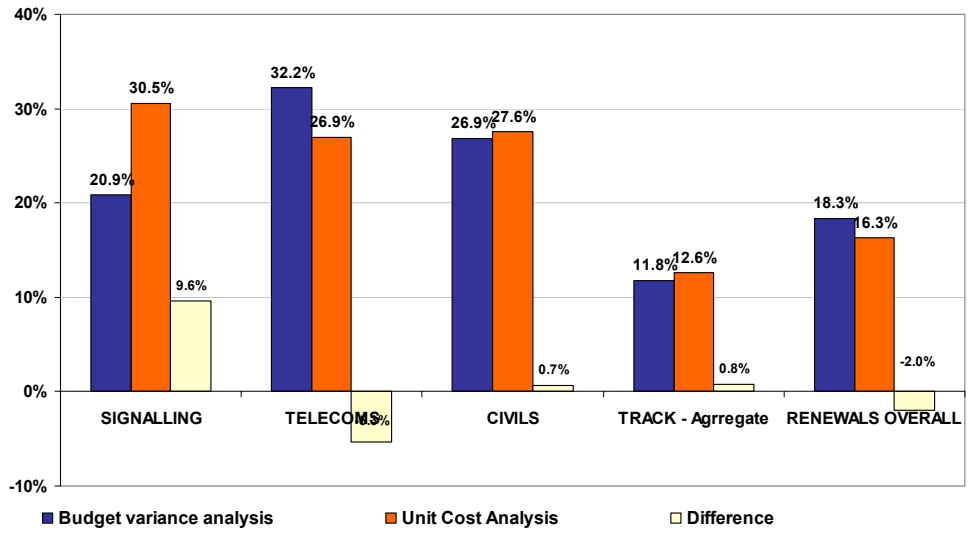
A comparison between the different renewal efficiency assessments is shown in Table 6.41 and illustrated in the figure below.

It is clear that the pace of unit cost efficiency in the area of track renewals is behind schedule and will cause us, for the first time, to fall behind our targeted efficiencies. Consequently it looks likely that we will miss the ORR overall challenge of a 31 per cent reduction in costs by March next year.

Table 6.41 2007/08 Comparative renewal efficiency assessments (%)

Assets	Budget variance analysis	Unit cost analysis	Difference
Signalling	21	31	10
Telecoms	32	27	-5
Civils	27	28	1
Track – aggregate	12	13	1
Renewals overall	**18**	**16**	**-2**

Figure 6.1 2007/08 Comparative renewal efficiency assessment



Section 7 – Financing

Introduction

This section provides further information on the following measures which are also reported in the KPI section:

- Debt to RAB ratio
- RAB adjustment for passenger volume incentive
- RAB adjustment for freight volume incentive
- Overall cost control.

Whilst Section 6 provides information on Network Rail's expenditure during the year as well as how efficient we have been in our spending, this section provides an indication of our finances. The measures indicate the current position as at the end of the year 2007/08.

Debt to RAB ratio

This financing indicator measures Network Rail's net debt as a percentage of its regulatory asset base (RAB). This can be considered as a proxy for the financial gearing of the company and indicates Network Rail's ability to finance its activities in a sustainable manner.

This measure is calculated by dividing the company's regulatory debt by the year end RAB and expressing this as a percentage. The company's debt and the RAB used for this calculation aligns with the ORR definition of Network Rail company debt and the RAB as defined by the Regulatory Accounting Guidelines.

Under Licence Condition 29 the company is not to incur financial indebtedness in excess of 100 per cent of the RAB and must take all reasonable endeavours to keep the ratio below 85 per cent.

The debt to RAB ratio at the end of the year was 69.4 per cent against a target of 73.1 per cent. This variance mainly reflects higher than forecast inflation applied to the RAB and lower than budgeted expenditure and cash outflows. Consequently, net debt was maintained at a lower level, and the RAB was slightly higher, than target.

RAB adjustment for passenger and freight volume incentives

The passenger and freight volume incentives provide a RAB addition in 2009 for growth above a baseline level and thus give an incentive for Network Rail to facilitate growth in traffic on the network.

The passenger volume incentive is based on incentive rates multiplied by the growth over and above a baseline level of growth in:

1. actual passenger train miles; and
2. farebox revenue.

The freight volume incentive is based on incentive rates multiplied by the growth over and above a baseline level of growth in:

1. actual freight train miles; and
2. gross tonne miles.

Any award that Network Rail earns through the volume incentive will be added to the RAB at the end of the control period in 2009 and will be based on the actual adjustment figures for 2008/09. This ensures that we will not benefit from accommodating the same level of traffic at the end of the control period as at the beginning as a result of fluctuations within the control period.

Based on current estimates the volume incentive adjustment will be £382.6m at the end of CP3. The figure for 2008/09 is illustrative. It should also be noted that the volume incentive was calculated in January 2008, so therefore was an estimate and not based on year end data. Similarly, the figures provided in previous Annual Returns are estimates based on circumstances at that time and are illustrative for that year.

Table 7.1 Debt to RAB ratio (%)

	2006/07 Actual	2007/08 Target	2007/08 Actual	Variance for 2007/08
Debt to RAB ratio	73.5	73.1	69.4	3.7

Table 7.2 Volume Incentives (£m)

	2008/09
Passenger volume incentive	374.0
Freight volume incentive	8.6
RAB adjustment	382.6

Expenditure variance

This is the percentage variance of Network Rail actual expenditure against the company's budgeted expenditure agreed at the start of 2007/08. Expenditure includes controllable and uncontrollable operating costs, maintenance costs, renewals and enhancements costs.

This measure is calculated by dividing the variance between actual and budgeted expenditure against budgeted expenditure and expressing this as a percentage.

We spent less than budget for all areas of expenditure due to various reasons, including efficiencies particularly for controllable OPEX and maintenance, which are described in Section 6.

Table 7.3 Expenditure variance

	2007/08 Actual expenditure (£m)	2007/08 Budget expenditure (£m)	Variance (%)
Overall cost	5,953	6,380	-6.7

Appendix 1 Station stewardship measure – list of stations

The following tables provide a full list of the stations surveyed (1,920 in total) for the new station stewardship measure grouped by category of station. The measure assesses the condition of stations using a grading system from 1 to 5 with the lower the score the better the condition. It should be noted that this is a new measure for 2007/08 and replaces the old station condition index and that the scores from each measure cannot be directly compared.

Table A1.1 Grade for Category A

Station name	Territory	Category SSM	Grade score
Birmingham New Street Stn	LNW	2.77	3
Blackfriars Stn	SEA	2.5	3
Charing Cross Stn	SEA	2.05	2
Crewe Stn	LNW	2.89	3
Fenchurch Street Stn	SEA	2.85	3
Gatwick Airport Stn	SEA	1.93	2
Glasgow Central Stn	SCO	1.88	2
London Euston Stn	LNW	2.97	3
London Liverpool St Stn	SEA	2.09	2
London Paddington Stn	WES	2.44	2
London Victoria Stn	SEA	2.51	3
London Waterloo Stn	SEA	2.33	2
Marylebone Stn	LNW	2.76	3
Newcastle Stn	LNE	2.54	3
Preston Stn	LNW	3.04	3
Reading Stn	WES	1.86	2
Stockport Stn	LNW	2.88	3
York Stn	LNE	2.27	2

Table A1.2 Grade for Category B

Station name	Territory	Category SSM	Grade score
Ashford (Kent) Stn	SEA	1.45	1
Basingstoke Stn	SEA	2.41	2
Billericay Stn	SEA	3.16	3
Birmingham International Stn	LNW	2.58	3
Birmingham Moor St. Stn	LNW	2.2	2
Brentwood Stn	SEA	3.31	3
Brighton Stn	SEA	1.82	2
Bristol Parkway Stn	WES	2.96	3
Cardiff Central Stn	WES	2.7	3
Carlisle Citadel Stn	LNW	2.63	3
Chelmsford Stn	SEA	3.07	3
Clapham Junction Stn	SEA	2.17	2
Coventry Stn	LNW	2.72	3
Darlington Stn	LNE	2.47	2
Didcot Parkway Stn	WES	2.82	3
East Croydon Stn	SEA	1.82	2
Haywards Heath Stn	SEA	3.33	3
Huddersfield Stn	LNE	2.8	3
Ilford Stn	SEA	2.69	3
Inverness Stn	SCO	2.01	2
Ipswich Stn	SEA	2.59	3
Kingston Stn	SEA	2.53	3
Lancaster Stn	LNW	2.66	3
Liverpool South Parkway Stn	LNW	2.65	3
Manchester Airport Stn	LNW	2.15	2
Manchester Victoria Stn	LNW	3	3
Milton Keynes Central Stn	LNW	3.04	3
Newark North Gate Stn	LNE	2.9	3
Norwich Stn	SEA	2.23	2
Nottingham Stn	LNE	2.5	3
Perth Stn	SCO	2.42	2
Putney Stn	SEA	2.77	3
Raynes Park Stn	SEA	2.6	3
Richmond Stn	SEA	2.88	3
Romford Stn	SEA	2.14	2
Sheffield Stn	LNE	2.5	3
Shenfield Stn	SEA	2.89	3
Southampton Stn	SEA	2.85	3
Stansted Airport Stn	SEA	3.04	3
Stratford HL Stn	SEA	2.1	2
Surbiton Stn	SEA	2.2	2
Tonbridge Stn	SEA	2.42	2
Twickenham Stn	SEA	2.72	3
Vauxhall Stn	SEA	2.93	3
Wakefield Westgate Stn	LNE	2.9	3
Waterloo East Stn	SEA	3.1	3
Watford Junction Stn	LNW	2.97	3
Wigan North Western Stn	LNW	2.36	2
Wimbledon Stn	SEA	2.69	3
Winchester Stn	SEA	2.03	2
Woking Stn	SEA	2.27	2
Wolverhampton Stn	LNW	3.19	3

Table A1.3 Grade for Category C

Station name	Territory	Category SSM	Grade score
Abbey Wood Stn	SEA	2.42	2
Aldershot Stn	SEA	3.01	3
Altrincham Stn	LNW	3.24	3
Andover Stn	SEA	2.83	3
Ascot Stn	SEA	2.85	3
Ashford (London) Stn	SEA	2.92	3
Balham Stn	SEA	2.89	3
Banbury Stn	LNW	2.79	3
Barnes Stn	SEA	2.88	3
Barnsley Stn	LNE	2.08	2
Bath Spa Stn	WES	2.91	3
Beckenham Junction Stn	SEA	2.31	2
Bedford Stn	LNE	2.08	2
Benfleet Stn	SEA	3.44	3
Berkhamsted Stn	LNW	2.86	3
Berwick Upon Tweed Stn	LNE	1.62	2
Bexleyheath Stn	SEA	2.91	3
Bishops Stortford Stn	SEA	2.82	3
Blackburn Stn	LNW	2.16	2
Blackpool North Stn	LNW	3.17	3
Bletchley Stn	LNW	2.72	3
Bolton Stn	LNW	2.79	3
Bracknell Stn	SEA	2.54	3
Bridgend Stn	WES	2.56	3
Brookwood Stn	SEA	2.8	3
Burgess Hill Stn	SEA	2.81	3
Bury St. Edmunds Stn	SEA	3.21	3
Cardiff Queen St. Stn	WES	3.18	3
Chadwell Heath Stn	SEA	2.98	3
Chalkwell Stn	SEA	2.66	3
Chatham Stn	SEA	1.99	2
Cheshunt Stn	SEA	2.28	2
Chester Stn	LNW	2.74	3
Chichester Stn	SEA	1.99	2
Chingford Stn	SEA	2.05	2
Chippenham Stn	WES	2.5	3
Derby Stn	LNE	2.22	2
Diss Stn	SEA	3.18	3
Dorking Stn	SEA	2.64	3
Dunbar Stn	SCO	2.17	2
Ealing Broadway Stn	WES	3.17	3
Earley Stn	SEA	2.46	2
East Grinstead Stn	SEA	2.84	3
Eastbourne Stn	SEA	2.78	3
Edmonton Green Stn	SEA	3	3
Egham Stn	SEA	2.72	3
Eltham Stn	SEA	2.72	3
Enfield Town Stn	SEA	1.98	2
Epsom Stn	SEA	2.89	3
Ewell West Stn	SEA	1.71	2

Table A1.3 Grade for Category C (continued)

Station name	Territory	Category SSM	Grade score
Exeter St. Davids Stn	WES	2.88	3
Fareham Stn	SEA	2.15	2
Farnham Stn	SEA	2.73	3
Feltham Stn	SEA	2.68	3
Finsbury Park Stn	LNE	2.14	2
Fleet Stn	SEA	2.97	3
Folkestone Central Stn	SEA	2.37	2
Forest Gate Stn	SEA	2.45	2
Forest Hill Stn	SEA	1.81	2
Fratton Stn	SEA	2.89	3
Gidea Park Stn	SEA	2.71	3
Gillingham (Kent)Stn	SEA	2.77	3
Glasgow Central LL Stn	SCO	2.71	3
Godalming Stn	SEA	2.46	2
Goodmayes Stn	SEA	2.28	2
Gravesend Stn	SEA	2.93	3
Grays Stn	SEA	2.42	2
Grove Park Stn	SEA	2.16	2
Hampton Court Stn	SEA	3.17	3
Harold Wood Stn	SEA	2.86	3
Harrogate Stn	LNE	3.09	3
Haslemere Stn	SEA	2.17	2
Hastings Stn	SEA	2.15	2
Havant Stn	SEA	2.19	2
Hemel Hempstead Stn	LNW	2.9	3
Hereford Stn	WES	3.2	3
Herne Hill Stn	SEA	1.99	2
Highams Park Stn	SEA	3.23	3
Hitchin Stn	LNE	1.94	2
Hither Green Stn	SEA	2.29	2
Hockley Stn	SEA	2.54	3
Huntingdon Stn	LNE	1.85	2
Inverkeithing Stn	SCO	2.41	2
Kirkcaldy Stn	SCO	2.35	2
Laindon Stn	SEA	2.54	3
Leamington Spa Stn	LNW	2.67	3
Leatherhead Stn	SEA	2.57	3
Leicester Stn	LNE	2.54	3
Leigh On Sea Stn	SEA	2.53	3
Leighton Buzzard Stn	LNW	2.98	3
Lewes Stn	SEA	2.12	2
Lincoln Central Stn	LNE	3.01	3
Liverpool Central Stn	LNW	2.8	3
Loughborough Stn	LNE	2.39	2
Lowestoft Stn	SEA	2.17	2
Luton Stn	LNE	3.47	3
Maidenhead Stn	WES	2.96	3
Manchester Oxford Rd Stn	LNW	2.95	3
Manningtree Stn	SEA	3.28	3
Manor Park Stn	SEA	2.81	3

Table A1.3 Grade for Category C (continued)

Station name	Territory	Category SSM	Grade score
Mortlake Stn	SEA	3.08	3
Motspur Park Stn	SEA	2.66	3
New Cross Stn	SEA	2.52	3
New Eltham Stn	SEA	3.14	3
Newbury Stn	WES	3.09	3
Norbiton Stn	SEA	2.69	3
Norbury Stn	SEA	2.11	2
Northampton Stn	LNW	2.82	3
Norwood Junction Stn	SEA	1.98	2
Nuneaton Stn	LNW	2.37	2
Oxted Stn	SEA	2.26	2
Palmers Green Stn	LNE	2.07	2
Penzance Stn	WES	3.34	3
Petersfield Stn	SEA	2.75	3
Petts Wood Stn	SEA	3.52	4
Pitsea Stn	SEA	2.16	2
Plymouth Stn	WES	3.11	3
Ponders End Stn	SEA	2.42	2
Poole Stn	SEA	2.74	3
Portsmouth & Southsea Stn	SEA	2.83	3
Portsmouth Harbour Stn	SEA	2.54	3
Potters Bar Stn	LNE	1.98	2
Purley Stn	SEA	3.01	3
Rayleigh Stn	SEA	3.04	3
Redhill Stn	SEA	2.91	3
Retford Stn	LNE	2.63	3
Rochdale Stn	LNW	3.01	3
Rochford Stn	SEA	2.91	3
Rugby Stn	LNW	2.81	3
Runcorn Stn	LNW	2.88	3
Salford Crescent Stn	LNW	2.29	2
Salisbury Stn	SEA	2.91	3
Scarborough Stn	LNE	2.53	3
Slough Stn	WES	2.76	3
Snow Hill Stn	LNW	3	3
South Woodham Ferrers Stn	SEA	2.21	2
Southend Victoria Stn	SEA	2.7	3
St. Austell Stn	WES	3.34	3
St. Mary Cray Stn	SEA	1.83	2
Stafford Stn	LNW	3.13	3
Staines Stn	SEA	2.63	3
Stevenage Stn	LNE	2.12	2
Stirling Stn	SCO	2.18	2
Stoke On Trent Stn	LNW	2.49	2
Stoneleigh Stn	SEA	2.06	2
Strawberry Hill Stn	SEA	3.08	3
Sunderland Stn	LNE	2.91	3
Sutton Stn	SEA	2.67	3
Swanley Stn	SEA	2.06	2
Swansea Stn	WES	3.39	3

Table A1.3 Grade for Category C (continued)

Station name	Territory	Category SSM	Grade score
Swindon Stn	WES	2.71	3
Telford Central Stn	LNW	2.38	2
Thornton Heath Stn	SEA	2.55	3
Three Bridges Stn	SEA	2.05	2
Tring Stn	LNW	2.63	3
Truro Stn	WES	3.49	3
Wallington Stn	SEA	3.31	3
Walton On Thames Stn	SEA	3.07	3
Wandsworth Town Stn	SEA	2.9	3
Welwyn Garden City Stn	LNE	2.2	2
Wembley Central Stn	LNW	2.94	3
West Byfleet Stn	SEA	2.96	3
Weybridge Stn	SEA	2.5	3
Weymouth Stn	SEA	3	3
Whitton Stn	SEA	2.33	2
Wickford Stn	SEA	2.32	2
Windsor & Eton Riv Stn	SEA	2.16	2
Witham Stn	SEA	3.3	3
Wokingham Stn	SEA	2.55	3
Worcester Foregate St Stn	WES	2.64	3
Worcester Park Stn	SEA	2.71	3

Table A1.4 Grade for Category D

Station name	Territory	Category SSM	Grade score
Abergavenny Stn	WES	2.66	3
Aberystwyth Stn	WES	3.47	3
Airdrie South Stn	SCO	2.46	2
Albany Park Stn	SEA	2.7	3
Alexandra Palace Stn	LNE	2.12	2
Arbroath Stn	SCO	2.18	2
Argyle Street Stn	SCO	2.66	3
Ash Vale Stn	SEA	2.35	2
Audley End Stn	SEA	3.38	3
Aviemore Stn	SCO	2.34	2
Axminster Stn	SEA	3.18	3
Aylesbury Stn	LNW	2.79	3
Bangor Stn	LNW	3.28	3
Barnham Stn	SEA	2.35	2
Barrow In Furness Stn	LNW	2.88	3
Battersea Park Stn	SEA	3.17	3
Battle Stn	SEA	2.97	3
Beaconsfield Stn	LNW	3.29	3
Bearsted Stn	SEA	2.71	3
Biggleswade Stn	LNE	2.06	2
Birchwood Stn	LNW	2.92	3
Bishopbriggs Stn	SCO	2.46	2
Bodmin Parkway Stn	WES	3.44	3
Bognor Regis Stn	SEA	3.1	3
Borough Green Stn	SEA	2.13	2
Bradford Forster Sq. Stn	LNE	3.17	3
Brockley Stn	SEA	2.9	3
Bromley North Stn	SEA	2.38	2
Burnham On Crouch Stn	SEA	3.17	3
Burton On Trent Stn	LNE	3.04	3
Bush Hill Park Stn	SEA	1.99	2
Canterbury West Stn	SEA	2.72	3
Catford Stn	SEA	2.25	2
Charlton Stn	SEA	2.25	2
Cheadle Hulme Stn	LNW	2.97	3
Cheam Stn	SEA	2.35	2
Chelsfield Stn	SEA	1.93	2
Chislehurst Stn	SEA	3.41	3
Chorley Stn	LNW	2.2	2
City Thameslink Stn	SEA	2.7	3
Clapton Stn	SEA	2.42	2
Claygate Stn	SEA	2.58	3
Clock House Stn	SEA	2.31	2
Cobham Stn	SEA	2.34	2
Cooden Beach Stn	SEA	3.09	3
Cosham Stn	SEA	2.13	2
Coulsdon South Stn	SEA	3.16	3
Crayford Stn	SEA	2.33	2
Crystal Palace Stn	SEA	2.57	3
Cuffley Stn	LNE	2.08	2

Table A1.4 Grade for Category D (continued)

Station name	Territory	Category SSM	Grade score
Cupar Stn	SCO	2.47	2
Dawlish Stn	WES	3.33	3
Denmark Hill Stn	SEA	2.61	3
Dorchester South Stn	SEA	2.91	3
Earlsfield Stn	SEA	2.95	3
Edinburgh Haymarket Stn	SCO	2.25	2
Effingham Junction Stn	SEA	2.66	3
Elgin Stn	SCO	2.53	3
Elmers End Stn	SEA	2.65	3
Elmstead Woods Stn	SEA	3.42	3
Ely Stn	SEA	3.01	3
Enfield Chase Stn	LNE	1.96	2
Falkirk Grahamston Stn	SCO	1.93	2
Farncombe Stn	SEA	1.89	2
Flitwick Stn	LNE	2.07	2
Fort William Stn	SCO	2.62	3
Gerrards Cross Stn	LNW	3.06	3
Gillingham (Dorset) Stn	SEA	3.02	3
Gourock Stn	SCO	2.64	3
Greenwich Stn	SEA	2.8	3
Grimsby Town Stn	LNE	2.55	3
Gunnersbury Stn	SEA	1.85	2
Hamilton Central Stn	SCO	2.74	3
Hampton Wick Stn	SEA	2.02	2
Harlington Stn	LNE	2.51	3
Harringay Stn	LNE	2.28	2
Hartford Stn	LNW	3.64	4
Hartlepool Stn	LNE	2.34	2
Hatfield Peverel Stn	SEA	3	3
Haverfordwest Stn	WES	3.14	3
Hayes & Harlington Stn	WES	2.73	3
Hayes Stn	SEA	2.72	3
Hazel Grove Stn	LNW	2.83	3
Headcorn Stn	SEA	2.58	3
Herne Bay Stn	SEA	2.94	3
Hersham Stn	SEA	2.02	2
Hexham Stn	LNE	2.75	3
High Brooms Stn	SEA	2.69	3
Highbury & Islington (LL) Stn	LNE	2.32	2
Hildenborough Stn	SEA	2.72	3
Honiton Stn	SEA	2.98	3
Honor Oak Park Stn	SEA	3.52	4
Hornsey Stn	LNE	2.37	2
Horsley Stn	SEA	2.41	2
Hounslow Stn	SEA	2.49	2
Huyton Stn	LNW	2.95	3
Ingatestone Stn	SEA	3.29	3
Irvine Stn	SCO	2.45	2
Johnstone Stn	SCO	1.97	2
Kemble Stn	WES	3.33	3

Table A1.4 Grade for Category D (continued)

Station name	Territory	Category SSM	Grade score
Kensal Green Stn	LNW	3.06	3
Kensington Olympia Stn	SEA	2.5	3
Kent House Stn	SEA	3.63	4
Kettering Stn	LNE	2.75	3
Kew Gardens Stn	SEA	1.84	2
Kidbrooke Stn	SEA	2.51	3
Kidderminster Stn	LNW	2.48	2
Kings Cross Thameslink Stn	LNE	1.81	2
Kings Lynn Stn	SEA	3.23	3
Kingussie Stn	SCO	2.6	3
Knutsford Stn	LNW	3.48	3
Lancing Stn	SEA	2.8	3
Leagrave Stn	LNE	3.33	3
Lee Stn	SEA	2.58	3
Letchworth Stn	LNE	1.96	2
Leuchars Stn	SCO	1.92	2
Leyland Stn	LNW	2.7	3
Lichfield City Stn	LNW	2.41	2
Liphook Stn	SEA	2.74	3
Liskeard Stn	WES	3.15	3
Liss Stn	SEA	2.9	3
Littlehampton Stn	SEA	2.76	3
London Road (Surrey) Stn	SEA	2.26	2
Longfield Stn	SEA	2.43	2
Margate Stn	SEA	3.42	3
Market Harborough Stn	LNE	2.72	3
Marks Tey Stn	SEA	3.27	3
Martins Heron Stn	SEA	2.79	3
Meadowhall Stn	LNE	1.95	2
Meopham Stn	SEA	2.72	3
Merstham Stn	SEA	2.13	2
Mexborough Stn	LNE	3.16	3
Mill Hill Broadway Stn	LNE	2.64	3
Montrose Stn	SCO	2.43	2
Moorfields Stn	LNW	2.89	3
Mottingham Stn	SEA	2.55	3
Mount Florida Stn	SCO	2.16	2
New Barnet Stn	LNE	2.11	2
New Cross Gate Stn	SEA	3.24	3
Northallerton Stn	LNE	2.24	2
Oakleigh Park Stn	LNE	2.34	2
Oban Stn	SCO	2.32	2
Oxenholme Stn	LNW	2.58	3
Oxshott Stn	SEA	2.19	2
Penge East Stn	SEA	2.73	3
Pitlochry Stn	SCO	2.37	2
Plumstead Stn	SEA	2.33	2
Polegate Stn	SEA	3.32	3
Port Talbot Parkway Stn	WES	2.67	3
Porth Stn	WES	3.08	3

Table A1.4 Grade for Category D (continued)

Station name	Territory	Category SSM	Grade score
Portslade Stn	SEA	3.19	3
Prestatyn Stn	LNW	3.57	4
Preston Park Stn	SEA	2.56	3
Princes Risborough Stn	LNW	2.98	3
Pulborough Stn	SEA	2.59	3
Purfleet Stn	SEA	2.27	2
Purley Oaks Stn	SEA	3.04	3
Radlett Stn	LNE	2.93	3
Ramsgate Stn	SEA	2.23	2
Redditch Stn	LNW	3.4	3
Redruth Stn	WES	3.37	3
Rhyl Stn	LNW	2.99	3
Royston Stn	LNE	1.92	2
Sandwell & Dudley Stn	LNW	3.2	3
Seaford Stn	SEA	3.28	3
Selhurst Stn	SEA	2.96	3
Shepperton Stn	SEA	2.33	2
Sherborne Stn	SEA	3.13	3
Shipley Stn	LNE	2.98	3
Shoreham By Sea Stn	SEA	3.06	3
Shortlands Stn	SEA	3.39	3
Skipton Stn	LNE	3.1	3
Solihull Stn	LNW	2.66	3
South Croydon Stn	SEA	2.34	2
Southall Stn	WES	2.93	3
Southend Central Stn	SEA	2.34	2
Southend East Stn	SEA	2.29	2
Southport Stn	LNW	2.73	3
St Leonards Warrior Sq Stn	SEA	2.74	3
St. Albans Stn	LNE	2.45	2
St. Helens Central Stn	LNW	2.64	3
St. James Street Stn	SEA	2.66	3
St. Neots Stn	LNE	1.97	2
Stalybridge Stn	LNW	2.83	3
Stanford Le Hope Stn	SEA	2.29	2
Stonehaven Stn	SCO	2.06	2
Stourbridge Junction Stn	LNW	3.33	3
Streatham Stn	SEA	3.05	3
Stroud Stn	WES	3.11	3
Sunbury Stn	SEA	2.28	2
Sutton Coldfield Stn	LNW	2.2	2
Sydenham Stn	SEA	2.81	3
Teignmouth Stn	WES	3.09	3
Theobalds Grove Stn	SEA	2.78	3
Tiverton Parkway Stn	WES	2.51	3
Todmorden Stn	LNW	3.44	3
Totnes Stn	WES	2.53	3
Tottenham Hale Lt/Stn	SEA	2.12	2
Trowbridge Stn	WES	3.13	3
Twyford Stn	WES	3.24	3

Table A1.4 Grade for Category D (continued)

Station name	Territory	Category SSM	Grade score
Uckfield Stn	SEA	2.81	3
Virginia Water Stn	SEA	3	3
Waddon Stn	SEA	2.7	3
Walsall Stn	LNW	2.2	2
Wandsworth Common Stn	SEA	2.69	3
Ware Stn	SEA	2.86	3
Wareham Stn	SEA	2.94	3
Warrington Central Stn	LNW	2.6	3
Warwick Stn	LNW	2.92	3
Watford High Street Stn	LNW	2.75	3
Wellingborough Stn	LNE	2.98	3
West Croydon Stn	SEA	3.25	3
West Malling Stn	SEA	2.84	3
West Norwood Stn	SEA	2.58	3
West Wickham Stn	SEA	2.19	2
West Worthing Stn	SEA	3.03	3
Westbury Stn	WES	2.44	2
Westcombe Park Stn	SEA	2.6	3
Whitstable Stn	SEA	2.67	3
Wigan Wallgate Stn	LNW	2.85	3
Willesden Junction HL Stn	SEA	2.66	3
Wilmslow Stn	LNW	2.82	3
Winchfield Stn	SEA	2.41	2
Winchmore Hill Stn	LNE	2	2
Winnersh Stn	SEA	3	3
Wood Street Stn	SEA	2.49	2
Wrexham General Stn	LNW	2.98	3
Yeovil Junction Stn	SEA	2.64	3

Table A1.5 Grade for Category E

Station name	Territory	Category SSM	Grade score
Aberdare Stn	WES	2.92	3
Aberdour Stn	SCO	2.3	2
Accrington Stn	LNW	3.01	3
Acocks Green Stn	LNW	2.93	3
Acton Central Stn	SEA	2.72	3
Acton Main Line Stn	WES	3.16	3
Adderley Park Stn	LNW	2.74	3
Adlington (Lancashire) Stn	LNW	2.53	3
Aigburth Stn	LNW	3.07	3
Ainsdale Stn	LNW	3.22	3
Aintree Stn	LNW	2.56	3
Alderley Edge Stn	LNW	2.91	3
Alfreton Parkway Stn	LNE	2.59	3
Alresford Stn	SEA	2.61	3
Anerley Stn	SEA	2.92	3
Angmering Stn	SEA	2.96	3
Appleby Stn	LNW	2.35	2
Apsley Stn	LNW	2.89	3
Ardrossan South Beach Stn	SCO	2.85	3
Arlesey Stn	LNE	1.95	2
Arundel Stn	SEA	3.2	3
Ash Stn	SEA	2.21	2
Ashton Under Lyne Stn	LNW	2.53	3
Ashwell & Morden Stn	LNE	2.66	3
Aston Stn	LNW	3.18	3
Atherton Stn	LNW	3.34	3
Aughton Park Stn	LNW	2.85	3
Aylesham Stn	SEA	3.1	3
Baldock Stn	LNE	1.96	2
Bank Hall Stn	LNW	3.37	3
Bargoed Stn	WES	3.17	3
Barming Stn	SEA	1.79	2
Barnstaple Stn	WES	2.95	3
Barrhill Stn	SCO	2.34	2
Barry Stn	WES	2.85	3
Bebington Stn	LNW	3.08	3
Beckenham Hill Stn	SEA	3.11	3
Bellingham Stn	SEA	2.51	3
Bellshill Stn	SCO	2.49	2
Belvedere Stn	SEA	2.25	2
Bentley Stn	SEA	2.15	2
Berkswell Stn	LNW	3.02	3
Berrylands Stn	SEA	2.13	2
Berwick Stn	SEA	2.82	3
Bexhill Stn	SEA	3	3
Bidston Stn	LNW	2.71	3
Billingshurst Stn	SEA	2.55	3
Bingley Stn	LNE	3.14	3
Birchington On Sea Stn	SEA	2.47	2

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score
Birkdale Stn	LNW	2.81	3
Birkenhead Central Stn	LNW	3.13	3
Birkenhead North Stn	LNW	2.69	3
Birkenhead Park Stn	LNW	2.43	2
Blake Street Stn	LNW	3.49	3
Blundellsands Stn	LNW	3.19	3
Bookham Stn	SEA	2.39	2
Bootle New Strand Stn	LNW	3.14	3
Bosham Stn	SEA	2.79	3
Boston Stn	LNE	2.19	2
Bourne End Stn	WES	3.16	3
Bournville Stn	LNW	2.94	3
Bowes Park Stn	LNE	2.27	2
Bramhall Stn	LNW	2.91	3
Bridgeton Stn	SCO	2.33	2
Bridgwater Stn	WES	3.32	3
Brimsdown Stn	SEA	1.96	2
Brixton Stn	SEA	2.41	2
Broad Green Stn	LNW	2.74	3
Broadstairs Stn	SEA	2.39	2
Bromborough Rake Stn	LNW	3.04	3
Bromborough Stn	LNW	3.17	3
Bromley Cross Stn	LNW	2.66	3
Bruce Grove Stn	SEA	1.6	2
Brunswick Stn	LNW	1.74	2
Burnage Stn	LNW	2.43	2
Burnham Stn	WES	3.31	3
Burnley Central Stn	LNW	3.13	3
Burntisland Stn	SCO	2.4	2
Butlers Lane Stn	LNW	3.34	3
Buxted Stn	SEA	2.79	3
Buxton Stn	LNW	2.87	3
Byfleet & New Haw Stn	SEA	3.6	4
Cadoxton Stn	WES	3.26	3
Caledonian Road & Barnsbury Stn	SEA	2.4	2
Camborne Stn	WES	3.27	3
Camden Road Stn	SEA	2.93	3
Canley Stn	LNW	2.92	3
Carpenders Park Stn	LNW	3.31	3
Carshalton Beeches Stn	SEA	2.65	3
Carstairs Stn	SCO	2.39	2
Cathcart Stn	SCO	1.98	2
Chafford Hundred Stn	SEA	2.3	2
Chassen Road Stn	LNW	3.1	3
Cheddington Stn	LNW	2.71	3
Chessington South Stn	SEA	2.39	2
Chestfield Stn	SEA	2.64	3
Chipstead Stn	SEA	1.86	2
Chiswick Stn	SEA	2.34	2
Cholsey Stn	WES	3.26	3

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score
Christs Hospital Stn	SEA	2.7	3
Clandon Stn	SEA	2.1	2
Clarkston Stn	SCO	2.35	2
Colwyn Bay Stn	LNW	3.07	3
Congleton Stn	LNW	2.48	2
Conway Park Stn	LNW	2.34	2
Cookham Stn	WES	3.47	3
Cowdenbeath Stn	SCO	2.4	2
Cradley Heath Stn	LNW	2.92	3
Cressington Stn	LNW	2.93	3
Crewkerne Stn	SEA	2.5	3
Cricklewood Stn	LNE	3.19	3
Crofton Park Stn	SEA	2.92	3
Crosshill Stn	SCO	2.44	2
Crowborough Stn	SEA	2.89	3
Crowhurst Stn	SEA	3.32	3
Crowthorne Stn	SEA	2.94	3
Croy Stn	SCO	2.5	3
Cumbernauld Stn	SCO	2.64	3
Cwmbran Stn	WES	3.1	3
Dagenham Dock Stn	SEA	2.63	3
Daisy Hill Stn	LNW	3.01	3
Dalmeny Stn	SCO	2.35	2
Datchet Stn	SEA	3.16	3
Davenport Stn	LNW	2.99	3
Deal Stn	SEA	2.6	3
Deansgate Stn	LNW	2.68	3
Denham Stn	LNW	2.96	3
Deptford Stn	SEA	3.21	3
Dingwall Stn	SCO	2.71	3
Disley Stn	LNW	3	3
Dormans Stn	SEA	2.34	2
Dorridge Stn	LNW	2.83	3
Downham Market Stn	SEA	2.93	3
Drayton Park Stn	LNE	1.9	2
Droitwich Spa Stn	WES	2.96	3
Duddeston Stn	LNW	2.86	3
Dudley Port Stn	LNW	2.76	3
Dunblane Stn	SCO	2.29	2
Dunfermline Stn	SCO	2.05	2
Durrington On Sea Stn	SEA	3.08	3
Earlestown Stn	LNW	2.52	3
Earlswood (Surrey) Stn	SEA	2.55	3
East Dulwich Stn	SEA	2.45	2
East Kilbride Stn	SCO	2.41	2
East Tilbury Stn	SEA	2.13	2
Eastham Rake Stn	LNW	2.89	3
Eccles Stn	LNW	2.7	3
Eccleston Park Stn	LNW	2.37	2
Edenbridge Town Stn	SEA	3.28	3

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score
Edge Hill Stn	LNW	2.55	3
Ellesmere Port Stn	LNW	2.37	2
Elsenham Stn	SEA	3.09	3
Emsworth Stn	SEA	2.28	2
Enfield Lock Stn	SEA	2.45	2
Eridge Stn	SEA	2.75	3
Essex Road Stn	LNE	2.7	3
Farningham Road Stn	SEA	2.9	3
Farnworth Stn	LNW	2.65	3
Fazakerly Stn	LNW	2.87	3
Finchley Road & Frognal Stn	SEA	1.8	2
Fishguard Harbour Stn	WES	3.32	3
Five Ways Stn	LNW	3.08	3
Flint Stn	LNW	2.92	3
Flixton Stn	LNW	3	3
Folkestone Harbour Stn	SEA	4.16	4
Folkestone West Stn	SEA	2.03	2
Ford Stn	SEA	3.12	3
Formby Stn	LNW	2.88	3
Forres Stn	SCO	1.78	2
Four Oaks Stn	LNW	3.06	3
Frant Stn	SEA	3.3	3
Freshfield Stn	LNW	2.59	3
Frimley Stn	SEA	2.44	2
Frinton-on-Sea Stn	SEA	2.83	3
Fulwell Stn	SEA	2.63	3
Furze Platt Stn	WES	3.46	3
Garforth Stn	LNE	2.24	2
Garswood Stn	LNW	3.02	3
Gatley Stn	LNW	2.49	2
Giffnock Stn	SCO	2.01	2
Gipsy Hill Stn	SEA	2.41	2
Girvan Stn	SCO	2.84	3
Glasgow Exhibition Centre Stn	SCO	2.38	2
Glasgow Queens Park Stn	SCO	2.04	2
Glazebrook Stn	LNW	2.72	3
Gobowen Stn	WES	3.34	3
Goole Stn	LNE	2.32	2
Goring & Streatley Stn	WES	3.02	3
Goring By Sea Stn	SEA	3.38	3
Gorton Stn	LNW	2.8	3
Gospel Oak Stn	SEA	2.82	3
Grange Over Sands Stn	LNW	2.21	2
Grange Park Stn	LNE	2.35	2
Great Bentley Stn	SEA	2.72	3
Great Chesterford Stn	SEA	3.17	3
Great Missenden Stn	LNW	3.07	3
Green Lane Stn	LNW	3.05	3
Greenfield Stn	LNW	2.76	3
Greenock Cartsdyke Stn	SCO	2.49	2

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score
Greenock Central Stn	SCO	2.21	2
Greenock West Stn	SCO	2.26	2
Guide Bridge Stn	LNW	3	3
Haddenham & Thame Stn	LNW	2.67	3
Hadfield Stn	LNW	3.11	3
Hadley Wood Stn	LNE	2.07	2
Hag Fold Stn	LNW	2.68	3
Hagley Stn	LNW	3.37	3
Hale Stn	LNW	3.37	3
Halewood Stn	LNW	2.96	3
Hall Green Stn	LNW	2.88	3
Hall Road Stn	LNW	2.98	3
Ham Street Stn	SEA	2.9	3
Hamilton West Stn	SCO	2.67	3
Hampden Park Stn	SEA	2.43	2
Hampstead Heath Stn	SEA	2.4	2
Hampton In Arden Stn	LNW	3.02	3
Hamstead Stn	LNW	2.45	2
Hamworthy Stn	SEA	2.68	3
Handforth Stn	LNW	2.67	3
Hanwell Stn	WES	3.18	3
Harlesden Stn	LNW	2.83	3
Harlow Mill Stn	SEA	2.35	2
Hatch End Stn	LNW	3.07	3
Haydons Road Stn	SEA	2.44	2
Headstone Lane Stn	LNW	3.09	3
Heald Green Stn	LNW	3.25	3
Heaton Chapel Stn	LNW	2.64	3
Hendon Stn	LNE	2.69	3
Henley On Thames Stn	WES	3.03	3
Hertford East Stn	SEA	2.62	3
High Street Stn	SCO	2.91	3
Higham Stn	SEA	2.75	3
Hightown Stn	LNW	2.87	3
Hillside Stn	LNW	2.93	3
Hilsea Stn	SEA	3.13	3
Hinchley Wood Stn	SEA	2.55	3
Hinckley Stn	LNE	2.82	3
Hindley Stn	LNW	3.34	3
Holmes Chapel Stn	LNW	3.04	3
Holyhead Stn	LNW	3.29	3
Homerton Stn	SEA	1.6	2
Hooton Stn	LNW	3.07	3
Hough Green Stn	LNW	3.09	3
Hoylake Stn	LNW	2.49	2
Huntly Stn	SCO	2.26	2
Hunts Cross Stn	LNW	2.93	3
Hurst Green Stn	SEA	2.55	3
Ilkley Stn	LNE	2.9	3
Inverurie Stn	SCO	2.43	2

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score
Iver Stn	WES	2.77	3
James Street Stn	LNW	2.74	3
Jewellery Quarter Stn	LNW	2.67	3
Kearsney Stn	SEA	3.17	3
Keith Stn	SCO	2.58	3
Kensal Rise Stn	SEA	2.39	2
Kenton Stn	LNW	2.9	3
Kidsgrove Stn	LNW	2.25	2
Kilburn High Road Stn	LNW	3.51	4
Kingham Stn	WES	2.66	3
Kinghorn Stn	SCO	2.37	2
Kings Langley Stn	LNW	2.82	3
Kings Norton Stn	LNW	2.92	3
Kings Park Stn	SCO	2.28	2
Kingswood Stn	SEA	2.07	2
Kirkby Stn	LNW	3.16	3
Kirkdale Stn	LNW	2.2	2
Kirkham & Wesham Stn	LNW	2.68	3
Knockholt Stn	SEA	3.59	4
Kyle Of Lochalsh Stn	SCO	2.85	3
Ladybank Stn	SCO	2.42	2
Ladywell Stn	SEA	2.24	2
Lanark Stn	SCO	2.48	2
Langley Green Stn	LNW	3	3
Langley Stn	WES	2.75	3
Larbert Stn	SCO	2.23	2
Lea Green Stn	LNW	3.12	3
Lea Hall Stn	LNW	2.87	3
Leasowe Stn	LNW	2.7	3
Levenshulme Stn	LNW	2.85	3
Linlithgow Stn	SCO	2.5	3
Littleborough Stn	LNW	3.28	3
Littlehaven Stn	SEA	2.51	3
Liverpool Walton Junction Stn	LNW	2.85	3
Llandaf Stn	WES	3.7	4
Llandudno Jn. Stn	LNW	2.98	3
Llandudno Stn	LNW	3.64	4
Llanelli Stn	WES	3.45	3
Lockerbie Stn	SCO	2.25	2
London Road (Brighton) Stn	SEA	2.92	3
Long Buckby Stn	LNW	2.85	3
Longbridge Stn	LNW	3.08	3
Lostock Parkway Stn	LNW	2.64	3
Loughborough Junction Stn	SEA	2.52	3
Lower Sydenham Stn	SEA	3.02	3
Lye Stn	LNW	2.89	3
Lymington Town Stn	SEA	2.65	3
Machynlleth Stn	WES	3.14	3
Maghull Stn	LNW	2.68	3
Maidstone West Stn	SEA	2.57	3

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score
Malden Manor Stn	SEA	2.98	3
Mallaig Stn	SCO	2.34	2
Malton Stn	LNE	2.16	2
Manor Road Stn	LNW	2.96	3
March Stn	SEA	3.56	4
Marston Green Stn	LNW	2.46	2
Martin Mill Stn	SEA	2.74	3
Mauldeth Road Stn	LNW	2.4	2
Meldreth Stn	SEA	2.85	3
Melton Mowbray Stn	LNE	2.42	2
Menston Stn	LNE	3.06	3
Meols Stn	LNW	2.95	3
Milford Stn	SEA	2.11	2
Mitcham Junction Stn	SEA	2.31	2
Moorgate Lt Stn	LNE	2.69	3
Moorside Stn	LNW	3.17	3
Moreton (Wirral) Stn	LNW	2.92	3
Morpeth Stn	LNE	1.94	2
Mossley Hill Stn	LNW	3.04	3
Moulsecoomb Stn	SEA	3.14	3
Muirend Stn	SCO	2.6	3
Nairn Stn	SCO	2.37	2
Narborough Stn	LNE	2.7	3
New Beckenham Stn	SEA	2.87	3
New Brighton Stn	LNW	2.63	3
New Mills Newtown Stn	LNW	3.14	3
New Pudsey Stn	LNE	3.02	3
New Southgate Stn	LNE	2.54	3
Newhaven Town Stn	SEA	2.13	2
Newington Stn	SEA	2.57	3
Newport (Essex) Stn	SEA	2.99	3
Newton (Greater Manchester) Stn	SCO	3.33	3
Newton (Strathclyde) Stn	WES	2.75	3
Newton Le Willows Stn	LNW	3.3	3
Normans Bay Stn	SEA	2.97	3
North Camp Stn	SEA	2.29	2
North Sheen Stn	SEA	2.9	3
North Wembley Stn	LNW	3.06	3
Northfield Stn	LNW	3.02	3
Northfleet Stn	SEA	2.65	3
Northolt Park Stn	LNW	3.05	3
Northumberland Park Stn	SEA	2.16	2
Northwich Stn	LNW	3.27	3
Nunhead Stn	SEA	2.45	2
Nutbourne Stn	SEA	2.81	3
Oakham Stn	LNE	2.63	3
Ockendon Stn	SEA	2.18	2
Old Street Stn	LNE	2.42	2
Oldham Mumps Stn	LNW	2.6	3
Olton Stn	LNW	3.31	3

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score
Orrell Park Stn	LNW	2.93	3
Overton Stn	SEA	2.03	2
Pangbourne Stn	WES	3.05	3
Par Stn	WES	3.41	3
Parbold Stn	LNW	2.9	3
Penarth Stn	WES	2.85	3
Penge West Stn	SEA	3.29	3
Penrith Stn	LNW	2.26	2
Perry Barr Stn	LNW	2.55	3
Pevensey & Westham Stn	SEA	3.03	3
Pluckley Stn	SEA	2.7	3
Plumpton Stn	SEA	2.55	3
Pollokshields East Stn	SCO	2.71	3
Polmont Stn	SCO	2.4	2
Port Glasgow Stn	SCO	2.45	2
Port Sunlight Stn	LNW	2.88	3
Portchester Stn	SEA	2.62	3
Poulton-Le-Fylde Stn	LNW	3.23	3
Poynton Stn	LNW	2.96	3
Prescot Stn	LNW	3.08	3
Prittlewell Stn	SEA	3.08	3
Pwllheli Stn	WES	3.59	4
Queenborough Stn	SEA	2.96	3
Queens Road Peckham Stn	SEA	2.78	3
Radyr Stn	WES	2.96	3
Rainhill Stn	LNW	2.33	2
Ravensbourne Stn	SEA	2.27	2
Rectory Road Stn	SEA	1.88	2
Redcar Central Stn	LNE	2.1	2
Reddish North Stn	LNW	2.81	3
Reedham (Purley) Stn	SEA	2.32	2
Rice Lane Stn	LNW	3.2	3
Robertsbridge Stn	SEA	2.61	3
Roby Stn	LNW	2.64	3
Rock Ferry Stn	LNW	3.01	3
Rotherham Central Stn	LNE	2.58	3
Rowlands Castle Stn	SEA	2.53	3
Rowley Regis Stn	LNW	3.05	3
Roydon Stn	SEA	2.56	3
Runcorn East Stn	LNW	3.07	3
Ryde Esplanade Stn	SEA	2.95	3
Rye House Stn	SEA	2.29	2
Rye Stn	SEA	2.73	3
Salford Central Stn	LNW	2.77	3
Salfords Stn	SEA	3.01	3
Saltcoats Stn	SCO	2.57	3
Sandbach Stn	LNW	2.69	3
Sandhills Stn	LNW	2.63	3
Sandling Stn	SEA	3.06	3
Sandwich Stn	SEA	1.95	2

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score
Sandy Stn	LNE	2	2
Sankey Stn	LNW	2.95	3
Sawbridgeworth Stn	SEA	2.65	3
Seaforth & Litherland Stn	LNW	2.4	2
Seer Green Stn	LNW	2.79	3
Selby Stn	LNE	1.97	2
Selly Oak Stn	LNW	2.83	3
Settle Stn	LNW	2.42	2
Severn Tunnel Jcn Stn	WES	3.46	3
Shanklin Stn	SEA	2.97	3
Shaw & Crompton Stn	LNW	2.55	3
Sheerness On Sea Stn	SEA	3.28	3
Shelford Stn	SEA	3.03	3
Shenstone Stn	LNW	3.45	3
Shepherds Well Stn	SEA	3.04	3
Shirley Stn	LNW	2.76	3
Shoeburyness Stn	SEA	2.85	3
Shotton HL Stn	LNW	3.66	4
Shotts Stn	SCO	2.22	2
Skegness Stn	LNE	3.18	3
Slade Green Stn	SEA	3.63	4
Sleaford Stn	LNE	2.35	2
Small Heath Stn	LNW	3.05	3
Smethwick Galton Bridge Stn	LNW	2.22	2
Smethwick Rolfe St Stn	LNW	2.57	3
Smitham Stn	SEA	2.32	2
Sole Street Stn	SEA	2.6	3
South Acton Stn	SEA	2.35	2
South Bermondsey Stn	SEA	2.73	3
South Hampstead Stn	LNW	3.07	3
South Kenton Stn	LNW	3.32	3
Southbourne Stn	SEA	2.41	2
Southbury Stn	SEA	2.39	2
Southwick Stn	SEA	2.41	2
Spital Stn	LNW	2.99	3
Spring Road Stn	LNW	3.12	3
St. Annes On The Sea Stn	LNW	2.8	3
St. Erth Stn	WES	3.31	3
St. Helens Junction Stn	LNW	2.51	3
St. Johns Stn	SEA	2.56	3
St. Michaels Stn	LNW	2.55	3
Stamford Hill Stn	SEA	2.13	2
Stamford Stn	LNE	3.23	3
Stansted Mountfitchet Stn	SEA	3.04	3
Stechford Stn	LNW	3.08	3
Stoke Mandeville Stn	LNW	2.79	3
Stoke Newington Stn	SEA	1.74	2
Stone Crossing Stn	SEA	2.68	3
Stonebridge Park Stn	LNW	2.83	3
Stonehouse Stn	WES	3.05	3

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score
Stourbridge Town Stn	LNW	3.09	3
Sturry Stn	SEA	2.75	3
Swanscombe Stn	SEA	2.52	3
Swanwick Stn	SEA	2.26	2
Sway Stn	SEA	2.77	3
Swaythling Stn	SEA	2.31	2
Swinton (Greater Manchester) Stn	LNW	3.24	3
Swinton (South Yorkshire) Stn	LNE	2.41	2
Sydenham Hill Stn	SEA	2.46	2
Tadworth Stn	SEA	2.59	3
Tal Y Cafn Stn	LNW	3.3	3
Tame Bridge Stn	LNW	2.36	2
Taplow Stn	WES	3.27	3
Tattenham Corner Stn	SEA	2.61	3
Templecombe Stn	SEA	2.53	3
Teynham Stn	SEA	2.95	3
Thatcham Stn	WES	2.56	3
Thatto Heath Stn	LNW	2.96	3
The Hawthorns Stn	LNW	2.57	3
Theale Stn	WES	3.47	3
Thetford Stn	SEA	3.3	3
Thurso Stn	SCO	2.08	2
Tile Hill Stn	LNW	2.82	3
Tilehurst Stn	WES	3.17	3
Tipton Stn	LNW	2.77	3
Tisbury Stn	SEA	2.53	3
Tolworth Stn	SEA	2.55	3
Tooting Stn	SEA	2.78	3
Totton Stn	SEA	2.6	3
Tyseley Stn	LNW	3.36	3
Uddingston Stn	SCO	2.61	3
Ulverston Stn	LNW	2.76	3
Upper Halliford Stn	SEA	2.87	3
Urmston Stn	LNW	3.14	3
Walkden Stn	LNW	3.03	3
Wallasey Grove Road Stn	LNW	2.67	3
Wallasey Village Stn	LNW	2.63	3
Walmer Stn	SEA	3.08	3
Waltham Cross Stn	SEA	2.37	2
Walton-on-the-Naze Stn	SEA	2.48	2
Waterloo Stn	LNW	2.6	3
Watton At Stone Stn	LNE	3.16	3
Welham Green Stn	LNE	2.34	2
Wellington Stn	LNW	2.86	3
Welwyn North Stn	LNE	1.97	2
Wemyss Bay Stn	SCO	2.53	3
Wendover Stn	LNW	2.85	3
West Allerton Stn	LNW	2.97	3
West Drayton Stn	WES	2.79	3
West Dulwich Stn	SEA	2.36	2

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score
West Ealing Stn	WES	3.17	3
West Hampstead Stn	SEA	1.99	2
West Hampstead Thameslink Stn	LNE	2.2	2
West Horndon Stn	SEA	3.18	3
West Kirby Stn	LNW	3.17	3
West St. Leonards Stn	SEA	2.75	3
West Sutton Stn	SEA	2.41	2
Westgate-On-Sea Stn	SEA	2.21	2
Whaley Bridge Stn	LNW	3.32	3
Whiston Stn	LNW	2.72	3
White Hart Lane Stn	SEA	2.55	3
Whitecraigs Stn	SCO	2.47	2
Whitehaven Stn	LNW	2.81	3
Whittlesford Stn	SEA	3.11	3
Whyteleafe South Stn	SEA	2.82	3
Wick Stn	SCO	2.18	2
Widnes Stn	LNW	2.64	3
Widney Manor Stn	LNW	2.71	3
Williamwood Stn	SCO	2.22	2
Windermere Stn	LNW	2.22	2
Winnersh Triangle Stn	SEA	2.98	3
Wishaw Stn	SCO	2.5	3
Witley Stn	SEA	2.24	2
Witton Stn	LNW	2.24	2
Wivelsfield Stn	SEA	2.85	3
Wolverton Stn	LNW	3.08	3
Woodmansterne Stn	SEA	2.2	2
Woodsmoor Stn	LNW	2.94	3
Wool Stn	SEA	2.41	2
Woolston Stn	SEA	2.37	2
Woolwich Dockyard Stn	SEA	3.26	3
Workington Stn	LNW	3.01	3
Worplesdon Stn	SEA	2.16	2
Wye Stn	SEA	2.88	3
Wythall Stn	LNW	3.16	3
Yardley Wood Stn	LNW	2.7	3
Yeovil Pen Mill Stn	SEA	2.93	3

Table A1.6 Grade for Category F

Station name	Territory	Category SSM	Grade score
Abercynon North Stn	WES	2.7	3
Abergele & Pensarn Stn	LNW	3.16	3
Achanalt Stn	SCO	1.96	2
Achnasheen Stn	SCO	2.36	2
Achnashellach Stn	SCO	2.39	2
Acton Bridge Stn	LNW	3.27	3
Addiewell Stn	SCO	2.61	3
Adlington (Cheshire) Stn	LNW	3.19	3
Adwick Stn	LNE	2.16	2
Airbles Stn	SCO	2.29	2
Albrighton Stn	LNW	3.09	3
Aldermaston Stn	WES	2.93	3
Aldrington Stn	SEA	2.95	3
Allens West Stn	LNE	2.38	2
Alness Stn	SCO	3.19	3
Alsager Stn	LNW	2.67	3
Althorpe Stn	LNE	2.33	2
Altnabreac Stn	SCO	2.66	3
Alvechurch Stn	LNW	3.26	3
Amberley Stn	SEA	2.64	3
Ammanford Stn	WES	3.12	3
Ancaster Stn	LNE	2.23	2
Angel Road Stn	SEA	2.27	2
Ansdell & Fairhaven Stn	LNW	2.39	2
Appledore Stn	SEA	3.25	3
Appley Bridge Stn	LNW	2.57	3
Ardgay Stn	SCO	2.24	2
Ardlui Stn	SCO	2.32	2
Ardrossan Harbour Stn	SCO	2.52	3
Ardrossan Town Stn	SCO	2.74	3
Ardwick Stn	LNW	2.93	3
Arisaig Stn	SCO	2.7	3
Armathwaite Stn	LNW	2.73	3
Arnside Stn	LNW	2.71	3
Arram Stn	LNE	1.96	2
Arrochar & Tarbet Stn	SCO	2.33	2
Ash Chuch for Tewksbury Stn	WES	2.36	2
Ashley Stn	LNW	3.29	3
Ashurst Stn	SEA	3.46	3
Askam Stn	LNW	3.16	3
Aslockton Stn	LNE	2.19	2
Aspatria Stn	LNW	3.26	3
Atherstone Stn	LNW	2.75	3
Attadale Stn	SCO	2.45	2
Attenborough Stn	LNE	2.46	2
Attleborough Stn	SEA	3.44	3
Auchinleck Stn	SCO	2.64	3
Aylesford Stn	SEA	2.63	3
Bache Stn	LNW	2.63	3
Baglan Stn	WES	2.65	

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Bagshot Stn	SEA	2.84	3
Baillieston Stn	SCO	2.32	2
Balmossie Stn	SCO	2.81	3
Bamber Bridge Stn	LNW	2.44	2
Bamford Stn	LNW	2.96	3
Banavie Stn	SCO	2.12	2
Banstead Stn	SEA	2.96	3
Barassie Stn	SCO	2.38	2
Bare Lane Stn	LNW	3.02	3
Bargeddie Stn	SCO	2.4	2
Barlaston Stn	LNW	2.73	3
Barnes Bridge Stn	SEA	2.43	2
Barrow Haven Stn	LNE	1.91	2
Barrow Upon Soar Stn	LNE	2.38	2
Barry Docks Stn	WES	2.99	3
Barry Island Stn	WES	3.19	3
Barry Links Stn	SCO	2.29	2
Barton On Humber Stn	LNE	1.6	2
Bat & Ball Stn	SEA	2.46	2
Bathgate Stn	SCO	2.18	2
Batley Stn	LNE	1.88	2
Battersby Stn	LNE	2.94	3
Battlesbridge Stn	SEA	3.01	3
Bayford Stn	LNE	2.04	2
Bearley Stn	LNW	3.27	3
Beasdale Stn	SCO	2.33	2
Beauly Stn	SCO	2.4	2
Bedminster Stn	WES	2.89	3
Bedworth Stn	LNW	3.41	3
Bedwyn Stn	WES	3.48	3
Bekesbourne Stn	SEA	3.16	3
Belle Vue Stn	LNW	2.83	3
Belmont Stn	SEA	2.45	2
Belper Stn	LNE	2.29	2
Beltring Stn	SEA	3.48	3
Bempton Stn	LNE	1.97	2
Ben Rhydding Stn	LNE	2.47	2
Bentham Stn	LNW	2.83	3
Bere Alston Stn	WES	3.13	3
Bere Ferrers Stn	WES	2.55	3
Berney Arms Stn	SEA	2.53	3
Berry Brow Stn	LNE	2.34	2
Bescar Lane Stn	LNW	2.43	2
Betchworth Stn	SEA	3.36	3
Bethnal Green Stn	SEA	3.19	3
Betws Y Coed Stn	LNW	3.31	3
Bilbrook Stn	LNW	2.83	3
Billingham Stn	LNE	2.03	2
Bingham Stn	LNE	2.06	2
Birkbeck Stn	SEA	2.19	2

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Bishop Auckland Stn	LNE	2.36	2
Bishopstone Stn	SEA	2.99	3
Blackhorse Road Lt Stn	SEA	2.11	2
Blackpool Pleasure Beach Stn	LNW	3.42	3
Blackpool South Stn	LNW	3.11	3
Blackrod Stn	LNW	2.39	2
Blackwater Stn	SEA	1.95	2
Blaenau Ffestiniog Stn	LNW	3.17	3
Blair Atholl Stn	SCO	2.43	2
Blakedown Stn	LNW	3.26	3
Blaydon Stn	LNE	3.25	3
Bleasby Stn	LNE	2.17	2
Bloxwich North Stn	LNW	2.32	2
Bloxwich Stn	LNW	2.5	3
Blythe Bridge Stn	LNE	2.78	3
Bodorgan Stn	LNW	3.73	4
Bogston Stn	SCO	2.51	3
Bordesley Stn	LNW	2.88	3
Bottesford Stn	LNE	2.29	2
Bow Brickhill Stn	LNW	3.29	3
Boxhill Stn	SEA	3.52	4
Bramley Stn	LNE	2.41	2
Bramley West Yorks Stn	SEA	2.2	2
Brampton (Suffolk) Stn	SEA	3.28	3
Brampton (Cumbria) Stn	LNE	3.04	3
Brandon Stn	SEA	2.43	2
Braystones Stn	LNW	3.25	3
Breich Stn	SCO	2.96	3
Brentford Stn	SEA	2.01	2
Bricket Wood Stn	LNW	3.27	3
Bridge Of Allan Stn	SCO	2.14	2
Bridge Of Orchy Stn	SCO	2.25	2
Brierfield Stn	LNW	3.01	3
Brighouse Stn	LNE	2.6	3
British Steel Redcar Stn	LNE	2.23	2
Briton Ferry Stn	WES	2.73	3
Brockholes Stn	LNE	3.39	3
Bromsgrove Stn	WES	2.56	3
Broome Stn	WES	3.37	3
Broomfleet Stn	LNE	2.2	2
Brora Stn	SCO	2.02	2
Broughty Ferry Stn	SCO	2.22	2
Brundall Gardens Stn	SEA	3.4	3
Brundall Stn	SEA	3.29	3
Brunstane Stn	SCO	1.8	2
Bruton Stn	WES	3.25	3
Bryn Stn	LNW	2.95	3
Buckley Stn	LNW	3.49	3
Bucknell Stn	WES	3.35	3
Bugle Stn	WES	3.57	4

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Builth Road Stn	WES	3.52	4
Bulwell Stn	LNE	2.37	2
Bures Stn	SEA	2.96	3
Burley In Wharfedale Stn	LNE	2.82	3
Burley Park Stn	LNE	2.73	3
Burneside Stn	LNW	2.03	2
Burnley Barracks Stn	LNW	3.21	3
Burnley Manchester Rd Stn	LNW	2.94	3
Burscough Bridge Stn	LNW	2.19	2
Burscough Junction Stn	LNW	3.1	3
Burton Joyce Stn	LNE	2.43	2
Busby Stn	SCO	2.29	2
Bynea Stn	WES	2.73	3
Caergwrie Stn	LNW	3.1	3
Calstock Stn	WES	3.12	3
Cambridge Heath Stn	SEA	3.56	4
Camelon Stn	SCO	2.1	2
Cannock Stn	LNW	2.25	2
Cantley Stn	SEA	3.13	3
Capenhurst Stn	LNW	2.61	3
Cardenden Stn	SCO	2.12	2
Carfin Stn	SCO	2.25	2
Cark Stn	LNW	2.44	2
Carlton Stn	LNE	2.42	2
Carluke Stn	SCO	2.73	3
Carmyle Stn	SCO	2.42	2
Carnforth Stn	LNW	2.84	3
Carnoustie Golf Street Stn	SCO	2.46	2
Carnoustie Stn	SCO	1.94	2
Carrbridge Stn	SCO	1.93	2
Castleford Stn	LNE	2.04	2
Castleton Moor Stn	LNE	3.04	3
Castleton Stn	LNW	2.8	3
Cathays Stn	WES	3.37	3
Cattal Stn	LNE	1.94	2
Cefn Y Bedd Stn	LNW	3.44	3
Chandlers Ford Stn	SEA	2.47	2
Chapel En Le Frith Stn	LNW	3.2	3
Chapelton Stn	WES	3.38	3
Chartham Stn	SEA	2.67	3
Chatelherault Stn	SCO	1.68	2
Chathill Stn	LNE	3.23	3
Chelford Stn	LNW	2.57	3
Cherry Tree Stn	LNW	2.83	3
Chester Le Street Stn	LNE	2.07	2
Chetnole Stn	SEA	2.99	3
Chilham Stn	SEA	3.35	3
Chilworth Stn	SEA	2.35	2
Chinley Stn	LNW	2.72	3
Chirk Stn	WES	3.52	4

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Church & Oswaldwistle Stn	LNW	2.87	3
Church Fenton Stn	LNE	3.04	3
Cilmeri Stn	WES	2.04	2
Clapham High Street Stn	SEA	3.24	3
Clapham Stn	LNW	2.95	3
Clarbeston Road Stn	WES	3.39	3
Claverdon Stn	LNW	3.42	3
Cleland Stn	SCO	2.65	3
Clunderwen Stn	WES	3.14	3
Coatbridge Central Stn	SCO	2.92	3
Codsall Stn	LNW	2.96	3
Cogan Stn	WES	3.26	3
Colne Stn	LNW	2.74	3
Commondale Stn	LNE	1.65	2
Conisbrough Stn	LNE	2.7	3
Connel Ferry Stn	SCO	2.53	3
Cononley Stn	LNE	1.7	2
Conwy Stn	LNW	3.13	3
Cooksbridge Stn	SEA	2.41	2
Copplestone Stn	WES	3.2	3
Corbridge Stn	LNE	3	3
Corkerhill Stn	SCO	2.1	2
Corkickle Stn	LNW	3.18	3
Corpach Stn	SCO	3.27	3
Corrour Stn	SCO	3	3
Coryton Stn	WES	3.03	3
Cosford Stn	LNW	2.77	3
Cottingham Stn	LNE	2.24	2
Cottingley Stn	LNE	2.27	2
Cowden Stn	SEA	3.55	4
Craigendoran Stn	SCO	2.59	3
Craven Arms Stn	WES	3.3	3
Crediton Stn	WES	3.29	3
Creswell Stn	LNE	1.93	2
Crews Hill Stn	LNE	1.88	2
Crianlarich Stn	SCO	2.4	2
Cromer Stn	SEA	3.29	3
Crookston Stn	SCO	2.03	2
Crossflatts Stn	LNE	2.84	3
Crossmyloof Stn	SCO	2.25	2
Croston Stn	LNW	2.72	3
Crouch Hill Stn	SEA	2.95	3
Crowle Stn	LNE	2.41	2
Cuddington Stn	LNW	3.33	3
Culrain Stn	SCO	2.13	2
Curriehill Stn	SCO	2.46	2
Cuxton Stn	SEA	2.24	2
Cwmbach Stn	WES	2.69	3
Cynghordy Stn	WES	2.38	2
Dalgety Bay Stn	SCO	2.09	2

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Dalmally Stn	SCO	2.74	3
Dalston Stn	LNW	2.4	2
Dalton Stn	LNW	3.12	3
Dalwhinnie Stn	SCO	2.36	2
Danby Stn	LNE	1.96	2
Danzey Stn	LNW	3.2	3
Darton Stn	LNE	2	2
Darwen Stn	LNW	2.81	3
Dawlish Warren Stn	WES	2.97	3
Dean Lane Stn	LNW	3.31	3
Deganwy Stn	LNW	3.54	4
Deighton Stn	LNE	3.59	4
Delamere Stn	LNW	3.32	3
Denham Golf Club Stn	LNW	2.96	3
Dent Stn	LNW	2.54	3
Denton Stn	LNW	3.25	3
Derby Road Stn	SEA	2.8	3
Derker Stn	LNW	2.36	2
Devonport Stn	WES	2.79	3
Dilton Marsh Stn	WES	2.66	3
Dinas (Rhondda) Stn	WES	3.61	4
Dinas Powys Stn	WES	3.15	3
Dingle Road Stn	WES	3.18	3
Dinsdale Stn	LNE	1.82	2
Dockyard Stn	WES	3.19	3
Dolau Stn	WES	3.24	3
Doleham Stn	SEA	3.66	4
Dolgarrog Stn	LNW	3.68	4
Dolwyddelan Stn	LNW	3.39	3
Dorchester West Stn	SEA	2.73	3
Dorking Deepdene Stn	SEA	3.28	3
Dorking West Stn	SEA	2.55	3
Drem Stn	SCO	2.59	3
Driffield Stn	LNE	2.21	2
Drigg Stn	LNW	2.57	3
Drumfrocher Stn	SCO	2.48	2
Duffield Stn	LNE	1.96	2
Duirinish Stn	SCO	2.79	3
Dullingham Stn	SEA	3.01	3
Dumbreck Stn	SCO	2.37	2
Dunbridge Stn	SEA	2.87	3
Duncraig Stn	SCO	2.33	2
Dunfermline Queen Margaret Stn	SCO	2.79	3
Dunkeld Stn	SCO	2.37	2
Dunrobin Castle Stn	SCO	2.57	3
Dunston Stn	LNE	1.8	2
Dyce Stn	SCO	2.58	3
Eaglescliffe Stn	LNE	2.09	2
Earlswood (West Midlands) Stn	LNW	3.06	3
East Farleigh Stn	SEA	2.39	2

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
East Garforth Stn	LNE	2.31	2
East Worthing Stn	SEA	3.03	3
Eastbrook Stn	WES	2.51	3
Eccles Road Stn	SEA	3.18	3
Edale Stn	LNW	2.8	3
Edenbridge Stn	SEA	2.84	3
Edinburgh Park Stn	SCO	1.53	2
Edinburgh Slateford Stn	SCO	2.58	3
Eggesford Stn	WES	2.96	3
Egton Stn	LNE	1.88	2
Elmswell Stn	SEA	2.49	2
Elton & Orston Stn	LNE	2.38	2
Emerson Park Stn	SEA	2.8	3
Entwistle Stn	LNW	2.88	3
Epsom Downs Stn	SEA	2.16	2
Euxton Balshaw Lane Stn	LNW	1.98	2
Exeter St. Thomas Stn	WES	3.04	3
Failsworth Stn	LNW	2.77	3
Falls Of Cruachan Stn	SCO	2.61	3
Falmouth Docks Stn	WES	3.31	3
Fambridge Stn	SEA	3.24	3
Fauldhouse Stn	SCO	2.21	2
Faygate Stn	SEA	2.3	2
Fearn Stn	SCO	2.87	3
Featherstone Stn	LNE	2.08	2
Felixstowe Stn	SEA	3.52	4
Fenny Stratford Stn	LNW	2.98	3
Fernhill Stn	WES	2.94	3
Ferryside Stn	WES	3.18	3
Filey Stn	LNE	2.93	3
Filton Stn	WES	2.33	2
Fishbourne Stn	SEA	2.33	2
Fiskerton Stn	LNE	2.1	2
Fitzwilliam Stn	LNE	2.76	3
Flimby Stn	LNW	2.68	3
Flowery Field Stn	LNW	2.77	3
Forsinard Stn	SCO	2.45	2
Fort Matilda Stn	SCO	2.59	3
Foxfield Stn	LNW	2.95	3
Foxton Stn	SEA	2.9	3
Freshford Stn	WES	2.34	2
Frodsham Stn	LNW	2.8	3
Gainsborough Central Stn	LNE	2.75	3
Gainsborough Lea Road Stn	LNE	2.01	2
Garelochead Stn	SCO	2.41	2
Gargrave Stn	LNE	1.88	2
Garsdale East of Stn	LNW	3.33	3
Gartcosh Stn	SCO	1.78	2
Garth (Glamorgan) Stn	WES	2.72	3
Garth (Powys) Stn	WES	2.58	3

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Garve Stn	SCO	2.36	2
Gateshead Metro Centre Stn	LNE	2.07	2
Gathurst Stn	LNW	3.15	3
Georgemas Junction Stn	SCO	2.35	2
Giggleswick Stn	LNW	2.26	2
Gilberdyke Stn	LNE	2.3	2
Gilshochill Stn	SCO	2.6	3
Glaisdale Stn	LNE	2.05	2
Glan Conwy Stn	LNW	3.23	3
Glasshoughton Stn	LNE	1.66	2
Gleneagles Stn	SCO	2.26	2
Glenfinnan Stn	SCO	2.4	2
Glenrothes & Thornton Stn	SCO	1.94	2
Glynde Stn	SEA	2.7	3
Godley Stn	LNW	2.89	3
Godstone Stn	SEA	3.56	4
Goldthorpe Stn	LNE	2.48	2
Golspie Stn	SCO	2.12	2
Gomshall Stn	SEA	2.66	3
Goostrey Stn	LNW	2.72	3
Gowerton Stn	WES	3.01	3
)Goxhill Stn	LNE	1.68	2
Grangetown Stn	WES	2.73	3
Grateley Stn	SEA	1.9	2
Great Ayton Stn	LNE	1.91	2
Great Coates Stn	LNE	2.06	2
Green Road Stn	LNW	3.16	3
Greenbank Stn	LNW	3.12	3
Greenfaulds Stn	SCO	2.43	2
Grimsby Docks Stn	LNE	2.25	2
Grindleford Stn	LNW	3	3
Grosmont Stn	LNE	2.09	2
Gunnislake Stn	WES	2.78	3
Gunton Stn	SEA	2.05	2
Gwersyllt Stn	LNW	3.48	3
Gypsy Lane Stn	LNE	2.43	2
Habrough Stn	LNE	2.33	2
Hairmyres Stn	SCO	2.09	2
Hall I' Th' Wood Stn	LNW	1.88	2
Halling Stn	SEA	3.3	3
Haltwhistle Stn	LNE	2.57	3
Hammerton Stn	LNE	1.76	2
Hapton Stn	LNW	3.15	3
Harlech Stn	WES	3.38	3
Harling Road Stn	SEA	2.44	2
Harringay Green Lanes Stn	SEA	2.36	2
Harrington Stn	LNW	3.2	3
Hartlebury Stn	LNW	2.66	3
Hartwood Stn	SCO	2.77	3
Harwich Town Stn	SEA	2.77	3

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Hathersage Stn	LNW	2.86	3
Hatton Stn	LNW	2.89	3
Havenhouse Stn	LNE	2.78	3
Hawarden Bridge Stn	LNW	3.03	3
Hawarden Stn	LNW	3.37	3
Hawkhead Stn	SCO	2.38	2
Haydon Bridge Stn	LNE	3.09	3
Hayle Stn	WES	3.25	3
Healing Stn	LNE	2.32	2
Heckington Stn	LNE	1.88	2
Hednesford Stn	LNW	2.49	2
Heighington Stn	LNE	2.65	3
Hellifield Stn	LNW	2.92	3
Helmsdale Stn	SCO	2.16	2
Helsby Stn	LNW	3.15	3
Henley In Arden Stn	LNW	3.19	3
Hensall Stn	LNE	2.38	2
Hessle Stn	LNE	2.43	2
Heswall Stn	LNW	3.3	3
Hever Stn	SEA	2.22	2
Heyford Stn	LNW	2.7	3
Heysham Stn	LNW	2.78	3
Highbridge & Burnham Stn	WES	3.36	3
Highbury & Islington Stn	SEA	2.63	3
Hollinwood Stn	LNW	2.67	3
Holmwood Stn	SEA	2.42	2
Holton Heath Stn	SEA	2.18	2
Holytown Stn	SCO	2.71	3
Honley Stn	LNE	3.89	4
Hope (Clwyd) Stn	LNW	3.07	3
Hope (Derbyshire) Stn	LNW	3.02	3
Hopton Heath Stn	WES	3.56	4
Hornbeam Park Stn	LNE	2.39	2
Horton In Ribblesdale Stn	LNW	2.61	3
Horwich Parkway Stn	LNW	2.67	3
Hoscar Stn	LNW	2.76	3
Hoveton & Wroxham Stn	SEA	2.85	3
Howden Stn	LNE	2.4	2
Howwood (Herts) Stn	LNW	3.34	3
Hubberts Bridge Stn	LNE	1.97	2
Hucknall Stn	LNE	2.05	2
Humphrey Park Stn	LNW	2.78	3
Huncoat Stn	LNW	2.99	3
Hungerford Stn	WES	3.16	3
Hutton Cranswick Stn	LNE	2.93	3
Hyde Central Stn	LNW	2.92	3
Hyde North Stn	LNW	2.82	3
Hykeham Stn	LNE	2.52	3
Hythe Stn	SEA	2.78	3
Ibm Halt Stn	SCO	2.32	2

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Ince & Elton Stn	LNW	2.95	3
Ince Stn	LNW	3.25	3
Insch Stn	SCO	2.37	2
Invergordon Stn	SCO	3.02	3
Invergowrie Stn	SCO	2.43	2
Inverkip Stn	SCO	2.08	2
Invershin Stn	SCO	2.39	2
Irlam Stn	LNW	2.91	3
Ivybridge Stn	WES	2.88	3
Johnston Stn	WES	3.3	3
Kearsley Stn	LNW	2.84	3
Kelvindale Stn	SCO	1.82	2
Kemsing Stn	SEA	2.33	2
Kemsley Stn	SEA	3.17	3
Kendal Stn	LNW	2.74	3
Kennett Stn	SEA	3.47	3
Kennishead Stn	SCO	2.71	3
Kentish Town Lt Stn	LNE	2.35	2
Kents Bank Stn	LNW	2.97	3
Keyham Stn	WES	3.09	3
Keynsham Stn	WES	3.38	3
Kidwelly Stn	WES	3.46	3
Kildale Stn	LNE	1.75	2
Kildonan Stn	SCO	2.07	2
Kilgetty Stn	WES	3.45	3
Kinbrace Stn	SCO	2.48	2
Kings Nympton Stn	WES	3.38	3
Kings Sutton Stn	LNW	2.6	3
Kingsknowe Stn	SCO	2.6	3
Kintbury Stn	WES	3.31	3
Kirby Cross Stn	SEA	2.88	3
Kirkby In Furness Stn	LNW	2.95	3
Kirkby Stephen Stn	LNW	2.53	3
Kirkby-In-Ashfield Stn	LNE	2.07	2
Kirkhill Stn	SCO	2.79	3
Kirknewton Stn	SCO	2.68	3
Kirkwood Stn	SCO	2.32	2
Kirton Lindsey Stn	LNE	2.06	2
Kiveton Bridge Stn	LNE	1.89	2
Kiveton Park Stn	LNE	2.24	2
Knaresborough Stn	LNE	2.22	2
Knottingley Stn	LNE	2.75	3
Knucklas Stn	WES	3.04	3
Lairg Stn	SCO	2	2
Lake Stn	SEA	3.43	3
Lakenheath Stn	SEA	2.46	2
Lamphey Stn	WES	3.57	4
Landywood Stn	LNW	2.79	3
Langbank Stn	SCO	2.14	2
Langley Mill Stn	LNE	2.29	2

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Langside Stn	SCO	2.21	2
Langwathby Stn	LNW	3.15	3
Langwith Whaleythorn Stn	LNE	2.27	2
Lapford Stn	WES	3.17	3
Lapworth Stn	LNW	2.66	3
Larkhall Stn	SCO	2.07	2
Layton Stn	LNW	2.5	3
Lazonby & Kirkoswald Stn	LNW	3.3	3
Lealholm Stn	LNE	2.42	2
Leigh Stn	SEA	3.99	4
Leominster Stn	WES	3.39	3
Leyton Midland Rd Stn	SEA	2.9	3
Leytonstone High Rd Stn	SEA	3.1	3
Lidlington Stn	LNW	2.9	3
Lingwood Stn	SEA	2.11	2
Lisvane & Thornhill Stn	WES	2.82	3
Little Kimble Stn	LNW	2.95	3
Littleport Stn	SEA	2.9	3
Livingston North Stn	SCO	2.24	2
Livingston South Stn	SCO	2.69	3
Llanbister Road Stn	WES	3.08	3
Llandeilo Stn	WES	3.21	3
Llandovery Stn	WES	3.13	3
Llandybie Stn	WES	3.21	3
Llanfairfechan Stn	LNW	3.22	3
Llanfairpwll Stn	LNW	3.06	3
Llangadog Stn	WES	3.08	3
Llangammarch Stn	WES	2.36	2
Llangennech Stn	WES	3.33	3
Llangynllo Stn	WES	3.11	3
Llanishen Stn	WES	3.24	3
Llanrwst Stn	LNW	3.11	3
Llansamlet Stn	WES	2.97	3
Llantwit Major Stn	WES	1.98	2
Llanwrda Stn	WES	3.1	3
Llanwrtyd Stn	WES	2.49	2
Llwynypia Stn	WES	2.96	3
Loch Awe Stn	SCO	2.65	3
Loch Eil Stn	SCO	3.14	3
Lochailort Stn	SCO	2.67	3
Locheilside Stn	SCO	2.67	3
Lochgelly Stn	SCO	2.32	2
Lochluichart Stn	SCO	2.09	2
London Fields Stn	SEA	2.18	2
Long Preston Stn	LNW	2.22	2
Longbeck Stn	LNE	1.6	2
Longcross Stn	SEA	2.4	2
Longniddry Stn	SCO	2.47	2
Longport Stn	LNW	2.59	3
Longton Stn	LNE	2.82	3

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Lostock Gralam Stn	LNW	3.54	4
Lostock Hall Stn	LNW	2.81	3
Lostwithiel Stn	WES	3.33	3
Lowdham Stn	LNE	2.38	2
Ludlow Stn	WES	3.31	3
Lydney Stn	WES	3.32	3
Lymington Pier Stn	SEA	2.09	2
Lytham Stn	LNW	2.96	3
Maesteg Ewenny Rd Stn	WES	2.9	3
Maesteg Stn	WES	2.94	3
Maiden Newton Stn	SEA	2.37	2
Maidstone Barracks Stn	SEA	2.11	2
Manchester Utd FC Ground Stn	LNW	2.62	3
Manea Stn	SEA	2.47	2
Manorbier Stn	WES	3.63	4
Mansfield Town Stn	LNE	2.16	2
Mansfield Woodhouse Stn	LNE	2.22	2
Marlow Stn	WES	3.29	3
Marsden Stn	LNW	3	3
Marske Stn	LNE	2.45	2
Marton Stn	LNE	1.72	2
Maryhill Stn	SCO	2.62	3
Maryport Stn	LNW	3.49	3
Maxwell Park Stn	SCO	2.14	2
Maybole Stn	SCO	2.3	2
Melksham Stn	WES	3.37	3
Melton Stn	SEA	2.58	3
Menheniot Stn	WES	3.75	4
Meols Cop Stn	LNW	3.22	3
Merryton Stn	SCO	1.73	2
Metheringham Stn	LNE	1.78	2
Micklefield Stn	LNE	2.05	2
Midgham Stn	WES	3.07	3
Milford Haven Stn	WES	3.72	4
Mill Hill Stn	LNW	2.58	3
Millbrook (Hants) Stn	SEA	2.94	3
Millbrook Stn	SEA	2.74	3
Millom Stn	LNW	2.58	3
Mills Hill Stn	LNW	2.68	3
Milnrow Stn	LNW	2.94	3
Minster Stn	SEA	3.44	3
Mirfield Stn	LNE	3.05	3
Mistley Stn	SEA	2.42	2
Mobberley Stn	LNW	3.4	3
Monifieth Stn	SCO	2.28	2
Monks Risborough Stn	LNW	2.88	3
Moorthorpe Stn	LNE	2.98	3
Morar Stn	SCO	2.68	3
Morchard Road Stn	WES	3.25	3
Morden South Stn	SEA	2.07	2

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Morecambe Stn	LNW	2.96	3
Moreton (Dorset) Stn	SEA	2.51	3
Moss Side Stn	LNW	3.02	3
Mosspark Stn	SCO	2.54	3
Moston Stn	LNW	3.12	3
Mouldsworth Stn	LNW	3.47	3
Mount Vernon Stn	SCO	2.15	2
Mountain Ash Stn	WES	2.74	3
Muir Of Ord Stn	SCO	2.06	2
Musselburgh Stn	SCO	2.39	2
Mytholmroyd Stn	LNE	3.41	3
Nafferton Stn	LNE	2.11	2
Nailsea & Backwell Stn	WES	3.5	4
Narberth Stn	WES	3.34	3
Navigation Road Stn	LNW	3.24	3
Needham Market Stn	SEA	3.25	3
Nelson Stn	LNW	3.13	3
Neston Stn	LNW	3.12	3
Netherfield Stn	LNE	2.96	3
Nethertown Stn	LNW	3.11	3
New Hey Stn	LNW	2.92	3
New Holland Stn	LNE	2.47	2
New Hythe Stn	SEA	2.76	3
New Lane Stn	LNW	3.07	3
Newbury Racecourse Stn	WES	3.37	3
Newcraighall Stn	SCO	2.05	2
Newhaven Harbour Stn	SEA	3.11	3
Newhaven Marine Stn	SEA	4.16	4
Newmarket Stn	SEA	2.55	3
Newstead Stn	LNE	2.23	2
Newton Aycliffe Stn	LNE	2.19	2
Newton St. Cyres Stn	WES	3.12	3
Newtonmore Stn	SCO	2.32	2
Normanton Stn	LNE	1.98	2
North Berwick Stn	SCO	2.53	3
North Queensferry Stn	SCO	2.59	3
North Road Stn	LNE	2.39	2
North Walsham Stn	SEA	3.67	4
Norton Bridge Stn	LNW	3.11	3
Nunthorpe Stn	LNE	2.13	2
Oakengates Stn	LNW	2.72	3
Ockley Stn	SEA	1.99	2
Oldfield Park Stn	WES	3.16	3
Oldham Werneth Stn	LNW	2.78	3
Ore Stn	SEA	2.79	3
Orrell Stn	LNW	3.31	3
Oulton Broad North Stn	SEA	3.48	3
Oulton Broad South Stn	SEA	3.59	4
Outwood Stn	LNE	2.03	2
Overpool Stn	LNW	2.62	3

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Padgate Stn	LNW	2.86	3
Paisley Canal Stn	SCO	2.47	2
Park Street Stn	LNW	3.39	3
Parson Street Stn	WES	3.08	3
Parton Stn	LNW	2.44	2
Patricroft Stn	LNW	2.88	3
Patterton Stn	SCO	2	2
Peartree Stn	LNE	3.02	3
Pegswood Stn	LNE	2.13	2
Pemberton Stn	LNW	3.03	3
Pembrey & Burry Port Stn	WES	3.35	3
Pembroke Dock Stn	WES	3.82	4
Pembroke Stn	WES	3.21	3
Pen Y Bont Stn	WES	3.57	4
Penally Stn	WES	3.62	4
Pencoed Stn	WES	2.74	3
Penkridge Stn	LNW	2.51	3
Penmaenmawr Stn	LNW	2.34	2
Penmere Stn	WES	3.12	3
Penrhiwceiber Stn	WES	2.87	3
Penryn Stn	WES	3.37	3
Penshurst Stn	SEA	2.19	2
Penyfford Stn	LNW	2.94	3
Perranwell Stn	WES	3.33	3
Pevensey Bay Stn	SEA	2.92	3
Pleasington Stn	LNW	2.66	3
Plockton Stn	SCO	2.86	3
Plumley Stn	LNW	3.2	3
Polesworth Stn	LNW	3.12	3
Pollokshaws East Stn	SCO	2.32	2
Pollokshaws West Stn	SCO	2.14	2
Pollokshields West Stn	SCO	2.11	2
Pont Y Pant Stn	LNW	3.1	3
Pontarddulais Stn	WES	2.73	3
Pontefract Monkhill Stn	LNE	2.89	3
Pontefract Tanshelf Stn	LNE	3.13	3
Pontyclun Stn	WES	2.89	3
Pontypool & New Inn Stn	WES	2.56	3
Poppleton Stn	LNE	1.81	2
Portlethen Stn	SCO	2.11	2
Portsmouth Arms Stn	WES	3.48	3
Possilpark Stn	SCO	2.37	2
Prestbury Stn	LNW	3.12	3
Prestonpans Stn	SCO	2.43	2
Prudhoe Stn	LNE	2	2
Pyle Stn	WES	2.8	3
Queenstown Rd Battersea Stn	SEA	3.64	4
Radcliffe Stn	LNE	2.08	2
Rainford Stn	LNW	3.02	3
Ramsgreave & Wilpshire Stn	LNW	2.29	2

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Rannoch Stn	SCO	2.12	2
Rauceby Stn	LNE	2.57	3
Ravenglass Stn	LNW	2.46	2
Ravensthorpe Stn	LNE	3.59	4
Rawcliffe Stn	LNE	2.35	2
Redcar East Stn	LNE	1.83	2
Reddish South Stn	LNW	3.33	3
Rhiwbina Stn	WES	2.98	3
Rhosneigr Stn	LNW	3.75	4
Ribblehead Stn	LNW	2.44	2
Riding Mill Stn	LNE	1.81	2
Rishton Stn	LNW	2.9	3
Rogart Stn	SCO	2.11	2
Rolleston Stn	LNE	2.32	2
Roman Bridge Stn	LNW	3.43	3
Rose Grove Stn	LNW	3.1	3
Roughton Road Stn	SEA	3.72	4
Roy Bridge Stn	SCO	3.24	3
Ruabon Stn	WES	3.9	4
Rufford Stn	LNW	2.81	3
Rugeley Stn	LNW	2.52	3
Rugeley Trent Valley Stn	LNW	2.75	3
Ruskington Stn	LNE	1.67	2
Ruswarp Stn	LNE	2.09	2
Ryde St. Johns Road Stn	SEA	2.93	3
Ryder Brow Stn	LNW	2.96	3
Salhouse Stn	SEA	2.47	2
Saltaire Stn	LNE	2.47	2
Saltash Stn	WES	3.67	4
Saltburn Stn	LNE	1.92	2
Saltmarshe Stn	LNE	2.57	3
Salwick Stn	LNW	3.11	3
Sarn Stn	WES	3.05	3
Saundersfoot Stn	WES	3.5	4
Saunderton Stn	LNW	2.84	3
Saxmundham Stn	SEA	2.76	3
Scotscalder Stn	SCO	2.57	3
Seaham Stn	LNE	2.13	2
Seamer Stn	LNE	1.65	2
Seascale Stn	LNW	2.42	2
Seaton Carew Stn	LNE	2.34	2
Sellafield Stn	LNW	2.54	3
Selling Stn	SEA	3.26	3
Shalford Stn	SEA	2.66	3
Shawford Stn	SEA	3	3
Shawlands Stn	SCO	2.23	2
Shepreth Stn	SEA	2.67	3
Sherburn In Elmet Stn	LNE	2.27	2
Sheringham Stn	SEA	2.67	3
Shieldmuir Stn	SCO	2.56	3

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Shifnal Stn	LNW	3.13	3
Shildon Stn	LNE	2.05	2
Shippea Hill Stn	SEA	3.41	3
Shire Brook Stn	LNE	2.15	2
Shoreham Stn	SEA	3.06	3
Sileby Stn	LNE	2.47	2
Silecroft Stn	LNW	3.15	3
Silverdale (Lancs) Stn	LNW	3.1	3
Skewen Stn	WES	2.98	3
Slaithwaite Stn	LNE	3.03	3
Smallbrook Junction Stn	SEA	3.82	4
Smithy Bridge Stn	LNW	2.99	3
Snaith Stn	LNE	2.73	3
Snodland Stn	SEA	2.16	2
Somerleyton Stn	SEA	2.13	2
South Bank Stn	LNE	2.07	2
South Elmsall Stn	LNE	1.82	2
South Gyle Stn	SCO	2.88	3
South Merton Stn	SEA	2.43	2
South Milford Stn	LNE	1.78	2
South Ruislip Rail/Lt Stn	LNW	2.7	3
South Tottenham Stn	SEA	1.95	2
South Wigston Stn	LNE	3.01	3
Southminster Stn	SEA	3.02	3
Sowerby Bridge Stn	LNE	2.48	2
Spean Bridge Stn	SCO	2.53	3
Spondon Stn	LNE	2.62	3
Spooner Row Stn	SEA	2.38	2
Springfield Stn	SCO	2.45	2
Squires Gate Stn	LNW	2.45	2
St Budeaux Victoria Road Stn	WES	2.76	3
St. Albans Abbey Stn	LNW	2.83	3
St. Bees Stn	LNW	2.66	3
St. Budeaux Ferry Road Stn	WES	3.35	3
St. Germans Stn	WES	3.66	4
St. Helier Stn	SEA	2.41	2
Stallingborough Stn	LNE	1.86	2
Stanlow & Thornton Stn	LNW	3.72	4
Starbeck Stn	LNE	1.74	2
Starcross Stn	WES	3.13	3
Staveley Stn	LNW	2.76	3
Steeton & Silsden Stn	LNE	2.02	2
Stepps Stn	SCO	2.42	2
Stocksmoor Stn	LNE	3.2	3
Stockton Stn	LNE	2.86	3
Stone Stn	LNW	2.62	3
Strathcarron Stn	SCO	2.46	2
Streethouse Stn	LNE	2.04	2
Stromeferry Stn	SCO	2.51	3
Sudbury & Harrow Road Stn	LNW	3.28	3

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Sudbury Hill Harrow Stn	LNW	3.06	3
Sudbury Stn	SEA	3.05	3
Sugar Loaf Stn	WES	2.41	2
Summerston Stn	SCO	2.02	2
Sunnymeads Stn	SEA	3.14	3
Sutton Parkway Stn	LNE	2.38	2
Swale Stn	SEA	3.05	3
Swinderby Stn	LNE	2.43	2
Syon Lane Stn	SEA	2.84	3
Syston Stn	LNE	2.33	2
Taynuilt Stn	SCO	2.43	2
Tenby Stn	WES	3.3	3
The Lakes Stn	LNW	2.75	3
Thorne South Stn	LNE	2.21	2
Thornford Stn	SEA	3.96	4
Thornliebank Stn	SCO	2.79	3
Thornton Abbey Stn	LNE	2.35	2
Thorntonhall Stn	SCO	2.14	2
Thorpe Culvert Stn	LNE	2.06	2
Three Oaks Stn	SEA	3.54	4
Thurgarton Stn	LNE	2.33	2
Thurnscoe Stn	LNE	1.93	2
Thurston Stn	SEA	2.34	2
Ton Pentre Stn	WES	2.83	3
Tondu Stn	WES	3.07	3
Tonypandy Stn	WES	2.74	3
Trafford Park Stn	LNW	3.11	3
Trehafod Stn	WES	3.34	3
Treherbert Stn	WES	3.37	3
Treorchy Stn	WES	3.23	3
Trimley Stn	SEA	3.14	3
Tulloch Stn	SCO	2.5	3
Tutbury & Hatton Stn	LNE	2.73	3
Ty Croes Stn	LNW	3.3	3
Tyndrum Lower Stn	SCO	2.18	2
Tyndrum Upper Stn	SCO	2.52	3
Ulceby Stn	LNE	2.56	3
Umberleigh Stn	WES	3.38	3
Uphall Stn	SCO	1.86	2
Upholland Stn	LNW	3.24	3
Upper Holloway Stn	SEA	1.96	2
Upton Stn	LNW	3.1	3
Upwey Stn	SEA	3.25	3
Uttoxeter Stn	LNE	2.25	2
Valley Stn	LNW	3.31	3
Wakefield Kirkgate Stn	LNE	3.33	3
Wallyford Stn	SCO	2.19	2
Walsden Stn	LNW	2.93	3
Walthamstow Queens Rd Stn	SEA	2.82	3
Wanborough Stn	SEA	2.3	2

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Wandsworth Road Stn	SEA	2.07	2
Wanstead Park Stn	SEA	3.55	4
Wargrave Stn	WES	3.2	3
Warminster Stn	WES	2.56	3
Warnham Stn	SEA	2.02	2
Water Orton Stn	LNW	2.42	2
Wateringbury Stn	SEA	3.22	3
Watford North Stn	LNW	3.32	3
Wavertree Stn	LNW	2.79	3
Wedgwood Stn	LNW	2.45	2
Weeton Stn	LNE	2.56	3
Welshpool Stn	WES	3.28	3
Wembley Stadium Stn	LNW	2.35	2
Wennington Stn	LNW	2.02	2
West Brompton Stn	SEA	2.93	3
West Calder Stn	SCO	2.67	3
West Houghton Stn	LNW	3.27	3
West Ruislip Rail/Lt Stn	LNW	2.88	3
West Runton Stn	SEA	2.38	2
Westcliff-On-Sea Stn	SEA	2.21	2
Westenhanger Stn	SEA	2.07	2
Wester Hailes Stn	SCO	2.63	3
Westerfield Stn	SEA	2.78	3
Whalley Stn	LNW	2.33	2
Whifflet Stn	SCO	2.23	2
Whimple Stn	SEA	3.18	3
Whinhill Stn	SCO	2.22	2
Whitby Stn	LNE	2.92	3
Whitchurch Stn	WES	2.32	2
White Notley Stn	SEA	2.61	3
Whitland Stn	WES	3.21	3
Whitley Bridge Stn	LNE	2.19	2
Whitlocks End Stn	LNW	2.73	3
Whittlesea Stn	SEA	3.6	4
Whitwell Stn	LNE	2.23	2
Wickham Market Stn	SEA	2.78	3
Widdrington Stn	LNE	2.36	2
Wigton Stn	LNW	2.95	3
Wildmill Stn	WES	2.83	3
Willington Stn	LNE	2.62	3
Wilmcote Stn	LNW	3.45	3
Wilnecote Stn	LNW	2.55	3
Wimbledon Chase Stn	SEA	2.96	3
Winchelsea Stn	SEA	2.1	2
Winsford Stn	LNW	2.98	3
Wombwell Stn	LNE	1.89	2
Wood End Stn	LNW	3.22	3
Woodgrange Park Stn	SEA	1.77	2
Woodhouse Stn	LNE	2.46	2
Woodlesford Stn	LNE	2.06	2

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score
Woodley Stn	LNW	3.19	3
Wootton Wawen Stn	LNW	2.89	3
Worle Stn	WES	3.12	3
Worstead Stn	SEA	2.34	2
Wrabness Stn	SEA	3.04	3
Wressle Stn	LNE	1.98	2
Wrexham Central Stn	LNW	2.86	3
Wylam Stn	LNE	2.11	2
Wymondham Stn	SEA	3.38	3
Yalding Stn	SEA	3.01	3
Yarm Stn	LNE	2.45	2
Yeoford Stn	WES	3.09	3
Yetminster Stn	SEA	2.98	3
Ynyswen Stn	WES	3.53	4
Ystrad Rhondda Stn	WES	2.85	3

Appendix 2 Depot condition

The following table provides a list of all depots and their condition grades each year. The grading system is from 1-5 with the lower the number i.e. closer to 1, the better. The regulatory target is 2.7 for CP3. The condition score is an average score from 11 elements such as wheel lathes, structure etc. These elements are condition rated 1-5 with 1 being ‘as installed’ and 5 being no longer serviceable.

Table A2.1 Depot condition

Location (also includes depot code)	Territory	Average 2001/02	Average 2001/03	Average 2001/04	Average 2001/05	Average 2001/06	Average 2001/07	Average 2001/08
Cambridge (CAM)	Anglia			2.37	2.37	2.37	2.37	2.37
Clacton (CLA)	Anglia						3.83	3.83
Colchester (COL)	Anglia			2.82	2.82	2.82	2.82	2.82
London Chingford (CHI)	Anglia					2.79	2.79	2.79
London East Ham (EAH)	Anglia	3.60	3.60	3.60	3.60	3.60	3.56	3.56
London Ilford (ILF)	Anglia	3.54	3.54	3.54	3.54	3.54	3.54	3.54
Norwich Crown Point (NCP)	Anglia	3.10	3.10	3.10	3.10	3.10	3.10	2.43
Shoeburyness (SHO)	Anglia					2.74	2.74	2.74
Southend (SOU)	Anglia						2.72	2.72
Ashford (ASH)	Kent						0.00	0.00
Gillingham (GIL)	Kent						2.69	2.69
London Grove Park (GRP)	Kent					2.21	2.21	2.21
London Orpington (ORP)	Kent						2.14	2.14
London Slade Green (SLG)	Kent					2.13	2.13	2.13
Ramsgate (RAM)	Kent						2.42	2.42
St. Leonard's (SLE)	Kent			1.72	1.72	1.72	1.72	1.72
Bedford Midland (BEM)	London North East	3.08	3.08	3.08	3.08	3.08	3.08	3.08
Derby Etche's Park (DEP)	London North East	3.10	3.10	3.10	3.10	3.10	3.10	2.45
Hull Botanic Gardens (HBG)	London North East			2.44	2.44	2.44	2.44	2.44
Leeds Neville Hill - MML (LNM)	London North East	3.28	3.28	3.28	3.28	3.28	3.28	3.28
Leeds Neville Hill - RNE (LNR)	London North East	3.33	3.33	3.33	3.33	3.33	3.33	3.33
Letchworth (LET)	London North East					1.7	2.52	2.52
London Bounds Green (BOG)	London North East						1.87	1.87
London Ferme Park (FEP)	London North East						2.83	2.83
London Hornsey (HOR)	London North East	2.70	2.70	2.70	2.70	2.70	2.70	3.02
Newcastle-upon-Tyne Heaton (NEH)	London North East						2.31	2.31
Nottingham, Eastcroft (NOE)	London North East	2.16	2.16	2.16	2.16	2.16	2.16	2.16
Sheffield (SHE)	London North East						2.94	2.94
Skipton (SKI)	London North East			1.35	1.35	1.35	1.35	1.35
Welwyn Garden City (WGC)	London North East						2.80	2.80
Aylesbury (AYL)	London North West			1.49	1.49	1.49	1.49	2.02
Barrow-in-Furness (BIF)	London North West	3.70	3.70	3.70	3.70	3.70	3.70	3.70
Birkenhead North (BKN)	London North West	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Birmingham Soho (BIS)	London North West			1.94	1.94	1.94	1.94	1.94
Birmingham Tyseley (BIT)	London North West	2.73	2.73	2.73	2.73	2.73	2.73	2.73
Blackpool North (BLN)	London North West			2.20	2.20	2.20	2.20	2.20
Bletchley (BLE)	London North West					£2.43	2.43	2.43
Holyhead (HOL)	London North West			2.65	2.65	2.65	2.65	2.65
Liverpool Edge Hill (LEH)	London North West						2.60	2.60
Liverpool Kirkdale (LKD)	London North West						1.71	1.71
London Camden Primrose Hill (CAP)	London North West						2.52	2.52
London Wembley Central (WEC)	London North West			2.20	2.20	2.20	2.20	2.20
London Willesden (WIL)	London North West	2.90	2.90	2.90	2.90	2.90	2.90	2.65
Manchester Longsight (MAL)	London North West						2.08	2.08
Manchester Newton Heath (MNH)	London North West	3.60	3.60	3.60	3.60	3.60	3.60	3.04
Watford Junction (WAJ)	London North West						3.00	3.00
Wolverhampton Oxley (WOO)	London North West						2.08	2.08
Aberdeen Clayhills (ABC)	Scotland			2.50	2.50	2.50	2.50	2.50
Ayr- Townhead (AYR)	Scotland						2.30	2.30

Table A 2.1 Depot condition (continued)

Location (also includes depot code)	Territory	Average 2001/02	Average 2001/03	Average 2001/04	Average 2001/05	Average 2001/06	Average 2001/07	Average 2001/08
Edinburgh Craigentinny/ Portobello (EDC)	Scotland	2.94	2.94	2.94	2.94	2.94	2.94	2.94
Edinburgh Haymarket (EDH)	Scotland	2.40	2.40	2.40	2.40	2.40	2.40	2.73
Glasgow Cokerhill (GLC)	Scotland						2.56	2.56
Glasgow Shields (GLS)	Scotland	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Glasgow Yoker (GLY)	Scotland			1.98	1.98	1.98	1.98	1.98
Inverness (INV)	Scotland	2.70	2.70	2.70	2.70	2.70	2.70	2.70
Perth (PER)	Scotland						3.19	3.19
Bognor Regis	Sussex							1.26
Brighton (BRI)	Sussex	3.10	3.10	3.10	3.10	3.10	3.10	1.35
Eastbourne (EAS)	Sussex						2.35	2.35
Littlehampton (LIT)	Sussex						2.19	2.19
London Selhurst (SEL)	Sussex			2.17	2.17	2.17	2.17	2.17
London Streatham Hill (STR)	Sussex		2.50	2.50	2.50	2.50	2.50	2.50
London Victoria (VIC)	Sussex	4.18	4.18	4.18	4.18	4.18	4.18	2.31
Barton Mills	Wessex							2.03
Bournemouth West (BOW)	Wessex					2.46	2.46	2.46
Farnham	Wessex							1.94
Fratton (FRA)	Wessex						2.57	2.57
London Clapham Junction (CLJ)	Wessex						2.53	2.53
London Stewart's Lane (STL)	Wessex					2.44	2.44	2.44
London Strawberry Hill (STH)	Wessex						2.83	2.83
London Wimbledon (WIM)	Wessex					2.32	2.32	2.32
Ryde	Wessex					2.69	2.69	2.69
Salisbury (SAL)	Wessex			2.02	2.02	2.02	2.02	2.02
Bristol St. Phillips Marsh (BSP)	Western					2.15	2.15	2.15
Cardiff Canton (CAC)	Western			2.34	2.34	2.34	2.34	2.34
Exeter St. David's (ESD)	Western			2.01	2.01	2.01	2.01	2.01
London Kensal Green (KEG)	Western					3.11	3.11	3.11
London Old Oak Common (OOC)	Western					1.88	1.88	1.88
Machynlleth (MAC)	Western							1.98
Penzance Long Rock (PEN)	Western					2.41	2.41	2.41
Plymouth Laira (PLY)	Western			2.37	2.37	2.37	2.37	2.37
Reading (REA)	Western					2.30	2.30	2.30
Shrewsbury Abbey Foregate (SAF)	Western						3.22	3.22
Swansea High Street (SWH)	Western					2.36	2.36	2.36
Swansea Landore (SWL)	Western					2.97	2.97	2.97
Worcester Shrub Hill (WSH)	Western			2.05	2.05	2.05	2.05	2.05

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