

Improving local communities



Network Rail helps bring Britain together. We own, operate and maintain the rail network, 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. We are delivering a 21st century railway for our customers and society at large.

Every day. Everywhere.

As one of the largest landowners in Britain, we are subject to significant numbers of incidents of anti-social behaviour including graffiti, fly tipping and littering.

With over five million lineside neighbours, our 24/7 helpline receives around 155,000 calls each year covering everything from dealing with trees and plant overgrowth to engineering work, trespass and vandalism.

We have community response teams on call including tree specialists equipped with chainsaws, chippers, and specialist vehicles; pest controllers to address issues involving rats, rabbits and wasp nests; and skilled handy men for drainage work, repairing fences, landscape work, brickwork and pointing.

From the moment a call, letter or email is received by our helpline, we begin work to resolve lineside issues quickly and efficiently. Wherever possible, we undertake minor work straight away which will directly improve local communities, such as removing graffiti, repairing and painting fences, or clearing rubbish, scrub and undergrowth.

Network Rail is a corporate member of the Institute of Customer Service and is committed to being a good neighbour to all our lineside communities.

Annual Return Reporting on the year 2008/09

Executive summary

Introduction

This Annual Return reports on our achievements, developments and challenges during 2008/09 and is the primary means by which we demonstrate progress in delivering outputs established in the Access Charges Review 2003 (ACR 2003).

The year 2008/09 is the last year of Control Period 3 (CP3).

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

The Annual Return includes the following sections:

- operational performance and stakeholder relationships;
- network capability, traffic and possessions;
- asset management;
- activity volumes;
- safety and environment;
- expenditure; and
- efficiency and finance.

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 2009 and is prepared in accordance with Condition 12 of our network licence.

Overall performance in 2008/09 and during CP3

This has been another year of improved performance for Network Rail with most of our targets met. We have successfully delivered all the main regulatory targets for CP3 and achieved significant efficiency savings. Highlights for the year include:

- Public Performance Measure (PPM) of 90.6 per cent – the highest level of train punctuality since the measure was introduced 10 years ago;
- train delay minutes attributed to Network Rail down by 0.66 million minutes from 2007/08 to 8.84 million minutes – ahead of the CP3

regulatory target of 9.1 million and a huge improvement compared to the 13.7 million minutes recorded in the last year of CP2;

- broken rails of 164 – lowest ever recorded and easily beating the regulatory target of 300;
- Asset Stewardship Incentive Index of 0.6 – significantly outperforming the regulatory target of 0.9;
- £4.7bn investment overall – up from £4.0bn in 2007/08;
- efficiency savings of four per cent during the year and 27 per cent over CP3, just short of the 31 per cent ORR target;
- completion of the West Coast Route Modernisation (WCRM) project in time for the December 2008 timetable;
- delivery of the Network Rail part of the Thameslink programme to meet the first main milestone in March.

A summary of the year's performance against the regulatory targets is shown in Table 1 and later sections of this Annual Return provide more detailed information. The regulatory targets were established in ACR 2003 and provide the output targets which Network Rail was required to deliver during CP3. The data demonstrates the good overall performance we have achieved. However, further improvement is needed to give more uniform performance across the network, particularly on the West Coast Main Line, where recent performance has been disappointing. During the new control period we will also be focusing on improving customer satisfaction, workforce safety, delivering further efficiency savings and achieving all the CP4 outputs.

On 22 April 2008, ORR imposed an enforcement order on Network Rail following the January 2008 engineering overruns which occurred at Rugby, Liverpool Street and Shields Junction (near Glasgow). During the course of 2008/09 we made substantial changes to the way in which possessions are managed and we believe that we have come out of this exercise stronger and better equipped to perform our obligations than ever before. Our progress in implementing change to mitigate the risk of engineering work was closely scrutinised by the independent reporter and soon after the year end ORR confirmed that we had met the requirements of this order.

Table 1 Performance against CP3 regulatory targets

Measure	Regulatory target	Performance 2008/09	Met CP3 target?
Total Network Rail attributed delay (million minutes)	9.1	8.84	Yes
Train delay minutes/100 train kms (franchised passenger operators)	1.65	1.59	Yes
Broken rails (No.)	300	164	Yes
Track geometry (Level 2 exceedences per track mile)	0.90	0.50	Yes
Temporary speed restrictions (No.)	1,199	438	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 2 of this Annual Return	Yes
Earthworks failures (No.)	47	61	No
Signalling failures (No.)	28,098	19,622	Yes
Signalling condition	2.5	2.4	Yes
AC power incidents (No.)	107	66	Yes
DC power incidents (No.)	30	14	Yes
AC contact system condition	1.8	1.6	Yes
DC contact system condition	1.8	1.9	No
Station condition	2.25	2.08 ⁽¹⁾	Yes
Light maintenance depot condition	2.7	2.5	Yes
Asset stewardship index	0.9	0.6	Yes
Efficiency saving over CP3	31%	27% ⁽²⁾	No
Net debt to regulatory asset base (RAB) ratio	85%	70%	Yes

⁽¹⁾ Station scores in 2008/09 are the result of an increase in available data for station components compared to previous years

⁽²⁾ Including adjustment to maintenance efficiency for traffic growth increases the overall saving by one per cent to 28 per cent over CP3

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

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Public Performance Measure (PPM)	81.2%	83.6%	86.4%	88.1%	89.9%	90.6%
Total delay minutes (millions)	13.72	11.40	10.46	10.53	9.50	8.84
Passenger train delay minutes per 100 train km	2.65	2.17	1.92	1.91	1.74	1.59
Freight train delay minutes per 100 train km	4.77	4.52	4.36	4.61	4.33	4.01
Cancellations and significant lateness	3.82%	3.32%	3.09%	3.08%	2.79%	2.76%
Passenger and freight traffic (million train kms)	478	474	484	484	483	494

Operational performance and stakeholder relationships

Train punctuality has continued to improve with PPM at 90.6 per cent, its highest level since records began. There was no regulatory target for PPM in CP3 but in the last year of CP2 it stood at 81.2 per cent. Train delays attributed to Network Rail also reduced by 660,000 minutes from 2007/08, totalling 8.84 million minutes which beat the CP3 regulatory target of 9.1 million minutes and was also just ahead of our internal target (8.9 million minutes). This has been achieved whilst there has been an increase in traffic volumes during the year. A summary of operational performance over CP3 is shown in Table 2.

The reductions in train delay during the year were mainly achieved through improvements in track asset reliability and a reduction in delays due to possession over-runs. The latter reflects the significant changes we have made to the management of engineering work involving possessions following the problems we had the previous year. Improvements in performance were particularly strong on our Western, London North East, Wessex and Midland routes. There were reductions in delay due to severe weather, such as flooding, even allowing for the impact of the January snow, but autumn delays were up on the previous year. There was no overall reduction in delay caused by non-track assets (including points and signalling) and performance was poor on the West Coast; this clearly remains a focus for us in future.

There has been good progress on the Route Utilisation Strategy (RUS) programme during 2008/09. To date ten RUSs have been established with the Merseyside RUS awaiting establishment.

The last customer satisfaction survey was conducted in November and December 2008 and shows that the attitude of passenger operators towards Network Rail declined marginally whilst that of freight operators improved slightly. An analysis of the comments showed we were rated relatively highly on personal relationships, honesty and understanding of customer needs. However, customers perceived us as being slow and unresponsive at times and were not always well integrated. Improving customer satisfaction is a major priority for the company and one of the key aims of our transformation programme.

The results of the latest supplier survey show that supplier satisfaction deteriorated slightly compared to the previous year. Suppliers said that they would speak more highly of us if we improved the degree of consistency and integration across the business; plans are already in place to achieve this.

Network capability

Section 2 provides an update of the network capability changes during 2008/09 and passenger and freight traffic data. The main changes in capability relate to the upgrade of the West Coast Main Line. There was a 2.8 per cent increase in passenger train traffic during the year mainly as a result of new open access services and additional Virgin Trains services that commenced with the new 'very high frequency' timetable that was introduced in December. There was a small decrease in freight traffic during the year.

Asset management

Overall asset reliability and condition improved again in 2008/09 resulting in an impressive performance over the control period. All the main regulatory targets have been comfortably beaten as shown in Table 3.

The Asset Stewardship Incentive Index (ASII) is a composite of various asset measures and demonstrates this overall improvement. It consists of weighted values for track geometry, broken rails, Level 2 exceedences, points and track circuit failures, signalling failures, electrification failures and structures & earthworks temporary speed restrictions. The value of the index at the end of CP2 was 1.091 and by the end of CP3 it stood at 0.596 which represents a 45 per cent improvement.

Similarly, the number of infrastructure incidents recorded for train delay has reduced by 22 per cent from 65,000 at the end of CP2 to some 51,000 at the end of CP3. Over the same period the delay minutes caused by these infrastructure incidents has reduced from 7.9 million to 4.5 million, an improvement of 43 per cent. However, in 2008/09 there was no overall improvement in incidents or delay for non-track assets (points and signalling failures) and so this area remains a priority.

The number of broken rails has continued to reduce and we have again done significantly better than the regulatory target and achieved the lowest number ever recorded. 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. The number of Temporary Speed Restrictions (TSRs) has continued to decrease and is also at the lowest level since records began. 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 moved 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.

The number of earthworks failures fell during the year but was still slightly above the regulatory target. This measure is particularly affected by the

frequency of extreme local weather events. Also, as 2003/04 (the base for the target of 47) was the first year that we recorded data in this form, it is not easy to compare long term trends. Nevertheless we will continue to carry out examinations, including drainage inspections, and remediation work as appropriate.

The volume of renewal activity in 2008/09 remained at similar levels to recent years as shown in Table 4.

Table 3 Asset measures – comparison against previous year and CP3 regulatory targets

Measure	End CP3 regulatory target	2005/06	2006/07	2007/08	2008/09
Broken rails (No.)	300	317	192	181	164
Rail defects (No.)	N/A	20,605	18,455	9,150	11,106
Track geometry (standard deviations)	No deterioration from 2003/04 level	Very significant improvement in all 12 measures as shown in Section 3			
TSRs (No.)	1,199	815	710	628	438
Track geometry (Level 2 exceedences)	0.9	0.82	0.72	0.58	0.50
Earthworks failures (No.)	47	41	90	107	61
Bridge condition score	N/A	2.1	2.1	2.1	2.1
Signalling failures (No.)	28,098	23,367	22,704	20,644	19,622
Signalling asset condition	2.5	2.39	2.39	2.38	2.39
AC power incidents (No.)	107	49	69	63	66
DC power incidents (No.)	30	6	11	9	14
AC traction sub-stations condition	N/A	–	–	3.35	2.78
DC traction sub-stations condition	N/A	–	–	3.61	2.53
AC contact systems condition	1.8	1.7	1.7	1.7	1.6
DC contact systems condition	1.8	1.8	1.9	1.9	1.9
Station condition index	2.25	2.22	2.24	2.24	2.08*
Station stewardship (new measure)	N/A	N/A	N/A	2.71	2.48*
Light maintenance depot condition	2.7	2.58	2.58	2.49	2.52
Asset stewardship index	0.90	0.80	0.72	0.63	0.60
Asset reliability (number of infrastructure incidents causing delay)	N/A	56,470	58,312	53,424	50,961

Note: for all measures in this table a lower figure indicates improvement.

* Station scores in 2008/09 are the result of an increase in available data for station components compared to previous years.

Table 4 Activity volumes

	2004/05	2005/06	2006/07	2007/08	2008/09
Rail (km of track renewed)	816	1,120	1,028	1,039	1,206
Sleeper (km of track renewed)	670	744	738	763	735
Ballast (km of track renewed)	685	798	850	837	763
Switches and crossings (No. of full units replaced)	511	520	442	436	419
Signalling (SEUs) ⁽¹⁾	1,678	278	481	1,441	981
Bridge renewals (No.) ⁽²⁾	153	151	149	358	358
Culvert renewals (No.) ⁽²⁾	9	9	11	44	33
Retaining wall renewals (No.) ⁽²⁾	10	10	8	18	15
Earthwork renewals (No.) ⁽²⁾	77	67	54	163	157
Tunnel renewals (No.) ⁽²⁾	28	40	20	43	44

⁽¹⁾ Signalling equivalent units are counted once a scheme is actually commissioned.

⁽²⁾ These measures refer to the number of renewal projects above a threshold value.

Safety and environment

A summary of the principal safety KPIs is shown in Table 5. Further safety information reporting on the year 2008/09 is covered by the Safety and Environment Assurance Report which is available to the industry.

The safety KPIs show that there are improvements in some areas, but some measures show a worsening position from 2007/08, in particular level crossing misuse which still remains one of our biggest safety risks. There were unfortunately three workforce fatalities during 2008/09. 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 of this Annual Return but summarised below:

- the Accident Frequency Rate which measures workforce safety increased slightly in the year but is still significantly lower than the rate for the UK construction industry. Key initiatives we have taken to improve workforce safety include a 'Safety 365' awareness campaign, enhanced safety briefing and training, the roll out of two initiatives in 2007, namely the new Lookout Operated Warning Systems and a programme to install fixed lighting for track workers at high risk junctions;
- infrastructure wrong side failures reduced again reflecting the continued improvement in the condition and reliability of our assets;
- level crossing misuse from both vehicles and pedestrians went up during the year despite the increasing effort to address this through public education, enforcement, enhancements at some crossings and improved risk modelling. We launched a new hard hitting television advert as part of our high profile awareness campaign 'Don't run the risk';
- category A SPADs (Signals Passed At Danger) remain low but we continue to look for further improvements in conjunction with our customers; we have continued to reduce acts of irregular working through improved briefing, training and competence testing; and
- criminal damage has again decreased through a combination of public education, law enforcement and improved deterrents such as CCTV at stations and crime hot spots and enhanced lineside fencing. We have continued to evolve the 'No Messin'!' awareness campaign.

We have developed some new environmental measures, as described in Section 5, to track progress on our three core aims of achieving sustainable consumption, improving energy efficiency and protecting the natural environment.

Expenditure and efficiency

Table 6 gives the outturn on the key areas of expenditure for the business over the last five years.

Investment on enhancement projects again increased during the year with the main areas of expenditure including WCRM, Thameslink, Airdrie to Bathgate and King's Cross. We have sufficient resources to continue to increase investment to meet the requirements of CP4.

Table 7 compares the efficiencies we have achieved for 2008/09 with the previous year against the level assumed in ACR 2003.

We continued to make good progress in reducing costs and achieved efficiency savings of over four per cent in the year. By the end of CP3 we had achieved overall savings of 27 per cent (28 per cent when the impact of traffic is included) and although this is a significant saving it fell a little short of the 31 per cent assumption made by ORR in ACR 2003. The savings over the control period have come from a number of sources, including bringing maintenance work in house, re-structuring, introducing new technology for improved asset inspection, re-negotiating contracts and investing in new plant and machinery. The main reason for failing to meet the ORR target relates to track renewal unit costs. To address this we are investing in high output renewal plant and modular S&C renewal equipment and working with our track renewal contractors to develop more efficient delivery in the future.

We have assessed our overall financial performance against the ORR assumptions for CP3 and conclude that we have outperformed the regulatory settlement as shown in Table 8. The outperformance has enabled us to make significant additional investments to help improve the rail network.

Table 5 Summary of safety measures

	2005/06	2006/07	2007/08	2008/09
Workforce safety – accident frequency rate MAA	0.359	0.263	0.226	0.231
Infrastructure wrong side failures (No.)	79	66	60	54
Level crossing misuse – incidents MAA	32.23	26.38	28.46	31.46
Category A signals passed at danger (No.)	328	334	354	294
Irregular working – incidents MAA	N/A	70.85	57.38	32.61
Malicious acts per 100 route miles (No.)	6.154	6.285	5.539	4.883

Note: MAA is the moving annual average

Table 6 Expenditure comparison in outturn prices (£m)

	2004/05	2005/06	2006/07	2007/08	2008/09
Operating costs (controllable)	934	865	878	878	908
Maintenance	1,271	1,192	1,146	1,118	1,104
Renewals	2,665	2,673	2,777	2,894	3,144
Enhancements	821	473	569	1,061	1,553

Notes: a) Renewals and enhancements include WCRM; b) Operating costs, maintenance and renewals are consistent with the regulatory accounts; c) Operating costs exclude items classified as non-controllable (e.g. ORR licence fee, British Transport Police, electricity traction costs, safety levy and cumulative rates); and d) enhancements include investments funded by third parties.

Table 7 Overall efficiency improvement

	By end 2007/08		By end 2008/09	
	ACR assumption (%)	Actual (%)	ACR assumption (%)	Actual (%)
Controllable Opex	26	28	30	28
Maintenance*	28	28	35	31
Renewals	26	18	30	24
Overall efficiency improvement*	27	23	31	27

* Adjusting maintenance efficiency for the impact of traffic growth (see Section 6) increases actual maintenance efficiency achieved by the end of 2007/08 to 31 per cent and by the end of CP3 to 34 per cent; this increases the overall saving by one per cent to 24 per cent and 28 per cent respectively.

Table 8 Financial outperformance against the ORR CP3 determination

Item	Outperformance (£bn)	Description
Operating and maintenance costs	0.3	Lower running costs
Renewals	(0.7)	Additional renewal costs and some deferment of work to CP4
West Coast Route Modernisation	(1.0)	Additional costs to reflect revised scope of work including some deferment to CP5
Variable charge income	0.2	Extra income due to increased traffic on the network
Other income	(0.1)	Slightly lower station retail, freight and property income
Incentive regimes	1.4	Bonus payments under the performance regime plus the incentive benefits from beating the ORR asset stewardship targets and traffic growth assumption
Interest costs	1.1	Savings in interest costs
Outperformance	1.2	Overall financial outperformance
Outperformance Fund	(0.2)	Additional enhancement projects

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 with the addition of data for our Midland & Continental route which was created last year.

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 nine operating routes. The map of the network overleaf 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 2008/09 was the last 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 final year of 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 2008/09 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 its reasoning for wanting to change this in the Reporter's report which is published on the ORR website.

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 \pm one per cent and six 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.

Independent reporter

Since October 2002, the company together with the Office of Rail Regulation (ORR) has 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 its 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 Routes 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).

Table 9 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 10 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

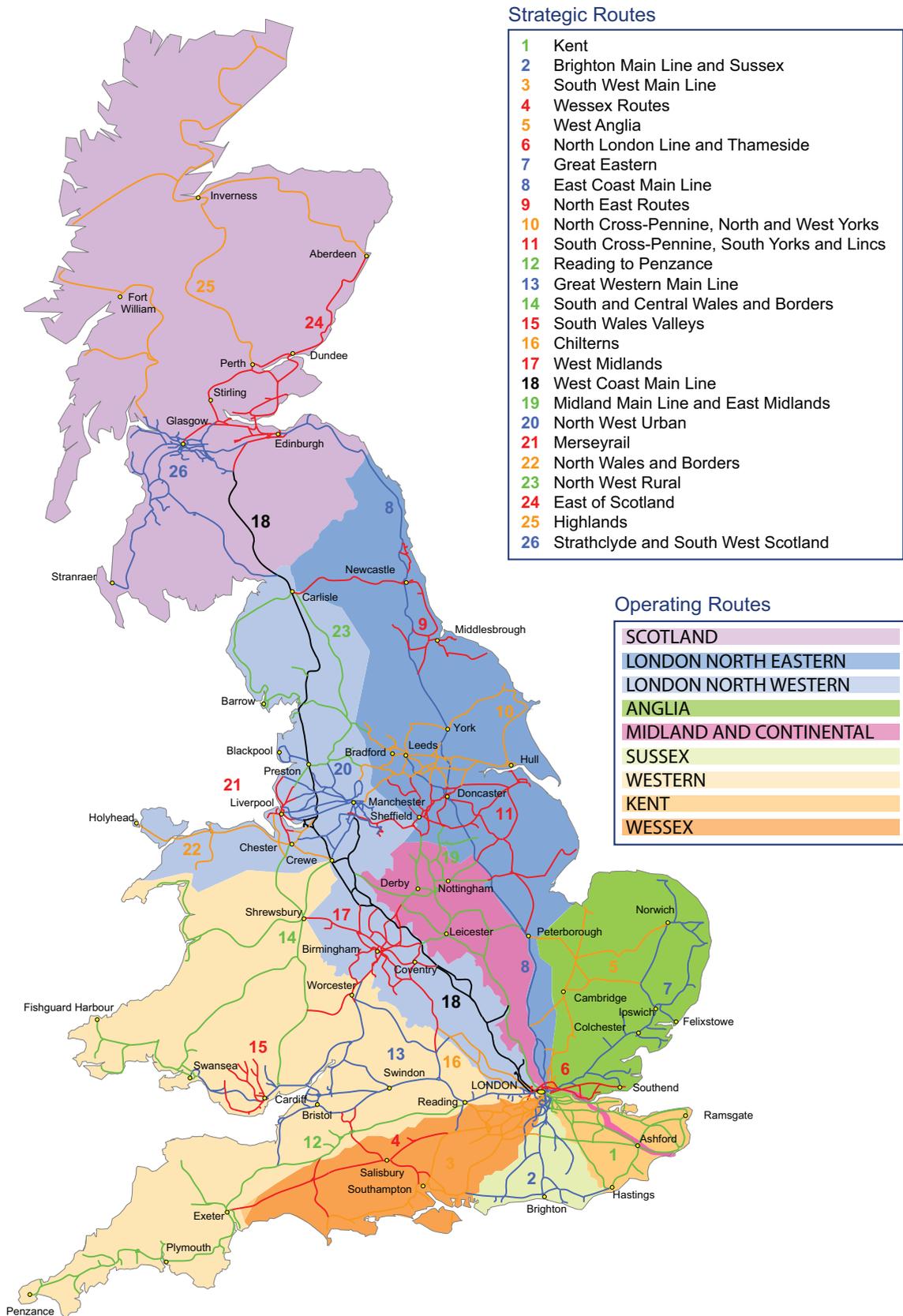
Table 11 Compatible confidence grades

Accuracy band	Reliability 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

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 2008/09 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



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 2008/09 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 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 Route Utilisation Strategies and Joint Performance Improvement Plans. 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 0.7 percentage points to 90.6 per cent for the full year 2008/09. This equates to a reduction of seven 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 nine per cent after allowing for the change in train kilometres run.

This PPM result was in line with our Business Plan target (90.6 per cent). There was no regulatory target for PPM in Control Period 3.

We have reduced delay minutes attributable to Network Rail by about 660,000 compared to the previous year, to 8.84 million minutes in 2008/09. The reduction in delay minutes resulted in a better outturn than the regulatory target for the year (9.1 million minutes) and was also slightly better than our internal target of 8.9 million minutes.

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

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
PPM	81.2	83.6	86.4	88.1	89.9	90.6

Table 1.2 Delays to all train services

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Total delay minutes (including minor operators)	13,716,937	11,402,720	10,464,387	10,531,216	9,499,583	8,838,885
Train km	481,268,141	478,038,920	487,317,190	487,603,246	486,224,904	497,696,635
Delay per 100 train km	2.85	2.39	2.15	2.16	1.95	1.78
Regulatory target (total delay minutes)	–	12,300,000	11,300,000	10,600,000	9,800,000	9,100,000

Notes: a) 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; b) The number of train kilometres run excludes empty coaching stock movements, and is as recorded in the performance database (PALADIN); c) The delay per 100 train km is based on total delay minutes, divided by the train kilometres run, multiplied by 100.

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 2008/09 as well as the individual results for each of the franchised passenger operators.

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 0.7 per cent of the total Network Rail attributed delays.

Network-wide total delays to passenger train services

Total Network Rail-attributed delays to passenger trains reduced in 2008/09 by six per cent. Traffic volumes, measured in train kilometres run, increased by 2.8 per cent compared to 2007/08. This resulted in a combined impact of a 9.0 per cent improvement in delay minutes per 100 train km, which fell to 1.59 minutes. Within this total, delays to franchised passenger operators also fell to 1.59 minutes per 100 train km, which was four per cent better than the regulatory target for this measure (see Table 1.4).

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

EA	First Transpennine Express	90.3
EB	National Express East Anglia	90.5
ED	Northern Rail	89.8
EF	First Great Western	90.5
EG	First Capital Connect	91.0
EH	CrossCountry	90.1
EJ	London Midland	86.5
EK	London Overground	92.3
EM	East Midlands Trains	89.3
HA	First ScotRail	90.6
HB	National Express East Coast	86.9
HE	Merseyrail	95.0
HF	Virgin Trains	80.0
HL	Arriva Trains Wales	93.1
HO	Chiltern Railway	95.2
HT	c2c	95.3
HU	Southeastern	90.0
HW	Southern*	89.5
HY / HZ	Stagecoach South Western	93.1
Total franchised operators		90.6

* Gatwick Express services were merged into Southern from June 2008

The trend in delays to passenger trains (measured as delay per 100 train km) over the last six 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.

Network-wide total delays to freight train services

Delays to freight trains decreased by 11 per cent to 1.6 million minutes (Table 1.5). When combined with a reduction of four per cent in train kilometres run, this represents an improvement of seven per cent in delay minutes per 100 train km.

Table 1.4 Delays to passenger train services

Network Rail-attributed delays	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Delay minutes	11,394,367	9,311,884	8,386,939	8,403,701	7,695,360	7,208,574
Train km	430,472,798	428,829,386	437,524,953	439,123,839	442,271,678	454,798,388
Delay per 100 train km	2.65	2.17	1.92	1.91	1.74	1.59
Delay minutes to franchised operators per 100 train km						
Actual	2.66	2.18	1.93	1.92	1.75	1.59
Regulatory target	–	2.34	2.12	1.97	1.80	1.65

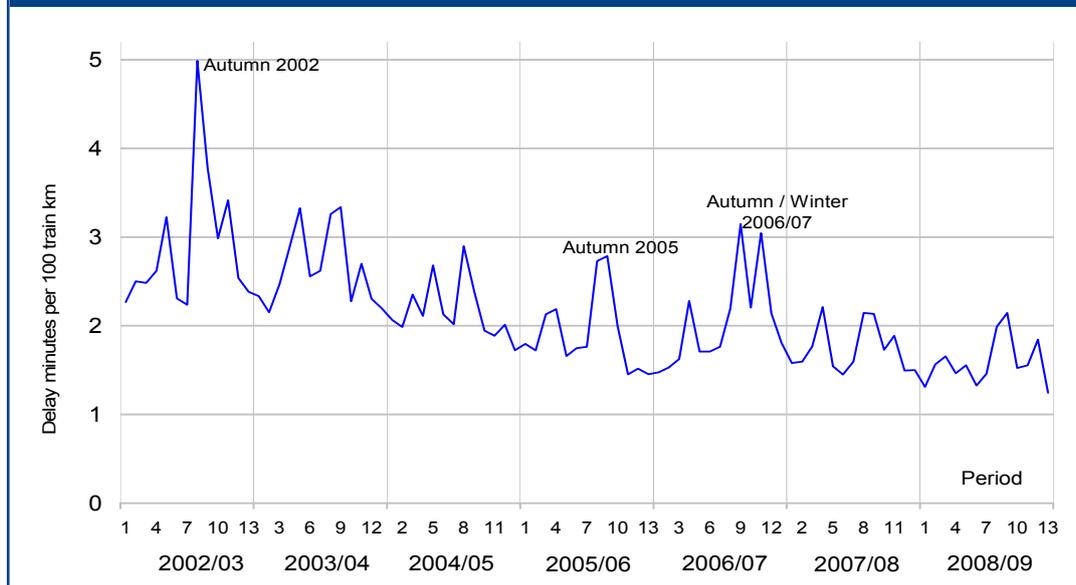
Notes: a) The delay minutes totals are based on all PIFI (Process for Performance Improvement) delays, affecting applicable passenger operators (main scheduled operators); b) Train km run are for trains of applicable operators, excluding empty coaching stock movements, as recorded in PALADIN; c) Delays per 100 train km are based on all PIFI delay minutes, divided by the train kilometres run, multiplied by 100. d) From 2004/05 onwards, regulatory targets were set based on delay to franchised passenger operators only. This excludes the non-franchised operators: Eurostar, Grand Central, Heathrow Express, First Hull Trains, Wrexham and Shropshire & Nexus. However non-franchised operators are included in the remaining figures in the table.

Table 1.5 National delays to freight train services

Network Rail-attributed delays	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Delay minutes	2,279,360	2,057,063	2,036,592	2,088,205	1,762,932	1,568,106
Train km	47,828,365	45,519,096	46,727,870	45,258,631	40,700,435	39,086,440
Delay per 100 train km	4.77	4.52	4.36	4.61	4.33	4.01

Notes: a) The delay minutes totals are based on all PIFI delays affecting applicable freight operators (main scheduled operators); b) Train km run are for trains of applicable operators, excluding empty coaching stock movements; c) Delay minutes per 100 train km are based on all PIFI delay minutes, divided by the train kilometres run, multiplied by 100.

Figure 1.1 Delay minutes per 100 train km over time



Breakdown of performance by operator

Table 1.6 Delays to individual operators 2008/09

Passenger operators		Delay minutes	Train km (million)	Delay per 100 km
EA	First Transpennine Express	286,359	15.39	1.86
EB	National Express East Anglia	598,471	30.67	1.95
EC	Grand Central	16,757	0.84	1.99
ED	Northern Rail	912,692	41.72	2.19
EF	First Great Western	598,274	40.94	1.46
EG	First Capital Connect	239,925	22.71	1.06
EH	CrossCountry	455,177	29.26	1.56
EI	Wrexham & Shropshire	19,292	0.89	2.18
EJ	London Midland	476,159	19.25	2.47
EK	London Overground	73,881	3.11	2.37
EM	East Midlands Trains	288,318	19.44	1.48
GA	Eurostar (UK) ⁽¹⁾	254	0.00	10.92
HA	First Scotrail	507,250	37.97	1.34
HB	National Express East Coast	200,082	19.10	1.05
HE	Merseyrail	51,761	5.64	0.92
HF	Virgin Trains	583,817	26.83	2.18
HL	Arriva Trains Wales	295,892	22.18	1.33
HM	Heathrow Express	22,120	1.48	1.50
HO	Chiltern Railways	86,861	9.26	0.94
HT	c2c	42,638	6.10	0.70
HU	Southeastern	450,084	28.29	1.59
HW	Southern ⁽²⁾	567,835	31.69	1.79
HY	Stagecoach South Western	403,294	37.65	1.07
PF	First Hull Trains	19,576	1.47	1.33
PG	Nexus	11,805	2.92	0.40
Total passenger of which franchised operators		7,208,574 7,118,770	454.80 447.20	1.59 1.59
Freight operators				
WA	DB Schenker	758,109	20.17	3.76
DB	Freightliner Intermodal	397,076	8.28	4.79
D2	Freightliner Heavy Haul	275,558	6.49	4.25
PE	First GB Railfreight	84,293	2.06	4.09
XH	Direct Rail Services	53,070	2.08	2.55
Total freight		1,568,106	39.09	4.01
Combined total for all applicable operators		8,776,680	493.88	1.78

⁽¹⁾ Eurostar mileage and delays are only those arising on the core Network Rail infrastructure (around Ashford only in 2008/09).

⁽²⁾ In June 2008, Gatwick Express was merged into Southern. The figures shown are based on an analysis of the delays to the combined services.

Table 1.7 Delays per 100 train kilometres to individual operators by period 2008/09

Passenger operators	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	Full year total
First Transpennine Express	1.41	1.56	1.90	1.50	2.06	2.12	1.71	2.78	2.95	1.60	1.56	1.63	1.44	1.86
National Express East Anglia	1.58	1.60	2.76	1.96	1.46	1.21	1.63	2.20	2.51	1.77	2.05	2.80	1.91	1.95
Grand Central	2.80	2.47	2.96	2.02	2.25	2.31	1.42	1.90	2.39	2.19	0.99	1.42	1.53	1.99
Northern Rail	1.73	2.04	2.13	1.90	2.28	2.17	2.18	3.47	3.78	2.10	1.78	1.62	1.48	2.19
First Great Western	1.20	1.54	1.66	1.39	1.37	1.33	1.41	1.73	1.89	1.41	1.21	1.76	1.12	1.46
First Capital Connect	0.84	0.74	0.96	1.12	0.75	0.73	0.87	1.55	1.59	0.87	0.83	2.04	0.88	1.06
CrossCountry	1.23	1.57	1.64	1.42	1.79	1.60	1.59	2.13	1.87	1.52	1.40	1.49	1.07	1.56
Wrexham & Shropshire	3.04	3.04	2.34	2.02	2.12	2.42	1.99	2.43	2.77	2.19	1.64	2.00	1.15	2.18
London Midland	2.09	2.93	2.87	2.71	2.50	2.32	2.41	2.88	3.07	2.71	2.46	2.06	1.52	2.47
London Overground	1.57	1.72	2.42	1.56	3.32	1.91	2.13	2.50	4.24	1.80	2.27	3.39	1.94	2.37
East Midlands Trains	1.26	1.97	1.67	1.60	1.45	1.24	1.32	2.25	2.33	1.23	0.97	1.25	0.86	1.48
Eurostar (UK)	11.05	15.43	2.84	6.96	43.58	2.78	3.90	1.11	7.79	5.01	7.79	4.45	26.15	10.92
First Scotrail	0.89	1.12	1.05	0.88	1.47	0.90	1.29	1.75	1.89	1.58	1.89	1.58	1.09	1.34
National Express East Coast	1.09	0.79	1.16	1.09	1.46	1.09	0.78	1.46	0.91	1.28	0.82	1.16	0.59	1.05
Merseyrail	0.79	0.53	0.95	0.73	1.39	0.58	0.77	1.47	1.16	1.25	0.85	0.91	0.61	0.92
Virgin Trains	2.11	2.53	2.42	2.83	2.33	1.97	2.20	1.90	2.11	2.51	2.42	1.71	1.59	2.18
Arriva Trains Wales	1.13	1.34	1.66	1.50	1.46	1.93	1.27	1.39	1.59	1.05	1.05	1.07	0.92	1.33
Heathrow Express	1.57	2.18	1.61	1.55	1.62	1.17	1.53	1.43	1.71	1.54	1.06	1.39	1.15	1.50
Chiltern Railways	0.82	1.11	1.19	0.79	0.79	1.03	0.86	1.22	1.41	0.67	0.72	1.11	0.50	0.94
c2c	0.52	0.55	1.37	0.66	0.60	0.65	0.46	0.88	0.64	0.65	0.57	0.92	0.60	0.70
Southeastern	1.38	1.80	1.03	1.37	1.40	1.00	1.56	2.03	2.15	1.17	1.86	2.23	1.68	1.59
Southern	0.98	1.41	1.66	1.17	1.20	1.03	1.18	1.79	3.01	1.66	2.39	3.99	1.84	1.79
Stagecoach South Western	1.33	1.44	1.10	0.78	1.12	0.45	1.03	1.40	1.17	0.87	0.87	1.56	0.86	1.07
First Hull Trains	1.34	1.32	1.30	2.06	1.29	1.09	0.84	1.65	1.20	1.58	0.92	1.98	0.81	1.33
Nexus	0.38	0.22	0.38	0.44	0.46	0.89	0.69	0.44	0.25	0.70	0.18	0.17	0.14	0.40
Total	1.31	1.56	1.65	1.46	1.56	1.33	1.46	1.99	2.15	1.52	1.56	1.84	1.24	1.59
Freight operators														
DB Schenker	3.20	3.72	4.02	3.62	3.69	3.88	3.71	4.26	4.32	3.61	3.25	4.22	3.31	3.76
Freightliner Intermodal	4.47	5.34	6.21	4.59	4.12	4.87	5.17	4.69	4.57	5.66	4.70	3.58	4.77	4.79
Freightliner Heavy Haul	3.70	3.88	3.77	4.54	4.65	4.27	4.95	4.77	4.94	3.83	3.95	4.75	3.33	4.25
First GB Rail Freight	3.22	4.10	5.91	4.96	4.60	4.33	4.63	3.64	3.23	2.63	3.60	4.29	4.28	4.09
Direct Rail Services	2.36	1.81	1.52	2.43	2.44	3.08	3.51	2.67	2.72	3.44	2.41	2.43	2.44	2.55
Total	3.50	4.00	4.38	3.98	3.90	4.13	4.25	4.31	4.31	3.97	3.67	4.07	3.64	4.01

Table 1.8 Delay minutes to all trains split by Route and by four-weekly period – 2008/09

Route	Sussex	Wessex	Western	LNE	Anglia	Scotland	Kent	LNW	M&C	Network total
P1	20,446	42,838	65,721	110,525	58,427	28,895	38,259	157,541	19,938	542,590
P2	30,438	52,443	87,333	121,577	57,433	37,524	49,202	203,322	33,210	672,482
P3	42,470	44,757	94,385	117,696	105,790	38,091	29,086	208,427	36,806	717,508
P4	28,367	28,283	85,794	126,974	79,258	29,578	39,910	202,449	27,640	648,253
P5	25,433	39,135	83,024	138,813	61,194	59,690	41,823	198,386	22,389	669,887
P6	26,145	18,654	98,346	128,757	53,370	31,435	27,523	185,807	21,868	591,905
P7	28,197	38,605	80,151	126,136	60,808	43,767	42,747	200,636	27,010	648,057
P8	45,125	52,630	89,289	176,710	82,688	59,757	53,304	226,285	44,231	830,019
P9	74,684	43,958	100,706	172,805	90,092	69,902	63,685	230,969	36,396	883,197
P10	37,032	27,977	64,701	102,797	58,130	44,436	27,053	189,867	18,040	570,033
P11	58,959	33,729	65,384	93,935	70,246	64,401	49,053	217,184	17,306	670,197
P12	99,936	55,829	92,463	115,801	90,916	58,723	56,214	174,039	32,272	776,193
P13	49,779	36,191	73,321	82,859	86,338	43,681	48,078	178,118	20,199	618,564
Year total	567,011	515,029	1,080,618	1,615,385	954,690	609,880	565,937	2,573,030	357,305	8,838,885

Period dates

P1: Tuesday 01 April 2008 – Saturday 26 April 2008
 P2: Sunday 27 April 2008 – Saturday 24 May 2008
 P3: Sunday 25 May 2008 – Saturday 21 June 2008
 P4: Sunday 22 June 2008 – Saturday 19 July 2008
 P5: Sunday 20 July 2008 – Saturday 16 August 2008
 P6: Sunday 17 August 2008 – Saturday 13 September 2008
 P7: Sunday 14 September 2008 – Saturday 11 October 2008
 P8: Sunday 12 October 2008 – Saturday 08 November 2008
 P9: Sunday 09 November 2008 – Saturday 06 December 2008
 P10: Sunday 07 December 2008 – Saturday 03 January 2009
 P11: Sunday 04 January 2009 – Saturday 31 January 2009
 P12: Sunday 01 February 2009 – Saturday 28 February 2009
 P13: Sunday 01 March 2009 – Tuesday 31 March 2009

Network-wide data by delay category grouping

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

To improve the quality of information for performance improvement purposes, some additional delay categories were introduced, and

some detailed cause codes transferred between categories at the beginning of 2008/09. This included splitting up some previously very large categories which contained a number of separate causes. The changes have led to some impact on the delay category groupings shown below, and prior years have been restated to reflect these changes. The new categories are shown in Tables 1.11 to 1.13, which have also been restated for earlier years.

Table 1.9 Network delays to passenger & freight trains by summarised category groups (Delay minutes)

Category group ⁽¹⁾	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Track defects and TSRs ⁽²⁾	2,239,771	1,511,662	1,645,279	1,368,171	1,238,050	1,062,288
Other asset defects ⁽³⁾	4,519,287	3,674,533	3,395,679	3,350,439	2,870,303	2,883,048
Network management/other ⁽⁴⁾	3,777,532	3,501,185	2,986,311	2,746,575	2,634,263	2,331,438
Autumn leaf fall and adhesion ⁽⁵⁾	439,041	260,487	285,363	214,222	156,813	241,733
Severe weather/structures ⁽⁶⁾	754,197	803,444	477,833	1,024,655	882,648	584,241
External factors ⁽⁷⁾	1,943,899	1,617,636	1,633,065	1,787,843	1,676,215	1,673,932
Total minutes	13,673,727	11,368,947	10,423,531	10,491,906	9,458,292	8,776,680
Train km (millions)	478.30	474.35	484.25	484.38	482.97	493.88

Table 1.10 Network delays to passenger & freight trains by summarised category groups (Delay mins. per 100 train km)

Category group ⁽¹⁾	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Track defects and TSRs ⁽²⁾	0.47	0.32	0.34	0.28	0.26	0.22
Other asset defects ⁽³⁾	0.94	0.77	0.70	0.69	0.59	0.58
Network management/other ⁽⁴⁾	0.79	0.74	0.62	0.57	0.55	0.47
Autumn leaf fall and adhesion ⁽⁵⁾	0.09	0.05	0.06	0.04	0.03	0.05
Severe weather/structures ⁽⁶⁾	0.16	0.17	0.10	0.21	0.18	0.12
External factors ⁽⁷⁾	0.41	0.34	0.34	0.37	0.35	0.34
Total	2.86	2.40	2.15	2.17	1.96	1.78

⁽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, speed restrictions for condition of track and rolling contact fatigue, and reactionary delay to planned TSRs;

⁽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 and bridge scour. Heat-related speed restrictions are also shown within this category;

⁽⁷⁾ External factors include road-related incidents, fires, trespass and vandalism, cable theft, security alerts, suicides and other external events.

Commentary Overview

In 2008/09 delays caused by Network Rail's infrastructure and operations improved by six per cent, while delays caused by adverse weather and external events improved on last year by 10 per cent.

The improvement was driven by substantial improvements in each of the 'Track defects/TSRs', 'Network management/other', and 'Severe weather/structures' category groups (see Tables 1.9 and 1.10 above). Track-related delays fell by 14 per cent and network management delays fell by 11 per cent. Severe weather / structures delays were 34 per cent better.

Delays arising from 'other asset defects' and 'external factors' were broadly unchanged compared to the previous year. The autumn leaf fall and adhesion category worsened by 54 per cent.

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

- 'Severe weather impact (beyond capability of infrastructure)': 280,127 minutes (45 per cent better);
- 'Possession Overrun and related faults': 115,425 minutes (43 per cent better);
- 'Track Faults including broken rail': 107,308 minutes (13 per cent better);
- 'TSRs due to condition of track': 79,369 minutes (28 per cent better);
- 'External Fires': 50,135 minutes (61 per cent better).

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

- 'External Other': +83,195 minutes (+69 per cent);
- 'Low adhesion including Autumn (Network Rail)': +45,146 minutes (+46 per cent);
- 'Signalling Systems and Power System failures': +39,770 minutes (+10 per cent);
- 'Mishap – infrastructure causes': +33,820 minutes (+21 per cent);
- 'Other weather (impact on infrastructure or network operation)': +30,320 minutes (+23 per cent).

Detailed results by category grouping are described below. Improvements were seen in four category groups:

- The 'Severe Weather and Structures' delay grouping fell by 298,407 (34 per cent). The improvement was due to a significant reduction in the 'Severe

infrastructure)' category. Almost two thirds of the improvement (185,477) in the category was attributable to improvement on the LNE and LNW routes with another substantial improvement on Western (51,980);

- 'Track defects/TSRs' delay fell by 14 per cent (175,762 minutes), due to substantial improvements in both the 'TSRs due to condition of track' and 'Track fault (including broken rails)' categories. For these categories, improvements by route included:
 - a) a reduction of 66,766 for LNW; 49,552 for Western; and 40,943 for Midland & Continental
 - b) other routes experienced smaller improvements, while Anglia and Sussex experienced an overall increase in delays.
- 'Network management/other' delays fell by 302,825 (11 per cent). Within this group, improvements included:
 - a) the 'Possession overrun and related fault category' fell by 115,425 minutes (43 per cent), with all routes showing improvement except Kent;
 - b) 'other infrastructure' category delays reduced by 48,599 minutes (21 per cent).
- 'External factors' delays reduced by 2,283 minutes (0.1 per cent). Within this total 'Bridge strikes' and 'External fires' were significantly improved (down by around 50,000 minutes each). The sustained reduction in bridge strike delays over recent years reflects the impact of a programme of prevention and mitigation measures, including improved signage and protection beams. These reductions were offset by increased delays arising from other external categories.

These were offset by increases in delay for:

- The Autumn leaf fall and adhesion categories, where delays rose by 84,920 minutes (54 per cent) reflecting in part difficult weather conditions on particular days in the autumn period. All routes saw increases in delay;
- The 'Other asset defects' grouping (mainly points, track circuit failures and other signalling categories) increased by 12,745 minutes (0.4 per cent). Within this grouping, delays due to points failures, signal failures and signalling systems increased. This was offset by improvements in track circuits, level crossing failures and cable faults. Additional initiatives, such as remote condition monitoring are being implemented to accelerate the improvement in this asset group.

Table 1.11 Network wide delays to passenger and freight trains by detailed cause category 2008/09 (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	589,992	0.13	154,305	0.39	744,297	0.15
102	Problems with trackside signs, TSR boards	22,797	0.01	3,435	0.01	26,232	0.01
103	Level crossing failures	90,629	0.02	9,905	0.03	100,534	0.02
104A	TSRs due to condition of track	113,537	0.02	91,294	0.23	204,831	0.04
104B	Track faults (including broken rails)	579,111	0.13	148,605	0.38	727,716	0.15
104C	Rolling contact fatigue	18,935	0.00	3,515	0.01	22,450	0.00
104D	Reactionary delay to planned TSRs	84,771	0.02	22,520	0.06	107,291	0.02
105	Civil Engineering structures, earthworks & buildings	47,025	0.01	30,808	0.08	77,833	0.02
106	Other infrastructure	149,165	0.03	38,338	0.10	187,503	0.04
106A	Track Patrols & related possessions	54,218	0.01	13,682	0.04	67,900	0.01
107A	Possession over-run and related faults	115,705	0.03	40,076	0.10	155,781	0.03
107B	Possession work left incomplete	44,957	0.01	6,310	0.02	51,267	0.01
108	Mishap – infrastructure causes	153,873	0.03	40,704	0.10	194,577	0.04
109	Animals on line	99,255	0.02	13,092	0.03	112,347	0.02
110A	Severe weather impact	301,469	0.07	45,376	0.12	346,845	0.07
110B	Other weather impact	144,898	0.03	14,665	0.04	159,563	0.03
111A	Wheel slip due to leaf fall	66,775	0.01	9,676	0.02	76,451	0.02
111B	Vegetation management failure	20,048	0.00	2,788	0.01	22,836	0.00
112	Fires on Network Rail infrastructure	16,206	0.00	714	0.00	16,920	0.00
150	Low adhesion including Autumn (Network Rail)	135,976	0.03	6,714	0.02	142,690	0.03
201	Overhead line/third rail faults	182,266	0.04	32,025	0.08	214,291	0.04
301A	Signal failures	267,269	0.06	41,542	0.11	308,811	0.06
301B	Track circuit failures	612,024	0.13	86,944	0.22	698,968	0.14
302A	Signalling system and power supply failures	352,224	0.08	79,315	0.20	431,539	0.09
302B	Other signal equipment failures	43,718	0.01	11,645	0.03	55,363	0.01
303	Telecoms failures	58,209	0.01	8,178	0.02	66,387	0.01
304	Cable faults (signalling and telecoms)	121,526	0.03	22,191	0.06	143,717	0.03
304A	Change of aspects – no fault found	6,055	0.00	739	0.00	6,794	0.00
305	Track circuit failures – leaf fall	18,172	0.00	4,420	0.01	22,592	0.00
401	Bridge strikes	152,572	0.03	18,623	0.05	171,195	0.03
402	External infrastructure damage – vandalism/theft	386,144	0.08	117,142	0.30	503,286	0.10
403	External level crossing/road incidents (not bridges)	68,495	0.02	7,555	0.02	76,050	0.02
501A	Network Rail operations – signalling	350,187	0.08	56,826	0.15	407,013	0.08
501B	Network Rail operations – control	52,422	0.01	31,503	0.08	83,925	0.02
501C	Network Rail operations – railhead conditioning trains	21,042	0.00	2,961	0.01	24,003	0.00
501D	Network Rail operations – other	139,438	0.03	36,323	0.09	175,761	0.04
502A	Train planning	144,409	0.03	96,681	0.25	241,090	0.05
502C	Network Rail commercial: take-back/other	279,168	0.06	60,835	0.16	340,003	0.07
503	External fatalities and trespass	571,606	0.13	81,513	0.21	653,119	0.13
504	External police on line/security alerts	15,544	0.00	1,799	0.00	17,343	0.00
505	External fires	27,373	0.01	4,567	0.01	31,940	0.01
506	External other	168,769	0.04	35,310	0.09	204,079	0.04
601	Unexplained	320,600	0.07	32,947	0.08	353,547	0.07
Total minutes		7,208,574	1.59	1,568,106	4.01	8,776,680	1.78
Train kilometres		454,798,388		39,086,440		493,884,828	

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	2008/09
101	Points failures	1,065,887	882,872	834,976	829,316	729,623	744,297
102	Problems with trackside signs, TSR boards	72,769	61,106	43,132	41,673	41,779	26,232
103	Level crossing failures	142,037	134,181	126,421	115,817	107,863	100,534
104A	TSRs due to condition of track	809,947	530,427	566,211	347,642	284,500	204,831
104B	Track faults (including broken rails)	1,244,069	849,711	925,259	924,108	835,024	727,716
104C	Rolling contact fatigue	74,378	19,046	14,477	9,253	15,616	22,450
104D	Reactionary delay to planned TSRs	111,377	112,478	139,332	87,168	103,210	107,291
105	Civil Engineering structures, earthworks & buildings	256,894	153,316	103,647	124,324	126,433	77,833
106	Other infrastructure	409,065	250,474	233,188	202,337	236,102	187,503
106A	Track Patrols & related possessions	127,204	120,225	94,339	81,290	77,838	67,900
107A	Possession over-run and related faults	300,170	305,121	256,586	277,269	271,206	155,781
107B	Possession work left incomplete	117,898	95,636	90,826	85,259	58,846	51,267
108	Mishap – infrastructure causes	178,230	142,320	124,441	160,143	160,757	194,577
109	Animals on line	162,510	148,178	141,102	152,548	115,328	112,347
110A	Severe weather impact	208,069	456,217	243,014	578,610	626,972	346,845
110B	Other weather impact	289,234	193,910	131,172	321,721	129,243	159,563
111A	Wheel slip due to leaf fall	94,229	60,966	68,367	51,160	54,085	76,451
111B	Vegetation management failure	12,542	18,734	11,709	13,056	16,289	22,836
112	Fires on Network Rail infrastructure	81,642	45,887	41,766	33,513	26,613	16,920
150	Low adhesion including Autumn (Network Rail)	305,232	178,960	195,089	148,957	97,544	142,690
201	Overhead line/third rail faults	395,062	292,970	244,346	336,596	214,086	214,291
301A	Signal failures	510,991	434,036	390,671	345,314	288,006	308,811
301B	Track circuit failures	1,269,960	1,058,772	985,535	818,361	716,336	698,968
302A	Signalling system and power supply failures	572,099	410,155	368,535	434,195	391,769	431,539
302B	Other signal equipment failures	130,046	106,218	72,289	77,395	59,571	55,363
303	Telecoms failures	58,086	50,019	63,825	50,901	66,026	66,387
304	Cable faults (signalling and telecoms)	193,616	141,302	155,919	175,480	173,706	143,717
304A	Change of aspects – no fault found	18,993	15,830	12,060	14,516	7,989	6,794
305	Track circuit failures – leaf fall	39,580	20,561	21,907	14,105	5,184	22,592
401	Bridge strikes	335,176	324,015	245,463	255,753	221,268	171,195
402	External infrastructure damage – vandalism/theft	341,241	319,781	338,433	504,472	473,606	503,286
403	External level crossing/road incidents (not bridges)	123,666	92,057	89,014	80,857	79,180	76,050
501A	Network Rail operations – signalling	963,008	826,272	716,343	710,045	454,885	407,013
501B	Network Rail operations – control	91,867	93,116	91,149	88,754	86,460	83,925
501C	Network Rail operations – railhead conditioning trains	30,857	27,867	28,671	18,810	26,031	24,003
501D	Network Rail operations – other	250,193	219,297	153,196	172,499	207,412	175,761
502A	Train planning	347,597	487,393	429,521	316,823	281,035	241,090
502C	Network Rail commercial: take-back/other	779,941	755,033	596,721	513,787	379,912	340,003
503	External fatalities and trespass	611,448	554,319	641,675	610,890	624,978	653,119
504	External police on line/security alerts	50,776	42,452	83,460	45,421	47,611	17,343
505	External fires	124,129	56,553	69,421	88,171	82,075	31,940
506	External other	275,821	182,572	123,833	168,766	120,884	204,079
601	Unexplained	418,910	370,670	335,502	318,599	335,711	353,547
Total minutes		13,673,727	11,368,947	10,423,531	10,491,906	9,458,292	8,776,680
Train kilometres		478,301,163	474,348,482	484,252,823	484,382,470	482,972,113	493,884,828

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	2008/09
101	Points failures	0.22	0.19	0.17	0.17	0.15	0.15
102	Problems with trackside signs, TSR boards	0.02	0.01	0.01	0.01	0.01	0.01
103	Level crossing failures	0.03	0.03	0.03	0.02	0.02	0.02
104A	TSRs due to condition of track	0.17	0.11	0.12	0.07	0.06	0.04
104B	Track faults (including broken rails)	0.26	0.18	0.19	0.19	0.17	0.15
104C	Rolling contact fatigue	0.02	0.00	0.00	0.00	0.00	0.00
104D	Reactionary delay to planned TSRs	0.02	0.02	0.03	0.02	0.02	0.02
105	Civil Engineering structures, earthworks & buildings	0.05	0.03	0.02	0.03	0.03	0.02
106	Other infrastructure	0.09	0.05	0.05	0.04	0.05	0.04
106A	Track Patrols & related possessions	0.03	0.03	0.02	0.02	0.02	0.01
107A	Possession over-run and related faults	0.06	0.06	0.05	0.06	0.06	0.03
107B	Possession work left incomplete	0.02	0.02	0.02	0.02	0.01	0.01
108	Mishap – infrastructure causes	0.04	0.03	0.03	0.03	0.03	0.04
109	Animals on line	0.03	0.03	0.03	0.03	0.02	0.02
110A	Severe weather impact	0.04	0.10	0.05	0.12	0.13	0.07
110B	Other weather impact	0.06	0.04	0.03	0.07	0.03	0.03
111A	Wheel slip due to leaf fall	0.02	0.01	0.01	0.01	0.01	0.02
111B	Vegetation management failure	0.00	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	0.00
150	Low adhesion including Autumn (Network Rail)	0.06	0.04	0.04	0.03	0.02	0.03
201	Overhead line/third rail faults	0.08	0.06	0.05	0.07	0.04	0.04
301A	Signal failures	0.11	0.09	0.08	0.07	0.06	0.06
301B	Track circuit failures	0.27	0.22	0.20	0.17	0.15	0.14
302A	Signalling system and power supply failures	0.12	0.09	0.08	0.09	0.08	0.09
302B	Other signal equipment failures	0.03	0.02	0.01	0.02	0.01	0.01
303	Telecoms failures	0.01	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	0.03
304A	Change of aspects – no fault found	0.00	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	0.00
401	Bridge strikes	0.07	0.07	0.05	0.05	0.05	0.03
402	External infrastructure damage – vandalism/theft	0.07	0.07	0.07	0.10	0.10	0.10
403	External level crossing/road incidents (not bridges)	0.03	0.02	0.02	0.02	0.02	0.02
501A	Network Rail operations – signalling	0.13	0.12	0.10	0.09	0.09	0.08
501B	Network Rail operations – control	0.02	0.02	0.02	0.02	0.02	0.02
501C	Network Rail operations – railhead conditioning trains	0.01	0.01	0.01	0.00	0.01	0.00
501D	Network Rail operations – other	0.05	0.05	0.03	0.04	0.04	0.04
502A	Train planning	0.07	0.10	0.09	0.07	0.06	0.05
502C	Network Rail commercial: take-back/other	0.16	0.16	0.12	0.11	0.08	0.07
503	External fatalities and trespass	0.13	0.12	0.13	0.13	0.13	0.13
504	External police on line/security alerts	0.01	0.01	0.02	0.01	0.01	0.00
505	External fires	0.03	0.01	0.01	0.02	0.03	0.01
506	External other	0.06	0.04	0.03	0.03	0.03	0.04
601	Unexplained	0.09	0.08	0.07	0.07	0.07	0.07
Total minutes		2.86	2.40	2.15	2.17	1.96	1.78

Results for operating routes by delay category

Commentary on operating routes

The delays by cause category across Network Rail's nine routes are shown in Tables 1.14-1.22. 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 Wessex (1.14 minutes per 100 train km). Anglia is the only other Route with delay exceeding 2 minutes per 100 km;
- Track delays have proportionately more impact on London North Eastern than elsewhere and accounted for 33 per cent of total network track delays in the year;
- LNW saw the highest level of points and track circuit delays relative to train km operated;
- External delays remain at 19 per cent of all Network Rail delays across the network. This proportion varies from 24 per cent in LNE, 20 per cent in both Sussex and Anglia, down to 10 per cent in Scotland. Relative to train km operated, the impact of external delays is highest in LNE, which has continued to be hit hard by the problem of cable theft (a major part of the category 402 External infrastructure damage – vandalism/theft);
- Autumn delays represented five per cent of Route delays in Kent last year. This was the highest proportion of any route, and compares with a national average of three per cent;
- We operate the most mileage on London North Western (22 per cent), followed by London North Eastern (17 per cent).

Table 1.14 Western delays to passenger and freight trains by detailed cause 2008/09

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	79,676	23,206	102,882	0.15
102	Problems with trackside signs, TSR boards	2,637	236	2,873	0.00
103	Level crossing failures	14,894	1,699	16,593	0.02
104A	TSRs due to condition of track	141	16	157	0.00
104B	Track faults (including broken rails)	38,411	6,432	44,843	0.07
104C	Rolling contact fatigue	0	0	0	–
104D	Reactionary delay to planned TSRs	5,417	1,041	6,458	0.01
105	Civil Engineering structures, earthworks & buildings	2,277	866	3,143	0.00
106	Other infrastructure	24,727	6,282	31,009	0.05
106A	Track Patrols & related possessions	3,689	1,105	4,794	0.01
107A	Possession over-run and related faults	18,987	8,039	27,026	0.04
107B	Possession work left incomplete	566	59	625	0.00
108	Mishap – infrastructure causes	9,172	1,279	10,451	0.02
109	Animals on line	22,127	1,875	24,002	0.03
110A	Severe weather impact	64,182	14,806	78,988	0.11
110B	Other weather impact	5,932	814	6,746	0.01
111A	Wheel slip due to leaf fall	7,824	1,214	9,038	0.01
111B	Vegetation management failure	3,099	319	3,418	0.00
112	Fires on Network Rail infrastructure	20	0	20	0.00
150	Low adhesion including Autumnn (Network Rail)	10,649	369	11,018	0.02
201	Overhead line/third rail faults	615	4	619	0.00
301A	Signal failures	54,087	10,406	64,493	0.09
301B	Track circuit failures	96,217	15,905	112,122	0.16
302A	Signalling system and power supply failures	28,018	8,473	36,491	0.05
302B	Other signal equipment failures	13,075	4,021	17,096	0.02
303	Telecoms failures	7,951	380	8,331	0.01
304	Cable faults (signalling and telecoms)	3,729	1,244	4,973	0.01
304A	Change of aspects – no fault found	1,063	77	1,140	0.00
305	Track circuit failures – leaf fall	140	0	140	0.00
401	Bridge strikes	20,400	1,855	22,255	0.03
402	External infrastructure damage – vandalism/theft	33,545	9,019	42,564	0.06
403	External level crossing/road incidents (not bridges)	12,369	1,333	13,702	0.02
501A	Network Rail operations – signalling	43,263	7,574	50,837	0.07
501B	Network Rail operations – control	7,631	2,851	10,482	0.02
501C	Network Rail operations – railhead conditioning trains	1,331	250	1,581	0.00
501D	Network Rail operations – other	20,153	4,156	24,309	0.04
502A	Train planning	34,933	15,413	50,346	0.07
502C	Network Rail commercial: take-back/other	40,155	11,078	51,233	0.07
503	External fatalities and trespass	76,872	11,125	87,997	0.13
504	External police on line/security alerts	1,894	181	2,075	0.00
505	External fires	5,460	1,210	6,670	0.01
506	External other	20,955	3,892	24,847	0.04
601	Unexplained	52,774	5,577	58,351	0.08
Total		891,057	185,681	1,076,738	1.57
Train kilometres					68,733,642

Table 1.15 London North Eastern delays to passenger and freight trains by detailed cause category 2008/09

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	50,717	25,270	75,987	0.09
102	Problems with trackside signs, TSR boards	3,779	803	4,582	0.01
103	Level crossing failures	20,938	4,198	25,136	0.03
104A	TSRs due to condition of track	64,497	57,686	122,183	0.14
104B	Track faults (including broken rails)	134,888	63,787	198,675	0.24
104C	Rolling contact fatigue	2,255	210	2,465	0.00
104D	Reactionary delay to planned TSRs	15,990	9,652	25,642	0.03
105	Civil Engineering structures, earthworks & buildings	15,379	24,994	40,373	0.05
106	Other infrastructure	16,567	9,776	26,343	0.03
106A	Track Patrols & related possessions	2,454	1,207	3,661	0.00
107A	Possession over-run and related faults	9,804	6,809	16,613	0.02
107B	Possession work left incomplete	2,058	1,015	3,073	0.00
108	Mishap – infrastructure causes	35,364	10,595	45,959	0.05
109	Animals on line	16,372	3,759	20,131	0.02
110A	Severe weather impact	30,829	6,060	36,889	0.04
110B	Other weather impact	16,260	3,166	19,426	0.02
111A	Wheel slip due to leaf fall	8,685	3,071	11,756	0.01
111B	Vegetation management failure	4,215	1,105	5,320	0.01
112	Fires on Network Rail infrastructure	1,185	66	1,251	0.00
150	Low adhesion including Autumn (Network Rail)	27,666	1,233	28,899	0.03
201	Overhead line/third rail faults	34,978	4,038	39,016	0.05
301A	Signal failures	26,169	8,712	34,881	0.04
301B	Track circuit failures	32,345	9,066	41,411	0.05
302A	Signalling system and power supply failures	52,856	14,487	67,343	0.08
302B	Other signal equipment failures	6,360	2,455	8,815	0.01
303	Telecoms failures	12,447	2,864	15,311	0.02
304	Cable faults (signalling and telecoms)	26,881	9,349	36,230	0.04
304A	Change of aspects – no fault found	885	210	1,095	0.00
305	Track circuit failures – leaf fall	5,800	2,741	8,541	0.01
401	Bridge strikes	21,462	5,006	26,468	0.03
402	External infrastructure damage – vandalism/theft	141,975	69,174	211,149	0.25
403	External level crossing/road incidents (not bridges)	15,434	2,421	17,855	0.02
501A	Network Rail operations – signalling	36,415	10,526	46,941	0.06
501B	Network Rail operations – control	7,435	9,297	16,732	0.02
501C	Network Rail operations – railhead conditioning trains	1,340	319	1,659	0.00
501D	Network Rail operations – other	26,482	8,729	35,211	0.04
502A	Train planning	18,393	14,305	32,698	0.04
502C	Network Rail commercial: take-back/other	40,975	20,622	61,597	0.07
503	External fatalities and trespass	66,940	13,070	80,010	0.09
504	External police on line/security alerts	3,324	581	3,905	0.00
505	External fires	3,187	592	3,779	0.00
506	External other	31,297	7,617	38,914	0.05
601	Unexplained	50,907	11,265	62,172	0.07
Total		1,144,189	461,908	1,606,097	1.90
Train kilometres					84,395,830

Table 1.16 London North Western delays to passenger and freight trains by detailed cause category 2008/09

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	221,934	69,384	291,318	0.26
102	Problems with trackside signs, TSR boards	8,625	1,357	9,982	0.01
103	Level crossing failures	11,085	630	11,715	0.01
104A	TSRs due to condition of track	26,652	23,053	49,705	0.04
104B	Track faults (including broken rails)	116,814	23,756	140,570	0.13
104C	Rolling contact fatigue	4,980	859	5,839	0.01
104D	Reactionary delay to planned TSRs	36,460	6,870	43,330	0.04
105	Civil Engineering structures, earthworks & buildings	8,388	2,044	10,432	0.01
106	Other infrastructure	50,152	8,982	59,134	0.05
106A	Track Patrols & related possessions	26,964	5,204	32,168	0.03
107A	Possession over-run and related faults	40,359	11,042	51,401	0.05
107B	Possession work left incomplete	14,287	2,132	16,419	0.01
108	Mishap – infrastructure causes	32,697	11,192	43,889	0.04
109	Animals on line	28,245	3,978	32,223	0.03
110A	Severe weather impact	51,244	12,050	63,294	0.06
110B	Other weather impact	29,312	4,367	33,679	0.03
111A	Wheel slip due to leaf fall	13,395	997	14,392	0.01
111B	Vegetation management failure	2,612	142	2,754	0.00
112	Fires on Network Rail infrastructure	993	49	1,042	0.00
150	Low adhesion including Autumn (Network Rail)	41,402	2,203	43,605	0.04
201	Overhead line/third rail faults	63,532	15,820	79,352	0.07
301A	Signal failures	98,723	15,405	114,128	0.10
301B	Track circuit failures	255,967	41,576	297,543	0.27
302A	Signalling system and power supply failures	109,781	37,288	147,069	0.13
302B	Other signal equipment failures	9,922	3,058	12,980	0.01
303	Telecoms failures	4,322	1,464	5,786	0.01
304	Cable faults (signalling and telecoms)	30,479	7,385	37,864	0.03
304A	Change of aspects – no fault found	818	121	939	0.00
305	Track circuit failures – leaf fall	3,292	793	4,085	0.00
401	Bridge strikes	49,315	6,537	55,852	0.05
402	External infrastructure damage – vandalism/theft	110,687	26,029	136,716	0.12
403	External level crossing/road incidents (not bridges)	12,065	585	12,650	0.01
501A	Network Rail operations – signalling	117,548	35,433	152,981	0.14
501B	Network Rail operations – control	8,714	7,008	15,722	0.01
501C	Network Rail operations – railhead conditioning	6,799	886	7,685	0.01
501D	Network Rail operations – other	32,130	10,443	42,573	0.04
502A	Train planning	33,198	20,273	53,471	0.05
502C	Network Rail commercial: take-back/other	81,405	16,559	97,964	0.09
503	External fatalities and trespass	146,709	38,096	184,805	0.17
504	External police on line/security alerts	3,886	440	4,326	0.00
505	External fires	6,249	461	6,710	0.01
506	External other	54,337	11,041	65,378	0.06
601	Unexplained	100,380	9,276	109,656	0.10
Total		2,059,215	477,931	2,537,146	2.29
Train kilometres					110,797,090

Table 1.17 Scotland delays to passenger and freight trains by detailed cause category 2008/09

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	52,545	7,297	59,842	0.12
102	Problems with trackside signs, TSR boards	1,543	256	1,799	0.00
103	Level crossing failures	4,628	424	5,052	0.01
104A	TSRs due to condition of track	1,029	361	1,390	0.00
104B	Track faults (including broken rails)	27,214	5,288	32,502	0.07
104C	Rolling contact fatigue	11	0	11	0.00
104D	Reactionary delay to planned TSRs	9,029	1,284	10,313	0.02
105	Civil Engineering structures, earthworks & buildings	3,092	422	3,514	0.01
106	Other infrastructure	5,581	1,644	7,225	0.01
106A	Track Patrols & related possessions	120	105	225	0.00
107A	Possession over-run and related faults	4,959	765	5,724	0.01
107B	Possession work left incomplete	878	84	962	0.00
108	Mishap – infrastructure causes	15,712	2,791	18,503	0.04
109	Animals on line	10,110	1,721	11,831	0.02
110A	Severe weather impact	39,072	4,172	43,244	0.09
110B	Other weather impact	7,889	1,276	9,165	0.02
111A	Wheel slip due to leaf fall	4,567	317	4,884	0.01
111B	Vegetation management failure	2,353	970	3,323	0.01
112	Fires on Network Rail infrastructure	477	0	477	0.00
150	Low adhesion including Autumn (Network Rail)	15,416	1,421	16,837	0.03
201	Overhead line/third rail faults	4,422	590	5,012	0.01
301A	Signal failures	28,720	3,096	31,816	0.07
301B	Track circuit failures	47,864	4,436	52,300	0.11
302A	Signalling system and power supply failures	25,845	3,090	28,935	0.06
302B	Other signal equipment failures	2,649	270	2,919	0.01
303	Telecoms failures	8,610	676	9,286	0.02
304	Cable faults (signalling and telecoms)	9,155	987	10,142	0.02
304A	Change of aspects - no fault found	524	56	580	0.00
305	Track circuit failures - leaf fall	0	0	0	–
401	Bridge strikes	7,082	716	7,798	0.02
402	External infrastructure damage – vandalism/theft	13,066	1,743	14,809	0.03
403	External level crossing/road incidents (not bridges)	2,275	258	2,533	0.01
501A	Network Rail operations – signalling	30,034	3,270	33,304	0.07
501B	Network Rail operations – control	4,265	1,683	5,948	0.01
501C	Network Rail operations – railhead conditioning trains	2,472	603	3,075	0.01
501D	Network Rail operations – other	21,467	2,178	23,645	0.05
502A	Train planning	7,531	5,169	12,700	0.03
502C	Network Rail commercial: take-back/other	30,574	1,992	32,566	0.07
503	External fatalities and trespass	20,997	2,954	23,951	0.05
504	External police on line/security alerts	493	47	540	0.00
505	External fires	1,653	176	1,829	0.00
506	External other	9,223	1,037	10,260	0.02
601	Unexplained	55,171	2,406	57,577	0.12
Total		540,317	68,031	608,348	1.25
	Train kilometres				48,555,406

Table 1.18 Kent delays to passenger and freight trains by detailed cause category 2008/09

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	50,656	2,385	53,041	0.16
102	Problems with trackside signs, TSR boards	1,167	21	1,188	0.00
103	Level crossing failures	3,470	116	3,586	0.01
104A	TSRs due to condition of track	1,231	1	1,232	0.00
104B	Track faults (including broken rails)	41,256	2,555	43,811	0.13
104C	Rolling contact fatigue	0	0	0	–
104D	Reactionary delay to planned TSRs	233	44	277	0.00
105	Civil Engineering structures, earthworks & buildings	5,105	697	5,802	0.02
106	Other infrastructure	9,834	69	9,903	0.03
106A	Track Patrols & related possessions	2,981	1,225	4,206	0.01
107A	Possession over-run and related faults	12,524	1,013	13,537	0.04
107B	Possession work left incomplete	7,845	300	8,145	0.02
108	Mishap – infrastructure causes	7,225	571	7,796	0.02
109	Animals on line	2,902	471	3,373	0.01
110A	Severe weather impact	24,486	1,758	26,244	0.08
110B	Other weather impact	24,454	1,078	25,532	0.08
111A	Wheel slip due to leaf fall	9,548	806	10,354	0.03
111B	Vegetation management failure	1,947	33	1,980	0.01
112	Fires on Network Rail infrastructure	2,244	78	2,322	0.01
150	Low adhesion including Autumn (Network Rail)	16,541	367	16,908	0.05
201	Overhead line/third rail faults	15,078	374	15,452	0.05
301A	Signal failures	12,309	561	12,870	0.04
301B	Track circuit failures	47,854	2,094	49,948	0.15
302A	Signalling system and power supply failures	40,889	2,014	42,903	0.13
302B	Other signal equipment failures	1,822	192	2,014	0.01
303	Telecoms failures	1,905	86	1,991	0.01
304	Cable faults (signalling and telecoms)	14,315	720	15,035	0.04
304A	Change of aspects – no fault found	424	13	437	0.00
305	Track circuit failures – leaf fall	323	0	323	0.00
401	Bridge strikes	16,613	231	16,844	0.05
402	External infrastructure damage – vandalism/theft	19,982	1,613	21,595	0.06
403	External level crossing/road incidents (not bridges)	2,635	233	2,868	0.01
501A	Network Rail operations – signalling	51,231	2,320	53,551	0.16
501B	Network Rail operations – control	4,973	1,437	6,410	0.02
501C	Network Rail operations – railhead conditioning trains	1,951	120	2,071	0.01
501D	Network Rail operations – other	3,663	118	3,781	0.01
502A	Train planning	4,401	1,026	5,427	0.02
502C	Network Rail commercial: take-back/other	5,439	704	6,143	0.02
503	External fatalities and trespass	47,954	1,224	49,178	0.15
504	External police on line/security alerts	412	0	412	0.00
505	External fires	2,024	0	2,024	0.01
506	External other	5,002	665	5,667	0.02
601	Unexplained	7,333	165	7,498	0.02
Total		534,181	29,498	563,679	1.67
Train kilometres					33,784,525

Table 1.19 Wessex delays to passenger and freight trains by detailed cause 2008/09

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	38,241	3,998	42,239	0.09
102	Problems with trackside signs, TSR boards	780	97	877	0.00
103	Level crossing failures	7,851	608	8,459	0.02
104A	TSRs due to condition of track	0	0	0	–
104B	Track faults (including broken rails)	54,884	4,884	59,768	0.13
104C	Rolling contact fatigue	11,630	2,393	14,023	0.03
104D	Reactionary delay to planned TSRs	3,305	356	3,661	0.01
105	Civil Engineering structures, earthworks & buildings	3,262	492	3,754	0.01
106	Other infrastructure	7,887	743	8,630	0.02
106A	Track Patrols & related possessions	6,143	928	7,071	0.02
107A	Possession over-run and related faults	8,265	555	8,820	0.02
107B	Possession work left incomplete	2,117	254	2,371	0.01
108	Mishap – infrastructure causes	8,906	1,416	10,322	0.02
109	Animals on line	3,565	414	3,979	0.01
110A	Severe weather impact	34,461	3,407	37,868	0.08
110B	Other weather impact	10,119	346	10,465	0.02
111A	Wheel slip due to leaf fall	7,727	1,672	9,399	0.02
111B	Vegetation management failure	864	24	888	0.00
112	Fires on Network Rail infrastructure	1,729	24	1,753	0.00
150	Low adhesion including Autumn (Network Rail)	3,566	110	3,676	0.01
201	Overhead line/third rail faults	5,916	168	6,084	0.01
301A	Signal failures	6,918	255	7,173	0.02
301B	Track circuit failures	51,140	3,819	54,959	0.12
302A	Signalling system and power supply failures	20,624	1,148	21,772	0.05
302B	Other signal equipment failures	2,638	58	2,696	0.01
303	Telecoms failures	1,317	105	1,422	0.00
304	Cable faults (signalling and telecoms)	24,881	862	25,743	0.06
304A	Change of aspects – no fault found	128	0	128	0.00
305	Track circuit failures – leaf fall	4,940	632	5,572	0.01
401	Bridge strikes	10,235	659	10,894	0.02
402	External infrastructure damage – vandalism/theft	11,727	663	12,390	0.03
403	External level crossing/road incidents (not bridges)	2,836	106	2,942	0.01
501A	Network Rail operations – signalling	20,835	1,792	22,627	0.05
501B	Network Rail operations – control	4,657	862	5,519	0.01
501C	Network Rail operations – railhead conditioning trains	1,576	98	1,674	0.00
501D	Network Rail operations – other	1,471	171	1,642	0.00
502A	Train planning	5,382	2,401	7,783	0.02
502C	Network Rail commercial: take-back/other	14,800	1,246	16,046	0.04
503	External fatalities and trespass	59,069	1,818	60,887	0.13
504	External police on line/security alerts	16	0	16	0.00
505	External fires	1,773	12	1,785	0.00
506	External other	4,288	587	4,875	0.01
601	Unexplained	1,458	118	1,576	0.00
Total		473,927	40,301	514,228	1.14
Train kilometres					45,127,664

Table 1.20 Sussex delays to passenger and freight trains by detailed cause category 2008/09

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	35,668	908	36,576	0.12
102	Problems with trackside signs, TSR boards	603	3	606	0.00
103	Level crossing failures	11,332	104	11,436	0.04
104A	TSRs due to condition of track	0	0	0	–
104B	Track faults (including broken rails)	36,105	438	36,543	0.12
104C	Rolling contact fatigue	0	0	0	–
104D	Reactionary delay to planned TSRs	1,340	13	1,353	0.00
105	Civil Engineering structures, earthworks & buildings	1,280	1	1,281	0.00
106	Other infrastructure	13,477	223	13,700	0.04
106A	Track Patrols & related possessions	3,337	22	3,359	0.01
107A	Possession over-run and related faults	2,962	150	3,112	0.01
107B	Possession work left incomplete	9,786	77	9,863	0.03
108	Mishap – infrastructure causes	11,924	82	12,006	0.04
109	Animals on line	2,158	16	2,174	0.01
110A	Severe weather impact	35,300	944	36,244	0.12
110B	Other weather impact	20,237	71	20,308	0.07
111A	Wheel slip due to leaf fall	5,768	52	5,820	0.02
111B	Vegetation management failure	1,171	0	1,171	0.00
112	Fires on Network Rail infrastructure	4,390	87	4,477	0.01
150	Low adhesion including Autumn (Network Rail)	9,684	74	9,758	0.03
201	Overhead line/third rail faults	7,236	65	7,301	0.02
301A	Signal failures	19,250	245	19,495	0.06
301B	Track circuit failures	40,704	325	41,029	0.13
302A	Signalling system and power supply failures	17,430	206	17,636	0.06
302B	Other signal equipment failures	1,889	10	1,899	0.01
303	Telecoms failures	4,244	63	4,307	0.01
304	Cable faults (signalling and telecoms)	2,369	0	2,369	0.01
304A	Change of aspects – no fault found	55	0	55	0.00
305	Track circuit failures – leaf fall	0	0	0	–
401	Bridge strikes	7,540	106	7,646	0.02
402	External infrastructure damage – vandalism/theft	11,190	68	11,258	0.04
403	External level crossing/road incidents (not bridges)	5,280	317	5,597	0.02
501A	Network Rail operations – signalling	64,859	1,074	65,933	0.21
501B	Network Rail operations – control	4,059	306	4,365	0.01
501C	Network Rail operations – railhead conditioning trains	1,855	6	1,861	0.01
501D	Network Rail operations – other	6,298	11	6,309	0.02
502A	Train planning	9,545	1,728	11,273	0.04
502C	Network Rail commercial: take-back/other	33,574	663	34,237	0.11
503	External fatalities and trespass	71,460	714	72,174	0.23
504	External police on line/security alerts	2,102	5	2,107	0.01
505	External fires	5,002	25	5,027	0.02
506	External other	2,533	9	2,542	0.01
601	Unexplained	32,018	371	32,389	0.10
Total		557,014	9,582	566,596	1.82
Train kilometres					31,192,180

Table 1.21 Anglia delays to passenger and freight trains by detailed cause category 2008/09

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	47,283	17,580	64,863	0.14
102	Problems with trackside signs, TSR boards	2,384	470	2,854	0.01
103	Level crossing failures	14,365	1,720	16,085	0.04
104A	TSRs due to condition of track	16,272	2,814	19,086	0.04
104B	Track faults (including broken rails)	103,905	32,478	136,383	0.30
104C	Rolling contact fatigue	0	0	0	–
104D	Reactionary delay to planned TSRs	8,303	2,528	10,831	0.02
105	Civil Engineering structures, earthworks & buildings	6,230	1,094	7,324	0.02
106	Other infrastructure	14,374	8,765	23,139	0.05
106A	Track Patrols & related possessions	6,223	2,752	8,975	0.02
107A	Possession over-run and related faults	15,064	8,520	23,584	0.05
107B	Possession work left incomplete	7,108	2,254	9,362	0.02
108	Mishap – infrastructure causes	27,292	10,541	37,833	0.08
109	Animals on line	11,315	460	11,775	0.03
110A	Severe weather impact	18,987	1,569	20,556	0.04
110B	Other weather impact	28,162	2,611	30,773	0.07
111A	Wheel slip due to leaf fall	6,685	754	7,439	0.02
111B	Vegetation management failure	709	78	787	0.00
112	Fires on Network Rail infrastructure	2,915	333	3,248	0.01
150	Low adhesion including Autumn (Network Rail)	6,254	800	7,054	0.02
201	Overhead line/third rail faults	39,786	9,406	49,192	0.11
301A	Signal failures	16,988	2,333	19,321	0.04
301B	Track circuit failures	28,334	7,381	35,715	0.08
302A	Signalling system and power supply failures	33,600	9,269	42,869	0.09
302B	Other signal equipment failures	3,149	575	3,724	0.01
303	Telecoms failures	6,520	1,380	7,900	0.02
304	Cable faults (signalling and telecoms)	3,594	394	3,988	0.01
304A	Change of aspects – no fault found	1,550	249	1,799	0.00
305	Track circuit failures – leaf fall	3,548	112	3,660	0.01
401	Bridge strikes	10,821	2,566	13,387	0.03
402	External infrastructure damage – vandalism/theft	30,867	6,029	36,896	0.08
403	External level crossing/road incidents (not bridges)	12,212	1,982	14,194	0.03
501A	Network Rail operations – signalling	22,752	10,465	33,217	0.07
501B	Network Rail operations – control	8,994	5,784	14,778	0.03
501C	Network Rail operations – railhead conditioning trains	3,244	555	3,799	0.01
501D	Network Rail operations – other	22,507	8,950	31,457	0.07
502A	Train planning	23,608	29,598	53,206	0.12
502C	Network Rail commercial: take-back/other	8,880	3,917	12,797	0.03
503	External fatalities and trespass	61,046	10,101	71,147	0.15
504	External police on line/security alerts	2,589	480	3,069	0.01
505	External fires	1,755	2,048	3,803	0.01
506	External other	34,488	7,544	42,032	0.09
601	Unexplained	8,330	1,293	9,623	0.02
Total		732,992	220,532	953,524	2.08
	Train kilometres				45,910,101

Table 1.22 Midland & Continental delays to passenger and freight trains by detailed cause category 2008/09

No	Category	Passenger minutes	Freight minutes	Combined minutes	Delay per 100 tr km
101	Points failures	13,272	4,277	17,549	0.07
102	Problems with trackside signs, TSR boards	1,279	192	1,471	0.01
103	Level crossing failures	2,066	406	2,472	0.01
104A	TSRs due to condition of track	3,715	7,363	11,078	0.04
104B	Track faults (including broken rails)	25,634	8,987	34,621	0.14
104C	Rolling contact fatigue	59	53	112	0.00
104D	Reactionary delay to planned TSRs	4,694	732	5,426	0.02
105	Civil Engineering structures, earthworks & buildings	2,012	198	2,210	0.01
106	Other infrastructure	6,566	1,854	8,420	0.03
106A	Track Patrols & related possessions	2,307	1,134	3,441	0.01
107A	Possession over-run and related faults	2,781	3,183	5,964	0.02
107B	Possession work left incomplete	312	135	447	0.00
108	Mishap – infrastructure causes	5,581	2,237	7,818	0.03
109	Animals on line	2,461	398	2,859	0.01
110A	Severe weather impact	2,908	610	3,518	0.01
110B	Other weather impact	2,533	936	3,469	0.01
111A	Wheel slip due to leaf fall	2,576	793	3,369	0.01
111B	Vegetation management failure	3,078	117	3,195	0.01
112	Fires on Network Rail infrastructure	2,253	77	2,330	0.01
150	Low adhesion including Autumn (Network Rail)	4,798	137	4,935	0.02
201	Overhead line/third rail faults	10,703	1,560	12,263	0.05
301A	Signal failures	4,105	529	4,634	0.02
301B	Track circuit failures	11,599	2,342	13,941	0.05
302A	Signalling system and power supply failures	23,181	3,340	26,521	0.10
302B	Other signal equipment failures	2,214	1,006	3,220	0.01
303	Telecoms failures	10,893	1,160	12,053	0.05
304	Cable faults (signalling and telecoms)	6,123	1,250	7,373	0.03
304A	Change of aspects – no fault found	608	13	621	0.00
305	Track circuit failures – leaf fall	129	142	271	0.00
401	Bridge strikes	9,104	947	10,051	0.04
402	External infrastructure damage – vandalism/theft	13,105	2,804	15,909	0.06
403	External level crossing/road incidents (not bridges)	3,389	320	3,709	0.01
501A	Network Rail operations – signalling	10,893	2,709	13,602	0.05
501B	Network Rail operations – control	1,694	2,275	3,969	0.02
501C	Network Rail operations – railhead conditioning trains	474	124	598	0.00
501D	Network Rail operations – other	5,267	1,567	6,834	0.03
502A	Train planning	7,418	6,768	14,186	0.06
502C	Network Rail commercial: take-back/other	23,366	4,054	27,420	0.11
503	External fatalities and trespass	20,559	2,411	22,970	0.09
504	External police on line/security alerts	828	65	893	0.00
505	External fires	270	43	313	0.00
506	External other	6,646	2,918	9,564	0.04
601	Unexplained	12,229	2,476	14,705	0.06
Total		275,682	74,642	350,324	1.38
Train kilometres					25,388,390

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.

In the following tables, prior year figures have been restated for some categories, due to the introduction of a new category (106A Track Patrols & related possessions) and the revision of some other categories (105 Civil Engineering structures, earthworks & buildings, 106 Other infrastructure, 108 Mishap – infrastructure causes, 303 Telecoms failures). This has slightly affected the overall totals, as some incidents have moved between these categories and other categories not included within this set of Asset Failure categories.

Commentary

Total asset failure incidents fell by five per cent in 2008/09 and follows the improvement of eight per cent seen the previous year.

The majority of individual categories saw improvements, with the remainder seeing generally modest increases in failures. The performance of the more significant individual categories and those with significant changes are noted below.

Points failures (category 101) increased by three per cent, although this came after an improvement of 14 per cent the previous year. Over the last five years, points failures have fallen by 18 per cent. At the route level, in 2008/09, incidents rose by 10 per cent on LNW and 30 per cent in Kent reversing the improvement of the previous year in both cases. By contrast, points failures fell by 26 per cent for Midland & Continental and 22 per cent for Wessex.

The number of track-related incidents (categories 104a – c) fell by 11 per cent after a 13 per cent fall the previous year. Track incidents have fallen by one-third over the last five years. Almost one half of the improvement compared to 2007/08 was on the LNW Route where incidents fell by 25 per cent, while Western also contributed a large share of the improvement with a 35 per cent improvement.

Track circuit failures improved by one per cent, while signal failures were unchanged. This consolidates the significant improvements seen in both categories in the previous year.

The number of signalling system and power supply failures fell by five per cent, while the number of cable faults improved by 14 per cent.

Traction power supply incidents (overhead line/third rail faults) rose by one per cent. However this followed a significant improvement in the previous year, and remains 10 per cent better than the average of the previous five years. After a large improvement the previous year, the number of incidents rose by seven per cent on LNW Route.

Incident numbers for 'Other infrastructure' (category 106), when considered alongside 'Mishap – infrastructure causes' (category 108) and 'Track Patrols & related possessions' (category 106A), improved by eight per cent in contrast to the previous three years when collectively these categories saw an increase in incidents. While the changes to these categories which occurred at the beginning of 2008/09 have been reflected back in the historic data as accurately as possible, the clarification of attribution guidance associated with the changes in category split out, means that considering the overall trends across these three categories is considered appropriate.

Bridge strike incidents causing delay fell by 19 per cent in number compared with the previous year, with significant improvements across a number of Routes, following the significant programme of prevention and mitigation measures in recent years.

Network-wide totals

Table 1.23 Network infrastructure incidents recorded for delay attribution (number)							
No	Category	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
101	Points failures	9,802	8,769	8,717	9,079	7,828	8,048
103	Level crossing failures	2,794	2,725	2,657	2,365	2,201	2,260
104A	TSRs Due to Condition of Track	3,860	3,134	2,800	2,201	1,878	1,429
104B	Track faults (including broken rails)	7,450	5,778	6,293	7,681	6,721	6,149
104C	Rolling Contact Fatigue	219	98	71	91	74	170
105	Civil Engineering structures, earthworks & buildings	952	594	485	569	492	391
106	Other infrastructure	5,462	4,843	4,625	5,240	5,405	4,187
106A	Track Patrols & related possessions	2,012	2,462	2,616	2,639	3,144	3,365
108	Mishap – infrastructure causes	920	876	1,075	1,416	1,634	1,849
112	Fires starting on Network Rail infrastructure	513	282	314	285	230	197
201	Overhead line/third rail faults	1,475	1,616	1,493	1,706	1,358	1,370
301A	Signal failures	9,119	8,301	8,141	7,369	6,566	6,560
301B	Track Circuit failures	9,935	9,232	8,568	7,964	6,554	6,470
302A	Signalling System & Power Supply failures	3,719	3,449	3,272	3,998	3,943	3,750
302B	Other signal equipment failures	2,653	2,354	1,735	1,706	1,419	1,296
303	Telecoms failures	1,194	1,276	1,314	1,445	1,464	1,356
304	Cable faults (signalling & comms)	535	445	470	628	667	574
304A	Change of Aspects – no fault found	342	274	231	242	160	175
401	Bridge strikes	2,009	1,889	1,593	1,688	1,686	1,365
Total		64,965	58,397	56,470	58,312	53,424	50,961

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 per cent in 2003/04). By comparison in the 2007/08 and 2008/09 data, there is no material overstatement for bridge strikes.

Operating routes

Table 1.24 Western infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
101	Points failures	1,513	1,344	1,316	1,219	1,224	1,316
103	Level crossing failures	362	401	411	307	349	406
104A	TSRs Due to Condition of Track	433	233	235	389	108	11
104B	Track faults (including broken rails)	982	662	828	1,101	709	524
104C	Rolling Contact Fatigue	28	17	6	11	6	0
105	Civil Engineering structures, earthworks & buildings	182	71	91	111	104	31
106	Other infrastructure	528	562	777	834	945	755
106A	Track Patrols & related possessions	63	74	84	96	102	242
108	Mishap – infrastructure causes	99	94	72	101	99	107
112	Fires starting on Network Rail infrastructure	6	5	8	7	6	2
201	Overhead line/third rail faults	9	7	11	16	15	7
301A	Signal failures	876	876	940	752	917	1,036
301B	Track Circuit failures	1,280	1,100	1,090	952	929	849
302A	Signalling System & Power Supply failures	440	344	357	518	368	280
302B	Other signal equipment failures	533	404	316	383	267	255
303	Telecoms failures	216	266	277	341	347	248
304	Cable faults (signalling & comms)	65	60	56	79	75	25
304A	Change of Aspects – no fault found	52	42	5	43	13	19
401	Bridge strikes	305	319	282	290	239	195
Total		7,972	6,881	7,162	7,550	6,822	6,308

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

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
101	Points failures	1,387	1,217	1,285	1,190	997	1,011
103	Level crossing failures	724	696	693	680	644	596
104A	TSRs Due to Condition of Track	1,611	925	802	743	727	708
104B	Track faults (including broken rails)	1,302	1,174	1,352	1,664	1,783	1,809
104C	Rolling Contact Fatigue	73	9	3	1	4	15
105	Civil Engineering structures, earthworks & buildings	356	188	161	162	173	170
106	Other infrastructure	960	1,491	958	600	808	908
106A	Track Patrols & related possessions	42	63	52	93	222	354
108	Mishap – infrastructure causes	260	225	334	584	601	528
112	Fires starting on Network Rail infrastructure	40	18	20	33	39	27
201	Overhead line/third rail faults	287	261	234	219	200	206
301A	Signal failures	1,301	1,369	1,282	1,020	944	955
301B	Track Circuit failures	1,110	1,062	887	661	515	519
302A	Signalling System & Power Supply failures	754	555	620	908	815	920
302B	Other signal equipment failures	642	500	412	314	272	243
303	Telecoms failures	334	307	302	352	341	314
304	Cable faults (signalling & comms)	180	99	147	265	259	217
304A	Change of Aspects – no fault found	36	47	36	40	16	23
401	Bridge strikes	302	319	254	253	249	230
Total		11,701	10,525	9,834	9,782	9,609	9,753

No.	Category	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
101	Points failures	2,757	2,327	2,319	2,748	2,461	2,695
103	Level crossing failures	353	345	355	369	288	290
104A	TSRs Due to Condition of Track	830	950	839	526	458	348
104B	Track faults (including broken rails)	1,904	1,373	1,338	1,385	1,325	990
104C	Rolling Contact Fatigue	74	29	24	10	6	12
105	Civil Engineering structures, earthworks & buildings	179	140	80	75	70	40
106	Other infrastructure	1,602	1,071	877	953	897	653
106A	Track Patrols & related possessions	1,020	1,081	1,009	821	822	890
108	Mishap – infrastructure causes	364	275	308	246	295	318
112	Fires starting on Network Rail infrastructure	72	49	52	33	38	21
201	Overhead line/third rail faults	342	503	440	453	332	354
301A	Signal failures	2,501	2,157	2,199	2,103	1,982	1,989
301B	Track Circuit failures	2,806	2,686	2,672	2,784	2,391	2,522
302A	Signalling System & Power Supply failures	865	911	763	856	815	795
302B	Other signal equipment failures	460	523	330	415	306	282
303	Telecoms failures	140	148	141	168	160	126
304	Cable faults (signalling & comms)	129	112	103	62	89	97
304A	Change of Aspects – no fault found	118	101	93	58	23	26
401	Bridge strikes	529	477	388	375	423	340
Total		17,045	15,258	14,330	14,440	13,181	12,788

No.	Category	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
101	Points failures	1,048	1,071	1,066	1,261	916	898
103	Level crossing failures	231	276	231	176	153	140
104A	TSRs Due to Condition of Track	146	110	148	63	80	21
104B	Track faults (including broken rails)	417	401	453	374	346	405
104C	Rolling Contact Fatigue	15	15	5	6	3	3
105	Civil Engineering structures, earthworks & buildings	107	89	87	22	33	25
106	Other infrastructure	239	144	216	169	294	319
106A	Track Patrols & related possessions	9	14	19	9	1	6
108	Mishap – infrastructure causes	40	74	73	129	181	192
112	Fires starting on Network Rail infrastructure	0	0	1	0	7	2
201	Overhead line/third rail faults	199	212	167	167	157	162
301A	Signal failures	1,403	1,268	1,334	1,263	971	909
301B	Track Circuit failures	1,032	1,046	991	945	748	715
302A	Signalling System & Power Supply failures	320	361	336	364	386	429
302B	Other signal equipment failures	300	291	237	167	140	107
303	Telecoms failures	147	194	167	162	207	232
304	Cable faults (signalling & comms)	11	26	44	45	67	89
304A	Change of Aspects – no fault found	3	4	6	9	43	28
401	Bridge strikes	206	146	110	139	106	107
Total		5,873	5,742	5,691	5,470	4,839	4,789

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

No.	Category	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
101	Points failures	578	605	527	498	365	474
103	Level crossing failures	101	110	121	89	78	100
104A	TSRs Due to Condition of Track	0	0	0	0	0	5
104B	Track faults (including broken rails)	392	300	445	525	392	443
104C	Rolling Contact Fatigue	2	14	7	9	2	0
105	Civil Engineering structures, earthworks & buildings	18	20	7	24	48	26
106	Other infrastructure	290	231	339	344	434	75
106A	Track Patrols & related possessions	14	44	160	205	284	392
108	Mishap – infrastructure causes	22	16	12	17	55	90
112	Fires starting on Network Rail infrastructure	85	42	59	48	27	38
201	Overhead line/third rail faults	76	80	57	92	83	94
301A	Signal failures	625	483	574	447	249	320
301B	Track Circuit failures	787	647	590	595	395	431
302A	Signalling System & Power Supply failures	308	244	286	266	321	312
302B	Other signal equipment failures	149	90	87	93	78	78
303	Telecoms failures	77	61	60	83	66	64
304	Cable faults (signalling & comms)	49	54	18	34	27	30
304A	Change of Aspects – no fault found	19	21	24	12	6	22
401	Bridge strikes	131	128	116	137	140	127
Total		3,723	3,190	3,489	3,518	3,050	3,121

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

No.	Category	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
101	Points failures	629	696	827	796	634	497
103	Level crossing failures	251	235	242	203	216	225
104A	TSRs Due to Condition of Track	0	0	0	0	0	0
104B	Track faults (including broken rails)	816	498	574	1,152	708	560
104C	Rolling Contact Fatigue	2	8	9	50	46	135
105	Civil Engineering structures, earthworks & buildings	21	14	5	39	18	22
106	Other infrastructure	334	152	200	369	434	286
106A	Track Patrols & related possessions	530	458	601	777	703	580
108	Mishap – infrastructure causes	50	35	37	65	80	105
112	Fires starting on Network Rail infrastructure	183	93	68	71	42	34
201	Overhead line/third rail faults	90	102	93	104	72	72
301A	Signal failures	641	658	539	632	488	282
301B	Track Circuit failures	1,054	1,176	928	888	696	601
302A	Signalling System & Power Supply failures	233	282	222	192	242	257
302B	Other signal equipment failures	198	154	107	86	115	107
303	Telecoms failures	55	49	84	86	77	71
304	Cable faults (signalling & comms)	34	41	22	32	53	45
304A	Change of Aspects – no fault found	40	11	4	3	3	4
401	Bridge strikes	142	120	140	161	193	117
Total		5,303	4,782	4,702	5,706	4,820	4,000

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

No.	Category	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
101	Points failures	512	411	299	342	420	474
103	Level crossing failures	161	131	111	112	90	118
104A	TSRs Due to Condition of Track	1	10	2	0	0	0
104B	Track faults (including broken rails)	178	145	193	251	322	295
104C	Rolling Contact Fatigue	0	2	10	4	5	0
105	Civil Engineering structures, earthworks & buildings	13	5	1	88	12	20
106	Other infrastructure	152	151	241	406	385	355
106A	Track Patrols & related possessions	4	15	17	79	153	195
108	Mishap – infrastructure causes	23	35	89	77	87	78
112	Fires starting on Network Rail infrastructure	94	64	67	52	24	33
201	Overhead line/third rail faults	54	57	113	128	66	43
301A	Signal failures	506	471	324	295	312	454
301B	Track Circuit failures	478	397	394	325	293	339
302A	Signalling System & Power Supply failures	200	162	204	233	243	122
302B	Other signal equipment failures	50	80	68	53	64	55
303	Telecoms failures	39	43	90	53	60	76
304	Cable faults (signalling & comms)	23	17	40	39	32	16
304A	Change of Aspects – no fault found	15	14	13	37	19	1
401	Bridge strikes	175	100	74	73	70	48
Total		2,678	2,310	2,350	2,647	2,657	2,722

Table 1.31 Anglia infrastructure incidents recorded for delay attribution (number)

No	Category	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
101	Points failures	728	618	622	636	521	469
103	Level crossing failures	436	403	347	302	271	308
104A	TSRs Due to Condition of Track	332	305	222	85	197	158
104B	Track faults (including broken rails)	850	665	630	663	573	635
104C	Rolling Contact Fatigue	12	4	3	0	2	0
105	Civil Engineering structures, earthworks & buildings	40	26	30	38	31	48
106	Other infrastructure	441	430	542	674	665	504
106A	Track Patrols & related possessions	33	187	245	258	330	405
108	Mishap – infrastructure causes	33	75	109	113	146	296
112	Fires starting on Network Rail infrastructure	23	9	35	37	41	34
201	Overhead line/third rail faults	363	294	288	414	365	360
301A	Signal failures	776	569	589	504	448	418
301B	Track Circuit failures	921	797	664	570	396	329
302A	Signalling System & Power Supply failures	317	381	265	342	386	384
302B	Other signal equipment failures	144	141	92	104	90	72
303	Telecoms failures	156	148	151	155	135	163
304	Cable faults (signalling & comms)	21	21	16	15	27	24
304A	Change of Aspects – no fault found	48	21	42	33	30	37
401	Bridge strikes	133	142	140	147	150	95
Total		5,807	5,236	5,032	5,090	4,804	4,739

Table 1.32 Midland & Continental infrastructure incidents recorded for delay attribution (number)

No.	Category	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
101	Points failures	650	480	456	389	290	214
103	Level crossing failures	175	128	146	127	112	77
104A	TSRs Due to Condition of Track	507	601	552	395	308	178
104B	Track faults (including broken rails)	609	560	480	566	563	488
104C	Rolling Contact Fatigue	13	0	4	0	0	5
105	Civil Engineering structures, earthworks & buildings	36	41	23	10	3	9
106	Other infrastructure	916	611	475	891	543	332
106A	Track Patrols & related possessions	297	526	429	301	527	301
108	Mishap – infrastructure causes	29	47	41	84	90	135
112	Fires starting on Network Rail infrastructure	10	2	4	4	6	6
201	Overhead line/third rail faults	55	100	90	113	68	72
301A	Signal failures	490	450	360	353	255	197
301B	Track Circuit failures	467	321	352	244	191	165
302A	Signalling System & Power Supply failures	282	209	219	319	367	251
302B	Other signal equipment failures	177	171	86	91	87	97
303	Telecoms failures	30	60	42	45	71	62
304	Cable faults (signalling & comms)	23	15	24	57	38	31
304A	Change of Aspects – no fault found	11	13	8	7	7	15
401	Bridge strikes	86	138	89	113	116	106
Total		4,863	4,473	3,880	4,109	3,642	2,741

Cancellations and Significant Lateness (CaSL)

CaSL is a new regulatory output measure in CP4, and is included in the annual return for the first time, to show our performance at the end of CP3.

Definition

CaSL is defined as the number and percentage of passenger trains (franchised and open access operators) which are cancelled in part or full, or which arrive at their final destination 30 or more minutes later than the time shown in the public timetable.

The Period 13 MAA figure for England & Wales in 2007/08 was 2.79 per cent.

Table 1.33 Cancellations and significant lateness (CaSL)

Industry sector	P1 08/09	P2 08/09	P3 08/09	P4 08/09	P5 08/09	P6 08/09	P7 08/09	P8 08/09	P9 08/09	P10 08/09	P11 08/09	P12 08/09	P13 08/09	Annual total
CaSL – Count of Instances														
London & Southeast	4,803	5,888	6,864	5,308	4,908	4,058	4,843	6,015	7,841	5,563	6,685	20,452	5,683	88,911
Long distance	1,519	1,916	2,057	2,184	2,317	1,719	1,445	2,209	2,125	2,320	2,272	2,574	1,720	26,376
Regional	2,499	3,379	3,849	3,145	3,970	4,053	3,662	4,395	5,404	5,398	3,169	3,386	2,999	49,308
England & Wales	8,821	11,183	12,770	10,637	11,195	9,380	9,950	12,619	15,370	13,281	12,126	26,412	10,402	164,596
CaSL – Period Result (%)*														
London & Southeast	1.84	2.15	2.49	1.92	1.76	1.47	1.74	2.15	2.82	2.23	2.38	7.38	1.84	–
Long distance	4.29	5.11	5.44	5.73	6.04	4.55	3.74	5.72	5.49	6.40	5.38	6.24	3.77	–
Regional	1.85	2.35	2.67	2.16	2.73	2.79	2.54	3.09	3.81	4.14	2.17	2.34	1.86	–
England & Wales	2.04	2.45	2.79	2.31	2.42	2.15	2.16	2.74	3.35	3.20	2.59	5.70	2.02	–
CaSL – MAA Result (%)*														
London & Southeast	2.26	2.25	2.30	2.22	2.21	2.19	2.15	2.13	2.13	2.09	2.09	2.51	2.47	–
Long distance	5.79	5.85	5.77	5.43	5.43	5.43	5.33	5.35	5.32	5.34	5.30	5.34	5.21	–
Regional	2.92	2.91	2.85	2.66	2.68	2.70	2.71	2.70	2.77	2.80	2.72	2.70	2.64	–
England & Wales	2.76	2.75	2.76	2.62	2.62	2.62	2.59	2.58	2.60	2.59	2.56	2.81	2.76	–

* Expressed as percentage of trains planned.

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 fifth 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 focus changing over years reflecting changing ambitions for the industry.

Specifically for the JPIP for 2009/10, the development process has taken place at the same time as work to complete the performance delivery plan for CP4 (CP4 PDP) and the underlying operator by operator long term performance plans (LTTPs).

This section highlights progress made during 2008/09, including links to the related CP4 PDP work where relevant.

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 2008 commented in specific steps made during 2007/08 in part driven by a major review of the JPP following problems efficiently delivering the 2007/08 JPIPs, which were implemented during the development period for the 2008/09 JPIPs.

As a bespoke process, the JPP has simply evolved in 2008/09.

The major and new influence on the process has been the integration of the process with the work to develop the CP4 PDP and especially the LTTPs.

In itself the objective for the CP4 PDP was to document Network Rail's plan to cost effectively deliver the outputs identified in the High Level Output Specification (HLOS) and related documents with the objective for the LTTPs being to what output was expected by operator. The CP4 PDP and LTTPs were developed throughout most of the course of 2008/09, with JPIPs for 2009/10 then being developed from a base of year one of the 5 year LTTP. The JPIPs for 2009/10 include reference to the new outputs as required to be delivered in CP4.

Recommendations from the 2008 Annual Return

One recommendation and one observation were included in the reporters' review of the 2008 Annual Return. These are as below, in table 45, with commentary provided about progress against them.

Further action against these outputs will continue as continuous improvement within the overall arrangements for performance planning and management.

Outputs

The JPP document deliverables in 2008/09 is in general terms:

- Completion of the CP4 PDP and underlying LTTPs*;
- Delivered a JPIP target for 2009/10 of 91.3 per cent (0.3 per cent higher than the required CP4 output);
- Widened and extended the planning horizon to the end of CP4 thus creating a benchmark for future longer term planning;
- Further widened the focus on train performance planning across Network Rail functions;
- Consolidated cross industry focus, most easily visible through Network Rail's CP4 outputs being defined in terms of PPM and CaSL.

* With the exception of Virgin who have formally complained to ORR in respect of both current performance and the long term improvement plan

Review of outputs

The fundamental challenge was in melding the objectives of the PDP/LTPPs and JPIPs together with other ambitions. In principle, both plans seek to identify plans for improvement to train operation leading to agreed outputs for delay reduction and punctuality. The challenge arose from two key sources:

- The differing contractual framework for each document/process (including impacts on operator's franchise with DfT);
- Different practical foci for the plans:
 - CP4 PDP/LTPPs – plans to deliver cost effective improvement towards outputs defined elsewhere.
 - JPIPs – agreement of outputs given defined/agreed inputs.

In some cases the PDP/LTPP development process and JPP provided additional challenge to planning activities creating added value in outputs (e.g. LTPPs widened focus on wider asset management etc than previous performance

improvement plans; JPIP challenge processes produced extra challenge to the quality of the LTPPs), in others the differences disrupted the flow of performance improvement planning.

In overall terms, there is clear scope to deliver a higher quality product during the 2010/11.

Next steps

In line with expectations for a continuously improving process with a planned annual review, improvement opportunities have been identified in the process (see below).

In accordance with normal JPP activity, a lessons learning workstream has already started. The workstream will span across the whole of the performance planning process, with particular focus on the interface between JPIPs and longer term planning. The output from the workstream will be mixed with results from normal performance process assessments (e.g. FRA) with the key ambition being to deliver a more integrated process next year.

Focus	Progress
<p>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.</p>	<p>This link has been strengthened in a number of ways during 2008/09:</p> <ul style="list-style-type: none"> • Work developing the CP4 performance delivery plan and associated LTPPs • Completion of the Network Rail Performance Improvement Process including proposals to strengthen the link this process and infrastructure related processes (e.g. GRIP) • Work to more effectively set and monitor targets for delivery from asset management (e.g. through Network Rail's KPI suite)
<p>JPP observation 1. The success of Network Rail in delivering the JPP relies not just on its own efforts but also the willingness of Train Operating Companies to participate constructively in the process. This is particularly difficult where the objectives of companies are misaligned. This can happen where, for example, the performance targets of a particular franchise agreed between a TOC and the DfT are not in line with Network Rail's own Route targets as outlined in its business plan, or where Network Rail is attempting to juggle the aspirations of a number of different operators with different service characteristics and different performance targets. The delivery of improvements has to be a joint process, with all parties equally committed to a common goal. Without stakeholder support in this, it can be difficult for Network Rail to deliver the outcomes that others desire.</p>	<p>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.</p> <p>All of the above activity has taken place in arenas with ORR engagement and with wider recognition that further delivery will take some time.</p>

Other operators

All substantive operators have the option to move to a JPIP approach under Condition LA. At an overall level, there has been a small evolution towards a JPIP style approach, in part through inclusion of open access operators in outputs for delay reduction, PPM and CaSL. In the lead, a performance improvement plan in the form of a lite LTP /JPIP has been agreed with Heathrow Express.

Below is a list of TOCs with JPIPs, and commentary on the practical position of joint planning with 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	
CrossCountry	Franchised	LNW	
c2c Rail	Franchised	Anglia	
East Midlands Trains	Franchised	LNE	
First Capital Connect	Franchised	LNE	
First Great Western	Franchised	Western	
First ScotRail	Franchised	Scotland	
London Midland	Franchised	LNW	
London Overground	Franchised	Anglia	
Merseyrail	Franchised	LNW	
Northern Rail	Franchised	LNE	
National Express East Anglia	Franchised	Anglia	
National Express East Coast	Franchised	LNE	
Southeastern	Franchised	Kent	Related plans in development for the start of operations on HS1 from December 2009
Southern (inc. Gatwick Express)	Franchised	Sussex	
Stagecoach South Western	Franchised	Wessex	
Chiltern Railways	Franchised	LNW	
First Transpennine Express	Franchised	LNE	
Virgin Trains	Franchised	LNW	Have formally complained to ORR in respect of performance delivery and plans
Other Operators			
Eurostar (UK)	Open	Kent	Only operates on about 1 mile of historic network, special arrangements apply on HS1
Heathrow Express	Open	Western	Effective joint plan agreed
Hull Trains	Open	LNE	Remaining on LOC approach
Nexus	Open	LNE	
Grand Central	Open	LNE	Continued LOC approach
Wrexham, Shropshire and Marylebone Railway	Open	LNW	Declined to require a LOC
Freight operators	Freight	HQ	Some joint planning as part of wider ambition for performance improvement including work on CP4; agreement of a new definition for the Freight performance measure (FPM) based on a simple test of 0-10 minutes lateness at destination; further focus on velocity

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 2008 and represents changes in customers' perceptions (based on interviews with 254 senior managers) in the twelve months since the last survey. Perceptions of customers' relationship with Network Rail are measured using a five 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.

Analysis of the results indicates that the perceptions of advocacy by TOCs has declined whilst that of the FOCs has improved since the previous survey was completed. Overall perceptions for the TOC community dipped from -0.21 to -0.25. Freight customer perceptions saw an increase, from a score of -0.85 in Autumn 2007 to -0.57 in Autumn 2008.

There are improvements this time in terms of Network Rail being seen as valuing the relationship with customers, understanding their customers' needs and delivering on its promises. However, there has been a decline in customers' perceptions of Network Rail delivering in a timely manner, 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.

Table 1.35 Customer satisfaction – passenger operators

Unit of measure		Autumn 2006	Autumn 2007	Autumn 2008	Variance 07-08
Customer satisfaction	Index -2 to 2	-0.14	-0.21	-0.25	-0.04

Table 1.36 Customer satisfaction – freight operators

Unit of measure		Autumn 2006	Autumn 2007	Autumn 2008	Variance 07-08
Customer satisfaction	Index -2 to 2	0.00	-0.85	-0.57	+0.28

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 slight drop in satisfaction levels amongst the supplier base. The main reasons for this decline are a mix of short-term and strategic concerns. Suppliers say that they would speak more highly of Network Rail if there were better levels of collaboration, better long-term planning and if Network Rail behaved as a more integrated and consistent organisation, both across business units and from top to bottom. Suppliers feel that senior management understand and are communicating the correct strategic direction but that there is still a long way to go to deliver this strategy.

Network Rail recognises that the issues raised in the survey are real and plans are already in place to improve the quality of engagement with the supply chain. In the past year, we have rolled out:

- The Supply Chain Charter which reflects our values and is a commitment to creating professional and mutually beneficial relationships by being flexible, innovative, transparent and decisive.

- 360 degree performance feedback process to enable Network Rail and its suppliers to jointly understand areas of strong and poor performance and find areas for focus in driving delivery improvements and sharing best practice.
- Supplier Account Management (SAM) meetings as an effective forum for engaging with suppliers on issues arising from feedback and further developing relationships. Network Rail is currently developing formal relationships with c.80 key suppliers.
- A tender evaluation tool is now available to improve and standardise the adjudication of tenders and the associated information required from suppliers.
- Supplier Qualification and Assurance processes have been rationalised and integrated to reduce the associated administrative burden on suppliers. Industry collaboration on supplier assurance continues with fellow Railway Group Members and key suppliers.

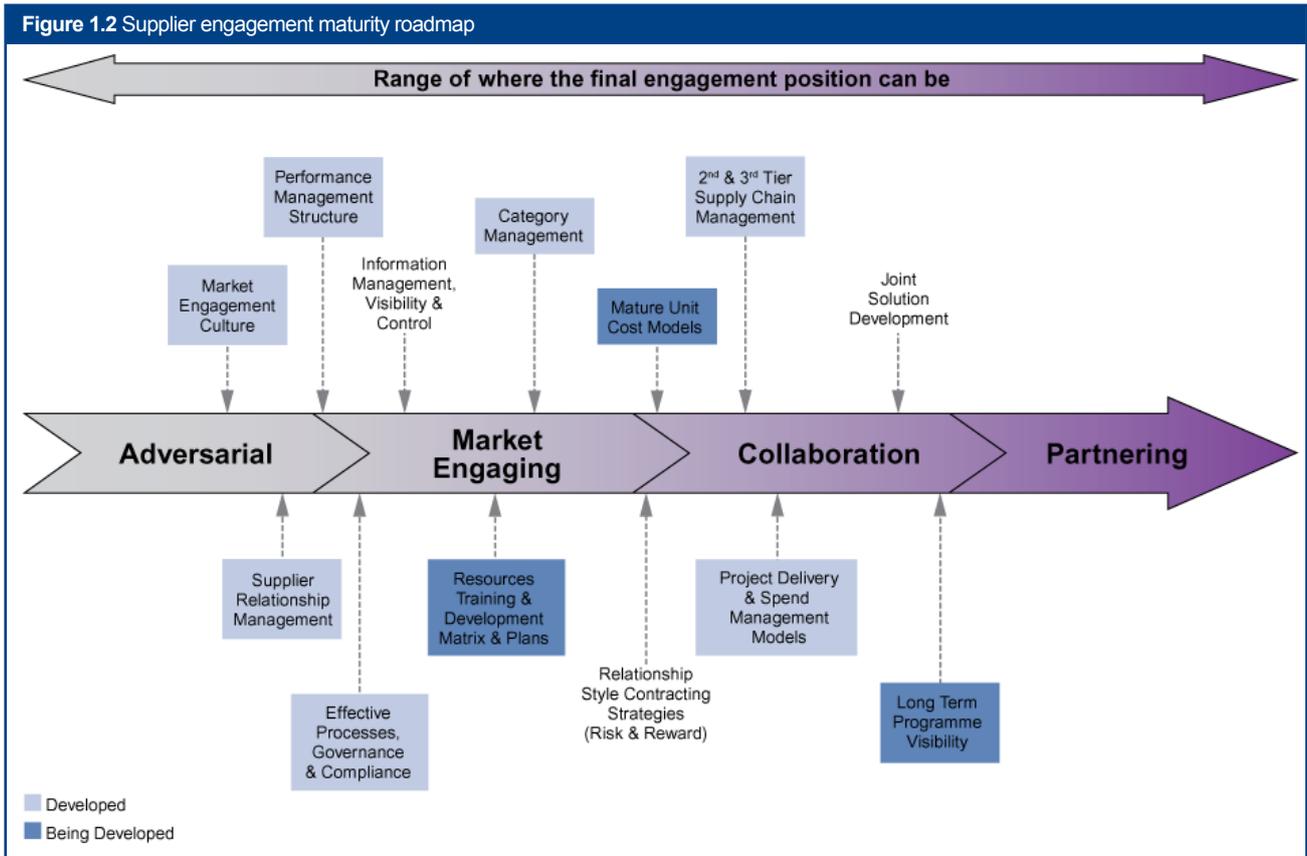
In addition to increased engagement with individual suppliers there has been frequent and successful engagement with the Railway Industry Association (RIA) and Civil Engineering Contractors Association (CECA). Together we have built a Supply Chain Management Maturity Model which defines how to develop mutually beneficial relationships across the supply base.

Many of the step changes required to improve maturity will be undertaken within the Transformation Programme, consisting of over 40 cross-functional projects. These projects will seek to improve interaction with the supply chain and will require significant input from suppliers.

The overall programme for engagement with our supply chain is summarised in Figure 1.2.

Table 1.37 Supplier satisfaction

Unit of measure		Autumn 2006	Autumn 2007	Autumn 2008	Variance 07-08
Customer satisfaction	Index -2 to 2	-0.14	-0.21	-0.25	-0.04



Route Utilisation Strategies (RUSs)

Network Rail continues to develop RUSs in accordance with its obligations under Licence Condition 1, 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 1.24 of Licence Condition 1, that is, 'the effective and efficient use and development of the capacity available on the network, 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 section 1.16 of Licence Condition 1, 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.

This programme is reviewed biannually and any revisions are endorsed by Rail Industry Planning Group before being submitted to ORR for approval.

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 (WSG) meetings at intervals throughout the development of each RUS has continued, including 'Baseline Roadshows', in which the baseline data is exhibited for explanation and discussion.

We have also continued the local and regional government conferences, held six-monthly in Birmingham.

Programme and progress

The position at the end of 2008/09 was:

Table 1.38 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	Established
South London RUS	Established
Yorkshire and Humberside RUS	Further work following consultation
Lancashire and Cumbria RUS	Established
Wales RUS	Established
Network RUS	In process
Merseyside RUS	Published, awaiting establishment
East Midlands RUS	In process
Great Western RUS	In process
Kent RUS	In process
Sussex RUS	In process
West Midlands and Chilterns RUS	In process
West Coast Main Line RUS	In process

Key regulatory issues arising in 2008/09

Improving project delivery

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 customers. These overruns were highlighted in 2007/08 Annual Return.

As a result of these overruns, ORR imposed a 'final order' on Network Rail requiring it 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 would be undertaken in an efficient and economic manner and in accordance with best practice. Our final plan for improving project delivery (which was produced following consultation with industry stakeholders) was delivered to ORR on 27 June 2008 and during the course of 2008/09 Network Rail has worked to implement this plan. In accordance with the requirements of the final order Network Rail delivered a report to ORR on 27 December 2008, describing how during the course of 2008, it had implemented (to the greatest extent reasonably practicable) its plan for improving project delivery.

The implementation of our plan has brought about significant change to the way in which we manage engineering projects within possessions. We have critically reviewed how we go about undertaking work within possessions and have asked tough questions of ourselves. As a result of this review we have made important changes to the way in which we undertake engineering works so as to mitigate the impact of these works on our customers. These changes can be summarised under four key headings, as follows:

Risk management

We have developed a range of new tools to better assess site complexity. These tools focus on three specific issues:

- the risk associated with the work site;
- the profile of the site's position on the network; and
- the impact that potential overruns at the site would have on the broader operational railway.

All work sites are now assessed for complexity at a prescribed time in the project lifecycle using a defined process. The resultant complexity index is then used to determine the level of contingency planning required as well as the requirement for readiness reviews, peer reviews and Quantified Scheduled Risk Assessment (QSRAs). The complexity index will also influence the allocation of

construction management employees to sites – with more experienced managers being allocated to more complex sites.

Site management

As part of our review of site management, we have focused on two specific issues. First, we have created a national construction management controlled list which contains all construction management resources. This list is then used to allocate appropriately experienced resources to work sites on a prioritised basis. This list will also be used to define future training and development needs for construction management employees to ensure that the competence levels of our site managers are closely monitored and we continue to raise levels of core expertise. Secondly, we have developed a number of site progress reporting tools which, once configured for an individual work site, will enable Network Rail to forecast milestone completion times more accurately – thus enabling us to be able to report more accurately to our customers as regards progress on site.

Supplier Management

Historically, Network Rail has used a variety of approaches to engage with its suppliers. This has, on occasion, led to confusion and has constrained our ability to develop positive, long term relationships with our supply base.

During 2008/09 we have defined a consistent strategy for engaging with our supply base. We have developed a model for assessing risk/reward with Asset and Category commercial strategies which will provide a consistency of approach across Network Rail. We have also developed a suite of template documents for use in approving Invitations to Tender and contract awards as well as developing a more streamlined process for evaluation of tenders.

Importantly, we have also established a national controlled list of critical resources – both plant and people. This list will be used to monitor both supply and demand information. As a result, for future projects where overall demand approaches the limits of the industry's capability to supply, resources will be prioritised and assigned to projects on a named basis, hence mitigating the risk of demand for a particular resource at any given time being over subscribed. This addresses a significant problem experienced at Rugby in January 2008.

Communication

Effective communication is critical to the delivery of all of the changes that we are making to the way in which we manage engineering projects which require possessions. Effective communication is particularly important if projects fall behind schedule

or if unforeseen issues cause risk of an engineering overrun. In the past notification of overruns has often come too late in the day to enable effective contingency plans to be put in place. Through the improvements we have made in relation to measuring and reporting progress on site, and through the identification of named contact points, we believe that we are now well equipped to be able to deliver timely communication about site progress both within Network Rail, and to our customers and our stakeholders.

Our improved processes also address more thoroughly the importance of providing information concerning possessions to our stakeholders and passengers in the lead up to major possessions.

During the implementation of our plan we have worked closely with both ORR and the independent reporter. During February and March 2009, the independent reporter undertook a formal audit of a number of planned engineering possessions to inform a conclusion as to whether there was sufficient evidence to show that Network Rail's plan had been implemented. In April 2009, the independent reporter recommended to ORR that Network Rail had complied with the requirements of the final order. In May 2009 ORR confirmed that Network Rail had satisfied the requirements of the final order.

West Coast Main Line

On 28 February 2008 and as a result of the overrunning engineering works at Rugby on the West Coast Main Line (WCML), ORR issued a 'provisional order' requiring Network Rail to produce a plan setting out how the West Coast Route Modernisation programme would be completed. Network Rail delivered its West Coast Route Modernisation Delivery Plan to ORR on 31 March 2008 and on 2 May 2008 ORR confirmed that Network Rail had satisfied the requirements of the provisional order in that it had produced an acceptable plan for completing the remaining upgrade works.

In accordance with our plan, the WCML upgrade was successfully completed on 7 December 2008 and on 14 December 2009 a new railway timetable was introduced, heralding a step-change in the

frequency and speed of train services. The table below shows examples of improvement to journey times on the WCML following completion of the works.

Since the completion of the West Coast Main Line upgrade, performance on the route has been disappointing. In light of this and in conjunction with our customers, Network Rail has developed a plan to drive up performance. We are investing up to £50 million to achieve this, with the money being spent on more people, more equipment and faster renewal of less reliable components along the route.

In early January 2009 services operating on the WCML were severely disrupted following a number of significant, but unrelated incidents. This included a light aircraft crashing onto the railway at Colwich and a major dewirement at Watford Junction. These incidents were not linked to the completion of the WCML upgrade, nor were they as a result of timetable changes.

Glasgow Central interlocking renewal

In December 2008, Network Rail completed the Glasgow Central Interlocking Renewals (GCIR) project. This was a £93m project consisting of the re-locking of Glasgow Central and Cook Street areas and the re-control of 8 remote interlockings at Polmadie, Rutherglen, Muirhouse, Corkerhill, Shields, Cardonald, Busby Junction and Busby Station to the existing layout and track model, within the Glasgow Central operating area. The project also delivered the transfer of operational control from Glasgow Central Signalling Centre (GCSC) to the new West Scotland Signalling Centre (WSSC) in Cowairs.

However, immediately following the completion of the commissioning, a number of performance issues were experienced which caused significant disruption to train services in the Glasgow area. As a result of this disruption, Network Rail missed its Joint Performance Improvement Plan performance target in 2008/09. In the period from January 2009 – March 2009, Network Rail took a number of actions to address the underlying causes of this disruption and a PPM of in excess of 90 per cent is now consistently being achieved.

Table 1.39 West Coast Main Line improvements

London Euston to:	2003:	December 2008:	Maximum journey time improvement
Birmingham New Street	1hr 43	1hr 22	21 mins
Manchester	2hr 41	2 hr 07	34 mins
Liverpool	2hr 53	2hr 08	45 mins
Glasgow (fast)	5hr 06	4hr 31	35 mins

Western performance

During 2008/09, ORR continued to closely monitor performance on the Western route following a period of poor performance. In 2008/09 Western performance has improved significantly. PPM in 2008/09 was 93.9 per cent and the MAA of 90.5 per cent at the end of the year was well ahead of the trajectory in the agreed joint performance improvement plan.

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 light of changes that were made to our network licence on 1 April 2009, Network Rail is intending review the terms of our Code of Practice during 2009/10 and will update it and modify it as necessary.

Section 2 – Network capability, traffic and possessions

Introduction

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

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 GEOFIS 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 encompasses:

- the verification of capability as published in the Sectional Appendix;
- the resolution of any identified discrepancies; improvement to the accessibility of capability information through publication of the National Electronic Sectional Appendix (NESA), and
- improved management processes so as to prevent the emergence of further discrepancies in the future.

The key forward milestones see completion of the publication of measures in the NESA and the development of improved management processes by the end of 2009 and the resolution of discrepancies by the end of January 2010.

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 (km of track in each speed band)

Speed band (mph)	March 2004	March 2005	March 2006	March 2007	March 2008	March 2009
Up to 35	5,570	4,163	3,821	3,787	3,783	3,763
40-75	16,585	16,927	16,895	16,856	16,890	16,836
80-105	6,994	7,650	7,482	7,488	7,450	7,478
110-125	2,415	2,741	2,907	2,932	2,959	3,042
Over 125	0	0	0	0	0	0
Total	31,564	31,482	31,105	31,063	31,082	31,119

Table 2.2 Linespeed capability by operating route (track km)

Speed band (mph)	Up to 35	40-75	80-105	110-125	Over 125	Total
Operating routes						
London North Eastern	726	3,211	830	932	0	5,699
Midland & Continental	198	709	528	316	0	1,751
London North Western	961	3,961	1,101	1,081	0	7,104
Anglia	265	1,397	626	0	0	2,288
Kent	193	1,036	534	0	0	1,763
Sussex	114	756	257	0	0	1,127
Wessex	171	1,031	881	0	0	2,083
Western	671	2,339	1,622	492	0	5,124
England & Wales	3,299	14,440	6,379	2,821	0	26,939
Scotland	464	2,396	1,099	221	0	4,180
Network total	3,763	16,836	7,478	3,042	0	31,119

Table 2.3 Linespeed change: increases

Operating route	Area	ELR	Track	Start mileage	Length (miles, yds)	Old speed band	New speed band
EAN	AN	BOK1	1102	2.0616	0.0264	0-35	40-75
EAN	AN	BOK5	1100	2.1452	0.0905	0-35	40-75
EAN	AN	FED	3100	83.1232	0.0748	new	0-35
EAN	AN	FED	3100	84.0220	0.1375	new	40-75
EAN	AN	FED	3301	84.1595	0.0635	new	0-35
EAN	AN	FED	3302	84.1595	0.0635	new	0-35
EAN	AN	HPW	3100	0.0308	0.0242	new	0-35
EAN	AN	LTN1	2150	51.1419	0.0206	new	40-75
EAN	AN	LTN1	1802	69.0016	0.0711	new	0-35
EAN	AN	LTN1	1803	69.0073	0.0689	new	0-35
EAN	AN	LTN1	1303	69.0277	0.0367	new	0-35
KNT	KE	ACR	2803	85.1172	0.0324	new	0-35
KNT	KE	ACR	2804	85.1183	0.0313	new	0-35
KNT	KE	ACR	2805	85.1202	0.0294	new	0-35
KNT	KE	ACR	2801	85.1210	0.0286	new	0-35
KNT	KE	ACR	2806	85.1213	0.0283	new	0-35
KNT	KE	ACR	2802	85.1234	0.0262	new	0-35
KNT	KE	BBJ	3600	11.1100	0.0308	0-35	40-75
KNT	KE	BTH1	1100	3.0880	0.0220	0-35	40-75
KNT	KE	BTH1	2100	3.0880	0.0220	0-35	40-75
KNT	KE	FDM	2100	71.1452	1.0484	40-75	80-105
KNT	KE	HHH	2802	0.1004	0.0219	new	0-35
KNT	KE	XTD	1200	34.1318	0.0453	0-35	40-75
LNE	GN	SPD3	2100	82.0506	0.1144	0-35	40-75
LNE	GN	SPD3	3503	82.0694	0.0374	new	0-35
LNE	GN	SPD3	3504	82.0701	0.0346	new	0-35
LNE	GN	SPD3	3505	82.0748	0.0330	new	0-35
LNE	GN	SPD3	1200	82.1315	0.0423	new	0-35
LNE	GN	SPD3	2200	82.1336	0.1013	new	0-35
LNE	GN	SPD3	1200	82.1738	0.0650	new	40-75
LNE	GN	SPD3	1100	83.0440	0.0242	0-35	40-75
LNE	GN	SPD3	2100	83.0440	0.0242	0-35	40-75
LNW	CE	CGJ1	2100	170.0752	1.1580	0-35	110-125
LNW	CE	CMP1	1100	162.1386	13.1254	80-105	110-125
LNW	CE	CMP1	2100	162.1452	13.0638	80-105	110-125
LNW	CE	CMP1	1100	177.0198	2.1562	80-105	110-125
LNW	CE	SBH3	1100	12.0528	0.0572	0-35	40-75
LNW	CE	SBH3	2100	12.0528	0.0550	0-35	40-75
LNW	LC	BBB	3400	20.0975	2.1665	0-35	40-75
LNW	LC	CGJ7	1500	56.0506	0.0270	0-35	40-75
LNW	LC	DJH	1100	11.0740	1.1060	0-35	40-75
LNW	WM	BAG2	1100	46.1146	1.0130	40-75	80-105
LNW	WM	BAG2	2100	46.1146	1.0130	40-75	80-105
LNW	WM	BCV	1100	125.1113	0.0207	new	80-105
LNW	WM	BEA	3400	52.0248	1.0192	0-35	40-75
LNW	WM	NAJ2	1100	24.0959	0.0361	40-75	80-105
LNW	WM	RBS1	1100	102.0330	2.0110	80-105	110-125
LNW	WM	RBS1	2100	102.0440	1.0000	80-105	110-125
LNW	WM	TSB	1100	-0.0230	0.0248	new	40-75
LNW	WS	CMD1	1100	15.1210	0.0550	80-105	110-125

Table 2.3 Linespeed change: increases (continued)

Operating route	Area	ELR	Track	Start mileage	Length (miles, yds)	Old speed band	New speed band
LNW	WS	CMD2	1100	15.1441	2.0451	80-105	110-125
LNW	WS	CMD2	2100	18.1166	0.1276	40-75	80-105
LNW	WS	CWJ	3602	5.0644	0.0240	new	0-35
LNW	WS	HNR	2100	84.0562	0.0418	new	40-75
LNW	WS	HNR	2101	84.0562	0.0418	new	40-75
LNW	WS	HNR	1100	84.0766	0.0214	new	40-75
LNW	WS	LEC1	1100	4.0726	0.0594	80-105	110-125
LNW	WS	LEC1	2101	48.1700	1.0257	new	40-75
LNW	WS	LEC1	1201	49.1175	0.0654	new	40-75
LNW	WS	LEC1	1200	51.0440	1.0000	40-75	80-105
LNW	WS	LEC1	1100	81.1100	0.0652	40-75	110-125
LNW	WS	LEC1	1100	81.1752	1.0503	new	110-125
LNW	WS	LEC1	2100	82.0000	1.0495	new	110-125
LNW	WS	LEC1	1200	82.0328	0.0268	new	40-75
LNW	WS	LEC1	2101	82.0328	1.0167	new	40-75
LNW	WS	LEC1	2200	82.0328	0.1718	new	40-75
LNW	WS	LEC1	3603	82.0328	0.0372	new	0-35
LNW	WS	LEC1	1101	82.0341	0.1035	new	40-75
LNW	WS	LEC1	3890	82.0373	0.0327	new	0-35
LNW	WS	LEC1	1702	82.0431	0.0201	new	40-75
LNW	WS	LEC1	1200	82.0596	0.0526	0-35	40-75
LNW	WS	LEC1	1390	82.1051	0.0577	new	0-35
LNW	WS	LEC1	1590	82.1112	0.0471	new	0-35
LNW	WS	LEC1	1101	82.1558	0.0697	new	40-75
LNW	WS	LEC1	1722	82.1583	0.0221	new	40-75
LNW	WS	LEC1	1590	82.1628	0.0295	new	0-35
LNW	WS	LEC1	1724	82.1628	0.0286	new	40-75
LNW	WS	LEC1	1390	82.1742	0.0336	new	0-35
LNW	WS	LEC1	2200	83.0286	0.0209	new	80-105
LNW	WS	LEC2	2100	83.0495	1.0255	new	110-125
LNW	WS	LEC2	2200	83.0495	4.0759	new	80-105
LNW	WS	LEC2	1100	83.0600	0.1226	40-75	110-125
LNW	WS	LEC2	2200	87.1254	0.0346	new	40-75
LNW	WS	LEC2	1701	95.1528	0.0233	new	40-75
LNW	WS	LEC2	2100	96.0704	1.0616	80-105	110-125
LNW	WS	LEC2	1100	96.1144	1.0176	80-105	110-125
LNW	WS	LEC2	3703	96.1145	0.0247	new	40-75
LNW	WS	LEC2	3201	96.1695	0.0705	new	40-75
LNW	WS	LEC2	1200	108.1619	1.0417	40-75	80-105
LNW	WS	LEC2	2200	109.1078	0.0958	40-75	110-125
LNW	WS	LEC2	1100	109.1100	0.1500	80-105	110-125
LNW	WS	LEC2	2100	109.1606	0.0814	80-105	110-125
LNW	WS	LEC2	1200	110.1178	0.0802	new	80-105
LNW	WS	LEC2	2200	110.1178	5.0736	new	110-125
LNW	WS	LEC2	1200	111.0220	4.1759	new	110-125
LNW	WS	LEC2	2200	116.0154	0.0969	40-75	110-125
LNW	WS	LEC2	1200	116.0219	0.0849	0-35	110-125
LNW	WS	LEC2	1200	116.1068	4.1373	new	110-125
LNW	WS	LEC2	2200	116.1123	4.1757	new	110-125
LNW	WS	LEC2	1100	132.0770	0.1100	40-75	80-105

Table 2.3 Linespeed change: increases (continued)

Operating route	Area	ELR	Track	Start mileage	Length (miles. yds)	Old speed band	New speed band
LNW	WS	LEC2	2100	132.0770	0.1100	40-75	80-105
LNW	WS	LEC3	2100	133.0110	0.0638	40-75	80-105
LNW	WS	RBS1	2101	83.0495	0.0409	new	40-75
LNW	WS	RBS1	2100	83.0613	0.1667	new	110-125
LNW	WS	RBS1	1100	83.1518	0.0242	40-75	110-125
MAC	EM	SPC9	2300	142.0211	1.0339	40-75	80-105
MAC	EM	SPC9	1300	142.0264	0.0264	40-75	80-105
MAC	EM	SPC9	1300	143.0220	0.0550	0-35	40-75
MAC	EM	SPC9	2300	143.0550	0.1650	0-35	80-105
MAC	EM	SPC9	2300	144.0440	0.1056	40-75	80-105
MAC	EM	SPC9	1100	144.1496	1.0264	new	80-105
MAC	EM	SPC9	1300	144.1496	1.0264	new	40-75
MAC	EM	SPC9	2100	144.1496	1.0264	new	80-105
MAC	EM	SPC9	2300	144.1496	0.0418	new	80-105
MAC	EM	SPC9	2300	145.0154	0.1606	new	40-75
MAC	EM	SPC9	3735	145.0165	0.0206	new	40-75
MAC	EM	SPC9	3739	145.0560	0.0206	new	40-75
MAC	EM	TCC	1300	124.1320	0.0440	0-35	40-75
MAC	EM	TCC	3200	125.1399	7.0753	new	40-75
MAC	EM	TCC	1300	141.0525	0.0465	0-35	80-105
MAC	EM	TCC	2300	141.0527	0.0639	0-35	80-105
MAC	EM	TCC	1300	141.0990	0.0330	0-35	40-75
SCO	SE	CDC2	1100	45.0393	0.0350	new	40-75
SCO	SE	CDC2	2100	45.0393	0.0350	new	40-75
SCO	SE	CDC2	1100	45.0743	0.0537	0-35	40-75
SCO	SE	CDC2	2100	45.0743	0.0537	0-35	40-75
SCO	SE	ECM9	3510	0.0242	0.0334	0-35	40-75
SCO	SE	ECN2	2100	50.1100	0.0880	40-75	80-105
SCO	SE	NBE	1100	25.0612	6.0698	new	40-75
SCO	SE	NBE	2100	25.1052	6.0258	new	40-75
SCO	SE	NBE	1100	35.0408	0.0345	new	40-75
SCO	SE	NBE	2100	35.0460	0.0360	new	40-75
SCO	SE	SCM3	2100	110.0836	0.0574	40-75	80-105
SCO	SW	GSW	1100	107.0880	8.0000	new	80-105
SCO	SW	GSW	2100	107.0880	7.1694	new	80-105
SCO	SW	MLG2	3100	30.1690	0.1644	0-35	40-75
SCO	SW	NEM2	2500	3.0770	0.0698	0-35	40-75
SCO	SW	NEM3	2100	3.1310	0.0494	0-35	40-75
SUS	SU	BBJ	1100	7.0242	0.0418	0-35	40-75
SUS	SU	BBR	2100	22.0880	0.0484	0-35	40-75
SUS	SU	BLI1	2100	17.1430	1.0000	0-35	40-75
SUS	SU	NFE	1100	14.1312	0.0250	0-35	40-75
SUS	SU	NFE	2100	14.1312	0.0228	0-35	40-75
SUS	SU	NFE	3400	18.0550	0.0462	0-35	40-75
SUS	SU	SCU1	3400	45.0022	0.0308	0-35	40-75
SUS	SU	SMS2	3110	7.0733	0.0575	0-35	40-75
SUS	SU	TAT	1100	21.1100	0.0242	0-35	40-75
SUS	SU	TAT	2100	21.1100	0.0242	0-35	40-75
WES	CY	CAM	3500	19.1496	1.1416	new	40-75
WES	CY	DJP	2100	88.0880	0.0520	0-35	40-75

Table 2.3 Linespeed change: increases (continued)

Operating route	Area	ELR	Track	Start mileage	Length (miles, yds)	Old speed band	New speed band
WES	CY	DJP	1100	88.0925	0.0475	0-35	40-75
WES	CY	DJP	3100	99.0040	0.0840	0-35	40-75
WES	CY	DJP	3100	100.0660	0.0220	0-35	40-75
WES	CY	DJP	1100	100.0946	0.0344	0-35	40-75
WES	CY	DJP	2100	100.0946	0.0344	0-35	40-75
WES	CY	DJP	1100	111.0161	0.0289	0-35	40-75
WES	CY	DJP	2100	111.0161	0.0289	0-35	40-75
WES	CY	DJP	1100	119.1527	0.0352	0-35	40-75
WES	CY	DJP	2100	119.1527	0.0352	0-35	40-75
WES	CY	SBA2	1100	33.1430	0.0330	0-35	40-75
WES	CY	SBA2	2100	33.1430	0.0330	0-35	40-75
WES	CY	SBA2	1100	47.1199	0.0319	0-35	40-75
WES	CY	SBA2	2100	47.1199	0.0319	0-35	40-75
WES	CY	SWA	2300	215.0729	0.0324	new	0-35
WES	TV	MLN1	1200	12.0440	5.1320	40-75	80-105
WES	TV	MLN1	2200	14.1298	3.0462	40-75	80-105
WES	TV	MLN1	1200	19.0000	5.0019	40-75	80-105
WES	TV	MLN1	2200	19.0880	4.0880	40-75	80-105
WES	TV	MLN1	2200	24.0880	11.0000	40-75	80-105
WES	TV	MLN1	1200	25.0044	10.0836	40-75	80-105
WES	WC	MLN1	3200	163.0652	1.0558	0-35	40-75
WES	WC	YAT	1100	120.0990	0.1360	0-35	40-75
WEX	WE	BML1	2100	47.0836	0.0396	40-75	80-105
WEX	WE	BML1	2200	73.0616	0.0297	0-35	40-75
WEX	WE	BML1	3200	77.1158	0.0349	0-35	80-105
WEX	WE	BML2	1100	130.0880	0.0454	40-75	80-105
WEX	WE	LEJ	1100	18.0814	0.0946	0-35	40-75
WEX	WE	LEJ	2100	18.0814	0.0946	0-35	40-75
WEX	WE	RDG1	1203	11.0374	0.0202	0-35	40-75
WEX	WE	WPH1	1100	30.0946	0.1694	0-35	40-75
WEX	WE	WPH2	2502	37.0697	0.0448	0-35	40-75
WEX	WE	WPH2	1100	40.0386	0.1308	40-75	80-105
WEX	WE	WPH2	2200	43.1004	0.0536	0-35	40-75

Table 2.4 Linespeed change: decreases

Operating route	Area	ELR	Track	Start mileage	Length (miles, yds)	Old speed band	New speed band
EAN	AN	BGK	2500	23.1738	0.0690	40-75	0-35
EAN	AN	BGK	2500	33.0989	0.0582	40-75	0-35
EAN	AN	BGK	2500	49.0278	0.0220	40-75	0-35
EAN	AN	FED	3100	0.0000	1.0341	0-35	removed
EAN	AN	FED	3301	1.0341	0.0606	0-35	removed
EAN	AN	FED	3302	1.0341	0.0606	0-35	removed
EAN	AN	GFB	3100	3.0522	0.0336	0-35	removed
EAN	AN	LTN1	2100	58.1628	0.0572	80-105	40-75
EAN	AN	NOL	1100	17.1122	0.0264	40-75	0-35
EAN	AN	NOL	2100	17.1122	0.0264	40-75	0-35
EAN	AN	SUD	3100	46.1229	0.0443	40-75	0-35
KNT	KE	HDR	1100	16.1430	0.0286	40-75	0-35
KNT	KE	HDR	2100	16.1430	0.0286	40-75	0-35
KNT	KE	HDR	3103	16.1430	0.0286	40-75	0-35
LNE	GN	SPC9	1100	144.1496	1.0264	80-105	removed
LNE	GN	SPC9	1300	144.1496	1.0264	40-75	removed
LNE	GN	SPC9	2100	144.1496	1.0264	80-105	removed
LNE	GN	SPC9	2300	144.1496	1.0264	40-75	removed
LNE	GN	SPD3	3807	82.0682	0.0396	0-35	removed
LNE	GN	SPD3	3805	82.0712	0.0354	0-35	removed
LNE	GN	SPD3	3806	82.0727	0.0345	0-35	removed
LNE	GN	SPD3	1300	82.1320	0.1064	0-35	removed
LNE	GN	SPD3	2300	82.1320	0.1061	0-35	removed
LNE	GN	TJC1	1300	160.0374	0.0374	40-75	0-35
LNE	GN	WME	2100	3.1254	0.0726	40-75	0-35
LNE	NE	MVN2	1500	47.1628	0.0660	40-75	0-35
LNE	NE	MVN2	2500	48.0066	0.0550	40-75	0-35
LNE	NE	TJC3	1300	193.0873	0.0993	40-75	0-35
LNE	NE	WAG1	1500	48.0726	0.0616	40-75	0-35
LNE	NE	WAG1	1500	58.1122	0.0733	40-75	0-35
LNE	NE	WAG1	2500	61.0220	0.0935	40-75	0-35
LNW	CE	CGJ1	2200	170.0940	1.1246	110-125	40-75
LNW	CE	CMP2	1100	183.0264	0.1364	80-105	40-75
LNW	CE	CMP2	3300	187.0000	0.0462	40-75	0-35
LNW	CE	MAS	2100	169.0198	0.0836	80-105	40-75
LNW	CE	MRH	1100	10.1254	0.0506	40-75	0-35
LNW	CE	TTA1	2100	169.0198	0.0836	80-105	40-75
LNW	LC	GSW	3400	109.0000	4.1320	80-105	removed
LNW	LC	GSW	3400	113.1320	1.0880	40-75	removed
LNW	LC	GSW	1100	115.0440	0.0440	40-75	removed
LNW	LC	GSW	2100	115.0440	0.0440	40-75	removed
LNW	WM	CNN	1500	4.0985	0.0576	40-75	0-35
LNW	WM	DCL	1100	125.1113	0.0207	80-105	removed
LNW	WM	DCL	2200	125.1397	0.0341	40-75	removed
LNW	WM	DCL	1200	125.1412	0.0221	40-75	0-35
LNW	WM	RBS1	1100	98.0924	1.0088	110-125	80-105
LNW	WM	RBS1	2100	98.1012	0.1584	110-125	80-105
LNW	WS	CWJ	3601	5.0644	0.0240	0-35	removed
LNW	WS	HNR	2100	65.0572	0.0220	40-75	0-35
LNW	WS	HNR	2191	84.0562	0.0417	40-75	removed
LNW	WS	LEC1	3601	49.1151	0.0460	0-35	removed

Table 2.4 Linespeed change: decreases (continued)

Operating route	Area	ELR	Track	Start mileage	Length (miles, yds)	Old speed band	New speed band
LNW	WS	LEC1	3734	81.0384	0.0296	40-75	removed
LNW	WS	LEC1	1280	81.1719	0.0637	0-35	removed
LNW	WS	LEC1	1180	81.1752	0.0618	40-75	removed
LNW	WS	LEC1	2190	82.0000	1.0495	110-125	removed
LNW	WS	LEC1	2191	82.0328	1.0167	40-75	removed
LNW	WS	LEC1	1180	82.0610	0.0798	0-35	removed
LNW	WS	LEC1	1180	82.1408	0.0706	40-75	removed
LNW	WS	LEC2	1180	83.0354	0.0246	40-75	removed
LNW	WS	LEC2	2190	83.0495	1.0029	110-125	removed
LNW	WS	LEC2	2501	86.1729	0.1622	40-75	removed
LNW	WS	LEC2	3500	96.1695	0.0778	0-35	removed
LNW	WS	LEC2	1100	110.0840	0.1338	80-105	removed
LNW	WS	LEC2	2100	110.0840	5.1074	110-125	removed
LNW	WS	LEC2	1100	111.0418	5.0088	110-125	removed
LNW	WS	LEC2	2100	116.0154	0.1012	80-105	removed
LNW	WS	LEC2	1100	116.0506	0.0836	40-75	removed
LNW	WS	LLG	2301	0.0584	0.0865	40-75	0-35
LNW	WS	RBS1	2191	83.0495	0.0409	40-75	removed
LNW	WS	RBS1	2190	83.0613	0.1655	110-125	removed
MAC	EM	SSJ2	1100	132.0000	0.0260	40-75	0-35
MAC	EM	TCC	1300	125.1399	7.0756	40-75	removed
MAC	EM	TCC	2300	125.1399	7.0753	40-75	removed
MAC	EM	TCC	1100	141.0525	0.0795	80-105	removed
MAC	EM	TCC	2100	141.0527	0.0793	80-105	removed
MAC	EM	TCC	1100	141.1320	0.0651	40-75	removed
MAC	EM	TCC	2100	141.1320	0.0643	40-75	removed
SCO	SE	CDC2	3400	45.0393	0.0333	40-75	removed
SCO	SE	ECA2	2100	91.1751	5.0229	80-105	40-75
SCO	SE	GMH	3400	1.1200	0.1070	40-75	0-35
SCO	SE	NBE	3400	25.0110	0.0502	40-75	0-35
SCO	SE	NBE	3400	25.0612	6.0698	40-75	removed
SCO	SE	NBE	3300	25.1052	3.0104	0-35	removed
SCO	SW	GSW	1100	66.0050	0.1050	40-75	0-35
SCO	SW	GSW	2100	66.0050	0.1050	40-75	0-35
SCO	SW	GSW	3400	107.0871	1.0889	80-105	removed
SCO	SW	LNK	3400	2.0572	0.0320	40-75	0-35
SCO	SW	NEM7	2100	16.0220	0.0220	40-75	0-35
SCO	SW	NEM7	3603	24.0211	0.0424	40-75	0-35
SCO	SW	NEM7	3604	24.0364	0.0261	40-75	0-35
SCO	SW	WCM2	1200	100.1540	0.0230	40-75	0-35
SUS	SU	BSP2	1100	1.1474	0.0616	40-75	0-35
SUS	SU	BTH3	1100	21.1550	0.0232	40-75	0-35
SUS	SU	BTH3	3102	21.1550	0.0232	40-75	0-35
SUS	SU	HHT	1100	4.1683	0.0275	40-75	0-35
SUS	SU	HHT	2100	4.1683	0.0275	40-75	0-35
SUS	SU	LBW	2500	8.0640	0.0306	40-75	0-35
SUS	SU	LBW	1200	8.1562	0.0726	40-75	0-35
SUS	SU	NFE	1100	15.0011	0.0319	40-75	0-35
SUS	SU	NFE	2100	15.0011	0.0319	40-75	0-35
SUS	SU	SCU1	3600	45.1650	0.0350	40-75	0-35
SUS	SU	SMS1	1100	0.0044	0.0396	40-75	0-35

Table 2.4 Linespeed change: decreases (continued)

Operating route	Area	ELR	Track	Start mileage	Length (miles. yds)	Old speed band	New speed band
SUS	SU	SMS1	2100	0.0066	0.0374	40-75	0-35
SUS	SU	SMS1	2100	2.1430	0.0330	40-75	0-35
SUS	SU	SMS2	2100	9.0198	0.0330	40-75	0-35
SUS	SU	TBH1	2103	37.1110	0.0340	40-75	0-35
SUS	SU	VTB3	2200	26.1432	0.0240	80-105	40-75
SUS	SU	VTB3	1200	26.1452	0.0220	80-105	40-75
WES	CY	CAM	3100	19.1496	1.1416	40-75	removed
WES	CY	ROA	3300	3.1632	0.1316	0-35	removed
WES	CY	ROA	3301	4.0125	0.0467	0-35	removed
WES	CY	SWM2	1100	150.0220	0.0660	80-105	40-75
WES	TV	BHL	2500	52.0361	0.0519	40-75	0-35
WES	TV	BHL	2500	52.1571	0.0508	40-75	0-35
WES	TV	HLL	1100	11.0085	0.1609	80-105	40-75
WES	TV	HLL	2100	11.0326	0.1368	80-105	40-75
WES	TV	MLN1	3706	1.1113	0.0283	40-75	removed
WES	WC	BLW	1100	0.0110	0.0506	40-75	0-35
WES	WC	BLW	2100	0.0110	0.0492	40-75	0-35
WEX	WE	BAE2	2100	115.0770	0.0902	80-105	40-75
WEX	WE	BAE2	3100	155.0440	0.0440	80-105	40-75
WEX	WE	BKE	3600	51.0390	0.0347	40-75	0-35
WEX	WE	BLP	3400	97.1034	0.0572	40-75	0-35
WEX	WE	BML1	2500	73.0573	0.0439	40-75	0-35
WEX	WE	BML2	1100	103.1320	0.0440	80-105	40-75
WEX	WE	BML2	2100	104.0880	1.0440	80-105	40-75
WEX	WE	BML3	3100	168.0682	0.0209	80-105	0-35
WEX	WE	NMS1	2100	9.1573	0.0583	40-75	0-35
WEX	WE	RPE	2100	8.1078	0.0418	40-75	0-35
WEX	WE	SDP2	1100	84.0552	0.0306	40-75	0-35
WEX	WE	SDP2	2100	84.0552	0.0306	40-75	0-35
WEX	WE	SWE	3602	25.0572	0.0220	40-75	0-35
WEX	WE	VWW	1100	19.0495	0.0231	40-75	0-35
WEX	WE	WPH1	2100	62.1254	0.0220	80-105	40-75
WEX	WE	WPH2	3500	43.0737	0.0963	40-75	0-35

Reporting confidence

This data taken from GEOGIS aligns with the Sectional Appendix and has an accuracy well within band 1 (within +/- one 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 37 track kilometres represents actual change and some GEOGIS data quality improvement initiatives. Changes include:

Additions

Shown in increases table, Table 2.3, where old speed band is 'new'. (However since old track ID may not be retained in a new configuration the decreases table may show a corresponding 'removed'.)

- Various related to West Coast modernisation (LEC1, LEC2) including 33km Trent Valley four-tracking
- Bathgate track doubling (NBE) 6km
- Gretna track doubling (GSW) 12km, but note there are some records which cancel out in the decreases, Table 2.4, reflecting route ownership change.

Removals

Shown in decreases table, Table 2.4, where new speed band is 'removed'. (However since old track ID may not be retained in a new configuration the increases table may show a corresponding 'new'.)

- Erewash Valley line (TCC) track exclusion, 12km.

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

Raised speed band

- Building on last year's changes as part of West Coast modernisation, multiple upgrades (LEC1, LEC2, RBS1) to 110-125, principally at Rugby and Nuneaton
- Sandbach to Wilmslow (CMP1), 44km upgrade to 110-125 band
- Airport Jct to Reading (MLN1), slow lines, 64km up to 80-105 band
- Longport (CMD2), 3km up to 110-125 band.
- Various towards Clay Cross (SPC8) but note records in decreases table from change of route ownership
- Lincoln station remodelling (SPD3) up to 40-75 band
- Lydden Tunnel (FDM), 2km data quality improvement to 80-105 band
- Hartford Junction (CGJ1) down fast line 3km data quality improvement to 110-125 band
- Felixstowe Docks (FED), 1km up to 40-75 band but note reference mileage alterations show this (and others) as if 'new' track, with 'removals' records elsewhere.

Lowered speed band

- Kirk Newton to Wester Hailes (ECA2), 8km data quality change to 40-75 band
- Hartford Junction (CGJ1) down slow line 3km data quality change to 40-75 band
- Stockport Viaduct (CMP2), 1km up line to 40-75 band
- River Stour Bridge (BML2) down line 2km data quality change to 40-75 band
- Dartford Junction (HDR) permanent speed reduction 1km to 0-35 band.

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 (+/- one 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

Apart from minor GEOGIS alterations, there is no net change in the size of the network. However 1.9 Route Km near Chesterfield is now designated as Midland & Continental (vice LNE) and the Scotland Route increased by 10.5km (vice LNW) from a boundary adjustment near Gretna.

A number of routes have been upgraded to W10.

Results

Table 2.5 Gauge capability (km of route in each gauge band)

Gauge band	March 2004	March 2005	March 2006	March 2007	March 2008	March 2009
W6	5,223	4,955	4,771	4,746	4,669	5,050
W7	2,284	2,794	2,741	2,720	2,829	3,163
W8	6,340	5,648	5,504	5,496	5,408	4,852
W9	2,483	1,714	1,615	1,618	1,698	1,382
W10 and W6	–	6	6	6	6	6
W10 and W8	–	60	73	65	65	62
W10 and W9	163	939	1,100	1,138	1,139	1,299
Total	16,493	16,116	15,810	15,789	15,814	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	815	318	888	625	–	–	59	2,705
Midland & Continental	206	251	247	–	–	–	–	704
London North Western	874	714	634	185	–	–	900	3,307
Anglia	294	5	521	131	6	62	178	1,197
Kent	553	129	93	43	–	–	–	818
Sussex	343	89	40	41	–	–	–	513
Wessex	582	285	170	5	–	–	–	1,042
Western	1,257	429	1,129	44	–	–	–	2,859
England and Wales	4,924	2,220	3,722	1,074	6	62	1137	13,145
Scotland	126	943	1,130	308	–	–	162	2,669
Network total	5,050	3,163	4,852	1,382	6	62	1,299	15,814

Additions

- 43km of W9 & W10 gauge between Doncaster and York
- 13km of W9 & W10 gauge between Newcastle and Tyne Dock
- 25km of W9 & W10 gauge in the Carlisle area
- 35km of W9 & W10 gauge in the Birmingham & Wolverhampton area
- 32km of W9 & W10 gauge in North London area, providing a second route between Stratford and the WCML.

Network Rail is in the process of publishing freight gauge capability in the Sectional Appendix. The project has involved checking many routes across the country, and has brought a number of problems to light. Some routes have been proved to be smaller than the capability previously reported, and the figures for W9, W8 and to a lesser extent W7 show a considerable reduction reflecting these changes. The project is not complete, and further reductions will appear next year, along with improvements as work undertaken to correct the capability occurs.

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

For infrastructure the RA number 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. The RA number for a route is 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 (km of track in each RA band)

Route availability band	March 2004	March 2005	March 2006	March 2007	March 2008	March 2009
RA1-6	2,375	2,529	2,309	2,296	3,991	3,558
RA7-9	26,297	26,319	25,935	25,928	25,060	25,591
RA10	2,585	2,634	2,861	2,839	2,031	1,970
Total	31,257	31,482	31,105	31,063	31,082	31,119

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	238	5,396	65	5,699
Midland & Continental	85	1,666	–	1,751
London North Western	81	7,023	–	7,104
Anglia	234	2,054	–	2,288
Kent	210	1,553	–	1,763
Sussex	312	815	–	1,127
Wessex	361	1,722	–	2,083
Western	936	4,188	–	5,124
England and Wales	2,457	24,417	65	26,939
Scotland	1,101	1,174	1,905	4,180
Network total	3,558	25,591	1,970	31,119

Commentary

The Annual Return for the C3 measure follows the approach adopted for the Annual Return 2008 with the reported values based on the work to verify Route Availability undertaken as part of the Infrastructure Capability programme. The Annual Return 2008 first reported the results of this work and reflected 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.

This year's Annual Return incorporates the action taken by Network Rail to address results of the Infrastructure Capability programme. As a result there is a net extra 532km of RA 7-9 track and a corresponding net reduction of 433km of RA 1-6 and 61km of RA10 bands. The changes principally reflect improvements in Route Availability arising from the strengthening and reconstruction of rail bridges to restore capability and additional assessment undertaken on bridges.

The principal increases in Route Availability are:

- 21km RA7-9 vice RA1-6 Holbeck Junction to former Laisterdyke East Junction (LBE1)
- 48km RA7-9 vice RA1-6 Wrawby Junction to Gainsborough Trent East Junction (MAC3)
- 10km RA7-9 vice RA1-6 Grosmont Junction to Whitby (MBW3)
- 32km RA7-9 vice RA1-6 Thornhill LNW Junction to Copley Hill East Junction (MDL1)
- 28km RA7-9 vice RA1-6 Dryclough Junction to Mill Lane Junction (MRB)
- 10km RA7-9 vice RA1-6 Former Cudworth North Junction to Oakenshaw South Junction (TJC3)
- 23km RA7-9 vice RA1-6 Potters Grange Junction to Gilberdyke Junction (TJG2)
- 20km RA7-9 vice RA1-6 Former Oldham Werneth Junction to Rochdale Junction (MPR3)
- 20km RA7-9 vice RA1-6 Heald Green North Junction to Slade Lane Junction (STY)
- 41km RA7-9 vice RA1-6 Windsor Bridge Junction to Crow Nest Junction (WBS1)
- 11km RA7-9 vice RA1-6 Ambergate to Matlock (AJM1)
- 44km RA7-9 vice RA1-6 Cove LC to Lockerbie (WCM1)
- 16km RA10 vice RA1-6 Kilmarnock GB&K Junction to Lugton (GBK)
- 35km RA10 vice RA7-9 Bank Junction to Mauchline Junction (GSW).

The principal decreases in Route Availability occur where under existing operating arrangements RA10 traffic runs at lower than normal speeds and Freight Operators have requested that we categorise the RA of the route at lower values to assist in the application of operating procedures:

- 11km RA7-9 vice RA10 Annbank Junction to Mauchline Junction (ANN)
- 16km RA7-9 vice RA10 Forres to Nairn (ANI3)
- 20km RA7-9 vice RA10 Byrehill Junction to Barassie Junction (AYR4)
- 9km RA7-9 vice RA10 Kilmarnock to Shewalton Moss (BAK)
- 27km RA7-9 vice RA10 Powderhall Junction to Torness (ECM8)
- 19km RA7-9 vice RA10 Holm Junction to Hunterston Junction (LGS2)
- 21km RA7-9 vice RA10 Langloan Junction to Rutherglen East Junction (RCB).

We continue to work with FOC and TOC representatives to identify the preferred options for addressing the remaining differences in Route Availability. Options being considered range from restoration of capability to short term network change and network change. In all cases there is no effect on the flow of regular traffic and we work closely 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.

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 37 track kilometres. The principal effects are the additional tracks installed as part of the West Coast modernisation (LEC1, LEC2) including 33km Trent Valley four-tracking (RA7-9), the Bathgate track doubling (NBE) 6km (RA10) and the Gretna track doubling (GSW) (additional 10km of RA7-9 and 2km of RA10).

Electrified track capability (C4)

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

- overhead line at 25kV AC
- overhead line at 1,500V DC
- 3rd rail 650/750V DC

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	March 2009
25 kV AC overhead	7,780	7,748	7,882	7,980	7,974	8,000
Third rail 650/750V DC	4,483	4,497	4,493	4,484	4,481	4,481
Dual AC, overhead/3rd rail DC	33	35	39	38	40	40
1500V DC overhead	19	39	39	39	39	39
Total electrified	12,315	12,319	12,453	12,541	12,534	12,560
Non-electrified	19,249	19,163	18,652	18,522	18,548	18,559
Total	31,564	31,482	31,105	31,063	31,082	31,119

Table 2.10 Electrification capability by operating route

Electrification capability/Operating route	25 kV AC overhead	3rd rail 650/ 750V DC	Dual AC, overhead/ 3 rd rail DC	1500V DC overhead	Total electrified	Non electrified	Total
London North Eastern	2,023	9	–	39	2,071	3,628	5,699
Midland & Continental	355	–	1	–	356	1,395	1,751
London North Western	2,805	291	9	–	3,105	3,999	7,104
Anglia	1,452	23	15	–	1,490	798	2,288
Kent	8	1,652	13	–	1,673	90	1,763
Sussex	1	1,033	2	–	1,036	91	1,127
Wessex	–	1,473	–	–	1,473	610	2,083
Western	103	–	–	–	103	5,021	5,124
England & Wales	6,747	4,481	40	39	11,307	15,632	26,939
Scotland	1,253	–	–	–	1,253	2,927	4,180
Network total	8,000	4,481	40	39	12,560	18,559	31,119

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 37 track kilometres. The change is dominated by WCRM remodelling and the LNW Route has a net extra 20km of AC OLE, including

16km Trent Valley four-tracking. Where there have been other significant enhancements such as track doubling at Bathgate and Gretna or removals such as on the Erewash Valley line, these have been on non electrified parts of the network. Following the 2006/07 Stratford to North Woolwich Branch closure approximately one km of the residual DC track Chelsesea/Stratford is now AC OLE. With regards to electrification data quality there have been corrections such as the 2km erroneously excluded OLE at Burnmouth mentioned in last year's commentary. Some known errors have however been introduced such as a one km erroneous exclusion of OLE near Perry Bar following input of 2009 track renewals data to GEOGIS.

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 2.87 per cent in total passenger train miles between 2007/08 and 2008/09: over three times the total passenger train miles percentage increase between 2006/07 and 2007/08. Open access services also experienced positive growth, increasing by 11.91 per cent between 2007/08 and 2008/09.

Table 2.11 Train mileage for passenger operators (millions)

Train operator	2004/05	2005/06	2006/07	2007/08	2008/09
Arriva Trains Wales	11.9	12.5	13.3	13.4	13.8
c2c Rail	3.6	3.6	3.6	3.7	3.8
Central Trains	17.4	17.8	17.7	10.8	–
Chiltern Railways	5.0	5.1	5.4	5.6	5.8
Cross Country Trains	–	–	–	6.8	18.2
East Midlands Trains	–	–	–	4.6	12.1
First Capital Connect	0.0	0.0	11.7	13.9	14.1
First Great Western (inc. Heathrow Connect)	24.6	25.1	24.7	24.7	25.5
National Express East Coast	11.2	11.3	11.1	11.5	11.9
London Midland	–	–	–	4.3	12.0
London Overground	–	–	–	0.8	1.9
Merseyrail	3.4	3.4	3.4	3.4	3.5
Midland Main Line	6.5	6.2	6.2	3.8	–
Northern Rail	25.0	26.0	25.1	25.1	25.9
National Express East Anglia	18.3	18.5	18.9	18.8	19.1
First ScotRail	22.7	23.1	23.0	23.2	23.6
Silverlink Train Services	5.5	5.5	5.6	3.4	–
Southeastern	17.2	17.2	17.2	17.4	17.6
Stagecoach South Western Trains	22.3	23.1	22.9	23.0	23.4
Southern (inc. Gatwick Express)	17.4	19.9	18.2	18.7	19.7
Thameslink Rail	6.8	6.7	1.1	–	–
First Transpennine Express	8.8	7.9	8.6	8.9	9.6
Virgin Trains CrossCountry	16.7	16.8	16.9	10.6	–
Virgin Trains West Coast	11.3	13.3	13.2	14.4	16.7
West Anglia Great Northern Railway	7.2	6.9	1.0	–	–
Total franchised passenger	262.8	269.9	268.8	270.8	278.2
Heathrow Express	1.0	0.9	0.9	0.9	0.9
First Hull Trains	0.6	0.8	0.8	0.9	0.9
Nexus	1.4	1.8	1.8	1.8	1.8
Wrexham & Shropshire					0.6
Grand Central				0.1	0.5
Total passenger (open access)	3.6	4.1	4.1	4.2	4.7
Total passenger (franchised and open access)	266.4	271.9	272.9	275.0	282.9

Note: Empty coaching stock movements have been excluded.

Table 2.12 Train mileage for freight operators (thousands)

Freight operator	2004/05	2005/06	2006/07	2007/08	2008/09
Advenza	–	51	73	114	45
Direct Rail Services Ltd	802	1,022	1,255	1,285	1,295
DB Schenker*	19,076	20,290	18,514	15,503	12,536
Freightliner Heavy Haul	2,803	3,310	3,584	4,126	4,031
Freightliner Ltd	4,739	5,541	5,519	5,427	5,149
First GB Railfreight	505	740	852	997	1,282
Fastline	–	–	95	110	368
FM Rail	–	–	20	83	–
Colas	–	–	10	127	102
Total	27,925	30,954	29,922	27,772	24,808

Train mileage by freight operator

Freight train mileage is defined as the number of miles travelled by revenue earning freight trains. The freight data for 2008/09 is derived from the Performance System Strategy (PSS) data warehouse, replacing the Billing Infrastructure Freight System (BIFS) as the source of performance mileages.

Million GTMs by freight train operator

Gross tonne miles (GTM) 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

Both freight gross tonne miles and freight train miles decreased between 2007/08 and 2008/09. The decrease in freight miles was 2.4 per cent and that for gross tonne miles was 0.8 per cent. The most significant categories of freight that experienced growth during the year were European Conventional and European Intermodal, 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	2008/09
Advenza	–	8	12	23	48
Direct Rail Services Ltd	497	608	901	1,090	1,271
DB Schenker*	19,558	20,872	19,417	16,494	14,887
Freightliner Heavy Haul	3,068	3,395	3,851	4,476	5,204
Freightliner Ltd	4,748	5,223	5,179	5,241	5,174
GB Railfreight	521	667	828	1,145	1,375
Fastline	–	–	52	75	417
FM Rail	–	–	7	38	–
AMEC	–	–	5	68	63
Total	28,392	30,773	30,252	28,650	28,439

* Prior to 1 January 2009 DB Schenker was known as EWS Railway Ltd.

Late Disruptive Possessions

A Late Disruptive Possession (LDP) 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 Route.

Reporting method

This measure is taken from data that is manually collected and analysed on a weekly basis as part of Network Rail's possession planning process.

Each week, each member of the Network Access team completes a 'tick-sheet' detailing the number of Late Disruptive possessions that have been agreed by Area. These tick sheets are collated to create graphs/tables by week.

Results

The following graphs show the total number of late disruptive possessions for the 2007/08 and 2008/09 years. The marked trendlines are a periodic (4-weekly) moving average.

There has been a major difference in reporting methods between 2007/08 and 2008/09 which has exposed a major over-reporting in last year's figures. This has made full comparisons of numbers between the two years invalid, so a moving annual average is not given.

The next set of graphs give a breakdown of number of late disruptive possessions by Network Rail Route for the 2008/09 year, again with a periodic (4-weekly) moving average.

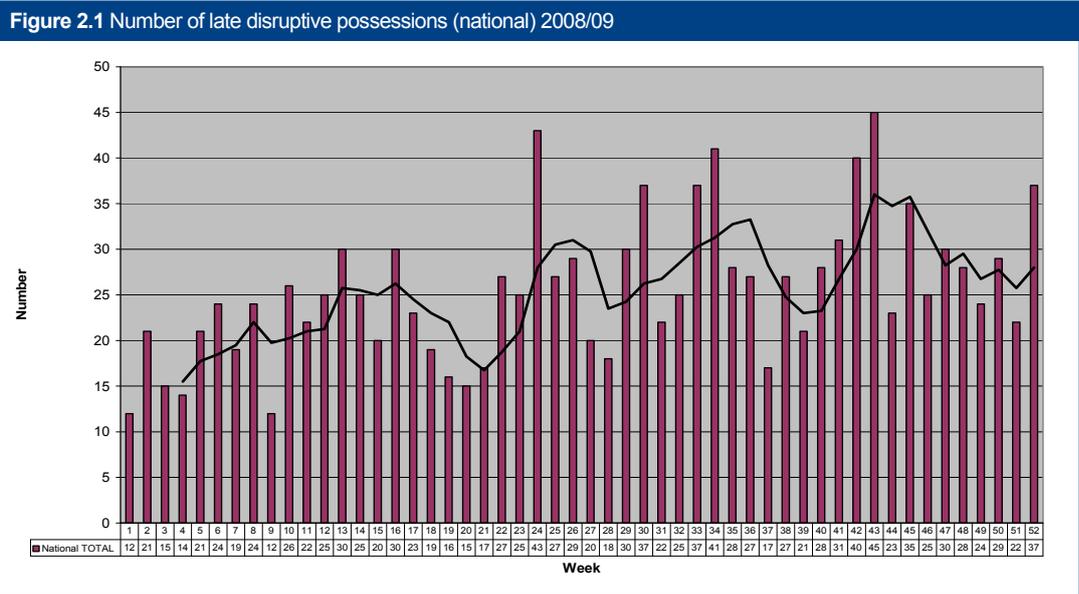


Figure 2.2 Number of late disruptive possessions (national) 2007/08

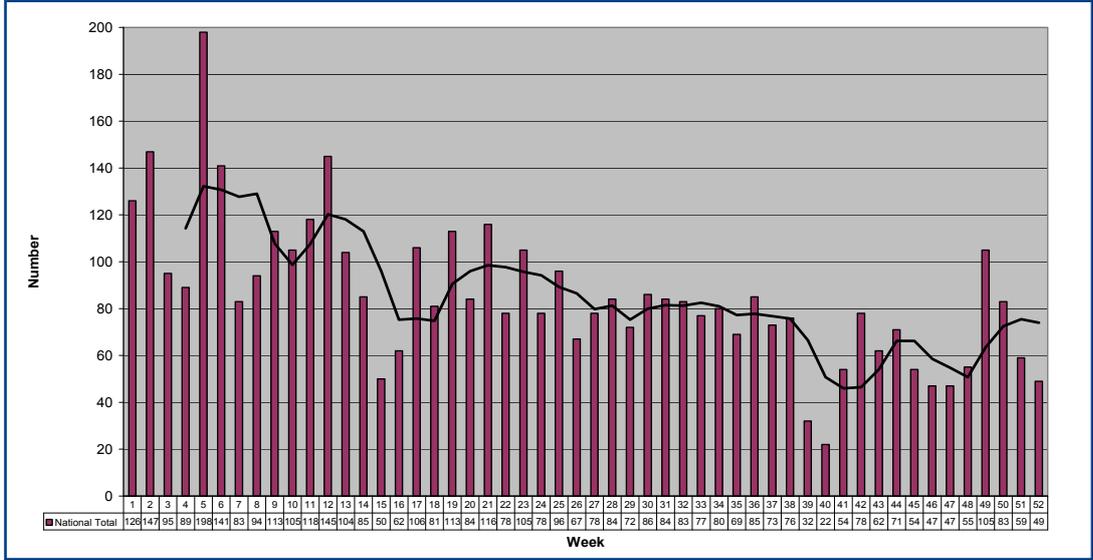


Figure 2.3 Number of late disruptive possessions (Anglia)

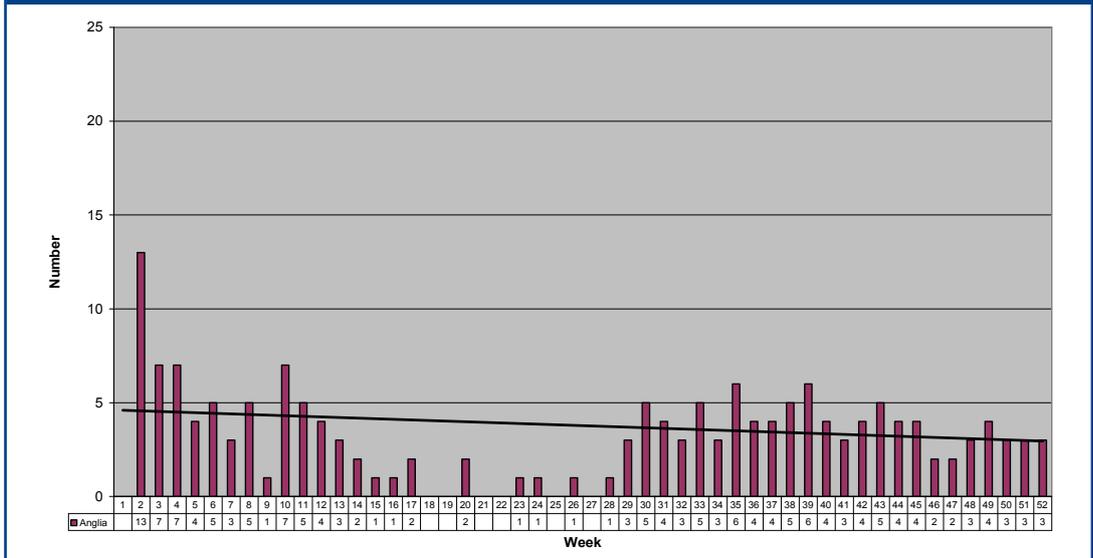


Figure 2.4 Number of late disruptive possessions (London North Eastern)

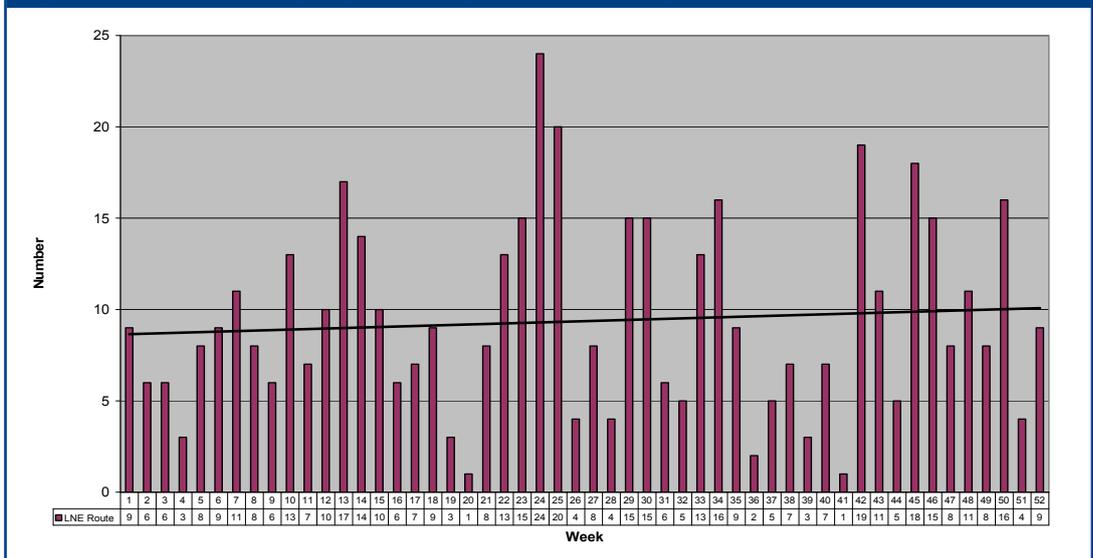


Figure 2.5 Number of late disruptive possessions (London North Western)

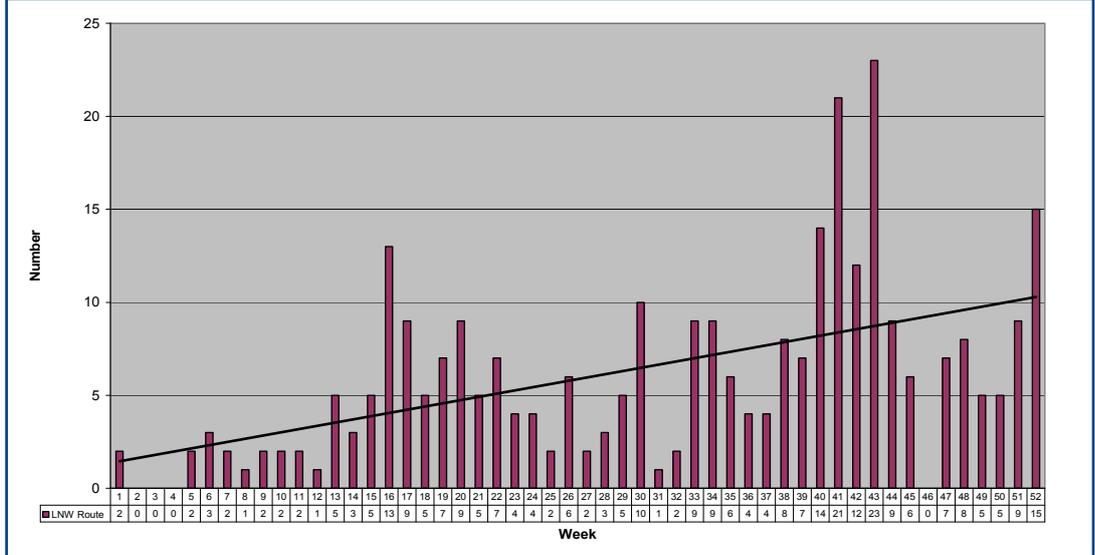


Figure 2.6 Number of late disruptive possessions (Kent)

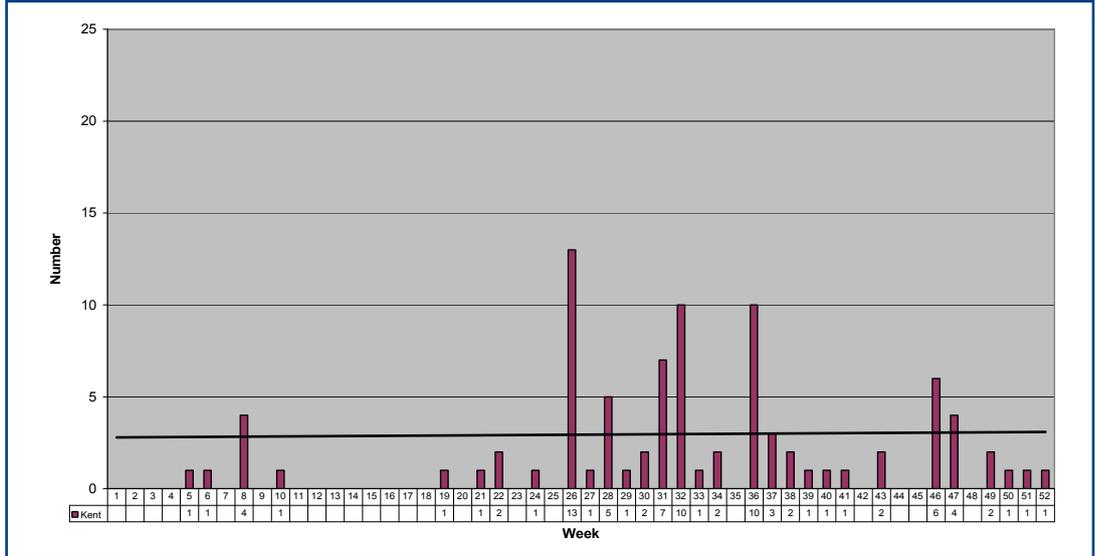


Figure 2.7 Number of late disruptive possessions (Midland & Continental)

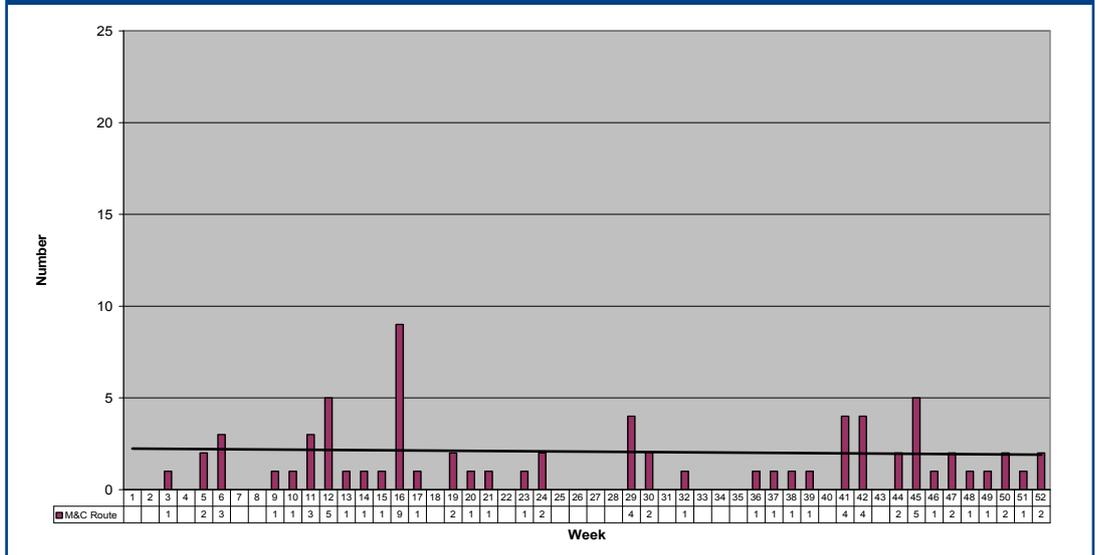


Figure 2.8 Number of late disruptive possessions (Sussex)

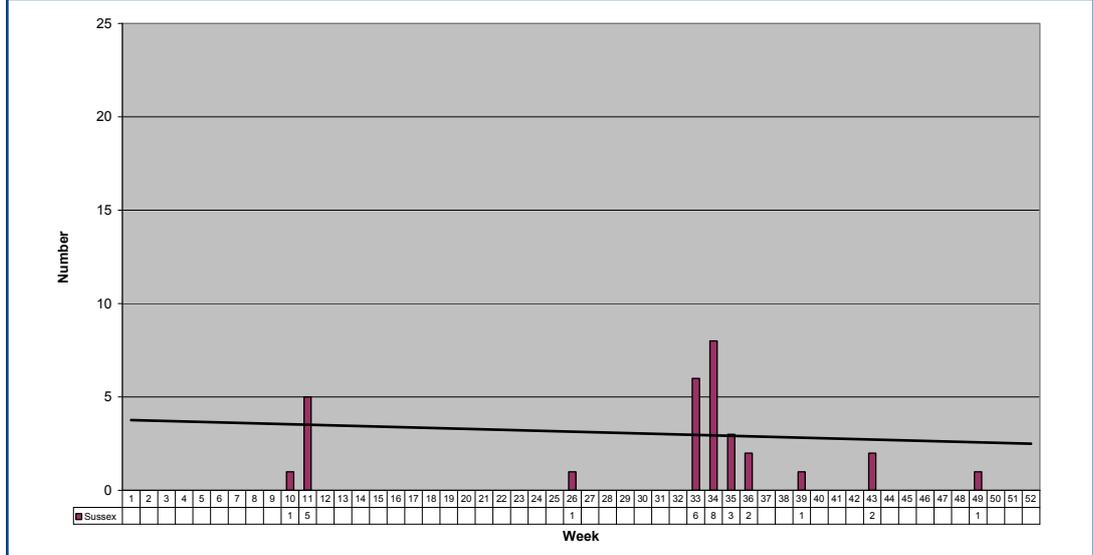


Figure 2.9 Number of late disruptive possessions (Wessex)

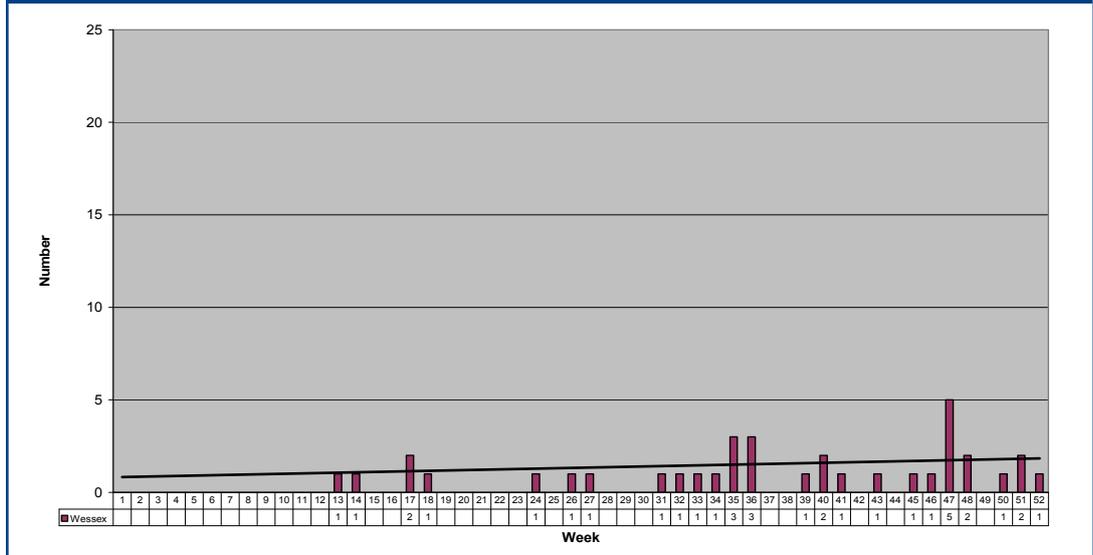


Figure 2.10 Number of late disruptive possessions (Western)

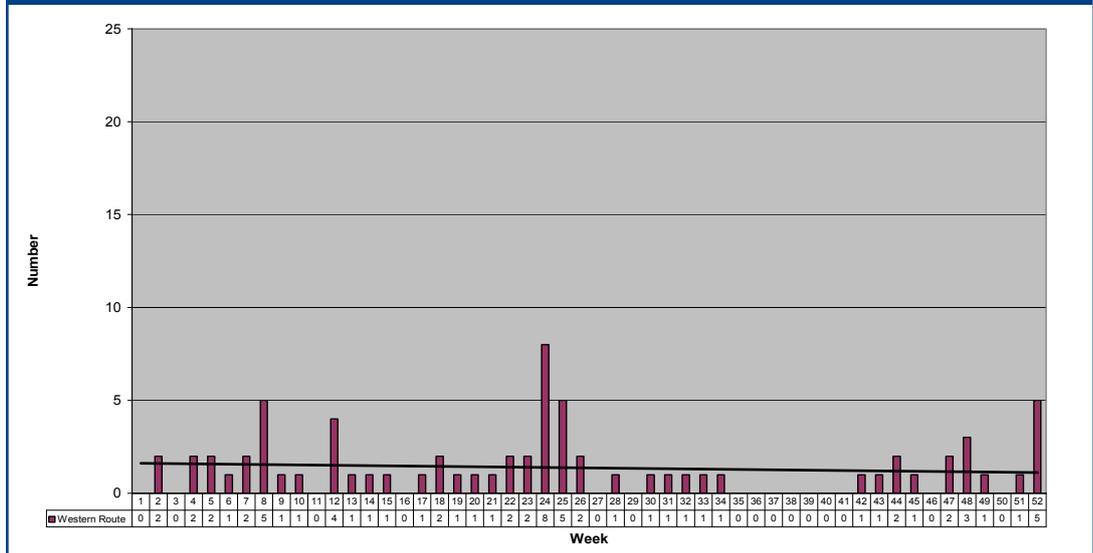
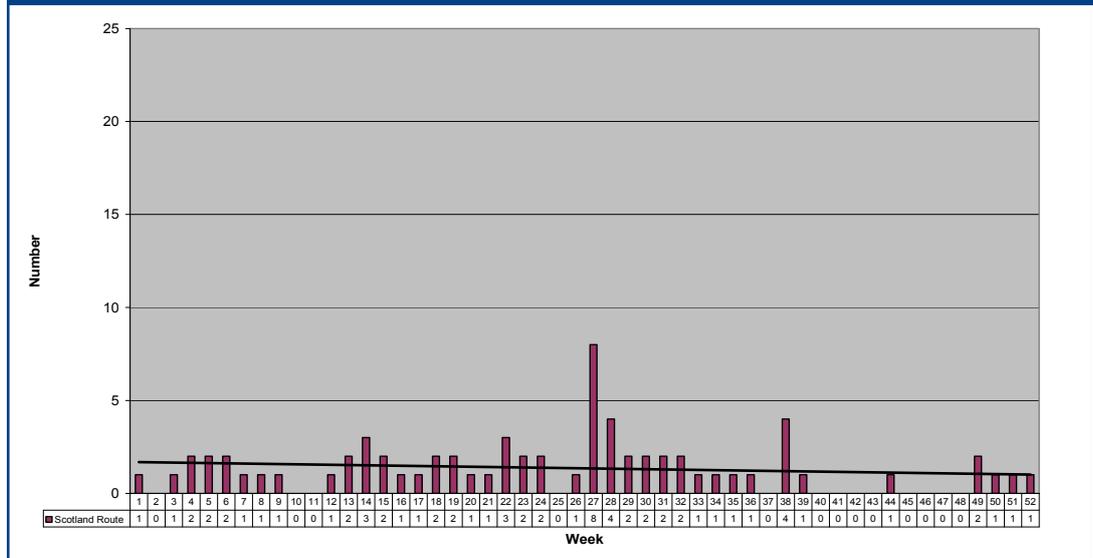


Figure 2.11 Number of late disruptive possessions (Scotland)

The following table shows the total number of possessions, total number of disruptive possessions and the total percentage of disruptive possessions that were planned late for the 2008/09 year:

Table 2.14 Number of possessions and late disruptive possessions

	Late disruptives	Total possessions	Total disruptive possessions	% late disruptions
London North Eastern	487	12,320	3,183	15
Midland & Continental	72	5,580	1,643	4
London North Western	305	25,661	5,581	5
Anglia	168	10,185	1,472	11
Kent	89	5,503	2,610	3
Sussex	30	6,032	2,145	1
Wessex	36	7,216	2,331	2
Western	71	11,761	5,005	1
England & Wales	1,258	84,258	23,970	5
Scotland	70	18,493	610	11

Reporting confidence

This is the second time this measure has been recorded for the Annual Return. This year, the reporting process involves data that is collected and analysed weekly as part of Network Rail's possession planning process. It is also used as the official data for reporting late disruptive possessions within Network Rail. As such, we believe the data to be of a high accuracy. However, due to a change in reporting method (last year used automatic data collection that widely overstated the number of late disruptive possessions), there is no numerical comparison with last year

Commentary

The trendlines show an increasing number of late disruptive possessions (after a fall in 2007/08), particularly in LNW Route. The high figures in LNW Route were due to several track defects causing late changes to mid-week night disruptive possessions. As such changes generally affect each week night, this is counted as five changes and raises the numbers for those weeks. Network Rail intend to reverse this trend in 2009/10 with the new Possession Planning process which involves better measurement of the underlying causes of late change, and stricter challenges of the business case for each late disruptive change.

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

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).

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 four reporting years. The roll out of the new Rail Defect Management System RDMS, completed in December 2008, should allow for standardised reports for the numbers and types of broken rail to be produced straight from RDMS for the year starting April 2009 onwards.

Results

Table 3.1 Number of broken rails

Operating routes	2002/03	2003/4	2004/05	2005/06	2006/07	2007/08	2008/09
London North Eastern	79	53	74	85	56	54	38
Midland & Continental	40	24	27	13	6	13	7
London North Western	120	88	61	52	44	28	24
Anglia	31	29	26	23	13	26	18
Kent	28	22	19	17	8	10	16
Sussex	15	11	9	7	13	6	8
Wessex	47	30	43	37	18	17	17
Western	44	42	31	37	13	13	19
England & Wales	404	299	290	271	171	167	147
Scotland	40	35	32	46	21	14	17
Network total	444	334	322	317	192	181	164
CG	-	A2	A1	A2	A1	A1	A1
Regulatory target (network)	705	675	300	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 to have no increase thereafter. The regulatory target has been met.

Commentary

Work has continued to further reduce and maintain the low 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 slight improvements. Initiatives put in place to improve the management of dipped joints and welds have continued to help further reduce and maintain the low numbers of rail breaks. The reduction in the numbers has continued despite experiencing a more severe winter than we have had in previous years.

The final number of broken rails for the year was 164, a further 9.4 per cent reduction over the previous year's total of 181. This continues the year on year reduction from 952 in 1999/00, an overall reduction of over 82 per cent.

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 one yard, e.g. midrail, welds, isolated wheelburns, etc) and continuous defects (those defects with a length of

one 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).

Table 3.2 Number of isolated rail defects 2008/09

Type of defect	Net data correction	New defects detected	Weld repairs and defects removed	Defects remaining
Rail ends	-612	1,517	1,157	220
Welds	-1,512	4,414	3,145	902
Midrail	-5,023	21,520	15,794	6,065
Switches and Crossings	-1,333	1,451	1,336	935
Incorrectly classified	218	0	0	236
Total number	-8,262	28,902	21,432	8,358
Confidence grade				B3

Table 3.3 Number of isolated rail defects remaining

Type of defect	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Rail ends	1,358	1,146	729	788	472	220
Welds	3,735	4,208	2,141	1,869	1,145	902
Midrail	21,852	19,994	14,751	12,658	5,362	6,065
Switches and Crossings	4,274	5,259	2,932	3,094	2,153	935
Incorrectly classified	82	171	52	46	18	236
Total number	31,301	30,778	20,605	18,455	9,150	8,358
Confidence grade	B2	B4	B4	B3	B3	B3

Table 3.4 Isolated rail defects by operating route

Operating routes	Defects discovered 2007/08	Defects removed /repaired 2007/08	Defects remaining 2007/08	Defects discovered 2008/09	Defects removed/ repaired 2008/09	Defects remaining 2008/09
London North Eastern	3,629	4,379	1,079	4,418	3,966	860
Midland & Continental	1,413	1,524	413	949	711	407
London North Western	6,680	7,888	1,925	8,392	7,019	3,177
Anglia	1,949	1,997	498	2,879	2,374	773
Kent	770	803	107	1,042	822	251
Sussex	626	635	100	914	782	136
Wessex	1,272	1,150	295	1,770	1,436	351
Western	3,862	4,126	1,224	5,576	2,746	1,052
England & Wales	20,201	22,502	5,641	25,940	19,856	7,007
Scotland	2,650	2,648	3,509	2,962	1,576	1,351
Network total	22,851	25,150	9,150	28,902	21,432	8,358

Table 3.5 Lengths of continuous rail defects

	Net data correction	New other defects detected	Defective rail removed/ repaired	Defects remaining at year end
Total length (yards)	-667,518	237,940	181,619	1,399,634
Total length (km)	-611	218	166	1,280

Table 3.6 Lengths of continuous rail defects remaining

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Total length (yards)	2,042,032	2,423,367	2,013,319	2,195,541	2,010,831	1,399,634
Total length (km)	1,867	2,216	1,841	2,008	1,839	1,280

Table 3.7 Continuous rail defects by operating route (yards)

Operating Routes	Defects discovered 2007/08	Defects removed/ repaired 2007/08	Defects remaining 2007/08	Defects discovered 2008/09	Defects removed/ repaired 2008/09	Defects remaining 2008/09
London North Eastern	12,768	11,677	358,059	51,950	49,947	26,535
Midland & Continental				5,076	5,702	960
London North Western	98,470	63,578	319,721	95,670	39,777	226,207
Anglia	23,745	22,250	125,462	22,250	19,647	127,025
Kent	10,464	10,812	176,611	6,558	10,773	165,758
Sussex	56,191	31,724	103,026	2,606	1,455	1,269
Wessex	22,988	6,682	156,982	11,377	6,254	160,147
Western	81,970	58,448	172,313	23,006	28,020	57,026
England & Wales	306,596	205,171	1,412,174	218,493	161,575	764,927
Scotland	33,377	76,599	598,657	19,447	20,044	634,707
Network total	339,973	281,770	2,010,831	237,940	181,619	1,399,634

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 four reporting years. The roll out of the new Rail Defect Management System RDMS, completed in December 2008, should allow for standardised reports for the numbers and types of defective rail to be produced straight from RDMS for the year starting April 2009 onwards.

Commentary

The number of isolated defects remaining in track has shown a slight decrease on last year, thus continuing the recent trend. This decreasing trend will probably level out and possibly increase slightly in future now that all defects are being consistently reported into RDMS. The reduction is mainly due to

improved data quality and the removal of duplicate and erroneous data that has been completed for the implementation of RDMS, offset partly by an increase in surface damage. The number of new defects detected continues to show an increase nationally due to increases in the number of actionable defects due to surface damage such as squats and RCF following the introduction of new vehicles and increases in tonnages. Increases have also occurred due to the national roll out of the new Rail Defect Management System (RDMS), which was completed in December 2008, where all existing defects have been mapped across to the new system.

For 2008/09 rail defect reporting has continued to be partly sourced from the existing databases that were adapted when maintenance transferred in-house in 2004 together with more recent data from RDMS once the new system had been implemented throughout the year. As many of the systems remained in use for part of the year, the variations between the existing 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.

RDMS was successfully rolled out in stages across the network with completion as planned by December 2008. This system enables 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 recorded against the defects detected. Future reporting will all be carried out directly from RDMS now that sufficient historic data is in place.

Data for RCF is now reported directly from RDMS where all existing RCF data was migrated across from existing systems. By utilising the existing data 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. Work is currently underway to reclassify many of the historic sites that are currently included in the RDMS where the rail has been replaced and no new RCF exists. Much of the 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 and regular inspection.

Track geometry – 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 (PTG). Results are expressed for the network as a whole, England & Wales (E&W), Scotland and the remaining eight operating routes. The former London North Eastern (LNE) route was split during 2008, the new Midland & Continental (M&C) route comprising former East Midlands area, the remainder forming a smaller LNE route.

Reporting method

The assessment of track geometry is performed by track recording vehicles which measure and record the relative positions of the rail running surfaces, 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 80 mph and above. The resulting measurements are used in two ways:

- Identification of discrete geometry 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 better 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, are shown in the following tables:

- Table 3.8, which compares 31/3/09 network total condition with that for the previous five years.
- Table 3.9, which displays the 31/3/09 condition for each of the eight E&W operating routes, E&W as a whole, Scotland and network total. Tables 3.10 and 3.11 provide comparison with 31/3/08.

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
	50	90	100	50	90	100	50	90	100	50	90	100	
Standard	50	90	100	50	90	100	50	90	100	50	90	100	
Actuals													
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
31/3/09	76.5	94.6	98.8	82.5	96.2	98.3	78.3	96.6	97.9	89.9	98.3	98.9	A1

Increasing values indicate improvement

Table 3.9 Track geometry: standard deviations 31/3/09 (%)

	35 mm top (vertical displacement)			35mm alignment (horizontal displacement)			70m top (vertical displacement)			70m alignment (horizontal displacement)		
	50	90	100	50	90	100	50	90	100	50	90	100
Standard	50	90	100	50	90	100	50	90	100	50	90	100
Actuals												
London North Eastern	79.5	95.7	99.1	85.5	96.6	98.3	80.0	97.1	98.4	92.7	98.7	99.2
Midland & Continental	70.6	92.4	98.3	81.9	96.1	98.6	71.6	94.9	96.8	88.8	97.9	98.8
London North Western	75.8	94.5	98.9	84.4	96.6	98.5	77.0	97.3	98.4	90.8	99.2	99.5
Anglia	76.8	93.7	98.3	74.7	94.6	97.8	78.4	95.3	96.8	82.5	95.1	96.9
Kent	73.1	94.8	99.2	77.6	94.9	97.5	74.8	96.8	98.5	80.9	96.2	97.3
Sussex	74.9	92.6	98.1	78.6	94.0	97.1	76.3	95.2	96.8	80.9	95.7	97.0
Wessex	71.5	91.8	97.7	79.7	95.5	98.0	80.9	96.5	97.7	86.9	97.0	98.0
Western	78.8	94.8	98.7	86.3	97.6	98.8	81.2	96.7	98.1	93.5	99.2	99.5
England & Wales	76.3	94.3	98.7	82.9	96.3	98.3	78.3	96.6	98.0	89.8	98.2	98.9
Scotland	77.3	95.9	99.1	80.0	95.4	98.1	78.1	96.3	97.7	90.5	99.0	99.4
Network total	76.5	94.6	98.8	82.5	96.2	98.3	78.3	96.6	97.9	89.9	98.3	98.9

Increasing values indicate improvement

Table 3.10 Track geometry: standard deviations 31/3/08 (%)

	35m top (vertical displacement)			35m alignment (horizontal displacement)			70m top (vertical displacement)			70m alignment (horizontal displacement)		
	50	90	100	50	90	100	50	90	100	50	90	100
Standard	50	90	100	50	90	100	50	90	100	50	90	100
Actuals												
London North Eastern	76.5	94.8	98.9	85.0	96.3	98.0	76.9	96.1	97.7	91.9	98.5	99.2
Midland & Continental	67.5	91.0	98.1	82.0	95.8	97.8	69.3	94.1	96.5	87.6	97.5	98.3
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
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
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
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
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

Table 3.11 Comparison of track geometry standard deviations 2009 with 2008 (percentage points)

	35m top (vertical displacement)			35m alignment (horizontal displacement)			70m top (vertical displacement)			70m alignment (horizontal displacement)		
	50	90	100	50	90	100	50	90	100	50	90	100
Standard	50	90	100	50	90	100	50	90	100	50	90	100
Actuals												
London North Eastern	2.94	0.94	0.27	0.50	0.29	0.32	3.06	1.06	0.69	0.83	0.17	0.07
Midland & Continental	3.08	1.43	0.16	-0.17	0.33	0.74	2.28	0.77	0.33	1.28	0.37	0.46
London North Western	1.79	0.59	0.15	-0.47	0.06	0.22	2.69	1.07	0.60	0.82	0.23	0.17
Anglia	4.79	1.41	0.63	-3.71	0.32	0.67	8.11	4.01	2.68	5.84	0.43	0.53
Kent	3.94	0.40	0.22	2.56	1.29	0.71	7.50	1.05	0.87	5.92	0.61	0.08
Sussex	3.72	0.29	-0.08	2.72	1.39	0.71	8.38	1.76	0.77	7.56	0.96	1.06
Wessex	4.93	1.53	0.35	0.81	1.07	0.66	5.67	1.03	0.47	3.39	0.07	0.05
Western	3.45	0.55	0.09	1.64	0.80	0.46	3.04	0.46	0.23	0.45	0.26	0.20
England & Wales	3.15	0.83	0.21	0.25	0.49	0.44	3.90	1.13	0.67	1.85	0.29	0.22
Scotland	0.86	0.10	-0.08	1.26	-0.28	0.14	1.52	0.38	0.27	2.92	0.16	0.19
Network total	2.84	0.73	0.17	0.40	0.39	0.40	3.60	1.04	0.62	1.99	0.27	0.22

Positive values indicate improvement

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 further all-round improvement in the year, the rate of improvement for top parameters continuing unabated, in alignment some slowing of improvement rate is unsurprising given the already high standards attained. Last year's return promised an investigation into why 70m alignment on the former South-Eastern Territory had deteriorated slightly in the year; the results demonstrate that this has been alleviated. Most significantly, improvements continue in the four 100 per cent parameters in line with the second and more challenging of the two aspects of the regulatory target.

With few exceptions, Tables 3.9 to 3.11 reinforce this view in the context of the operating routes. The reduction of 3.7 percentage points for Anglia 50 per cent alignment is not as significant as it might at first appear, given that the reported achievement of 74.7 per cent is comfortably in excess of the 50 per cent standard. This will nevertheless be monitored and addressed by maintenance as necessary. The 0.08 percentage point reductions in Sussex and Scotland 100 per cent top, whilst they represent increased breach of the 100 per cent target, are too small to be of serious concern.

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) with particular emphasis on those which exceed 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 eight E&W operating routes, E&W as a whole, Scotland and network total for 31/3/09 and the five preceding years, from beginning to end of Control Period 3.

Results

Operating routes	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
London North Eastern				2.25	1.86	1.47
Midland & Continental				3.04	2.41	1.94
London North Western	3.89	3.19	2.74	2.28	1.78	1.50
Anglia	6.15	4.33	3.95	4.32	3.41	2.41
Kent	4.57	3.50	3.35	2.94	2.53	1.97
Sussex	4.78	3.97	3.92	4.29	3.40	2.96
Wessex	4.97	4.07	3.40	3.69	2.91	2.41
Western	3.45	2.56	2.28	2.29	1.70	1.41
England & Wales	4.07	3.17	2.87	2.73	2.16	1.74
Scotland	2.60	2.56	2.07	1.77	1.65	1.54
Network total	3.87	3.09	2.77	2.60	2.09	1.72
Confidence grade	A2	A1	A1	A1	A1	A1

Decreasing values indicate improvement. Former LNE became LNE and M&C during 2008/09, and the new routes calculated back to 31/3/07

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 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

The underlying data from which Poor Track Geometry is calculated 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

Significant improvement in the year demonstrates the effectiveness of planned maintenance and renewals activities throughout the network.

Changes in Track Geometry reporting in CP4, starting 1 April 2009

As a result of source and processing changes introduced with effect from the beginning of CP4, results corresponding to those printed to date will be appear worse, for the following reasons:

1. The database for storing track geometry recording data has been updated to exploit new technology in the on-board measurement systems of track recording vehicles, which is able to identify and record more accurately track in the vicinity of switches and crossings. Thus additional recording data is now included in the analysis addressing track which was previously either not identified or not accurately recorded. Such track usually has worse than average track geometry.
2. Substitution by valid earlier recording data is made, where available, for failed recordings. Failed recordings occur disproportionately on below-average quality track; furthermore, because track geometry is improving with time, earlier recordings are predominantly worse than successful current recordings.
3. Changes in track standards affecting criteria for assessing track geometry quality. In general these introduce more onerous conditions.

Reported track geometry has been recalculated in CP4 both for the current year-end and for year-ending 31/3/2008, and the recalculated figures will be used in future annual returns.

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 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:

$$\text{Severity score} = LT(1-F)$$

where:

- L is the length of the speed restriction site measured to three decimal points (miles)
- T is the duration of the speed restriction in weeks, measured by the day (e.g. two 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 four weeks or more)
- F is the fraction of the imposed (restricted) speed divided by the linespeed

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

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

$$F = \left(\frac{\text{lowest imposed speed}}{\text{lowest linespeed}} + \frac{\text{highest imposed speed}}{\text{highest linespeed}} \right) / 2$$

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 1 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 3.13 Track temporary speed restrictions

Operating routes	2007/08 TSR sites	2007/08 Severity score	CG	2008/09 TSR sites	2008/09 Severity score	CG
London North Eastern	91	428		82	362	
Midland & Continental	56	688		35	660	
London North Western	248	983		168	812	
Anglia	12	233		21	153	
Kent	29	20		16	50	
Sussex	10	4		6	5	
Wessex	50	109		33	20	
Western	51	224		32	167	
England & Wales	547	2,688		394	2,222	
Scotland	46	57		22	37	
Network total	593	2,745	B2	415	2,259	B2

Table 3.14 Structures temporary speed restrictions

Operating routes	2007/08 TSR sites	2007/08 Severity score	CG	2008/09 TSR sites	2008/09 Severity score	CG
London North Eastern	2	9		4	7	
Midland & Continental	0	0		0	0	
London North Western	1	1		0	0	
Anglia	0	0		1	1	
Kent	0	0		1	3	
Sussex	0	0		0	0	
Wessex	0	0		2	2	
Western	8	1		0	0	
England & Wales	11	11		8	13	
Scotland	2	0		0	0	
Network total	13	11	B2	8	13	B2

Table 3.15 Earthworks temporary speed restrictions

Operating routes	2007/08 TSR sites	2007/08 Severity score	CG	2008/09 TSR sites	2008/09 Severity score	CG
London North Eastern	7	18		1	1	
Midland & Continental	0	0		0	0	
London North Western	4	5		1	2	
Anglia	0	0		2	1	
Kent	1	4		2	1	
Sussex	0	0		1	1	
Wessex	0	0		4	4	
Western	10	6		4	2	
England & Wales	22	33		15	12	
Scotland	0	0		0	0	
Network total	22	33	B2	15	12	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 2007/08 levels, when there were 593 TSRs due to condition of track, 13 due to condition of structures and 22 due to condition of earthworks.

Reporting confidence

Condition of Track – the reporting confidence is at a similar level to the 2007/08 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 2008/09 there was a 30 per cent reduction in the number of TSR sites and a greater than 15 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 London North Western, 54 per cent of the severity score arises from TSRs on only three secondary routes: the Bedford to Bletchley line (26 per cent), the Buxton (Peak Forest) freight branch (16 per cent) and the Settle & Carlisle line (11 per cent). In Anglia, over 80 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 arising was the need to use the route as a freight diversionary route due to the six month bridge closure following the Soham derailment last year. Midland & Continental is now shown as a separate Route (it was previously reported as part of LNE Territory). Nearly 85 per cent of Midland & Continental's Severity score is for one TSR site on the Leicester to Burton branch, a freight-only route with a maximum of 40 trains per day.

Structures and Earthworks TSRs

The overall number for condition of structures related TSR sites and associated severity score remains very low. The absence of sites on Western Route is contrasted by some occurrences in the South East. Just two sites remain at year-end, both on London North Eastern Route, having also been in place throughout 2007/08. One of these, at Heaton South Junction accounts for 6.6 of the severity score. Of the six new sites during 2008/09 none exceeded 15 weeks and the highest individual severity score was 2.8 from 76 days at Bo Peep tunnel (Kent).

The number and severity score for earthworks related TSR sites has significantly decreased nationally. London North Eastern Route having just one is a major factor in this but the South East incurred more than previously. The only carried forward/ longstanding site at Sebastopol on Western Route was removed in September 2008 having contributed 1.0 to the 2008/09 severity score, (2.1 previous year). Eight sites remain at the end of 2008/09, the earliest at Winchfield (Wessex) contributing 1.8 severity since September 2008. The highest individual severity score effect is at Upwey/Bincombe (Wessex) with 2.0 since mid February 2009. This is one of the six, occurring after mid January 2009 and still active. Of the removed TSR sites only the nineteen weeks at Chinley on London North Western contributed more than 1.5 to severity.

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 3 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.

The table below displays achievement at 31/3/09, and for the previous five years, for each of the eight 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.

Results

Table 3.16 Level 2 exceedences per track mile

Operating routes	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
London North Eastern				0.69	0.59	0.52
Midland & Continental				0.62	0.48	0.40
London North Western	1.36	1.10	1.01	0.76	0.63	0.55
Anglia	1.77	1.24	1.06	0.93	0.74	0.50
Kent	0.86	0.60	0.59	0.49	0.43	0.33
Sussex	1.02	0.93	0.80	1.01	0.63	0.52
Wessex	1.22	0.95	0.93	0.98	0.74	0.58
Western	1.08	0.92	0.75	0.67	0.55	0.50
England & Wales	1.19	0.95	0.85	0.74	0.60	0.51
Scotland	0.72	0.67	0.63	0.57	0.46	0.48
Network total	1.13	0.91	0.82	0.72	0.58	0.50
Confidence grade	A2	A1	A1	A1	A1	A1

Decreasing values indicate improvement. Former LNE became LNE and M&C during 2008/09, and the new routes calculated back to 31/3/07

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

Continuing improvement throughout England & Wales is evidence of the benefits gained from effective targeting of maintenance and renewals. A contributory factor is the continuing above-average annual rainfall, promoting long-term recovery from the severe deterioration caused by drought conditions in the summers of 2003 and 2006, with its destabilising effect on alluvial clay formations. This particularly benefits Anglia, Kent, Sussex and Wessex routes, where the drought-susceptible soil conditions are most prevalent.

The prevailing geological soil structure in Scotland is, by contrast, relatively immune to drought conditions, consequently there is no drought-recovery benefit to be gained. As has been predicted for some time, the incidence of L2 exceedences has reached a standard on which it has become difficult to improve, which would explain the small deterioration. This might well become the case on the remainder of the network in future years.

Changes in Track Geometry reporting in CP4, starting 1 April 2009

A brief explanation is provided, at the end of Section M3, of the source and processing changes being introduced for CP4 which will have the general effect of making reported track geometry appear worse. These changes will include the standards changes to L2 definitions anticipated in the above Definition section, improving the sensitivity of measure M5 as a safety parameter. A further change applying in CP4 will be that M5 will be presented in terms of L2/100km instead of L2/mile. The effect of this on CP3 results is illustrated in the table below, generated by applying a conversion factor of 62.14 to the figures in above Table 3.16.

Table 3.17 Level 2 exceedences per 100 km

Operating Routes	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
London North Eastern				43.0	36.5	32.0
Midland & Continental				38.2	30.0	24.8
London North Western	84.7	68.5	62.6	47.3	38.8	34.3
Anglia	109.8	76.8	65.6	57.8	45.9	31.0
Kent	53.7	37.6	36.5	30.6	26.7	20.5
Sussex	63.6	57.5	49.8	62.5	39.2	32.2
Wessex	76.1	58.8	57.5	60.9	46.0	36.3
Western	67.3	57.1	46.6	41.7	34.2	31.0
England & Wales	73.9	59.1	52.8	46.2	37.2	31.4
Scotland	44.7	41.3	39.3	35.3	28.4	29.8
Network total	70.0	56.7	50.9	44.7	36.0	31.2
Confidence Grade	A2	A1	A1	A1	A1	A1

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 from Hazard Reports and in the Daily National Incident Log. These are checked with the Territory Civil Engineers at the year end 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 was one derailment on Network Rail infrastructure in 2008/09 due to an earthwork failure. This was a passenger train derailment at Stromeferry on the Kyle line in Scotland operating route on 18 November 2008. The train derailed after colliding with debris from a cliff failure that originated outside the Network Rail boundary.

The decrease in earthwork failures to 61 in 2008/09 (down from 107 in 2007/08 and against a target of 47 which was the number reported in 2003/04) is attributed to reduced failures on Western, LNE and LNW operating routes. The actions we are taking to reduce earthwork failures involve to continue earthworks examination and repair work, and drainage inspections and remediation work.

Results

Table 3.18 Earthworks failures

Operating routes	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
London North Eastern	3	3	7	8	27	7
Midland & Continental	0	1	1	3	1	1
London North Western	8	21	3	5	20	9
Anglia	7	5	2	6	2	0
Kent	1	1	1	5	0	6
Sussex	0	1	0	10	2	2
Wessex	0	0	2	5	5	7
Western	21	11	18	37	42	15
England & Wales	40	43	34	79	99	47
Scotland	7	11	7	11	8	14
Network total	47	54	41	90	107	61
CG	AX	AX	A2	A2	A2	A2

Although the number of earthworks failures recorded was higher than the CP3 target it would be wrong to conclude that this indicates an overall deterioration in the condition of embankments and cuttings or our stewardship responsibilities. The following factors need to be read in conjunction with this single target:

1. The measure is particularly affected by the frequency of extreme local weather events as evidenced by the fluctuation across our Routes from year to year and the large numbers that followed the exceptional weather events of 2006/07 and 2007/08.
2. The base year, 2003/04, was the first year the measure was reported and did not comprise a long term average.
3. Hazard scoring of slope failures shows that the severity of hazard scores have been decreasing over CP3 indicating that appropriate prioritisation of remediation work is taking place.
4. There is some evidence that our programme of tree management, though improving safety and overall network performance, has produced a marginal short term increase in reported slope failures while grass and shrubs re-establish and appropriate remediation is made to slopes.

Network Rail continues a programme of examinations, including drainage inspections, and remediation work as appropriate to minimise the risk of failure.

Bridge condition (M8)

Definition

The bridge condition grade is a measure from one to five, with one representing good condition and five 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 five 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 3.1) showing the cumulative number of bridges assessed since 2000 on a 1-100 scale. Additionally, bridge mark data is collated into each of the five condition grades, and numbers of bridges reported by band (in Table 3.19).

Results

Figure 3.1 SCMI score distribution – all structures

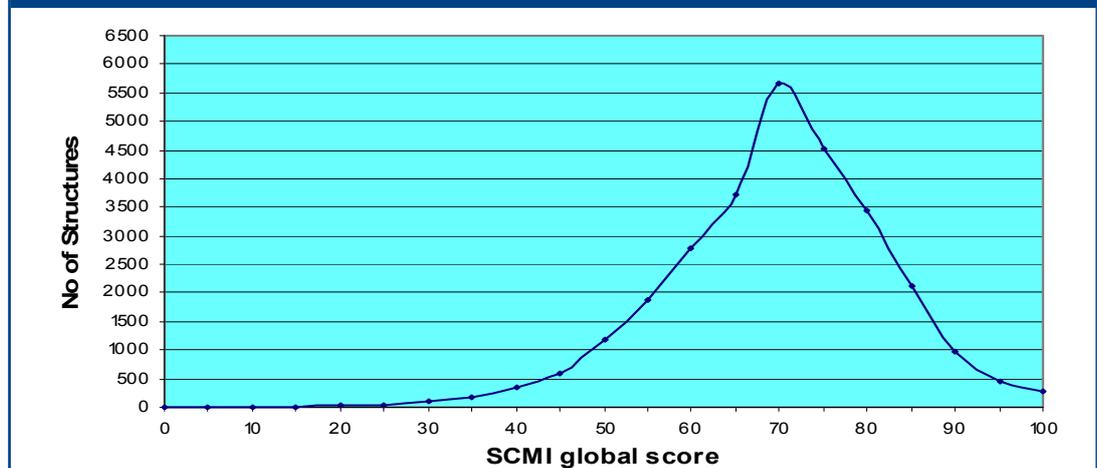


Table 3.19 Bridge condition index (annual assessments)

Bridge condition grade	Equivalent SCMI value	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
1	80-100	733	793	855	603	615	524
2	60-79	2,067	3,193	3,263	2,582	2,545	2,623
3	40-59	789	923	1,217	1,030	924	886
4	20-39	126	90	94	122	83	85
5	1-19	3	5	1	7	1	4
Total no. examined		3,718	5,004	5,430	4,344	4,168	4,122
Average condition grade		2.1	2.1	2.1	2.2	2.1	2.1

Regulatory target

It has been discussed and agreed with the ORR that a full target and tolerance cannot be established until all bridges have undergone SCMI which is anticipated to be 2008/09. By the end of 2008/09 over 90 per cent of the structures suitable for SCMI have been scored.

There are several indicators that could be established from SCMI. These include the median condition index, the statistical spread from this median, the number of structures that are in the poor category and the changes in condition identified from second phase results. However, it is recognised that some considerable analysis and statistical work will be required before to develop a reliable metric.

We have presented some outputs which could be used for future monitoring.

Reporting confidence

The confidence grades allocated for this measure are C3 for numbers of bridges in each condition grade (1-5) and C3 for the average condition grade for the inspected bridges stock. The implication of these confidence grades will be discussed as part of a general review we are undertaking.

Second phase reports

Second phase SCMI reports are now being undertaken. We have not produced any outputs in this document as we plan to carry out a data quality review of this activity.

Update on current processes

The Civils Asset Register and Reporting System (CARRS) has been implemented nationally and is now the process for receiving examination reports from our examination contractors. This has replaced locally derived Territory data processes. The processes are now electronic with examinations being received in pdf format.

SCMI data continues to be transferred directly to the Territories on discs and each Territory uploads data into the SCMI data base. Currently there is no interface between CARRS and the SCMI server.

Risk based examination intervals have been introduced for bridges. This optimises the level of examination with the risk of the bridge. Two key factors in the determination of risk are the SCMI score and the assessed capacity of the bridge. In general terms, visual examinations continue to be carried out annually and the interval for detailed examinations can vary between three and 18 years. The option to adopt a bespoke examination regime for any structure remains.

As SCMI benchmarking is an intrinsic part of the detailed examination the intervals for SCMI will vary in the future.

A new examination contract has been let for 2009/10. The previous Territory based examination contractors have been replaced by a single national contractor. This will allow us to mutually develop our processes on examination and reporting.

Commentary

The average condition index calculated on this years SCMI inputs remains at 2.1.

There are several plans for the development of SCMI. These include the integration of the SCMI into the current examination format. This will follow along similar lines to the new tunnel examination format where we have developed and introduced an equivalent marking index (TCMI).

With the introduction of risk based examination intervals SCMI becomes a key indicator in the examination process. The visual examinations will treat the previous SCMI elemental scores as a benchmark and any significant deterioration can be used as a trigger to review the current examination interval.

The process of doing second phase examination has been recognised as an important activity. The comparison of scores and the potential to develop deterioration indices will provide important information for long term management of structures. This information will also allow trends to be established and provide confidence to any risk models we develop in the future. It is our intention to work with the new examination contractor not only to enhance this particular activity but also to improve the consistency of the outputs.

The examination contractor has a dedicated training team which includes SCMI and other competencies and it is the intention to work directly with this team to improve the initiative outlined above.

As we approach the end of the first phase of SCMI assessment we are reviewing the outputs and are considering whether some should be re-baselined. This will be discussed with the ORR through the regular technical liaison meetings.

Signalling failures (M9)

Definition

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

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 per annum).

The regulatory target has been comfortably beaten.

Reporting confidence

Train running information is reported in TRUST. All signalling failures are also reported in FMS (Fault management System) and are allocated to areas (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 Routes within the overall value given.

Significant changes since Annual Return 2008

The former London North Eastern Route has been separated into two Routes, London North Eastern and Midland & Continental.

Results

Table 3.20 Number of signalling failures

Operating routes	2007/08 No.	No. per million train km	2008/09 No.	No. per million train km	CG
London North Eastern	3,066	41*	3,023	36	
Midland & Continental	902		696	27	
London North Western	5,807	54	6,206	55	
Anglia	1,506	36	1,358	29	
Kent	1,014	32	1,124	33	
Sussex	858	30	947	30	
Wessex	1,611	36	1,271	28	
Western	2,953	46	2,897	42	
England & Wales	17,717	44	17,522	39	B3
Scotland	2,183	50	2,100	43	B3
Network total	19,900	43	19,622	39	B3
Regulatory target	28,098	59	28,098	59	

* Combined figure for London North Eastern and Midland & Continental

Commentary

The Network performance has been compared with the 2003/04 baseline figures. These figures show a significant and steady improvement since the 2003/04 baseline and are a further slight improvement over the 2007/08 values.

There was an overall reduction of 1.5 per cent in the number of failures in 2008/09 compared with 2007/08 and of 30 per cent compared with the 2003/4 baseline value. There was a significant increase of train running mileage of eight per cent in 2008/09 compared with 2007/08 and an increase of four per cent compared with the 2003/4 baseline value. The comparative value of national failures per million train kilometres run shows a reduction of four from the 2007/08 value and a significant reduction of 19 compared with the baseline value. Five routes showed an improvement compared with the previous year while three routes, having had a significant reduction in previous years, remained largely unchanged.

Light emitting diode (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.

Axle counters are being installed in greater numbers across the network and are replacing track circuits in many areas. They have several benefits, including the removal of rail joints, which therefore reduces track defects, including broken rails at track joints. Performance issues with specific batches of new equipment have been highlighted and are being addressed. As one axle counter evaluator controls multiple train detection sections, an axle counter equipment failure can have a far greater impact on the train service than an equivalent track circuit failure.

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.

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 one is good and five is 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.

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 1,645. Of these, 23 have been renewed in the last five years and as such do not require a current SICA assessment. This leaves a balance of 1,622 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.

The total population of signalled level crossings requiring a SICA assessment on Network Rail infrastructure is 1,604. Of these, 14 have been renewed in the last five years and as such do not require a current SICA assessment. This leaves a balance of 1,590 level crossings requiring a valid SICA assessment. Currently two level crossings have outstanding SICA assessment. Both of these are in Anglia and are due to access issues. Therefore the total Network Rail coverage for valid SICA assessments is 99.9 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 2.39, representing a slightly lower average interlocking age and thus surpassing the regulatory target. Whilst no target is currently set for the average condition of level crossings this currently stands at 2.21.

Results

Table 3.21 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	2008/09	CG
1	>20	0	5	8	3	5	9	
2	10 to 20	736	782	1,024	965	1,022	1,030	
3	3 to 10	559	626	530	520	518	546	
4	<3	98	97	51	20	15	24	
5	At end of life	0	0	0	14	15	13	
Average condition grade		2.5	2.5	2.39	2.39	2.38	2.39	
Total number assessed		1,393	1,510	1,613	1,522	1,575	1,622	B3

Table 3.22 Signalling condition index by operating route

Operating routes/ condition grade	1	2	3	4	5	Total 2007/08	CG	1	2	3	4	5	Total 2008/09	CG
London North Eastern *	2	279	140	4	1	426	B3	6	273	137	10	4	430	
London North Western	1	231	141	3	2	351	B3	2	263	111	6	2	384	
Anglia	1	98	25	3	6	133	B3	1	97	28	3	3	132	
Kent	0	51	31	1	2	85	B3	0	51	30	2	2	85	
Sussex	0	40	12	0	1	53	B3	0	39	21	0	0	60	
Wessex	0	55	26	3	1	85	B3	0	48	33	0	2	83	
Western	1	145	124	1	1	272	B3	0	143	136	1	0	280	
England & Wales	5	899	472	15	14	1,405	B3	9	914	496	22	13	1,454	
Scotland	0	123	46	0	1	170	B3	0	116	50	2	0	168	
Network total	5	1,022	518	15	15	1,575	B3	9	1,030	546	24	13	1,622	B3

Table 3.23 Level Crossing condition index by operating route

Territory/route	Total LX population	Total LX surveyed	1	2	3	4	5
London North Eastern *	637	637	48	518	70	1	0
London North Western	159	159	6	93	54	0	6
Anglia	241	239	1	186	50	2	2
Kent	67	67	0	55	11	1	0
Sussex	69	69	0	59	10	0	0
Wessex	107	107	0	84	21	2	0
Western	210	210	0	114	96	0	0
Scotland	100	100	0	60	40	0	0
Total	1,590	1,588	55	1,169	352	6	8

* includes Midland & Continental Route

Reporting confidence

Reporting confidence is stated as B3. The nature of the SICA tool means that an accuracy band better than three 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

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 and beyond.

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 M&E Maintenance Support 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 2008/09 network total (66) is slightly higher than 2007/08 (63) and 38 per cent lower than the regulatory target of 107 incidents.

A significant volume of construction works associated with the WCML 125mph upgrade, introduction of increased levels of train running and a sustained period of cold weather (ice/snow) during December/January have resulted in a number of early failures (burn in period) of new components in the West Coast South area. Failures in South East operating routes have increased from last year. Construction works associated with renewal of 1940s vintage OLE between Liverpool St and Chelmsford, re-call of Unimog 400 maintenance vehicles for safety modification and a sustained period of cold weather (ice/snow) are factors that have influenced the result. Failures in LNE operating route have improved since last year due to a reduction in maintenance delivery errors. Failures in Scotland operating routes have improved since last year. Delivery of OLE renewals and earlier implementation of campaign changes are factors that have influenced the result.

Results

Table 3.24 Electrification failures: overhead line

Operating routes	2004/05	2005/06	CG	2006/07	CG	2007/08	CG	2008/09	CG
London North Eastern	16	10	B3	14	B2	19	B2	15	B2
Midland & Continental	4	3	B3	2	BX	2	BX	4	BX
London North Western	28	20	B3	30	B2	27	B2	30	B2
Anglia	17	10	B3	18	B2	10	B2	13	B2
Kent	0	0	BX	0	BX	0	BX	0	BX
Sussex	0	0	BX	0	BX	0	BX	0	BX
Wessex	0	0	BX	0	BX	0	BX	0	BX
Western	0	0	BX	0	BX	0	BX	2	BX
England & Wales	65	43	B3	64	B2	58	B2	64	B2
Scotland	6	6	BX	5	BX	5	BX	2	BX
Network total	71	49	B3	69	B2	63	B2	66	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 M&E Maintenance Support 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 2008/09 network total (14) is higher than 2007/08 (9) and 53 per cent lower than the regulatory target of 30.

There were no failures reported in LNW and Anglia operating routes.

Whilst the overall trend in Wessex has remained static, failures in Kent and Sussex have increased from last year. Introduction of new trains and increased levels of train running are factors that have influenced the result.

Results

Table 3.25 Electrification failures: conductor rail

Operating routes	2004/05	2005/06	CG	2006/07	CG	2007/08	CG	2008/09	CG
London North Eastern	0	0	BX	0	BX	0	BX	0	BX
Midland & Continental	0	0	BX	0	BX	0	BX	0	BX
London North Western	1	0	BX	1	BX	0	BX	0	BX
Anglia	0	0	BX	0	BX	0	BX	0	BX
Kent	4	1	BX	2	BX	0	BX	2	BX
Sussex	5	3	BX	1	BX	5	BX	8	BX
Wessex	3	2	BX	7	BX	4	BX	4	BX
Western	0	0	BX	0	BX	0	BX	0	BX
England & Wales	13	6	BX	11	BX	9	BX	14	BX
Scotland	0	0	BX	0	BX	0	BX	0	BX
Network total	13	6	BX	11	BX	9	BX	14	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 a new Network Rail Standard NR/L3/ELP/27240 NR/DIST C19a due to be formally published in September 2009. The condition assessments are done through a combination of visual inspections and measurements at 25kV switchgear at feeder

stations and traction sectioning points. The condition assessment grade is a result of weighted pre-determined questions that consider the robustness of the installation, fitness for purpose and maintainability. The measure takes advantage of having maintenance in-house and developments in technology allowing 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.

Reporting confidence

The reporting confidence is BX as only 18 per cent locations has been inspected using the new measure. A desktop assessment for the remaining locations was carried out to develop a baseline figure.

Regulatory target

The preliminary regulatory target should be set to this year's average condition score of 2.78 but to be reviewed once a larger sample has been assessed through inspection.

Commentary

This measure includes a total of 298 locations of which 54 were assessed. All locations will be assessed over a five year period.

Results

Table 3.26 Electrification condition – AC traction 2008/09 year total

Condition grade	Network	South East	London North East	London North West	Scotland
1	15%	22%	19%	12%	8%
2	24%	13%	53%	4%	44%
3	32%	52%	28%	20%	35%
4	27%	13%	0%	59%	13%
5	2%	0%	0%	5%	0%
Average condition grade	2.78	2.61	2.18	3.39	2.6

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.

The measure reports the percentage of HV & DC substations falling within each of the defined condition grades.

Reporting method

The national report has been produced in accordance with a new Network Rail Standard NR/L3/ELP/27240 NR/DIST C19b due to be

formally published in September 2009. The condition assessments are done through a combination of visual inspections and measurements at HV & DC substations. The condition assessment grade is a result of weighted pre-determined questions that consider the robustness of the installation, fitness for purpose and maintainability. The measure takes advantage of having maintenance in-house and developments in technology allowing 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.

Reporting confidence

The reporting confidence is BX as only 10 per cent of the assets have been assessed under the new measure.

Regulatory target

The preliminary regulatory target should be set to this year's average condition score of 2.53 but to be reviewed once a larger sample has been assessed through inspection.

Commentary

This measure includes a total of 668 locations of which 70 were assessed. All locations will be assessed over a five year period.

Results

Table 3.27 Electrification condition – DC traction substation 2008/09 year total

Condition grade	Network	South East	London North Eastern	London North Western	Scotland
1	11%	8%	50%	6%	N/A
2	37%	46%	17%	19%	N/A
3	41%	31%	16%	75%	N/A
4	11%	15%	17%	0%	N/A
5	0%	0%	0%	0%	N/A
Average condition grade	2.53	2.52	2.09	2.74	N/A

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 one is good and five 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

Data this year has been collated mainly from East Coast Main Line technical surveys pending national rollout of assessment via maintenance inspections (Ellipse workbank). The additional three per cent surveyed this year has resulted in a slight improvement to the average condition score from 1.7 to 1.6.

Table 3.28 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	2000/09 9-year total contact wire/key components	CG
1	35%	39%	39%	38%	38%	42%	43%	
2	55%	53%	53%	54%	54%	51%	50%	
3	10%	9%	8%	7%	7%	7%	7%	
4	0%	0%	0%	0%	0%	0%	0%	
5	0%	0%	0%	0%	0%	0%	0%	
Average condition grade	1.8	1.7	1.7	1.7	1.7	1.7	1.6	B4
Percentage of assets surveyed	11%	15%	17%	21%	27%	30%	33%	

Table 3.29 Electrification condition – AC traction contact system

Condition grade	London North Eastern	London North Western	Scotland	South East	Western
1	41%	38%	57%	42%	80%
2	52%	55%	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	33%	43%	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 one is good and five 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 seven per cent of Aluminium Stainless Steel composite rail surveyed this year in London North West area (Merseyrail), has not changed the national average condition score from 1.9.

Removal of minor duplications within the database (data cleansing) account for the one per cent reduction in percentage of South East assets surveyed compared to last year.

Results

Table 3.30 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	2000/09 9-year total conductor rail	CG
1	37%	37%	35%	39%	35%		35%		36%	
2	42%	44%	44%	41%	42%		42%		42%	
3	16%	16%	18%	18%	19%		20%		19%	
4	2%	2%	3%	2%	3%		3%		3%	
5	0%	0%	0%	0%	0%		0%		0%	
Average condition grade	1.8	1.8	1.9	1.8	1.9	B3	1.9	B3	1.9	B3
Percentage of assets surveyed	–	64%	68%	69%	70%		71%		71%	

Table 3.31 Electrification condition – DC traction contact system

Condition grade	London North Western	South East	London North Eastern
1	55%	35%	–
2	30%	43%	–
3	11%	20%	–
4	3%	3%	–
5	0%	0%	–
Average condition grade	1.6	1.9	–
Percentage of assets surveyed	36%	74%	0%

Note: There are no DC assets in Scotland and Western Operating Routes. London North Eastern Operating Route has 9km which accounts for 0.2 per cent of the network. This was renewed in the mid 1970s.

Station stewardship measure (M17) Definition

This is the average condition rating of each station where trains make timetabled stops and Network Rail is the operator.

The score is calculated by assessing the asset remaining life of each element of a station by visual inspection and combining into an overall station score. The scale represents the remaining life, as a percentage of the expected life, of all measured assets at a station, on a scale of 1-5. It has been adopted as a standard method for assessing the condition of a variety of asset types.

Regulatory target

The target is to achieve an average national Station Condition Index (SCI) of 2.25 at the end of CP3. Regulatory targets are set against the new Station Stewardship Measure (SSM) for CP4. The two measures are not comparable.

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). From 2007 the data formulating the SSM score has been determined from the Operational Property Asset System (OPAS) survey data collected from 2,140 stations throughout the year (of the 2,526 total). The methodology for the SSM score and the strategy for the supporting data collection were developed in consultation with ORR. The SSM introduced relative weighting between different assets according to their importance. The breadth of data and number of assets surveyed per location has grown considerably since last year, and will

continue to grow over the control period. This increase in the volume and detail of the information held will allow us to manage our assets more effectively.

As the SSM is a new measure the score cannot be directly compared with the SCI measure. However, the SCI score, for the population of data collected in CP3, of 2,398 stations, is given above for completeness. The SCI score has also been derived from OPAS, using the full breadth of asset data collected.

The latest data shows an improvement in the SCI and SSM scores (eight per cent and nine per cent respectively). For example, the average SCI score reported has changed from 2.24 in 2007/08 to 2.08 in 2008/09. The average SSM has changed from 2.71 to 2.48. Although this does not represent a direct improvement in asset condition on a like-for-like basis, it stems from an increase in the breadth of data used to give the scores. Essentially the reason for the improvement is that the OPAS system has recorded significantly more elements at stations; the total number of stations in the survey has not appreciably changed. The 2007/08 score was based on elements representing 80 per cent of Network Rail's maintenance and renewal spend, as agreed with the ORR. These elements comprise only about 20 per cent of the full asset population. OPAS is now being populated with the remaining 80 per cent of the asset population and these extra elements are in better condition, in fact the sample size in 2008/09 in terms of elements (or sub-components of station assets) is about double previous years. The effect of the large volume of extra data in better condition than previous samples is giving rise to an improved score, which more accurately reflects the overall condition of stations. As the data breadth is increased over the control period, the accuracy of the measure will improve.

Results

Table 3.32 Station condition measures

Station category	SSM	2008/09 results	
			SCI
All network			
A – national hub	2.33		2.10
B – regional hub	2.42		2.10
C – important feeder	2.49		2.10
D – medium, staffed	2.53		2.07
E – small, staffed	2.54		2.07
F – small, unstaffed	2.54		2.07
Average	2.48		2.08

Scoring scale: Grade 1 good, grade 5 poor

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 2.52.

Reporting confidence

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

Commentary

The overall score during 2008/09 dipped slightly from previous year's 2.49 to 2.52. A contributory factor is the removal of 10 LMDs from the sample because they are now on 'Full Repairing' leases (Network Rail has no responsibility for the maintenance and repair of the elements within these LMDs).

The inspections are conducted on a rolling five year cycle.

Results

Table 3.33 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)	2001/09 8-year total no. of depots (in each grade)
1	–	2	2	2	2	3	0
2	3	17	17	27	38	44	36
3	13	15	15	20	35	34	38
4	5	5	5	5	6	4	1
5	0	0	0	0	0	0	0
Total	21	39	39	54	81	85	75
Average condition grade	3.04	2.63	2.63	2.58	2.58	2.49	2.52

Table 3.34 Light maintenance depot condition assessment in 2008/09

Operating routes/ condition grade	1	2	3	4	5	Total	Average condition grade 2008/09
London North Eastern*	0	6	8	0	0	14	2.59
London North Western	0	8	6	0	0	14	2.44
Anglia	0	2	6	1	0	9	2.83
Kent	0	3	2	0	0	5	2.36
Sussex	0	1	0	0	0	1	2.31
Wessex	0	6	4	0	0	10	2.38
Western	0	7	6	0	0	13	2.51
England & Wales	0	33	32	1	0	66	2.52
Scotland	0	4	5	0	0	9	2.56
Network total	0	37	37	1	0	75	2.52

Scoring scale: 1 good, 5 poor. * includes Midland & Continental Route

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. A lower index value indicates a better level of asset stewardship.

The results for the year and previous three are as follows and the incentive target for the end of the control period (2008/09) is noted.

Commentary

The year 2008/09 has shown a further reduction in this index, with improvements across five of the contributory indicators offset by an 11 per cent increase in the number of electrification failures (sections M11 and M12) and a slight (one per cent) increase in points/track circuit failures. The most notable improvements are Level 2 exceedences and structures and earthworks temporary speed restrictions (refer to sections on M4 and M5 earlier in this section for more details). The incentive targets for all contributory measures have been met and have achieved the maximum RAB addition for this control period (CP3).

The value of the index at the end of CP2 was 1.091 and by the end of CP3 it stood at 0.596 which represents a 45 per cent improvement.

Results

Table 3.35 Asset stewardship incentive index

Asset measure	Weightings	2005/06	2006/07	2007/08	2008/09
Track geometry	20%	0.835	0.806	0.723	0.679
Broken rails	15%	317	192	181	164
Level 2 exceedences	15%	0.820	0.720	0.580	0.502
Points/track circuit failures	10%	17,285	17,038	14,367	14,515
Signalling failures	20%	23,367	22,704	19,900	19,622
Electrification failures	10%	55	80	72	80
Structures and earthworks temporary speed restrictions	10%	48	40	35	23
ASII		0.803	0.723	0.634	0.596

Note: 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 2008/09 and the previous year along with our Business Plan targets (more onerous than the regulatory incentive) are as follows:

Table 3.36 Results for ASII compared to internal business plan targets

	2007/08 Actual	2007/08 Target	2008/09 Actual	2008/09 Target
ASII	0.634	0.700	0.596	0.610

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 (excluding WCRM). In addition, we have included our composite activity volumes measure which gives an indication of the overall renewals volume delivered for 2008/09. This includes information on renewals delivered for all asset types during 2008/09 compared to the volumes assumed in our Business Plan.

There were no regulatory targets set for the volume of renewal activity.

Track renewals

With track activity volumes (including rail, sleepers and ballast), 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.

The total composite volume of plain line (rail, sleepers and ballast) track renewal completed during the year was 2,704km, of this 2,025km was delivered under our core renewal contracts, 401km by our maintenance teams, 107km of additional work as part of our efficient engineering access programme and 171km from the WCRM project.

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 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Business Plan forecast 2008/09	Actual 2008/09
WCRM	132	44	10	48	16	57
Non-WCRM:						
London North Eastern	156	185	183	196	146	181
London North Western	141	237	189	202	161	278
Anglia	*	101	108	99	*	*
Kent	199	58	57	41	*	*
Sussex	*	27	52	29	270	330
Wessex	*	76	37	91	*	*
Western	139	265	283	237	250	260
England & Wales	635	949	909	895	827	1,049
Scotland	49	127	109	96	96	100
Network total	816	1,120	1,028	1,039	939	1,206

* Data for all four South East routes are combined

Sleepers renewed (M21)

Definition

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

Results

Table 4.2 Sleepers renewed: all types (kilometres)

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Business Plan forecast 2008/09	Actual 2008/09
WCRM	152	91	7	48	16	57
Non-WCRM:						
London North Eastern	122	130	137	167	126	129
London North Western	91	114	146	166	151	150
Anglia	*	83	79	67	*	*
Kent	151	27	33	21	*	*
Sussex	*	12	23	17	135	152
Wessex	*	52	29	43	*	*
Western	121	177	211	177	179	174
England & Wales	485	595	658	658	591	605
Scotland	33			57	80	73
Network total	670	744	738	763	687	735

Table 4.3 Concrete sleepers (kilometres)

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Actual 2008/09
WCRM	148	91	7	48	57
Non-WCRM:					
London North Eastern	48	58	67	65	89
London North Western	38	41	108	126	104
Anglia	*	37	*	48	*
Kent	125	27	119	14	92
Sussex	*	12	*	11	*
Wessex	*	48	*	31	*
Western	78	138	167	142	113
England & Wales	289	361	461	437	398
Scotland	15	17	47	30	50
Network total	452	469	515	515	505

* Data for all four South East routes are combined

Table 4.4 Timber sleepers (kilometres)

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Actual 2008/09
WCRM	1	0	0	0	0
Non-WCRM:					
London North Eastern	22	16	9	7	4
London North Western	0	11	1	1	2
Anglia	*	0	*	0	*
Kent	4	0	1	0	2
Sussex	*	0	*	0	*
Wessex	*	0	*	0	*
Western	0	7	6	0	3
England & Wales	26	34	17	8	11
Scotland	0	2	1	1	0
Network total	27	36	18	9	11

Table 4.5 Steel sleepers (kilometres)

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Actual 2008/09
WCRM	3	0	0	0	0
Non-WCRM:					
London North Eastern	52	58	61	95	36
London North Western	53	60	36	39	44
Anglia	*	47		19	*
Kent	22	0	44	7	58
Sussex	*	0	*	5	*
Wessex	*	3	*	12	*
Western	43	32	38	36	59
England & Wales	170	200	179	213	197
Scotland	18	39	25	26	23
Network total	191	239	204	239	220

* Data for all four South East routes are combined

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 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Business Plan forecast 2008/09	Actual 2008/09
WCRM	122	81	12	48	16	57
Non-WCRM:						
London North Eastern	129	177	256	253	265	234
London North Western	97	128	179	176	161	149
Anglia	*	85	80	67	*	*
Kent	158	27	35	21	137	131
Sussex	*	12	23	17	*	*
Wessex	*	52	29	43	*	*
Western	143	178	162	156	138	119
England & Wales	527	659	764	733	701	633
Scotland	36	59	74	56	87	73
Network total	685	798	850	837	804	763

Table 4.7 Full ballast renewal by excavation (kilometres)

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Actual 2008/09
WCRM	113	81	12	48	57
Non-WCRM:					
London North Eastern	53	68	72	76	114
London North Western	43	40	89	115	71
Anglia	*	33	*	38	*
Kent	126	18	90	12	66
Sussex	*	11	*	25	*
Wessex	*	34	*	9	*
Western	74	86	71	48	57
England & Wales	296	290	322	323	308
Scotland	18	20	21	16	35
Network total	427	391	355	387	400

* Data for all four South East routes are combined

Table 4.8 Partial reballast-automatic ballast cleaning (kilometres)

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Actual 2008/09
WCRM	9	0	0	0	0
Non-WCRM:					
London North Eastern	22	50	123	91	64
London North Western	1	28	54	26	43
Anglia	*	5	*	1	*
Kent	10	2	33	0	35
Sussex	*	0	*	0	*
Wessex	*	3	*	0	*
Western	35	59	54	73	33
England & Wales	68	147	264	191	175
Scotland	2	0	28	13	20
Network total	79	147	292	204	195

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

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Actual 2008/09
WCRM	0	0	0	0	0
Non-WCRM:					
London North Eastern	54	58	60	86	56
London North Western	53	61	36	37	35
Anglia	*	46	*	28	*
Kent	22	7	44	9	31
Sussex	*	2	*	18	*
Wessex	*	16	*	7	*
Western	34	32	37	34	28
England & Wales	163	222	177	219	150
Scotland	16	39	25	27	18
Network total	179	261	202	246	168

* Data for all four South East routes are combined

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. To convert the data in the tables to equivalent units we use a factor of 1.0 for a full renewal, 0.5 for a removed unit and 0.33 for a partial/reballasted renewal.

Results

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

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Business Plan forecast 2008/09	Actual 2008/09
WCRM	170	151	22	63	32	74
Non-WCRM:						
London North Eastern	56	75	47	73	91	93
London North Western	99	95	129	109	105	90
Anglia	*	21	17	43	*	*
Kent	92	9	3	2	105	77
Sussex	*	7	9	3	*	*
Wessex	*	69	75	34	*	*
Western	75	80	82	70	62	50
England & Wales	322	356	362	334	363	310
Scotland	19	13	58	39	43	35
Network total	511	520	442	436	438	419

Table 4.11 S&C abandonment (number of units)

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Business Plan forecast 2008/09	Actual 2008/09
WCRM	0	0	0	0	0	0
Non-WCRM:						
London North Eastern	0	0	11	48	11	34
London North Western	7	0	20	10	14	33
Anglia	*	0	*	8	*	
Kent	0	0	2	0	9	1
Sussex	*	0	*	2	*	
Wessex	*	2	*	8	*	
Western	6	24	29	18	8	8
England & Wales	13	26	62	94	42	76
Scotland	0	0	0	14	4	6
Network total	13	26	62	108	46	82

* Data for all four South East routes are combined

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

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Business Plan forecast 2008/09	Actual 2008/09
WCRM	46	0	0	0	0	0
Non-WCRM:			0			
London North Eastern	0	3	11	40	1	7
London North Western	0	0	1	9	1	12
Anglia	0	0		29	*	*
Kent	0	6		12	6	28
Sussex	0	5		0	*	*
Wessex	0	38		12	*	*
Western	2	0	6	9	7	22
England & Wales	2	52	18	111	15	69
Scotland	0	0	0	9	2	18
Network total	48	52	18	120	17	87

* Data for all four South East routes are combined

The figures in the above tables 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. The total number of equivalent S&C units renewed during the year was 489, of which 20 were delivered by our maintenance teams.

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 five per cent is two per cent for a control centre and three per cent for control equipment). 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 one SEU is recorded for renewal of the control circuitry interface (where applicable).

Commentary

During 2008/09 a total of 1,287 SEU were worked on, resulting in a volume of 781 equivalent SEU commissioned after adjusting for type of work undertaken. Additionally three control centres, capable of controlling 10,000 SEU, were brought into use. These resulted in an additional 200 SEU equivalents.

Results

	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	Business Plan forecast 2008/09	Actual 2008/09
WCRM	1,002	–	–	–	–	–
Non-WCRM:						
London North Eastern	246	3	322	311	132	135
Midland & Continental	–	–	–	–	103	173
London North Western	178	96	122	405	70	137
Anglia	14	1	15	0	148	52
Kent		63	18	77	0	0
Sussex	104	107	0	0	53	44
Wessex		0	0	429	59	59
Western	34	7	0	215	138	0
England & Wales	576	277	477	1,437	703	600
Scotland	100	1	4	4	292	381
Network total	1,678	278	481	1,441	995	981

The key variances to planned volumes relate to the rescheduling of Colchester to Clacton resignalling and the recognition of SEU volumes for control centre buildings. The buildings were scheduled and completed in 2007/08 but were not operational until 2008/09.

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

Large signalling renewals – framework contractor

- Basingstoke Area Upgrade
The second stage of Basingstoke Area Infrastructure Upgrade (59 SEU) was completed in May 2008
- North Erewash resignalling (Part 1b)
The second stage of the Erewash Valley resignalling programme (SSI) with 103 SEU
- Glasgow Central resignalling and recontrol
Glasgow consisted 289 SEU resignalled and an additional 482 SEU recontrolled to West of Scotland Signalling Centre. The equivalent total volume of 313 SEU is reported
- Colchester to Clacton resignalling
The project was rescheduled during the year with 52 of 148 SEU being delivered in March 2009 and the remainder scheduled for completion in 2009/10.

Re-signalling – tendered works

- Lincoln station area
132 SEU commissioned September 2008
- Northampton resignalling
67 SEU commissioned November 2008
- Plean signal box abolition
8 SEU commissioned June 2008
- Bognor and Barnham resignalling
44 SEU commissioned November 2008.

Level crossings SEU element

The following projects were delivered:

- Thorpe lane level crossing July 2008
- Wood lane level crossing July 2008
- Balne level crossing September 2008.

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

Control systems and buildings

- East Midlands Signalling Centre which was completed in November 2007 was occupied following the completion of North Erewash. This building is designed to control 3,523 SEU of the East Midlands area under the national Control Strategy. At a two per cent rate this would be equivalent to 70 full-renewal SEU.
- West Midlands Signalling Centre which was completed during the year. This building is designed to control 3,500 SEU of the West Midlands area under the national Control Strategy. At a two per cent rate this would be equivalent to 70 full-renewal SEU.
- West of Scotland Signalling Centre which was occupied on completion of Glasgow Resignalling. This building is designed to control 2,993 SEU of the West Scotland area under the national Control Strategy. At a two per cent rate this would be equivalent to 60 full-renewal SEU.

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.

Results

Table 4.14 Bridge renewals and remediation: number by task category

	Preventative	Repair	Strengthen	Replace	Total
London North Eastern	14	25	6	32	77
London North Western	28	57	38	18	141
Anglia	20	12	6	2	40
Kent	4	2	3	0	9
Sussex	2	0	2	4	8
Wessex	3	0	2	1	6
Western	7	18	6	10	41
England & Wales	78	114	63	67	322
Scotland	12	5	4	15	36
Network total	90	119	67	82	358

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

	2004/05	2005/06	2006/07	2007/08	2008/09
London North Eastern	2,299	1,747	824	4,610	2,870
London North Western	3,202	1,866	6,993	7,854	2,776
Anglia	0	0	0	0	712
Kent	1,120	98	3,757	0	0
Sussex	0	18	155	75	883
Wessex	0	135	120	537	92
Western	630	1,079	218	3,657	908
England & Wales	7,251	4,943	12,067	16,732	8,240
Scotland	2,971	489	974	8,926	3,806
Network total	10,222	5,432	13,041	25,658	12,046

Commentary

The tables provide a summary of projects completed during periods one to 13 2008/09. Due to a 16 week lag in reporting CAF data, the tables include actual projects submitted in CAF between periods 1-9 and a business plan forecast (accrual) for projects completed between periods 10-13. The business plan forecast will be updated with actual volumes reported in CAF after Period 4 of the following year and used for internal reporting. Full visibility of CAF actual and business plan forecast breakdown has been provided.

Forecast figures for 2007/08 indicated there were 201 completed bridge projects but the actual outturn for the year was 358. The increase is primarily due to additional projects over the scheme value threshold being delivered through minor works and programmes of work which were indicated as a single line entry in the business plan. Minor works is a single line entry with budget in the business plan which can contain approximately 1000 projects per territory. Territories have now been given instructions to raise a new line entry through the change control process to identify all projects over £50k as a single line entry in the business plan.

The number of bridges £100k and greater completed in 2008/09 is 358 which is identical to the previous year. The percentage split across territories is also consistent across both years, however the mix of work types varies significantly with a reduction in strengthening and replacements to more preventative work. Variance in work type numbers between 2007/08 and 2008/09 is Preventative +66 per cent, Repair -2 per cent, Strengthen -13 per cent and Replace -23 per cent.

The metre squared area of deck replacement has reduced from 25,658m² in 2007/08 to 12,046m² in 2008/09 which is more in line with pre-2007/08 levels. The large volume spike in 2007/08 is also compounded by two specific projects with a very large deck area (LNW – Wellington Road 2,700m² and Scotland Almond Viaduct 7,039m²); these resulted in the higher outturn figure compared to the forecast reported last year.

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 2008/09: number by task category

	Preventative	Repair	Replacement	Total
London North Eastern	0	5	8	13
London North Western	0	3	6	9
Anglia	2	0	0	2
Kent	0	0	0	0
Sussex	1	0	0	1
Wessex	1	0	0	1
Western	1	3	1	5
England & Wales	5	11	15	31
Scotland	0	0	2	2
Network total	5	11	17	33

Commentary

The tables provide a summary of projects completed during periods one to 13 2008/09. Due to a 16 week lag in reporting CAF data, the tables include actual projects submitted in CAF between periods 1-9 and a business plan forecast (accrual) for projects completed between periods 10-13. The business plan forecast will be updated with actual volumes reported in CAF after Period 4 and used for internal reporting. Full visibility of CAF actual and business plan forecast breakdown has been provided.

Forecast figures for 2007/08 indicated there were 25 completed culvert projects but the actual outturn for the year was 44. The increase is primarily due to additional projects over £50k being delivered through minor works and programmes of work which were indicated as a single line entry in the business plan. Minor works is a single line entry with budget in the business plan which can contain approximately 1,000 projects per territory. Territories have now been given instructions to raise a new line entry through the change control process to identify all projects over £50k as a single line entry in the business plan.

Number of culverts £50k and greater has reduced from 44 in 2007/08 to 33 in 2008/09. The overall mix of work type has also altered with replacements making up approximately 51 per cent, preventative 16 per cent and repairs 33 per cent across 2008/09 culvert projects. The overall mix of work for 2007/08 was approximately replacement 36 per cent, preventative seven per cent and repairs 57 per cent.

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

Table 4.17 Retaining wall renewed 2008/09 schemes (number)

	Preventative	Repair	Replacement	Total
London North Eastern	0	1	1	2
London North Western	0	4	0	4
Anglia	0	0	1	1
Kent	0	0	0	0
Sussex	2	0	1	3
Wessex	1	0	0	1
Western	1	1	0	2
England & Wales	4	6	3	13
Scotland	0	2	0	2
Network total	4	8	3	15

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

	2004/05	2005/06	2006/07	2007/08	2008/09
London North Eastern	336	200	2,240	2,260	110
London North Western	99	0	0	11,779	2,517
Anglia	0	0	0	570	211
Kent	1,800	800	0	375	0
Sussex	0	6	0	1,800	2,249
Wessex	0	70	0	362	600
Western	400	940	0	61	100
England & Wales	2,635	2,016	2,240	17,207	5,787
Scotland	0	0	0	243	135
Network total	2,635	2,016	2,240	17,450	5,922

Commentary

The tables provide a summary of projects completed during periods one to 13 2008/09. Due to a 16 week lag in reporting CAF data, the tables include actual projects submitted in CAF between periods 1-9 and a business plan forecast (accrual) for projects completed between periods 10-13. The business plan forecast will be updated with actual volumes reported in CAF after Period 4 and used for internal reporting. Full visibility of CAF actual and business plan forecast breakdown has been provided.

Forecast figures for 2007/08 indicated there were seven completed retaining wall projects but the actual outturn for the year was 18. The

increase is primarily due to additional projects over £50k being delivered through minor works and programmes of work which were indicated as a single line entry in the business plan. Minor works is a single line entry with budget in the business plan which can contain approximately 1000 projects per territory. Territories have now been given instructions to raise a new line entry through the change control process to identify all projects over £50k as a single line entry in the business plan.

The number of retaining wall projects £50k and greater is 15 which is similar to a 2007/08 figure of 18. The mix of work types is also consistent between these years. However, the actual square metre area has reduced in 2008/09 so whilst the number of projects is similar the average area renewed has reduced (by approximately 60 per cent).

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 2008/09 (number)

	Preventative	Repair (emergency only)	Total
London North Eastern	31	11	42
London North Western	30	9	39
Anglia	10	1	11
Kent	3	1	4
Sussex	5	0	5
Wessex	2	1	3
Western	14	7	21
England & Wales	95	30	125
Scotland	27	5	32
Network total	122	35	157

Commentary

The tables provide a summary of projects completed during periods one to 13 2008/09. Due to a 16 week lag in reporting CAF data, the tables include actual projects submitted in CAF between periods 1-9 and a business plan forecast (accrual) for projects completed between periods 10-13. The business plan forecast will be updated with actual volumes reported in CAF after Period 4 and used for internal reporting. Full visibility of CAF actual and business plan forecast breakdown has been provided.

Forecast figures for 2007/08 indicated there were 107 completed earthworks projects but the actual outturn for the year was 163. The increase is primarily due to additional projects over £100k being delivered through minor works and emergency programmes of work which were indicated as a single line entry in the business plan. Minor works is a single line entry with budget in the business plan which can contain approximately 1,000 projects per territory. Territories have now been given instructions to raise a new line entry through the change control process to identify all projects over £50k as a single line entry in the business plan.

Number of earthwork projects £100k and greater is 157 which is similar to a 2007/08 figure of 163. The mix of work types is also consistent between these years with 78 per cent of earthworks being planned preventative projects and 22 per cent emergency repairs for both years.

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 2008/09 (number)

	Preventative	Repair	Total
London North Eastern	1	7	8
London North Western	6	20	26
Anglia	1	1	2
Kent	0	0	0
Sussex	0	0	0
Wessex	0	0	0
Western	2	0	2
England & Wales	10	28	38
Scotland	0	6	6
Network total	10	34	44

Commentary

The tables provide a summary of projects completed during periods one to 13 2008/09. Due to a 16 week lag in reporting CAF data, the tables include actual projects submitted in CAF between periods 1-9 and a business plan forecast (accrual) for projects completed between periods 10-13. The business plan forecast will be updated with actual volumes reported in CAF after Period 4 and used for internal reporting. Full visibility of CAF actual and business plan forecast breakdown has been provided.

Forecast figures for 2007/08 indicated there were 22 completed tunnel projects but the actual outturn for the year was 43. The increase is primarily due to additional projects over £50k being delivered through minor works and programmes of work which were indicated as a single line entry in the business plan. Minor works is a single line entry with budget in the business plan which can contain approximately 1,000 projects per territory. Territories have now been given instructions to raise a new line entry through the change control process to identify all projects over £50k as a single line entry in the business plan.

Number of tunnels projects £50k and greater is 44 which is one more than the 43 completed in 2007/08. The work type breakdown indicates 77 per cent repair and 23 per cent preventative compared with 86 per cent repair and 14 per cent preventative for 2007/08.

Composite activity volumes measure

This measure was introduced at the end of 2006/07 to provide an overall picture of asset renewals delivered compared to planned volumes. 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 measures for 'Civils' below are slightly different to the 'Civils' activity volume measures (M23, M26 – M29) reported earlier in this section. The details of the composite activity volumes measure for 2008/09 are in the table below.

Table 4.21 Composite activity volume 2008/09

	Unit of measure	Baseline unit cost (£k/unit) ⁽⁴⁾	Actual volume	Actual weighted volumes	% of plan	Plan volume	Plan weighted volumes
Track							
Plain Line	Kms	225.0	2,532	569,655	106	2,382	535,950
S&C	Eq. Units	452.0	415	187,693	88	470	212,440
Total Track				757,348	101		748,390
Civils							
Underbridges	Sq m	2.22	68,201	151,488	114	60,084	133,459
Overbridges	Sq m	2.31	8,207	18,948	121	6,784	15,662
Bridgeguard ³	Sq m	3.79	3,181	12,062	76	4,192	15,895
Footbridges	Sq m	5.17	1,675	8,653	124	1,353	6,990
Earthworks	Sq m	0.09	388,635	36,638	88	440,123	41,492
Tunnels	Sq m	0.59	38,102	22,308	99	38,348	22,452
Culverts	Sq m	6.05	1,792	10,846	654	274	1,658
Coastal & Estuarial defences	L m	1.96	2,441	4,782	88	2,759	5,405
Retaining Walls	Sq m	0.25	898	221	34	2,657	655
Total Civils				265,946	109		243,668
Signalling							
Resignalling	SEUs	267.0	981	261,927	99	995	265,665
Telecoms							
Concentrators Large	No.	897.0	4	3,588	57	7	6,279
Concentrators Small	No.	82.0	83	6,806	112	74	6,068
DOO CCTV Systems	Systems	43.3	68	2,944	45	152	6,582
Voice Recorder	No.	25.9	191	4,947	152	126	3,263
CIS Systems	No. of Stations	95.8	48	4,598	96	50	4,790
PET Systems	No.	15.1	44	664	176	25	378
Clocks	No.	5.0	4	20	44	9	45
Long Line PA	No. of Stations	30.5	30	915	56	54	1,647
Total Telecoms				24,483	84		29,052

Table 4.21 Composite activity volume 2008/09 (continued)

	Unit of measure	Baseline unit cost (£k/unit) ⁽⁴⁾	Actual volume	Actual weighted volumes	% of plan	Plan volume	Plan weighted volumes
Electrification AC							
HV Switchgear	No	100.0	102	10,200	54	190	19,000
HV Cables	km	205.8	–	0	0	5	1,029
Booster transformers	No.	29.0	5	145	45	11	319
Grid Supply Points	No.	242.7	1	243	50	2	485
OLE re-wiring	Tension length	111.7	25	2,791	417	6	670
OLE campaign changes	Tension length	23.3	455	10,602	36	1,264	29,452
OLE Spanwires	No.	9.1	–	0	0	388	0
OLE Structures	No.	2.8	36	101	68	53	148
Electrification DC							
HV Switchgear	No.	72.8	63	4,587	34	185	13,471
HV Cables	km	205.8	50	10,230	121	41	8,439
LV Switchgear	No.	58.3	139	8,097	86	161	9,379
Transformers/Rectifiers	No.	257.3	14	3,602	48	29	7,461
Grid Supply Points	No.	135.2	–	0	0	5	676
Conductor Rail	km	145.6	56	8,097	98	57	8,301
Total Electrification				58,695	59		98,831
Plant & Machinery							
Points Heating	No.	13.6	535	7,276	59	909	12,362
Total Plant				7,276	59		12,362
Operational property							
Stations			–			N/A	
Depots			–			N/A	
Linesides			–			N/A	
Total all assets				1,375,675	98		1,397,968

(1) Track volumes include Maintenance delivered plain renewals.

(2) All figures exclude WCRM volumes.

(3) Budget based on BP08 Plan.

(4) Baseline unit costs are for activity volume weighting purposes only and do not represent our current view on unit costs.

Section 5 – Safety and 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 key aspects of System safety using the following KPIs:

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

System Safety is an indication of the overall safety of passengers, workforce and the public in respect of the risks associated with all aspects 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 2008 was 0.231. This is a 1.8 per cent increase over the figure in 2007, reversing the improving trend seen in previous years. These figures compare favourably to the national rate for the UK construction industry which, in 2007/08 stood at approximately 0.435.

Tragically there was one Network Rail employee fatality and two Contractor employee fatalities during 2008. On 11 June, three Network Rail staff were carrying out overhead line equipment repair work on the Down line at Margaretting when the working platform on a road-rail vehicle became detached from the mounting points and fell a distance of 15 feet onto the track. All three

were injured, two seriously, one of whom later died as a result of injuries sustained in the incident.

On 24 June at Brigg, an AMCO employee working as a banksman, sustained fatal injuries after being trapped between two vehicles: a JCB and a dumper truck. On 12 July at Rugby, a Leda employee was struck by an on track machine and sustained fatal injuries.

Key initiatives during the year which contributed to the management of workforce safety were:

- The 'Safety 365' safety awareness campaign continued throughout 2008/09 with a variety of track worker and general safety topics covered using a variety of media. Subjects included: a 'speak up' campaign to encourage employees to apply the work-safe procedure. The media used included: briefing packs for use by line managers; DVDs; posters; booklets and pocket cards. A future campaign in 2009 will address the hazards of falling and flying objects
- In order to increase the effectiveness of workforce briefings, a training module on 'effective briefing' was developed and introduced to the Controller of Site Safety (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
- New Lookout Operated Warning Systems (LOWS) technologies were trialed during 2007. New equipment has been purchased during 2008. This new equipment has enhanced 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

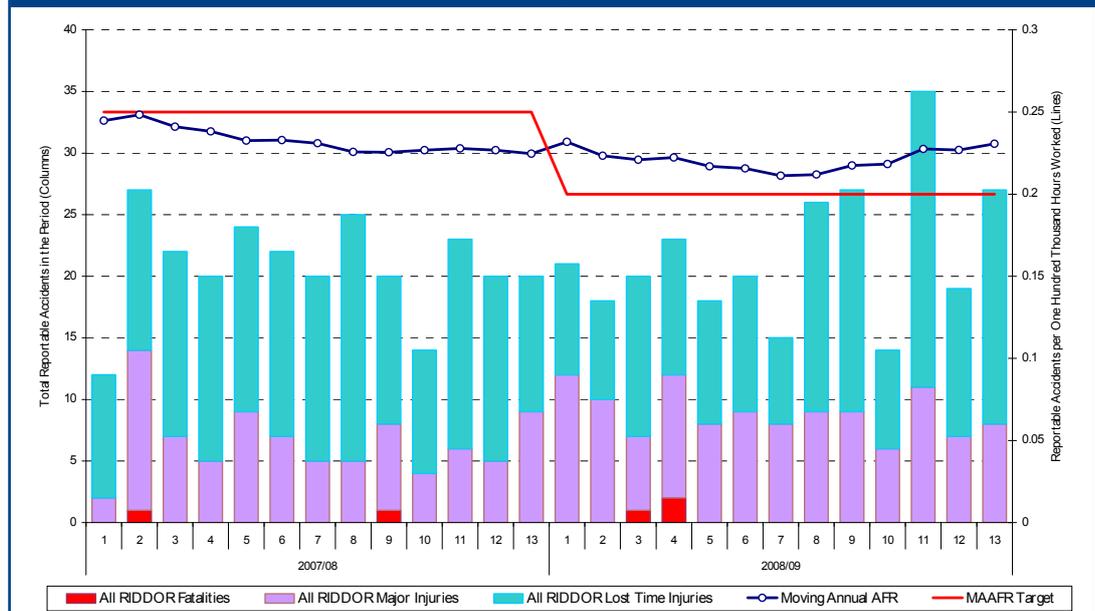
A Network Rail steering group has been established to review and guide the implementation of LOWS equipment and address any issues that arise. This steering group has representation from ergonomics, radio engineering, equipment users and functional groups. Champions have also been identified for each route in Maintenance to give consistency to the introduction of the equipment

Results

Table 5.1 Workforce safety

	2005/06	2006/07	2007/08	2008/09
AFR (MAA)	0.359	0.263	0.226	0.231
Fatalities	4	0	2	3
Major injuries	98	69	79	113
Lost time injuries	301	216	189	167
FWI (MAA)*	N/A	N/A	0.115	0.138

Figure 5.1 Combined Workforce RIDDOR accident frequency rate – National performance



* From 2009/10 we will report on workforce safety through a new KPI on Fatalities and Weighted Injuries (FWI) per million hours worked. This aligns more closely with the PR08 Workforce Safety metric.

- A safety league table has been introduced for all maintenance delivery units. This table provides internal competition between the delivery units and it rewards teams for proactive safety activities and for improving their safety performance. Points are awarded for positive safety behaviours, including:
 - Management safety tours
 - Safety inspections undertaken by union safety representatives
 - Planned general inspections done by managers and employees
 - Improvements to training and competence of staff
 - Increasing the amount of green zone working
 The league table has been very effective at improving behaviours and there has been a steady improvement in this leading indicator over the last 12 months
- The Maintenance Task Risk Control Manual was introduced during 2008. This manual contains generic risk assessments and control measures for all work undertaken in
 - Maintenance. The manual includes functional specific Risk Control Sheets including Signalling, Telecommunications, Track, Overhead Line, Distribution and fixed Plant, Off Track and Operational Property. These are supported by Generic Risk Control sheets for General Activities, Small Plant, Mobile Plant and Live Working which may be applicable to most activities carried out
 The controls in the manual are those identified through the risk assessment process and are kept up to date from information provided from accident investigations and recommendations, introduction of new plant and activities, delivery unit reviews and general feedback. A second major issue of the manual is being planned for 2009.
- 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 to 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 understanding of trends, consistent application of best practice and delivery against plan commitments

- A national risk-based programme to install fixed lighting at junctions, where a high risk to track workers from slips, trips and falls had been identified, was initiated in 2007. Roll out of this project started during 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 risk of musculoskeletal disorders (MSDs). This has included the redesign and modification of some existing plant and tools, as well as the sourcing of new plant and tools designed to reduce the potential effects of vibration. 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. Guidance on limits of use has been included in the Risk Control Manual
- Work continues to redesign activities to reduce manual handling, and to automate lifting wherever possible. A number of initiatives have been introduced this year including:
 - on-going training for staff using the Pristine Condition techniques
 - a programme of training for delivery unit champions to monitor the effective use of the manual handling techniques
 - periodic Route reviews of significant manual handling accidents to check that root cause is correctly identified and the appropriate corrective action takenThese initiatives are intended to further reduce the incidence of musculo-skeletal disorders
- 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 the installation of new facilities commenced during 2008. This programme will continue during 2009 and 2010
- In response to the increasing trend in accidents involving mobile plant a working group was established under the leadership of the Director, Mechanical & Electrical Engineering, to consider the design and future strategy for On Track Plant and On Track Machines. This group will report during 2009.

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

There was no specific target set for infrastructure wrong-side failures, other than to continuously reduce them. During 2008/09, the trend has improved slightly, reflecting the general improvement in asset stewardship.

The continued improvement in 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.

There has been a decrease in the number of broken rails. Many of these have been clean vertical breaks which present a lower risk than breaks at rail ends or welds. The New Measurement Train (NMT) and other train-based measurement continue to be deployed to detect potential failures before they become serious from a safety perspective.

The numbers of signals & telecoms and structures & earthworks high risk failures are very small and are lower than last year's. The numbers of electrification & plant higher risk failures are also very small.

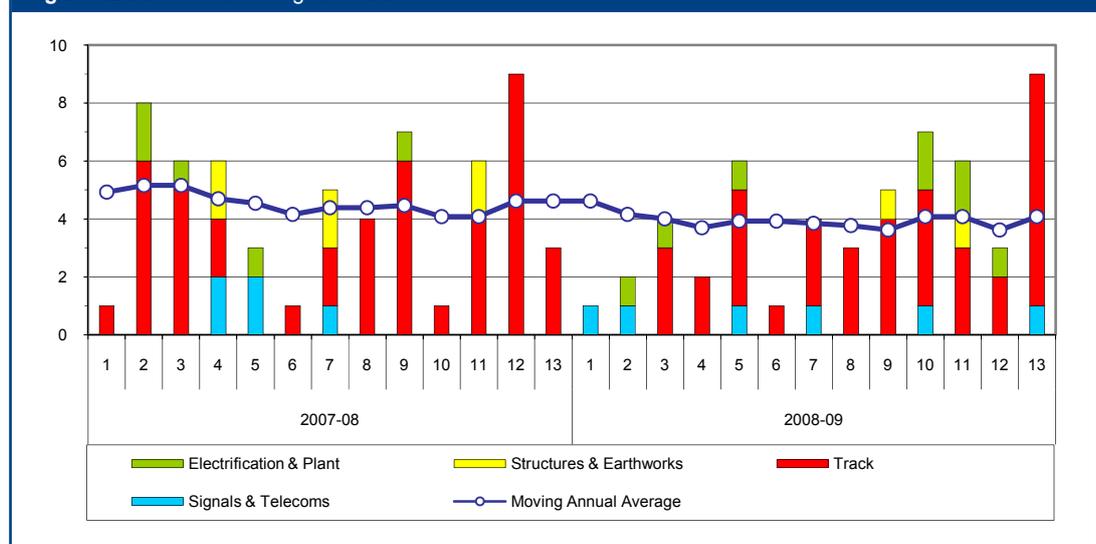
We continue to focus on tackling the root causes of long-standing issues that affect asset performance. In particular, components that are not sufficiently reliable are being progressively replaced on a campaign basis.

Results

Table 5.2 Infrastructure wrong side failures

	2005/06	2006/07	2007/08	2008/09
Signals and Telecoms	9	13	5	6
Track	52	36	44	38
Structures and Earthworks	18	9	6	2
Electrification and Plant	N/A	8	8	8
Total	79	66	63	54

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 one equivalent collision; other events are weighted at 0.1 equivalent collisions.

During 2008/09 Network Rail continued its strategy, as outlined in its Policy, for managing level crossing risk is based upon a principle known as the four 'E's:

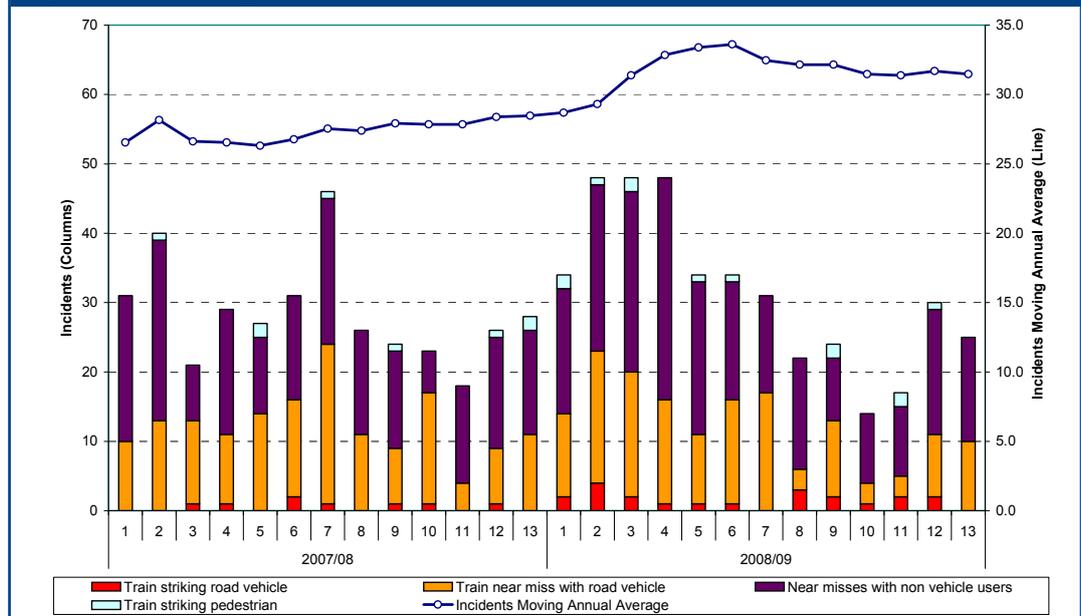
- Education; educating crossing users on how to use level crossings correctly and highlighting the dangers of misuse

Results

Table 5.3 Level crossing misuse

	2005/06	2006/07	2007/08	2008/09
Level crossing misuse (MAA)	32.23	26.38	28.46	31.46
Collisions with road vehicles	16	13	8	21
Train striking pedestrian	8	3	8	12
Near miss with road vehicle	182	162	154	145
Near miss with non-vehicle users	213	165	200	231

Figure 5.3 Level crossing misuse



Commentary

Level Crossing misuse continues to constitute the largest single category of train accident risk. Approximately 20 per cent of this risk is to people inside the train and 80 per cent of the risk to people inside the road vehicles.

Despite increased efforts to reduce level crossing risk in the past year there has been an increase in the number level crossing misuse events in 2008/09. This included thirteen pedestrian and two road vehicle occupant fatalities. No single underlying reason for this increase has been identified and in recent months the number of misuse events recorded has steadily begun to decrease.

- Enforcement; taking appropriate action to assist the police in identifying those who deliberately endanger others through their actions
- Enablement; developing appropriate techniques, processes, models and relationships/partnerships to improve the management of level crossing risk
- Engineering; requirement that level crossings are regularly inspected and correctly maintained. Additionally, where it is reasonably practicable to do so, enhancing crossing safety through means such as closure/diversion or provision of additional safety features/equipment.

In January 2007 Network Rail commenced its new programme of assessing the risks at all level crossings using the All Level Crossing Risk Model (ALCRM). At the time of writing the ALCRM is now over 90 per cent populated and plans are in place to complete by January 2010. Use of the ALCRM allows Network Rail to identify those crossings that present the greatest risk and hence to prioritise those crossings for consideration of further mitigation options and to determine their reasonable practicability.

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 new 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, targeting 'hot spot' level crossings with the highest levels of misuse. Network Rail is also

working closer with the farming community, and other user-worked crossing users, to manage level crossing risk through improved education of users, including businesses, and providing an appreciation of the risk that level crossings can present.

Throughout Control Period 4 a number of further initiatives are planned to look to further improve level crossing risk across each of the four strategic 'E' elements.

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 Train Protection Warning System (TPWS) in 2002/03, the risk from Category 'A' Signals Passed at Danger (SPAD) has reduced by a factor of seven. There were 294 Category A SPADs in 2008/09, compared with 354 the previous year.

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

- definition of local initiatives within area Operations Risk and Mitigation (OPSRAM) groups to address site specific SPAD related issues through selected improvement initiatives. These are joint groups chaired by Network Rail, with membership from the respective Train and Freight Operating Companies
- continued reporting and analysis of all SPAD incidents, following through 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 (RSSB) and Train/Freight Operating Companies (TOCs/FOCs).

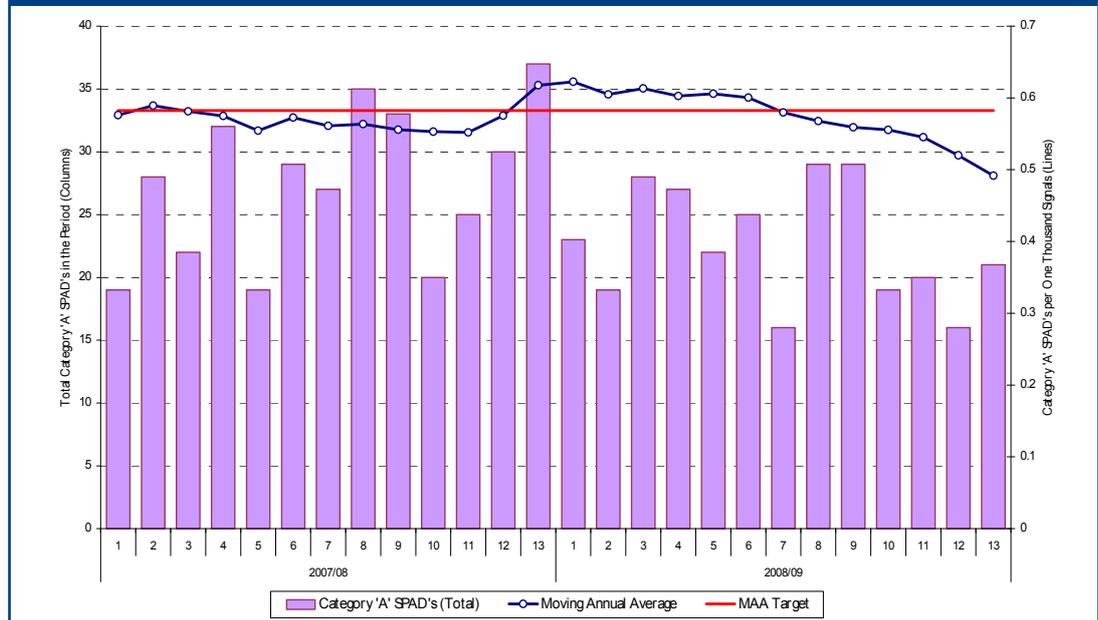
These efforts will continue, in conjunction with additional train operator led initiatives, over the next year. Emphasis in recent years has been placed on infrastructure improvement to reduce the likelihood of SPADs and to reduce the potential impact of any SPAD (introduction of TPWS and TPWS+ as an example). However, still more needs to be done to understand and manage driver behaviour, and we are continuing to work collaboratively with Train Operating Companies in this area.

Results

Table 5.4 Signals passed at danger (SPADs)

	2005/06	2006/07	2007/08	2008/09
Cat A SPADs/1000 signals	0.583	0.594	0.614	0.493
Cat A SPADs	328	334	354	294

Figure 5.4 Signals passed at danger (SPADs)



Irregular working

Definition

This is the number of incidents of irregular working that introduce significant risk to the railway categorised as potentially significant (risk ranked 16-19) and potentially severe (20+) based on an evaluation of their actual or potential consequence.

Commentary

Irregular working covers any act by a person that has a direct potential for safety loss; such an act may occur when a rule, process or procedure is not correctly followed. In April 2008 Network Rail introduced a new process for risk ranking irregular working events based on the likelihood and consequence of safety loss. At the same time we introduced a new key performance indicator on potentially significant and potentially severe irregular working events, based on these risk rankings. This replaced the previous indicator on operating irregularities. There was no specific target set for irregular working events other than to continuously improve.

Since April 2008, the trend in potentially significant and potentially severe irregular working events has continually improved. This continues the improving trend previously experienced with operating

irregularities and has been driven by the following initiatives:

- 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 in giving teams ownership of, and the opportunity to take pride in, their safety performance.

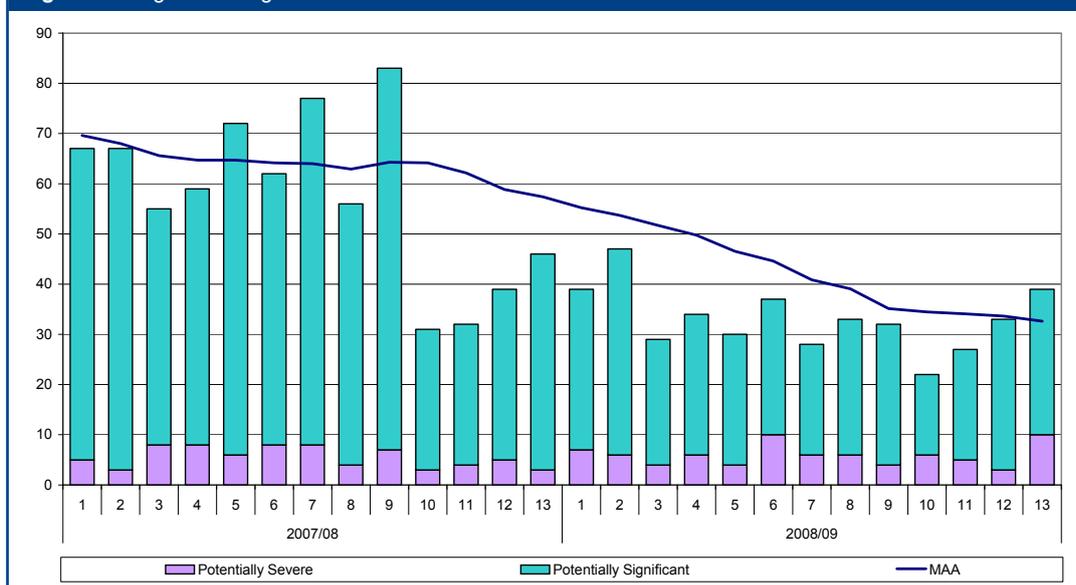
A cross functional working group has now been set up to analyse the root causes of potentially significant and potentially severe irregular working events and to inform the development of targeted action plans to further address this risk.

Results

Table 5.5 Operating irregularities

	2005/06	2006/07	2007/08	2008/09
Irregular working 20+	N/A	800	674	347
Irregular working 16+	N/A	121	72	77
Irregular working MAA	N/A	70.85	57.38	32.61

Figure 5.5 Irregular working



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 2008/09 has continued to reduce significantly compared with previous years. The normalised moving annual average at the end of 2008/09 is 11.8 per cent lower than at the end of 2007.

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. Due to the high price of copper and the current economic climate there have still been a large number of cable theft incidents. 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:

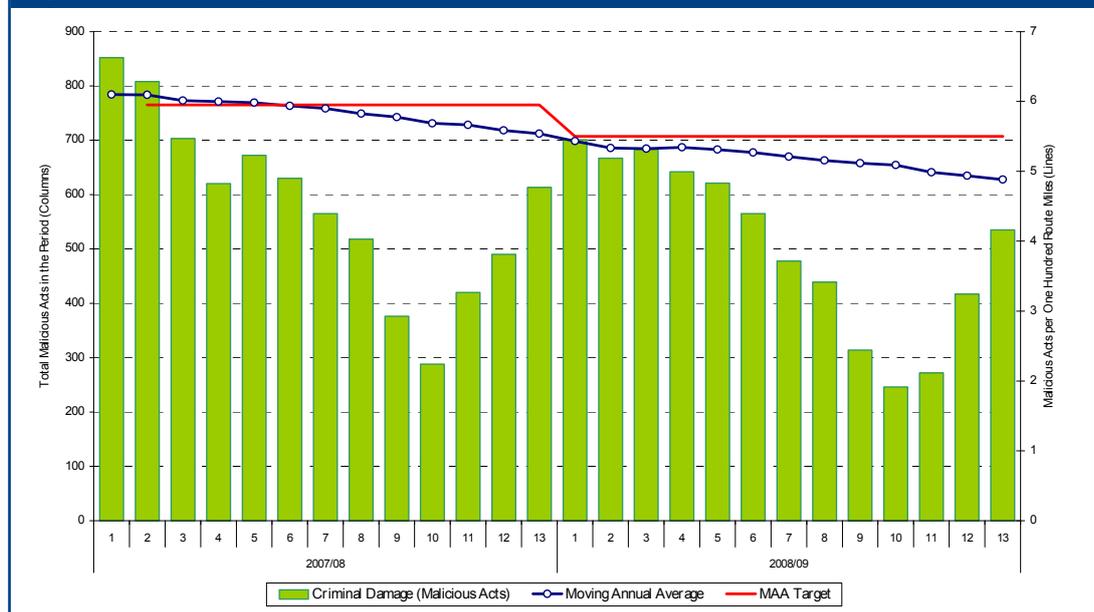
- continuing to implement and evolve the 'No Messin'' campaign that seeks to educate 10 to 16 year olds in the dangers of playing on the railway, placing objects on the line and throwing stones at trains
- further realisation of the benefits of establishing the Community Safety Steering Group (CSSG), 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, seeking to improve awareness of location specific issues, and that these are understood and 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 securing arrest and gaining increased success in prosecution
- 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.

Results

Table 5.6 Criminal damage (malicious acts)

	2005/06	2006/07	2007/08	2008/09
Malicious acts / 100 route miles	6.154	6.285	5.539	4.883

Figure 5.6 Criminal damage (malicious acts) – National performance



Environment

Introduction

During 2008/09 work continued in developing our environmental strategies to deliver the three core 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 concerned with improving the sustainability of the materials that we purchase as well as waste management.

Network Rail has an ongoing major initiative for recycling track wastes via its National Delivery Service (NDS) logistics department. Of the 2.1 million tonnes of rail, sleepers and ballast the NDS managed last year, over 93 per cent was recycled or reused. Major construction projects address waste and achieve high levels of recycling and re-use, by utilising NDS services to manage infrastructure derived wastes and identifying other local uses for potential wastes, for example landscaping. Much recent attention has been given to waste arising from our building stock namely corporate offices, Managed Stations and infrastructure maintenance depots. A target of 60 per cent waste recovery, re-cycling or re-use from that arising from these premises has been set for 2014.

In addition, Network Rail has a project to benchmark the sustainability of purchases of steel, ballast, concrete sleepers, paper, timber sleepers and bearers, fuels and oils. This will involve working with our suppliers to develop 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 as part of the development of a sustainable procurement strategy.

Energy efficiency and reduced reliance on fossil fuels

A corporate energy management strategy has been prepared which will enable more efficient energy use at offices, infrastructure maintenance depots and Network Rail Managed Stations. To this end Network Rail has set itself a target to reduce these non-traction carbon dioxide emissions by 20 per cent by 2014 based on a

2006/07 baseline. Site specific action plans are being drawn up for all Managed Stations and five corporate office buildings that will make recommendations for possible energy efficiency measures. These may include improvements to building fabric, lighting, heating, cooling, ventilation, air tightness, control systems, monitoring and management. Options for adopting renewable technologies, where appropriate, will be considered.

It is expected that implementation of the strategy will lead to significant reductions in energy use and therefore carbon emissions, and give rise to a reduction in energy expenditure and enable the Company to manage its use of energy more efficiently.

Additionally the strategy will mean that Network Rail can comply with forthcoming emissions trading requirements as it will have much better quality energy consumption data, more accurately report its emissions to the Government and achieve corporate responsibility goals.

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 in progress on a number of pilot 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 Importance for Nature Conservation. The learning from the pilot sites will be rolled out across the network and will be included in an update of our Biodiversity Action Plan. This will enable incremental improvements to be made where we are planning to renew our lineside or carrying out enhancement that affect the lineside. In addition, there is opportunity for the railway to be used to create habitat as an offset to development when new legislation for this comes into force.

Another significant project aims to bring 21 Sites of Special Scientific Interest in England to favourable or recovering status by 2010. To facilitate this we have installed new signage, using recycled materials, to alert our employees and contractors of the location of protected sites.

Table 5.7 Environmental performance

Energy	
The number of kWh, gas and gas oil use and litres of light petroleum gas and diesel directly consumed by Network Rail (and indirectly by its suppliers), separated by traction and non-traction, and reported year on year (when available) against a 2006/07 baseline	Non-traction Electricity – 463,234MWh Gas – 68,647MWh Gas oil – 473cu m Petrol – 606cu m Diesel – 21,913cu m Calor gas – 58 tonnes Aviation fuel – 189cu m
The number of kWh and gas oil use directly consumed by train and freight operating companies	Traction data This information is currently unavailable to Network Rail. It is understood this will be reported to the office of Rail Regulation by individual Train and Freight operating companies
The number of kWh, gas and gas oil use and litres of light petroleum gas and diesel directly consumed by Network Rail's key suppliers	Supplier information This information is due to be reported for the first time in 2010 Annual Return
Carbon dioxide emissions in tonnes of carbon dioxide equivalents (CO₂(e))	
Level of CO ₂ equivalents calculated for both traction and non-traction by applying the relevant conversion factors listed in Defra's greenhouse gas Company Reporting Guidelines to annual energy consumption data	Non-traction Carbon footprint is 317,200t CO ₂ (e), a reduction of one per cent versus 2006/07 baseline
New measure Level of CO ₂ equivalents calculated for travel by employees on business by applying the relevant conversion factors listed in Defra's greenhouse gas Company Reporting Guidelines to annual energy consumption data	Employee business travel In addition, 2008/09 is first year of reporting employee business travel which equates to 2,304 tonnes CO ₂ (e)
Level of CO ₂ equivalents calculated for traction by applying the relevant conversion factors listed in Defra's greenhouse gas Company Reporting Guidelines to annual energy consumption data	Traction data This information is currently unavailable to Network Rail. It is understood this will be reported to the Office of Rail Regulation by individual Train and Freight operating companies
Level of CO ₂ equivalents calculated for Network Rail's key suppliers by applying the relevant conversion factors listed in Defra's greenhouse gas Company Reporting Guidelines to annual energy consumption data	Contractor information This information is due to be reported for the first time in 2010 Annual Return
Expenditure on sustainable materials	
Per cent of total expenditure on wood versus that certified by the Forest Stewardship Council (FSC) and/or recycled or equivalent recognised by World Wildlife Fund	FSC Wood 97.4 per cent of spend on wood was on FSC wood
Expenditure on ballast, concrete, rail, oils and fuel oils, with reference to office paper from sustainable sources	Other sustainable materials Expenditure on other sustainable materials will be available during CP4
Office furniture recycled or reused	Office furniture This data is planned for reporting for the first time in 2010 Annual Return

Table 5.7 Environmental performance (continued)

Water	
Use of deployable water from Mersey and Severn Tunnel	Use of deployable water from tunnels Eight million cubic metres was used in 2008/09 which equates to 17.7 per cent of the total removed
Water used by Network Rail	Water use 1.8 million cubic metres (estimated from bills)
Waste	
Waste arising from network Rail Managed Stations, corporate offices and maintenance delivery units that is recovered, recycled or reused	Non track waste This data will be reported for the first time in 2010 annual return
Waste recovered, recycled or re-used arising from renewals and enhancements, including track waste recovered or recycled by the National Delivery Service	National delivery service Total waste managed is 2.1m tonnes 93 per cent of which has been reused/recycled or recovered
Waste recovered, recycled or re-used arising from renewals and enhancements, including track waste recovered or recycled by Network Rail's key suppliers	Contractor Information This information is due to be reported for the first time in 2010 Annual Return
Reported environmental events	
Number of environmental incidents (by total and those that are reportable under environmental legislation) during the year, measured year on year against the baseline of 2005/06 (139 total incidents and six reportable incidents), detailing (in respect of those deemed reportable): (a) the type of incident; and (b) whether the incident has resulted in a prosecution, notice or other enforcement action	Incidents Six incidents were reported. This achieved the target Three incidents involved diesel losses from trains struck by objects. Three involved sensitive locations – two were cable oil leaks near a Site of Special Scientific Interest (SSSI); and the last biodegradable hydraulic fluid leaked from tamper No incidents have resulting prosecutions, notice or enforcement action
Number and per cent of graffiti sites identified during the year, cleaned during the year and the number of sites carried forward for cleaning to the following year	Graffiti 892 reported, 20 which equates to 0.02 per cent remain open
Sites of Special Scientific Interest (SSSIs)	
The per cent of SSSIs classified as favourable or recovering in England	SSSIs England Since 2003/04 the figure has improved from 49.2 per cent to 67.2 per cent
The per cent of SSSIs classified as favourable or recovering in Scotland	SSSIs Scotland Sites in Scotland are not yet classified by the relevant regulatory bodies. Work will be undertaken to understand the status of Scottish SSSIs during 2009/10
The per cent of SSSIs classified as favourable or recovering in Wales	SSSIs Wales Sites in Wales are not yet classified by the relevant regulatory bodies. Work will be undertaken to understand the status of Welsh SSSIs during 2009/10

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 in Table 5.8.

The variance to budget reflects improvements in the processes for identifying and assessing safety risk, and for managing the delivery of safety enhancement schemes required to manage such risk. We were therefore better able to focus on key risk areas such as level crossings, route crime and infrastructure failure, and identify and deliver a greater number and value of schemes than was originally envisaged.

Environment schemes

National Pollution Prevention Programme

The National Pollution Prevention Programme is an amalgamation of a group of pollution prevention projects into a single national programme in order to achieve compliance with the Control of Pollution (Oil Storage) Regulations and the Groundwater Regulations. Work concentrated on light maintenance depots (LMDs) where large quantities of fuel oil is stored and also on over 300 sites where small quantities of oil are stored.

The Programme work scope is now complete and handback and close out procedures are progressing.

Contaminated land programme

The aim of this environment scheme was to deal with historic contamination of railway operational property now owned by Network Rail. The work undertaken 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 was undertaken with remediation measures put in place where necessary. At 10 sites full Effluent Treatment Plants (ETPs) were installed in conjunction with environmental regulatory bodies. Due to previously unknown contamination being discovered during the course of Network Rail's extensive investment programme, 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.

Landfill waste management

Network Rail held waste management licences for four landfill sites which used to receive waste materials from track renewals and maintenance activities, namely 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, (Conington, Hunslett and Newport Mon Bank). It is considered more advantageous to adopt a different approach at Shewalton. The licences for Hunslett and Newport Mon Bank have been surrendered and the application to surrender the licence for Conington is being considered by the Environment Agency.

Table 5.8 S&E Fund expenditure 2008/09

	Plan	Actual	Variance
LMD national pollution prevention programme	2.1	10.1	(8)
Other S&E Funded schemes	84.6	132.4	(47.8)
Total	86.7	142.5	(55.8)

Safety schemes

The 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 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.

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 2008/09, a total of 213 safety enhancements were authorised with a total cost of £107.5m.

The successful enhancements ranged from low cost site specific enhancements (such as a £4k level crossing enhancement) through to more significant (such as £20m for the management of high-risk vegetation).

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

- Train accident risk – 78 schemes were authorised in 2008/09 for a total cost of £46.7m (comprising of 42 level crossing risk reduction or eradication schemes, 21 signalling enhancements and 15 others).
- Other risk to passengers and the public – 92 enhancement schemes were authorised for a total cost of £34.7m (mainly comprising programmes of work to reduce level crossing risk, child trespass and the effects of vandalism).
- Workforce safety risk – 43 enhancement schemes were authorised for a total cost of £26.1m (mainly comprising improved security arrangements at work locations, enhanced walking routes, asbestos removal from buildings, and workforce health enhancements).

Section 6 – Expenditure

Introduction

This section provides information on actual expenditure on renewals, enhancements and maintenance during 2008/09 as compared to the forecasts reported in the Business Plan.

All financial figures are in 2008/09 prices.

Included within this section are tables and commentary related to:

- the network-wide total expenditure
- renewal and enhancement expenditure for each of the 26 strategic routes, plus West Coast Route Modernisation (WCRM) and Central (other)
- maintenance expenditure by operating route.

An assessment of the efficiencies we have achieved in CP3 compared to the ORR assumptions in ACR 2003 is shown in Section 7.

Network total expenditure

Table 6.1 Expenditure 2008/09 prices (£m)

	Forecast	Actual	Variance
Maintenance	1,128	1,104	-24
Renewals			
Track	840	887	47
Signalling	488	446	-42
Structures	441	437	-4
Electrification	122	98	-25
Plant and machinery	219	120	-99
Information technology	115	126	11
Telecoms	374	238	-136
Stations	197	201	4
Depots	21	17	-4
Lineside buildings	6	37	32
Other	192	58	-134
Renewals (non-WCRM)	3,016	2,666	-350
Renewals (WCRM)	481	491	10
Total renewals	3,497	3,157	-340
Enhancements			
Enhancements (non-WCRM)	1,265	1,284	19
Enhancements (WCRM)	219	268	49
Total enhancements	1,484	1,553	69

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), WCRM and Maintenance by operating route.

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 £175m of third party funded schemes that are not reported in our accounts and also includes expenditure of £62m through our Outperformance Fund that we have excluded from the regulatory accounts as this is not added to the RAB;
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 controllable operating cost in the year was £908m and non-controllable opex was £401m.

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. £250m) than spend in 2007/08 but was below the level forecast in the Business Plan. The main variances from the plan are described.

Track

The variance on track renewals is primarily due to bringing forward work in association with our efficient engineering access programme and bringing forward some re-railing work in the southern routes. This was partly offset by a reduction in the planned volume of S&C renewals.

Signalling

The £42m variance for the signalling programme is mainly due to deferral of works whilst more efficient scope and delivery options are developed. These include deferrals of East Kent (£11.1m) and Water

Orton (£12.7m). There have also been some efficiencies delivered.

Structures

The variance on structures renewal expenditure is primarily due to activity efficiencies through value engineering, managing risk, tendering arrangements and other cost reductions.

Electrification

The £25m variance in the electrification programme is mainly due to deferral of switchgear renewals whilst more efficient delivery options are pursued and deferral of overhead line renewals mainly on MML and ECML 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 £99m variance is mainly due to the variances in the 'Other' route (£58m) for deferral of purchases of mobile plant (e.g. wagons), track plant (such as high output equipment and S&C plant) and maintenance small plant. Also there is re-scheduling of activity on West Coast efficient engineering access (£27m), various PSP renewals (£7.5m) depot plant renewals (£2.3m).

Information technology

The variance is mainly because the cost of the Oracle license renewal, to meet our requirements for CP4, was not in the original baseline.

Telecoms

The £136m variance is mainly due to a re-planning of the FTN/GSMR telecoms programme. In order to ensure efficient delivery of the FTN/GSM-R programme to schedule, the programme implemented a new Work Breakdown Structure (WBS) in June 2008. As part of implementing the new WBS, a new baseline plan was built, which re-prioritised work to align with the switch off of NRN (National Radio Network) in the south and also to align with the roll-out of GSM-R to train fleets. The new baseline plan scheduled a lower volume of work for 2008/09 compared to budget whilst still achieving key milestone dates on the programme's critical path. In addition, the programme has implemented a new method of GSM-R site construction that has delivered significant efficiency savings.

Stations and depots

There is no significant variance to report.

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 and includes work to improve lineside track access points as part of our efficient engineering access programme.

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

For non-WCRM enhancements the main reasons for the variance are due to making better than expected progress on a number of programmes, namely: NRDF schemes (for small capacity enhancements), safety and environment programme, such as improvements at level crossings, and King's Cross station. These increases were offset in part through lower expenditure than planned on Thameslink and on third party sponsored schemes.

The main reason for the variance on WCRM is the increased costs for Trent Valley four tracking (elimination of level crossing to enhance line speed) and Milton Keynes (new platforms and footbridges including claims for contractors).

Route 1 Kent

Table 6.2 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	11.0	10.4	-0.6
Signalling	18.5	5.7	-12.8
Civils (structures)	15.2	19.6	4.4
Electrification	20.9	20.7	-0.2
Plant and machinery	4.7	4.3	-0.4
Information technology	0.0	0.0	0.0
Telecoms	5.7	3.0	-2.7
Stations	0.7	21.2	20.5
Depots	0.0	0.2	0.2
Lineside buildings	0.0	1.1	1.1
Other	0.0	0.8	0.8
Total renewals	76.7	86.9	10.2
Total enhancements	44.8	45.0	0.2

Signalling

The £12.8m variance is mainly due to deferral of works at East Kent whilst a more efficient option is developed (£11.1m) and re-scheduling of activity on Canterbury West (£0.8m).

Structures

The variance is largely due to minor works, possession/Isolation/signal box openings, some minor vegetation clearance and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in monitor (£5.9m). Underspends against forecast include Harley Shute Road cutting – as there is a requirement for Summer working not originally forecast so now planned in 9/10 (-£0.6m). Also Stonegate Cutting Preventative was deemed too low priority and budget allocated elsewhere (-£0.5m). Scheme moved to 2009/10.

Telecoms

The £2.7m variance is mainly due to efficiencies (£0.3m) and re-scheduling of activity on DOO CCTV project (£1.9m).

Stations

This variance is mainly due to re-allocation of Victoria roof renewal from 'Other' to Route 1, £12.4m. Also, following funding agreement with DfT, NR Contribution of £3.8m relating to South-Eastern Dilapidation Tranche 1, which was not provided for in original plan. Actual also includes £3.4m minor works planned within 'Other'.

Lineside buildings

This variance is mainly due to re-allocation of minor works, £0.9m and Planned Preventative Maintenance £0.2m from 'Other' to Route 1.

Other

This variance is due to works completed on Maintenance Delivery Units.

Route 2 Brighton Main Line and Sussex

Table 6.3 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	8.6	10.9	2.3
Signalling	11.2	10.6	-0.6
Civils (structures)	19.3	24.0	4.7
Electrification	13.9	12.6	-1.3
Plant and machinery	3.9	3.8	-0.1
Information technology	0.0	0.0	0.0
Telecoms	0.9	1.9	1.0
Stations	1.0	5.7	4.7
Depots	0.0	0.2	0.2
Lineside buildings	0.3	0.8	0.5
Other	0.0	0.4	0.4
Total renewals	59.1	70.9	11.8
Total enhancements	176.4	168.4	-8.0

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings, some minor vegetation clearance and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£5.3m). Underspends against forecast include Stirling Road Bridge No. 481b which due to early fabrication of the footbridge with spend accelerated into 2007/08 (-£0.8m).

Electrification

The £1.3m variance is mainly due to re-scheduling of activity on switchgear renewals.

Telecoms

The £1.0m variance is mainly due to deferral of cable secure radio rectification works (£0.9m).

Stations

This variance is mainly due to re-allocation of minor works, £3.0m and Planned Preventative Maintenance £0.4m from 'Other' to Route 2. Also, due to re-prioritisation of the operational property workbank, schemes were able to be completed at Upper Warringham (footbridge) £0.5m, and Wallington (platform repairs) £0.4m.

Lineside buildings

This variance is mainly due to re-allocation of minor works, £0.5m, 'Other' to Route 2.

Other

This variance is due to works completed on MDUs, mainly inspections £0.2m.

Enhancements (non-WCRM)

Gatwick Airport Station Redevelopment -£3.0m, project delayed pending descoping as insufficient funding available; Brighton Mainline Power Upgrade -£2.0m, project slippage; East London Line south Croydon turnback -£1.7m, project slippage; Stewarts Lane -£1.0m, Stage Gate 5-8 authority delayed due to funding discussions with the train operator; East Grinstead signalling improvements -£1.0m, project cancelled, no business case following increase of anticipated cost; Infrastructure Investment Delivered +£0.7m, small variances across portfolio.

Route 3 South West Main Line

Table 6.4 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	48.6	54.0	5.4
Signalling	23.2	25.6	2.4
Civils (structures)	7.5	10.4	2.9
Electrification	16.3	15.3	-1.0
Plant and machinery	4.7	4.5	-0.2
Information technology	0.0	0.0	0.0
Telecoms	3.5	1.2	-2.3
Stations	1.2	5.9	4.7
Depots	0.0	0.2	0.2
Lineside buildings	0.0	1.4	1.4
Other	4.3	0.4	-3.9
Total renewals	109.3	118.9	9.6
Total enhancements	22.6	12.0	-10.6

Track

This variance is mainly due to additional S&C scope delivered at Wimbledon.

Signalling

The variance is mainly due to increased costs arising on the Basingstoke & Portsmouth re-signalling projects (£5.0m). This is offset by re-scheduling of activity on various works in the Feltham area and Farnham re-signalling.

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings, some minor vegetation clearance and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£3.3m). Underspends against forecast include Ashley Road Bridge No. E20/12 – Implementation works put back by twelve months due to local authority aspiration to a road widening scheme and uncertain utility diversion programme (-£0.5m). Associated implementation budget in 2008/09 moved to 2009/10.

Electrification

The £1.0m variance is mainly due to re-scheduling of activity on switchgear renewals.

Telecoms

The £2.3m variance is mainly due to re-scheduling of activity on Eastleigh concentrator renewal (£0.9m) and ECR branching panels (£0.8m).

Stations

This variance is mainly due to re-allocation of minor works, £3.3m and Planned Preventative Maintenance £0.2m from 'Other' to Route 3. Also, due to re-prioritisation of the operational property workbank, scheme was able to be completed at Brookwood (platform repairs) £0.3m.

Lineside buildings

This variance is mainly due to re-allocation of minor works, £1.2m and Planned Preventative Maintenance £0.2m from 'Other' to Route 3.

Other

This variance is due to works completed on MDUs, mainly inspections £0.4m.

Enhancements (non-WCRM)

This variance is mainly due delays in reaching agreement on the South West Trains franchise schemes.

Route 4 Wessex Routes

	Forecast	Actual	Variance
Renewals			
Track	3.9	4.1	0.2
Signalling	5.1	4.5	-0.6
Civils (structures)	3.5	5.2	1.7
Electrification	0.0	0.3	0.3
Plant and machinery	0.1	0.0	-0.1
Information technology	0.0	0.0	0.0
Telecoms	3.1	2.8	-0.3
Stations	0.0	1.0	1.0
Depots	0.0	0.0	0.0
Lineside buildings	0.0	0.2	0.2
Other	0.0	0.4	0.4
Total renewals	15.7	18.5	2.8
Total enhancements	33.4	30.9	-2.5

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings, some minor vegetation clearance and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£1.6m).

Stations

This variance is mainly due to re-allocation of minor works, £0.8m and Planned Preventative Maintenance £0.2m from 'Other' to Route 4.

Enhancements (non-WCRM)

Yeovil Exeter frequency enhancement -£2.1m, delays in the awarding of contracts as a result of late approval of signalling design.

Route 5 West Anglia

Table 6.6 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	13.6	19.1	5.5
Signalling	4.8	5.0	0.2
Civils (structures)	3.7	4.3	0.6
Electrification	2.7	3.1	0.4
Plant and machinery	2.0	2.3	0.3
Information technology	0.0	0.0	0.0
Telecoms	1.1	0.9	-0.2
Stations	0.1	2.1	2.0
Depots	0.0	0.2	0.2
Lineside buildings	0.0	0.5	0.5
Other	0.0	0.2	0.2
Total renewals	27.9	37.6	9.7
Total enhancements	8.5	7.5	-1.0

Track

This variance is mainly due to additional scope delivered at Ely, Thetford and Norwich.

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings, some minor vegetation clearance and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£0.9m).

Stations

This variance is mainly due to re-allocation of minor works, £1.6m, from 'Other' to Route 5. Also, due to re-prioritisation of the operational property workbank, a scheme was able to be completed at Cheshunt (platform repairs) £0.2m

Lineside buildings

This variance is mainly due to re-allocation of minor works, £0.3m and Planned Preventative Maintenance £0.2m from 'Other' to Route 5.

Enhancements (non-WCRM)

East of England recycling centre -£0.5m, planned application and environmental works delayed waiting stage gate 5-8 authority; First Capital Connect Great Northern Line 3 Car park Extensions -£0.4m, project slippage.

Route 6 North London Line and Thameside

Table 6.7 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	8.7	10.5	1.8
Signalling	0.6	0.0	-0.6
Civils (structures)	6.3	11.0	4.7
Electrification	4.5	3.6	-0.9
Plant and machinery	1.3	0.4	-0.9
Information technology	0.0	0.0	0.0
Telecoms	2.9	1.2	-1.7
Stations	0.0	1.0	1.0
Depots	0.0	0.1	0.1
Lineside buildings	0.0	0.2	0.2
Other	0.0	0.1	0.1
Total renewals	24.4	28.2	3.8
Total enhancements	36.3	40.7	4.4

Signalling

The £0.6m variance is due to re-scheduling of activity on North London Line re-signalling.

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings, some minor vegetation clearance and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£2.7m). Also, agreed by budget holder contribution to North London Line upgrade with regards the sewer element of the remit (£2.0m) which was not forecast.

Electrification

The £0.9m variance is due to re-scheduling of activity on overhead line structure renewals.

Plant and machinery

The £0.9m variance is due to re-scheduling of activity on tunnel lighting (£0.7m) and HV distribution (£0.3m).

Telecoms

The £1.7m variance is mainly due to an over-statement of the business plan for the C2C CIS refurbishment (£1.9m).

Stations

This variance is mainly due to re-allocation of minor works, £0.8m, from 'Other' to Route 6.

Enhancements (non-WCRM)

West Hampstead new station +£5.6m, new project; 2012 W10 gauge enhancement +£2m, increased project costs for TOC compensation; 2012: NLL capacity enhancement -£2m, project slippage; Hackney stations interchange -£1m, cancelled project.

Route 7 Great Eastern

Table 6.8 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	23.2	21.9	-1.3
Signalling	37.3	36.6	-0.7
Civils (structures)	15.5	17.1	1.6
Electrification	4.1	1.1	-3.0
Plant and machinery	2.7	1.6	-1.1
Information technology	0.0	0.0	0.0
Telecoms	3.6	2.4	-1.2
Stations	2.0	3.3	1.4
Depots	0.0	0.2	0.2
Lineside buildings	0.0	0.5	0.5
Other	0.0	0.4	0.4
Total renewals	88.3	85.0	-3.3
Total enhancements	15.1	13.0	-2.1

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings, some minor vegetation clearance and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£2.4m). Underspend against forecast include large savings against original scope at Thrandeston bog with various options being considered and soil mixing rather than tubular piling selected (-£0.9m).

Electrification

The £3m variance is due to re-scheduling of activity on overhead line and switchgear renewals.

Plant and machinery

The £1.1m variance is mainly due to re-scheduling of activity on swing bridge renewals (£0.8m).

Telecoms

The £1.2m variance is mainly due to re-scheduling of activity on Great Eastern CIS refurbishment (£0.8m).

Stations

This variance is mainly due to re-allocation of minor works, £1.5m, from 'Other' to Route 7.

Lineside buildings

This variance is mainly due to re-allocation of minor works, £0.3m and Planned Preventative Maintenance £0.2m from 'Other' to Route 7.

Enhancements (non-WCRM)

Clacton branch resignalling -£1m, project slippage; Witham station second entrance -£0.9m, 3rd Party slippage due to delays in signing funding agreement.

Route 8 East Coast Main Line

Table 6.9 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	38.0	37.5	-0.5
Signalling	9.0	4.6	-4.4
Civils (structures)	8.4	14.5	6.1
Electrification	20.8	17.5	-3.3
Plant and Machinery	4.4	1.0	-3.4
Information technology	0.0	0.0	0.0
Telecoms	0.3	0.6	0.3
Stations	9.0	53.5	44.5
Depots	0.6	1.5	0.9
Lineside buildings	0.0	0.3	0.3
Other	0.0	0.4	0.4
Total renewals	90.4	131.3	40.9
Total enhancements	10.8	10.1	-0.7

Signalling

The £4.4m variance is mainly due to re-scheduling of activity on Hitchin interlocking renewal (£3.7m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£5.6m). Additionally, ECM1/69 Welwyn Viaduct Ph2 – extra funds were required as original solution of encasing the viaduct have led to fractures and hollow areas – this had to be corrected (£0.5m).

Electrification

The £3.3m variance is due to re-scheduling of activity on overhead line, protection relay and air circuit breaker renewals.

Plant and machinery

The £3.4m variance is due to re-scheduling of activity on national PSP renewals (£2.1m) and non traction plant renewals (£0.7m).

Stations

This variance is mainly due to re-allocation of King's Cross Renewals element from 'Other' at £41.5m to Route. Actual shown against correct route at £48.2m. Increase in spend from planned was mainly due to work bought forwards from CP4 in order to achieve efficiencies; Edinburgh Waverley schemes were incorrectly shown against Route 8 in Plan, with actual reported within Route 24, giving a variance here of (£5.4m). Variance was also contributed to due to re-allocation of minor works, £1.5m, from 'Other' to Route 8.

Depots

This variance was mainly due to unbudgeted rollover within Hornsey wheel lathe/LMD scheme, £0.9m. As reported in 2007/08, the scheme was re-programmed to complete in 2008/09.

Enhancements (non-WCRM)

York Holgate Junction -£1.3m, project slippage; Lindsells user worked crossing downgrade to bridleway +£0.8m, new project.

Route 9 North East Routes

Table 6.10 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	10.2	10.6	0.4
Signalling	4.5	6.0	1.5
Civils (structures)	15.4	18.1	2.7
Electrification	0.0	0.1	0.1
Plant and machinery	0.4	0.1	-0.3
Information technology	0.0	0.0	0.0
Telecoms	1.0	0.1	-0.9
Stations	0.0	3.5	3.5
Depots	0.0	0.0	0.0
Lineside buildings	0.0	0.3	0.3
Other	0.0	0.2	0.2
Total renewals	31.6	39.0	7.4
Total enhancements	2.3	3.4	1.1

Signalling

The £1.5m variance is mainly due to re-scheduling of activity on Stranton to Hall Dene resignalling (-£0.8m) and Ground Frame refurbishment (-£0.7m) and increased costs on the Newcastle-Carlisle West Line renewals project (+£3.3m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£3.7m). Underspends against forecast include High Level Bridge where accelerated works to finish the scheme in 2007/08 led to budget in 2008/09 not being required (-£0.5m). Also efficiency savings on LEN3 Norton South through competitive tendering resulted (-£0.5m).

Telecoms

The £0.9m variance is mainly due to re-scheduling of activity on Stranton to Hall Dene resignalling (£0.4m) and telecoms renewals on other re-signalling schemes completed in 2007/08 (£0.5m).

Stations

This variance is mainly due to re-allocation of minor works, £1.8m, and Planned Preventative Maintenance, £0.3m, from 'Other' to Route 8. Also the schemes at Eagles Cliff (platforms) £0.4m and Whitby station canopy, £0.5m, were brought forward.

Enhancements (non-WCRM)

Commercial Property minor enhancements +£1.1m, new projects.

Route 10 North Cross-Pennine, North and West Yorkshire

Table 6.11 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	27.1	26.9	-0.2
Signalling	5.0	6.2	1.2
Civils (structures)	13.5	16.5	3.0
Electrification	0.6	0.7	0.1
Plant and machinery	1.0	0.1	-0.9
Information technology	0.0	0.0	0.0
Telecoms	0.0	0.0	0.0
Stations	0.4	3.1	2.7
Depots	0.0	0.1	0.1
Lineside buildings	0.1	0.1	-0.1
Other	0.0	0.6	0.6
Total renewals	47.8	54.3	6.5
Total enhancements	8.4	20.6	12.2

Signalling

The variance is mainly due to work re-scheduled from 2007/08 on Greetland-Elland interlocking renewal (£1.5m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£5.9m). Underspend against forecast include – SKS2/31 Proctors Cattle Creep where fabrication was brought forward to 2007/08, competitive tendering and packaging of work (-£0.5m). Tunnels North 2008/09 – after further detailed examination some tunnels works were not required against original provision (-£0.5m).

Plant and machinery

The £0.9m variance is due to re-scheduling of activity on national PSP renewals (£0.3m), swing bridge renewals (£0.3m) and non traction plant renewals (£0.2m).

Stations

This variance is mainly due to re-allocation of minor works, £1.5m, and Planned Preventative Maintenance, £0.3m, from 'Other' to Route 10. Also, due to re-prioritisation of the operational property workbank, Filey station painting £0.3m was able to be completed and a scheme at Halifax (canopies) £0.5m was brought forward.

Other

Actual includes eight minor MDU schemes not included in route plan.

Enhancements (non-WCRM)

Hull Docks +£4.1m, increased costs due to project slippage; Church Fenton +£6.2m, new project; Bradford Mill Lane +£3.7m, project acceleration; Cross Gates/Garfrth platform extension -£0.8m, scope reduction; Shipley platform 5 line speed improvement -£0.4m, project slippage; York Station resectioning -£0.4m, project slippage.

Route 11 South Cross-Pennine, South Yorkshire and Lincolnshire

Table 6.12 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	36.8	37.4	0.6
Signalling	30.8	22.8	-8.0
Civils (structures)	24.3	29.0	4.7
Electrification	0.0	0.0	0.0
Plant and machinery	1.1	0.3	-0.8
Information technology	0.0	0.0	0.0
Telecoms	2.1	1.4	-0.7
Stations	0.5	2.4	1.9
Depots	0.0	0.0	0.0
Lineside buildings	0.1	0.7	0.5
Other	0.1	0.5	0.4
Total renewals	95.9	94.5	-1.4
Total enhancements	18.7	8.1	-10.6

Signalling

The £8m variance is mainly due to re-scheduling of activity on Moorthorpe resignalling (£5.2m) and efficiencies delivered on Lincoln re-signalling (£2.3m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£9.0m). Underspend against forecast include – Tunnels Central 2008/09 – after further detailed examination some tunnels works were not required against original provision (-£0.5m). MAC3/246 Victoria Road, UB was delayed into 2009/10 due to suitable possession availability (-£0.5m). Bradway Tunnel – Successful value engineering relating to the water proofing system; which was a cheaper option (-£0.9m).

Plant and machinery

The £0.8m variance is due to re-scheduling of activity on national PSP renewals (£0.5m) and lighting renewals (£0.3m).

Stations

This variance is mainly due to re-allocation of minor works, £1.3m, and Planned Preventative Maintenance, £0.3m, from 'Other' to Route 11.

Lineside buildings

Due to re-prioritisation of the operational property workbank, seven additional Signal box refurbishments were able to be completed on the route.

Enhancements (non-WCRM)

National Engineering Centre/Woodhouse Junction -£10.3m, cancelled project.

Route 12 Reading to Penzance

Table 6.13 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	28.8	31.7	2.9
Signalling	6.5	3.2	-3.3
Civils (structures)	19.6	28.5	8.9
Electrification	0.0	0.0	0.0
Plant and machinery	2.0	0.9	-1.1
Information technology	0.0	0.0	0.0
Telecoms	0.0	0.0	0.0
Stations	0.0	4.1	4.1
Depots	0.0	0.9	0.9
Lineside buildings	0.0	0.5	0.5
Other	0.0	0.3	0.3
Total renewals	57.0	70.1	13.2
Total enhancements	4.0	5.2	1.2

Signalling

The £3.3m variance is due to re-scheduling of activity at Colthorp & Kintbury (£1.1m), Exeter & Westbury train describer renewals (£1.3m) and Devon & Cornwall level crossings and other minor works (£0.9m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£2.2m). For Western Territory routes – Reactive and Unplanned schemes – originally classified as 'Other' – additionally had specifically identified spend (£9.1m) – This included reactive schemes at Whiteball Tunnel (£0.7m), Shell Cove Sea Cliff (£0.6m), Par East Cutting (£0.5m) and 30 other smaller spend sites. Underspend on route included Royal Albert Bridge re-programmed into 2009/10 due to the decision for procurement strategy changing from design and build to construct only (and plan realigned) to give best value to Network Rail (-£2.0m).

Plant and machinery

The £1.1m variance is due to re-scheduling of activity on national PSP renewals (£0.7m) and depot plant renewals (£0.4m).

Stations

This variance is mainly due to re-allocation of minor works, £1.5m, and Planned Preventative Maintenance, £0.4m, from 'Other' to Route 11. Re-prioritisation of schemes within operational property workbank enabled completion of six schemes on the route in 2008/09; Devonport footbridge repairs, £0.5m, Menheniot platform repairs, £0.3m, Polsloe Bridge platform repairs, £0.2m, Dawlish platform lighting, £0.2m, Crediton platform lighting, £0.2m, Castle Cary footbridge repairs, £0.2m.

Depots

This variance is mainly due to re-allocation of minor works, £0.3m, and Planned Preventative Maintenance, £0.3m, from 'Other' to Route 12, and also to work re-prioritised at Plymouth Laira Depot, repairs to water pipes, £0.3m.

Enhancements (non-WCRM)

Falmouth branch line upgrade +£5m, project brought forward following funding availability from 3rd Party; Westbury used track materials handling facility -£3.7m, reclassification of funding to National Delivery Service.

Route 13 Great Western Main Line

Table 6.14 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	51.0	52.9	1.9
Signalling	85.5	68.4	-17.1
Civils (structures)	23.5	28.6	5.1
Electrification	0.1	0.0	-0.1
Plant and machinery	3.3	2.8	-0.6
Information technology	0.0	0.0	0.0
Telecoms	8.2	5.5	-2.7
Stations	15.0	14.8	-0.2
Depots	0.0	1.2	1.2
Lineside buildings	0.0	4.3	4.3
Other	0.0	0.7	0.7
Total renewals	186.7	179.2	-7.5
Total enhancements	52.7	55.0	2.3

Signalling

The £17m variance is mainly due to re-scheduling of activity on Newport re-signalling (£5.8m), Reading signalling works (£4.3m), South Wales Control Centre (£2.9m), Swindon remote control systems (£2.3m) and other smaller signalling renewals (£1.9m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£5.5m). For Western Territory routes – Reactive and Unplanned schemes – originally classified as 'Other' – additionally had specifically identified spend (£0.2m). Underspend against forecast due to large savings on Severn Tunnel Project – chiefly less than predicted brickwork repairs and few of the risks on this large project materialising (-£0.8m).

Plant and machinery

The £0.6m variance is mainly due to re-scheduling of activity on national PSP renewals.

Telecoms

The £2.7m variance is mainly due to re-scheduling of activity on Severn Tunnel telecoms renewals (£1.4m) and Bristol concentrator (£0.9m).

Stations

The variance is mainly due to delays in implementing schemes at Paddington Station. The Span 4 renewal scheme was delayed by late approval of Listed Building Consent, (£2.0m), but

some efficiencies have been achieved on the project. Also, Paddington Standby Generator scheme was re-programmed to ensure the scheme could be developed to the stations requirements, (£2.0m). This is offset by re-allocation of minor works, £4.0m from 'Other' to Route 13.

Depots

This variance is mainly due to re-allocation of minor works, £0.8m, and Planned Preventative Maintenance, £0.2m, from 'Other' to Route 13.

Lineside buildings

This variance is mainly due to inclusion of the Wales Signal Control Centre, £3.5m, and also minor works £0.8m, re-allocated from 'Other' to Route 13.

Other

This variance is mainly due to re-allocation of minor works, £0.6m, and Planned Preventative Maintenance, £0.1m, from 'Other' to Route 13.

Enhancements (non-WCRM)

Newport Station Regeneration -£10.9m, delays to programme due to delays in funding agreement; Bristol St Phillips Marsh +£3.8m, revised Asset Purchase price; Severn Tunnel Cable Hanger +£3.4m, new project; Oxford Goods Loop +£2.5m, programme brought forward from CP4; Cotswold Line Re-doubling +£2m, programme brought forward from CP4 to take advantage of Possession availability; Bristol Parkway-Stoke Gifford +£0.8m – Commercial Property delivered new project; other small variances across portfolio.

Route 14 South and Central Wales and Borders

Table 6.15 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	6.0	8.6	2.6
Signalling	8.0	10.0	2.0
Civils (structures)	9.1	10.0	0.9
Electrification	0.0	0.3	0.3
Plant and machinery	0.6	0.4	-0.2
Information technology	0.0	0.0	0.0
Telecoms	2.5	2.3	-0.2
Stations	0.0	0.6	0.6
Depots	0.0	0.1	0.0
Lineside buildings	0.0	0.2	0.2
Other	0.0	0.1	0.0
Total renewals	26.3	32.6	6.3
Total enhancements	52.5	46.3	-6.2

Signalling

The £2.0m variance is mainly due to additional signalling renewals being undertaken as part of the ERTMS Cambrian project.

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£2.2m). For Western Territory routes – Reactive and Unplanned schemes – originally classified as 'Other' – additionally had specifically identified spend (£1.1m) Underspends against forecast include River Usk viaduct – due to extensive nature of repair and renewal, difficulty of acquiring suitable possession and durability of timber for decking led to agreed deferral to 2009/10 (-£0.8m). Also, Traeth Mawr Viaduct, which detailed design reduced quantities of repairs required and fewer possessions lead to cost savings (-£0.5m). Also, Battlefield embankment (-£0.5m) de-vegetation deferred to year before implementation.

Stations

This variance is mainly due to re-allocation of minor works, £0.1m, and Planned Preventative Maintenance, £0.2m, from 'Other' to Route 14. Re-prioritisation of schemes within operational property work bank enabled scheme to be implemented at Whitland Station, £0.2m, to be complete in 2009/10.

Enhancements (non-WCRM)

Cambrian Line capacity improvements -£5.9m, project slippage into CP4 due to ERTMS delay; ERTMS Cambrian Line -£4.4m, slippage; Carmarthen viaduct phase 2 +£2.9m, new project; underbridge preventative works +£1m, new projects.

Route 15 South Wales Valleys

Table 6.16 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	2.5	2.5	0.0
Signalling	0.5	0.1	-0.4
Civils (structures)	7.2	8.6	1.4
Electrification	0.0	0.0	0.0
Plant and machinery	0.2	0.7	0.5
Information technology	0.0	0.0	0.0
Telecoms	0.0	0.0	0.0
Stations	0.0	0.4	0.4
Depots	0.0	0.1	0.1
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.0	0.0
Total renewals	10.4	12.5	2.1
Total enhancements	7.4	17.4	10.0

Signalling

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£1.1m). For Western Territory routes – Reactive and Unplanned schemes – originally classified as 'Other' – additionally had specifically identified spend (£0.7m).

Enhancements (non-WCRM)

Merthyr Line frequency enhancements +£5m, project overspend due to missed possessions impacting on programme; South Wales platform extensions +£2.5m, budget rollover from 2007/08; South Wales Signalling Control Centre +£1.4m, increased costs; Cardiff Canton Walkway +£0.6m – new project; plus various scope increases for other minor projects.

Stations

Minor variances under £0.5m.

Route 16 Chilterns

Table 6.17 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	1.0	0.7	-0.3
Signalling	0.0	0.0	0.0
Civils (structures)	2.9	3.7	0.8
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	0.0	0.0
Stations	0.0	1.3	1.3
Depots	0.0	0.0	0.0
Lineside buildings	0.0	0.1	0.1
Other	0.4	0.1	-0.3
Total renewals	4.4	6.0	1.6
Total enhancements	7.4	11.6	4.2

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£1.0m).

Enhancements (non-WCRM)

Petts Hill +£4.9m, increased costs of £1m due to possession cancellations plus project slippage from 2007/08; other small variances across portfolio.

Stations

This variance is mainly due to re-allocation of minor works, £0.8m, and Planned Preventative Maintenance, £0.2m, from 'Other' to Route 16.

Route 17 West Midlands

Table 6.18 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	21.4	17.0	-4.4
Signalling	35.6	16.5	-19.1
Civils (structures)	7.7	9.5	1.8
Electrification	2.0	2.0	0.0
Plant and machinery	2.9	0.2	-2.7
Information technology	0.0	0.0	0.0
Telecoms	0.1	0.1	0.0
Stations	7.5	3.0	-4.4
Depots	0.0	0.2	0.2
Lineside buildings	0.0	0.1	0.1
Other	0.1	0.3	0.2
Total renewals	77.3	49.0	-28.4
Total enhancements	70.8	41.2	-29.6

Signalling

The £19m variance is mainly due to deferral of works at Water Orton whilst a more efficient option is developed (£12.7m) and re-scheduling of activity on other West Midlands re-signalling projects (£6.0m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£3.0m). Underspend on LSS Br 156 Landor Street (-£0.8m) as the option selection post feasibility has identified a bridge reconstruction. The available 29 hour possessions are insufficient to support this and hence the scheme has been re-programmed for Autumn 2009/10.

Plant and machinery

The £2.7m variance is mainly due to re-scheduling of activity on depot renewals at Shrewsbury and Tyseley (£2.3m) and national PSP renewals (£0.3m).

Stations

This variance is mainly due to the delay in implementing platform renewals at Coventry Station (£2.8m) pending a review of strategy of renewals at the station and platform renewals at Tipton Station (£2.4m) to ensure more efficient delivery in 2009/10. This is offset by re-allocation of minor works, £1.2m, from 'Other' to Route 17.

Enhancements (non-WCRM)

Birmingham New Street 3rd Party contribution – £28.2m, 3rd Party slippage; Birmingham West Coast car parks -£5.7m, project slippage; Southampton West Coast Main Line +£2m, work b/f from CP4; Birch Coppice +£1.6m, project slippage from 2007/08 and increased proposal estimate after stage gate 3 study.

Route 18 West Coast Main Line

Table 6.19 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	51.1	57.1	6.0
Signalling	9.9	36.9	27.0
Civils (structures)	12.6	26.6	14.0
Electrification	11.9	3.6	-8.3
Plant and machinery	36.2	9.0	-27.2
Information technology	0.0	0.0	0.0
Telecoms	4.1	4.1	0.0
Stations	1.6	8.9	7.3
Depots	0.0	0.2	0.2
Lineside buildings	1.0	15.0	14.0
Other	0.2	0.4	0.1
Total renewals	128.7	161.7	33.1
Total enhancements	57.5	58.2	0.7

Track

The variance is primarily due to additional work to enable the upgrade to be completed on time.

Signalling

The £27.0m variance is mainly due to unplanned works on Northampton re-signalling (£16.1m), axle counter renewals (£3.8m), cable renewals (£5.0m) and efficient engineering access (£1.4m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£7.2m). There is also Efficient Engineering Access spend to support the VHF timetable on the West Coast Main Line Route (£6.8m) that was not originally forecast.

Electrification

The £8.3m variance is mainly due to re-scheduling of activity on West Coast efficient engineering access (£5.9m) and various switchgear and feeder renewals.

Plant and machinery

The £27.3m variance is mainly due to re-scheduling of activity on West Coast efficient engineering access.

Stations

This variance is mainly due to schemes implemented following re-prioritisation of schemes within operational property workbank; Hemel Hempstead Canopies, £1.5m, multiple schemes at Crewe Station, £1.0m, Euston Paving, £1.0m, Rugby Electrical Rewire, £0.5m, Milton Keynes platform repairs, £0.5m. Three lift renewal schemes were also implemented at Preston, £0.4m, Manchester Piccadilly, £0.4m & Harrogate, £0.3m. This is contributed to in the re-allocation of minor works, £1.3m, from 'Other' to Route 18.

Lineside buildings

This variance is mainly due to the inclusion of Efficient Engineering Access schemes. This is offset by delay in implementing works at Kenton Sub-Station, £0.5m, which will now commence in 2009/10. Also slippage in scheme at Harrow sub-station, £0.4m, however, this scheme has been combined with an E&P scheme to deliver efficiently.

Enhancements (non-WCRM)

West Coast car parks programme -£19.5m, programme slippage; Euston station concourse +£3.8m – new project; enhancements at Stoke station including removing track, moving a platform and S&C work plus an enhanced 65mph turnout at Colwich-Armitage +£14.9m; Crewe water supplies +£0.8m increased scope of safety and environment funded scheme.

Route 19 Midland Main Line and East Midlands

Table 6.20 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	23.8	24.1	0.3
Signalling	72.0	55.6	-16.4
Civils (structures)	11.4	17.4	6.0
Electrification	2.9	1.4	-1.5
Plant and machinery	2.2	0.4	-1.8
Information technology	0.0	0.0	0.0
Telecoms	1.3	1.4	0.1
Stations	14.6	18.5	3.9
Depots	0.0	0.0	0.0
Lineside buildings	0.0	0.0	0.0
Other	0.0	0.1	0.1
Total renewals	128.2	119.0	-9.2
Total enhancements	71.7	66.9	-4.8

Signalling

The £16.4m variance is mainly due to re-scheduling of activity on South Erewash re-signalling (£15.8m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£6.9m). Underspend against forecast include AJM1/19 Leaward Bridge River Derwent which was deferred to 2011/12 for higher priority schemes and scope to be further reviewed (-£0.7m).

Electrification

The £1.5m variance is due to re-scheduling of activity on overhead line renewals.

Plant and machinery

The £1.8m variance is mainly due to re-scheduling of activity on national PSP renewals (£1.0m), King's Cross tunnel lighting (£0.5m) and non traction plant renewals (£0.3m).

Stations

This variance is mainly due to acceleration of spend at Derby station, bought forwards from 2009/10, £2.0m, and re-allocation of minor works, £1.0m from 'Other' to Route 19.

Enhancements (non-WCRM)

East Midlands Parkway +£12.3m, increased scope and costs; Cricklewood purchase refuse site +£2.4m, new project; Luton station car park -£8.5m, project slippage; Leicester North -£5.0m, project slippage; Corby re-instatement -£4.0m, project slippage; Bedford station-Thameslink -£1.3m, cancelled project.

Route 20 North West Urban

Table 6.21 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	10.8	12.5	1.7
Signalling	3.3	2.7	-0.6
Civils (structures)	12.7	24.8	12.1
Electrification	6.0	2.0	-4.0
Plant and machinery	0.8	0.5	-0.3
Information technology	0.0	0.0	0.0
Telecoms	4.1	3.8	-0.3
Stations	1.1	3.6	2.4
Depots	0.0	0.1	0.1
Lineside buildings	0.0	1.0	1.0
Other	0.3	0.4	0.1
Total renewals	39.1	51.3	12.2
Total enhancements	37.5	33.3	-4.2

Signalling

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£6.2m). Other Overspends include Chorley flying arches R/W (£5.1m) where a blockade of the route was used to carry out the removal of the Grade 2 listed arches in order to complete key major track renewals and drainage in 2008/09. Also, prolongation contractor claim on Carr Mill Viaduct (£1.0m) due to deck conditions being worse than originally scoped and delays of over a year to complete project.

Electrification

The £4m variance is due to re-scheduling of activity on overhead line and switchgear renewals.

Stations

This variance is mainly due to the re-allocation of minor works, £1.6m, from 'Other' to Route 20. Also includes completion of Deansgate Steelwork repairs which were started in 2007/08, £0.6m.

Lineside buildings

This variance is mainly due to re-prioritisation in the operational property work bank enabling signal box refurbishments at Blackrod, Foxfield and Kirkham, £0.8m.

Enhancements (non-WCRM)

Chorley new station -£4.4m, project slippage; Manchester Piccadilly platform 13/14 -£2.8m, project slippage; Blackburn-Hellifield -£2.7m, project slippage; Metrolink Phase 3 -£2m, project slippage; Longsight rationalise up sidings +£5.3m, new project.

Route 21 Merseyrail

Table 6.22 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	1.8	1.8	0.0
Signalling	0.5	0.1	-0.4
Civils (structures)	0.7	1.4	0.7
Electrification	0.8	1.1	0.3
Plant and machinery	0.4	0.0	-0.4
Information technology	0.0	0.0	0.0
Telecoms	2.5	1.1	-1.4
Stations	2.3	4.1	1.9
Depots	2.6	1.7	-0.9
Lineside buildings	0.0	0.1	0.1
Other	0.1	0.2	0.1
Total renewals	11.6	11.6	0.0
Total enhancements	6.4	13.7	7.3

Electrification

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£0.4m).

Telecoms

The £1.4m variance is mainly due to efficiencies on Merseyrail underground CCTV (£0.6m) and cancellation of works on Merseyrail TEC wires (£1.0m).

Stations

This variance is mainly due to the re-allocation of minor works, £1.6m, from 'Other' to Route 21.

Also includes efficiencies made at Southport station, £0.3m.

Depots

This variance is mainly due to late start on site due to design delays in the Birkenhead North roof renewal scheme, £0.9m. This scheme will now complete in 2009/10.

Enhancements (non-WCRM)

Edge Hill depot new shed +£6.6m, new project; St Helens central station +£0.4m, increased costs due to claims.

Route 22 North Wales and Borders

Table 6.23 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	2.1	1.6	-0.5
Signalling	4.0	3.8	-0.2
Civils (structures)	7.0	7.7	0.7
Electrification	0.0	0.0	0.0
Plant and machinery	0.1	0.1	0.0
Information technology	0.0	0.0	0.0
Telecoms	0.0	0.1	0.1
Stations	0.5	1.8	1.3
Depots	0.0	0.0	0.0
Lineside buildings	0.0	0.1	0.1
Other	0.3	0.7	0.4
Total renewals	14.1	15.8	1.8
Total enhancements	2.0	2.9	0.9

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£2.0m). Underspend against forecast include Afon Ganol Earthworks (-£0.5m): due to risks associated with the difficult nature of this particular site access not materialising and tender returns being less than original provision. Also, River Defences at Tal-Y-Cafn has been deferred to future years, in order to gain better tendering efficiency with similar items.

Stations

This variance is mainly due to the re-allocation of minor works, £0.8m, and Planned Preventative Maintenance, £0.2m, from 'Other' to Route 22. Also includes increase in costs on Betws-y-coed platform repairs, £0.2m, due to requirement for new platform copers driven by track alignment.

Route 23 North West Rural

Table 6.24 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	16.0	18.7	2.7
Signalling	3.1	2.5	-0.6
Civils (structures)	10.8	13.4	2.6
Electrification	0.0	0.0	0.0
Plant and machinery	0.4	0.2	-0.2
Information technology	0.0	0.0	0.0
Telecoms	0.0	0.0	0.0
Stations	0.0	1.2	1.2
Depots	0.0	0.0	0.0
Lineside buildings	0.4	0.5	0.1
Other	0.0	0.8	0.8
Total renewals	30.7	37.2	6.5
Total enhancements	12.2	24.9	12.7

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£3.9m). Underspend against forecast include SAC/138 'Ais Gill' bridge which had implementation work cancelled (-£0.6m) as Network Rail purchased the access rights of the farmer which was the sole purpose of the structure. Also, previous years commitments on FHR4/26 Blackburn were deemed now not to be required (-£0.5m).

Stations

This variance is mainly due to the re-allocation of minor works, £0.8m, and Planned Preventative Maintenance, £0.2m, from 'Other' to Route 23.

Other

This variance is mainly due to a scheme completed at Carnforth MDU.

Enhancements (non-WCRM)

Daisyfield to Hellifield +£10.4m, new project; Settle-Carlisle +£2.7m, increased costs due to project delays.

Route 24 East of Scotland

Table 6.25 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	14.9	16.9	2.0
Signalling	5.0	2.6	-2.4
Civils (structures)	36.7	38.4	1.7
Electrification	0.0	0.0	0.0
Plant and machinery	0.2	0.1	-0.1
Information technology	0.0	0.0	0.0
Telecoms	0.8	0.3	-0.5
Stations	2.9	6.7	3.7
Depots	0.0	0.3	0.3
Lineside buildings	0.0	0.5	0.5
Other	0.0	0.5	0.5
Total renewals	60.5	66.2	5.7
Total enhancements	97.4	88.0	-9.4

Signalling

The £2.4m variance is mainly due to re-scheduling of activity on Edinburgh suburban line (£0.7m), delay in progressing the closure of Inchyra level crossing (£1m) and Stirling North points renewals (£0.3m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£3.8m). Underspends against forecast include Drumshoreland (Old Station) Underbridge Renewal (-£1.1m) due to Implementation being deferred to 2009/10 to suit disruptive possession plan for Airdrie to Bathgate enhancement scheme. Also, Haymarket north tunnel masonry repairs and shotcreting works (-£1.0m) deferred due to low risk.

Stations

This variance is mainly due to re-allocation of spend on Edinburgh Waverley from Route 8, £3.1m, and also minor works £1.2m from 'Other' to Route 24. Due to re-prioritisation of operational property work bank, additional works were able to be completed at Stirling (platform repairs), £0.4m, Edinburgh Waverley (platform lifts), £0.3m, Glasgow Queens Street (Roof Repairs), £0.3m. This is offset by delays in roof renewal scheme at Edinburgh Haymarket, (£1.2m), due to late application of Listed Building Consent, and savings in change of scope with Aberdeen roof repair, where Network Rail is now making a contribution to developers (£1.0m).

Lineside buildings

This variance is mainly due to scheme for Perth signal centre roof repairs being bought forwards from CP4, £0.3m, also minor works completed against Route, £0.2m.

Other

This variance is due to works being completed on MDU's, planned against 'Other'.

Enhancements (non-WCRM)

Airdrie to Bathgate -£6m deferral to CP4 comprising downturn in TOC compensation forecast and slippage on award of main civils contract; Edinburgh Waverley -£6m, delay in Waverley Steps as a result of public objections; Edinburgh to Glasgow improvement project +£2m, re-prioritisation from Transport Scotland resulting in acceleration and increased scope of stage gate 3 & 4 works.

Route 25 Highlands

Table 6.26 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	7.7	6.3	-1.4
Signalling	1.2	0.1	-1.1
Civils (structures)	17.6	19.8	2.2
Electrification	0.0	0.1	0.1
Plant and machinery	0.1	0.1	0.0
Information technology	0.0	0.0	0.0
Telecoms	2.2	1.5	-0.7
Stations	0.0	1.0	1.0
Depots	3.3	4.2	0.9
Lineside buildings	0.0	0.1	0.1
Other	0.0	0.4	0.4
Total renewals	32.1	33.7	1.5
Total enhancements	0.5	1.2	0.7

Signalling

The £1.1m variance is mainly due to re-scheduling of activity on Inverness RETB renewal (£0.5m), Annat level crossing renewal (£0.3m) and Gartly/Murie level crossing (£0.3m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£3.6m). Underspend against forecast include Brora/Helmsdale coastal defence (-£0.5m) with restricted Summer working and extra environmental constraints imposed by SEPA and Kirkstile Deveg earthwork programme was deferred to align with other works in 2010/11 (-£0.5m).

Telecoms

The £0.7m variance is mainly due to re-scheduling of activity on Annat level crossing renewal (£0.4m) and various SPT concentrator renewals (£0.3m).

Stations

This variance is mainly due to re-allocation of minor works, £0.8m, from 'Other' to Route 25.

Depots

This variance is mainly due to rollover of 2007/08 spend, £0.4m and cost increase, £0.3m, against Inverness depot roof repairs, which is due to complete in 2009/10.

Enhancements (non-WCRM)

There were small variances across the portfolio.

Route 26 Strathclyde and South West Scotland

Table 6.27 Expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	10.0	10.4	0.4
Signalling	42.5	34.8	-7.7
Civils (structures)	15.7	20.1	4.4
Electrification	2.4	7.8	5.4
Plant and machinery	1.2	1.3	0.1
Information technology	0.0	0.0	0.0
Telecoms	6.8	4.2	-2.6
Stations	6.5	4.5	-2.0
Depots	0.0	0.2	0.2
Lineside buildings	0.0	0.2	0.2
Other	0.0	0.0	0.0
Total renewals	85.1	83.6	-1.6
Total enhancements	34.2	39.1	4.9

Signalling

The £7.7m variance is mainly due to re-scheduling of activity at various locations (£5m) and some efficiencies delivered on the Glasgow re-signalling project (£2m).

Structures

This variance is largely due to minor works, Possession/Isolation/Signal box openings and project management overhead costs having been classified as 'Other' in the forecast, spend was allocated over actual sites in Monitor (£6.0m). Underspend against forecast include Cook Street waterproofing and repainting (-£0.5m) as disruptive access was pulled at short notice in preference of Glasgow central re-signalling. Also Hillington was deferred (-£0.5m) to align with Transport for Scotland GARL scheme works on the same structure.

Electrification

The £5.4m variance is due to increased activity on overhead line and switchgear renewals.

Telecoms

The £2.6m variance is mainly due to re-scheduling of activity on Glasgow long line public address renewals (£1.7m).

Stations

This variance is mainly due to revised scope of works at Gourock Station resulting in delay to the project (£4.8m). The project is now planned to commence in 2009/10. Works were also slipped at Paisley Gilmour Street (£1.4m) where requirement for additional structural assessments have meant scheme will now be developed in 2009/10, for implementation in 2010/11. This has been offset by re-allocation of minor works £1.3m from 'Other' to Route 26, and re-prioritisation of operational property workbank enabling schemes to be implemented at six additional stations; Dumbarton (platform repairs) £0.9m, Port Glasgow (platform repairs) £0.5m, Helensburgh (platform repairs, to be complete in 2009/10) £0.3m, Cathcart Circle (various repairs) £0.2m, Ayr (repairs) £0.2m, Girvan (painting) £0.1m.

Enhancements (non-WCRM)

Gretna-Annan +£6m, increased costs due to project delays; Scotland Access for All projects – £2.3m, project slippage; Gourock +£1m, re-prioritisation from Transport Scotland resulting in acceleration and increased scope of stage gate 3 & 4 works.

West Coast Route Modernisation (WCRM)

Table 6.28 West Coast Route Modernisation expenditure in 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	130.7	138.9	8.2
Signalling	208.7	197.7	-11.0
Civils (structures)	28.4	39.1	10.7
Electrification	91.4	90.3	-1.1
Plant and machinery	12.4	13.5	1.1
Information technology	0.0	0.0	0.0
Telecoms	9.7	11.3	1.6
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 WCRM	481.3	490.9	9.6
Total enhancements WCRM	219.0	268.4	49.4

Track

Increase volumes of track work primarily at for Line Speed Profile A09 at Milton Keynes and Trent Valley Four Tracking.

Signalling

Cost savings on signalling contract at Rugby & Nuneaton. Also an element CP4 Roll over for signalling works. Transfer of Northampton signalling to Infrastructure Investment.

Structures

Increased costs for structures on Trent Valley four tracking including contractors claims.

Electrification

Minor P&M variances programme wide.

Telecoms

Minor P&M variances programme wide.

Enhancements (WCRM)

Increase costs for Trent Valley four tracking (elimination of level crossing to enhance line speed) and Milton Keynes (new platforms and footbridges including claims for contractors) account for variance.

Central (Other)

Table 6.29 Other investment expenditure 2008/09 prices (£m)

	Forecast	Actual	Variance
Renewals			
Track	361.2	380.9	19.7
Signalling	60.3	81.5	21.2
Civils (structures)	113.3	8.7	-104.6
Electrification	12.4	4.5	-7.9
Plant and machinery	142.5	84.8	-57.7
Information technology	114.9	126.0	11.1
Telecoms	317.2	198.5	-118.7
Stations	129.7	23.3	-106.5
Depots	14.9	5.6	-9.3
Lineside buildings	3.9	8.6	4.7
Other	186.3	49.0	-137.3
Total renewals	1,456.6	971.3	-485.3
Total enhancements	373.6	419.6	46.0

Track

The variance on track renewals is primarily due to bringing forward work in association with our efficient engineering access programme.

Signalling

The £21m variance is largely due to over-planning overlays included in this route. This should offset underspends shown in the routes.

Structures

The majority of schemes that were classified as 'Other' within the forecast have now been allocated across the routes within the actual spend.

Electrification

The £7.9m variance is mainly due to re-scheduling of activity on the supervisory renewals project.

Plant and Machinery

The £57.7m variance is mainly due to deferral of purchases of mobile plant (e.g. wagons) due to contractual issues (£11.6m), track high output and S&C plant (£23.0m) and Maintenance small plant (£8.8m). Also there is re-scheduling of activity on various development projects.

Telecoms

The £119m variance is due to a re-planning of the FTN/GSM-R telecoms programme. In order to ensure efficient delivery of the FTN/GSM-R programme to schedule, the programme implemented a new Work Breakdown Structure

(WBS) in June 2008. As part of implementing the new WBS, a new baseline plan was built, which re-prioritised work to align with the switch off of NRN in the south and also to align with the roll-out of GSM-R to train fleets. The new baseline plan scheduled a lower volume of work for 2008/09 compared to budget whilst still achieving key milestone dates on the programme's critical path. In addition, the programme has implemented a new method of GSM-R site construction that has delivered significant efficiency savings.

Stations

This variance is mainly due to planned items being shown within the actual Route spend; King's Cross renewals (£41.5m), minor works (£37.3m), Victoria roof renewal (£15.8m), Planned Preventative Maintenance (£9.8m), nine individual schemes (£4.2m). There were also efficiencies on operational property inspection projects (£2.9m).

Depots

This variance is mainly due to planned items being shown within the actual Route spend; minor works (£7.6m), Planned Preventative Maintenance (£1.2m), inspections (£0.8m). There were also efficiencies on operational property inspection projects (£1.2m).

Lineside buildings

This variance is mainly due to schemes to implement Infrastructure Maintenance training centres, £5.5m. This is offset by planned items being shown within the actual Route spend; minor works (£2.3m), Planned Preventative Maintenance (£0.3m), inspections (£0.3m).

Other

This variance is mainly due to slippage within the MDU accommodation programme, planned at £53.6m. Spend reported against 'Other' is £11.5m, this includes Irvine MDU, £2.7m, Cowlairs MDU, £2.4m and Dumfries MDU, £0.2m, and £5.7m delivered through Maintenance.

Enhancements (non-WCRM)

National Pollution Prevention +£8.0m, increased scope; central recharges not in Business Plan +£8.0m; out of London CCTV upgrade +£6.4m, programme combined from routes; asbestos removal programme +£3.0m, new project; Intercity Express Programme +£2.9m, project b/f; Contaminated Land Programme +£1.1m, increased scope; Access for All programme – £12.9m, programme slippage; central overlay not required +£29.5m.

Maintenance expenditure

Table 6.30 Maintenance expenditure 2008/09 prices (£m)

	Forecast	Actual	Variance
Route delivered maintenance			
London North East	139.4	138.6	-0.8
London North West	239.1	235.9	-3.2
Anglia	87.2	90.9	3.7
Kent	58.8	58.4	-0.4
Sussex	45.1	44.8	-0.3
Wessex	65.5	65.3	-0.2
Western	120.7	122.2	1.5
Midland & Continental	44.8	44.4	-0.4
England and Wales	800.6	800.5	-0.1
Scotland	76.0	73.2	-2.8
Other maintenance function	33.8	36.1	2.3
Total route delivered maintenance	910.4	909.8	-0.6
Centrally managed*	217.6	193.8	-23.8
Total maintenance expenditure	1,128.0	1,103.6	-24.4

* Includes structures examinations, major items of maintenance plant such as rail grinding and the measurement train, and other HQ managed maintenance activities.

Commentary

Maintenance expenditure continued to reduce significantly in real terms during 2008/09 enabling us to meet the challenging route budgets set for the year. In part this was achieved through improved labour productivity which enabled the additional labour capacity to be re-deployed on delivery of capital investment projects (1,300 full time equivalents were deployed on projects by the end of the year) and previously sub-contracted maintenance activities. In addition, the competitive tendering and close control of bought-in resources, primarily plant, vehicles, materials and sub-contractors, which generated efficiencies in prior years, has continued to deliver efficiencies. The majority of the variance in the centrally managed expenditure was due to the deferral of our plans for harmonising maintenance terms and conditions.

Section 7 – Efficiency and finance

Introduction

This section provides an assessment of the level of efficiency we have achieved in 2008/09 and over the control period for controllable operating costs, maintenance and renewals. This section also reports on the debt to RAB ratio and the value of the volume incentive at the end of CP3.

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 eight per cent in 2004/05, 2005/06 and 2006/07 for opex, maintenance and renewals and savings in 2007/08 and 2008/09 of five per cent for opex and renewals and eight 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 CP3 set out here must be treated with caution as firm conclusions on efficiency rely on assessments of sustainability that, due to the long lifespan of railway assets, can only be assessed 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 2008/09. For maintenance, we have compared expenditure with the ACR 2003 determination 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 continued to make good progress in reducing costs and achieved efficiency savings of over four per cent in the year. By the end of CP3 we had achieved overall savings of 27 per cent (28 per cent when the impact of traffic is included) and although this is a significant saving it fell a little short of the 31 per cent assumption made by ORR in ACR 2003. The savings over the control period have come from a number of sources, including bringing maintenance work in house, re-structuring, introducing new technology for improved asset inspection, re-negotiating contracts and investing in new plant and machinery. The main reason for failing to meet the ORR target relates to track renewal unit costs. To address this we are investing in high output renewal plant and modular S&C renewal equipment and working with our track renewal contractors to develop more efficient delivery in the future.

Table 7.1 Overall efficiency improvement assessment (%)

	By end 2007/08		By end 2008/09	
	ACR Assumption	Actual Achieved	ACR Assumption	Actual Achieved
Controllable opex	26	28	30	28.2
Maintenance*	28	28	35	31.4
Renewals	26	18	30	24.0
Overall efficiency improvement*	27	23	31	27.0

* Figures for Maintenance efficiency achieved are not adjusted for the impact of traffic, measured by equated track miles (ETMs). The ETM-adjusted figure is three per cent higher at 31 per cent for 2007/08 and 34.5 per cent for the end of CP3, see table 7.4 later in this section. This increases the overall saving by one per cent to 28 per cent at the end of CP3.

Operating costs

Table 7.2 below compares total controllable operating costs in 2005/06, 2006/07, 2007/08 and 2008/09 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 price base used in ACR 2003. The table shows that while we have been able to reduce opex in real terms, the pace of change has fallen and by the end of CP3 we were marginally below the ACR 2003 targets. This is in line with our expectation last year that large savings in operating costs would be increasingly difficult to achieve.

Maintenance

Table 7.3 compares the total level of maintenance expenditure in 2005/06, 2006/07, 2007/08 and 2008/09 with the levels assumed by ORR in the ACR 2003 determination. The comparison shows that in 2008/09 maintenance expenditure was 31.4 per cent lower than the pre-efficient level assumed by ORR and therefore slightly behind the cumulative 35 per cent assumed by ORR for CP3.

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, which are powerful 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) which 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 7.4 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 34.5 per cent (i.e. slightly below the ACR target of 35 per cent)

We also note that the good performance in achieving maintenance cost savings has been achieved at the same time as continuing improvements to the condition of our assets. For example track geometry continues to improve, the number of asset failures causing train delay have reduced by over 20 per cent since the end of CP2 and over the same period the number of broken rails has halved.

Table 7.2 Controllable operating cost efficiency improvements

Controllable Opex Nominal prices	ACR pre-efficiency allowance (£m)	Actual Opex	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
2008/09	1,265	908	-357	28.2	30

Table 7.3 Maintenance efficiency improvements

Maintenance Costs Nominal prices	ACR pre-efficiency allowance (£m)	Actual Maintenance (£m)	Variance (£m)	Actual Saving (%)	ACR efficiency assumption (%)
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
2008/09	1,610	1,104	-506	31.4	34

Table 7.4 Annual changes in maintenance costs per equated track mile

Costs at 2008/09 prices	ACR 2004/05 based on pre efficient allowance	2005/06	2006/07	2007/08	2008/09	Variance on 2007/08 actual (%)	Variance on 2004/05 ACR (%)
Maintenance Cost (£m)	1,610	1,330	1,231	1,152	1,104	4.1	31.4
Equated Track Miles (ETM)	21,896	22,599	22,770	22,782	22,910	0.6	4.6
Cost per ETM (£k)	73.5	58.8	54.1	50.5	48.2	4.7	34.5

Table 7.5 Unit costs for the 12 most accurate network-wide MUCs

MUC activity	Unit of measure	Cost per unit (£)			
		2007/08	2007/08 (in 2008/09 prices)	2008/09	Change (%)
Rail changing	Rail yards	78	80	55	32
Re-sleeping	Number	145	149	138	8
S&C replacement of crossings & switches 1/2 Units	Number	8,555	8,812	8,817	0
Replacement of S&C bearers	Number	306	315	295	6
Visual inspection (patrolling)	Track miles	47	48	54	-12
S&C arc welds	No of repairs	404	416	349	16
Arc weld of defective rails	No of repairs	471	485	471	3
Thermit welding	No of repairs	267	275	242	12
Manual correction of plain line geometry	Track yards	15	15	18	-17
Point end routine maintenance	Service	58	60	59	1
Signals routine maintenance	Service	49	50	61	-21
Track circuits maintenance	Service	49	50	60	-19

Maintenance unit cost indices

The Maintenance Unit Cost (MUC) framework continued to develop during 2008/09 with emphasis on the following key areas:

- updating the MUC framework to reflect the Phase 2a Maintenance restructuring process which took place in September 2008. This standardises the 40 Delivery Units through which we maintain the network and;
- improving the capture and recording of volume activity data.

Reported data

We have reviewed the variations of MUCs between Routes in order to satisfy ourselves that variation between routes is acceptable, and not the result of inconsistent data collection and recording practices. The 12 MUCs reported in 2007/08 continue to be recorded in a manner that we consider to be robust, these are reported in Table 7.5.

Four of the MUCs shown in Table 7.5 display year-on-year increases between 2007/08 and 2008/09. We believe that this is due to improvements in the way in which we record and collect data, rather than a decrease in efficiency.

Changes to measures

In 2009/10 a number of MUCs have been disaggregated between the mechanical and manual components of the activity. For example we have split the Track visual inspection MUC into Mechanical Inspections (measured in track miles) and Visual inspections (measured in track yards). Similarly we now have a Mechanical reprofiling of ballast MUC and a Manual reprofiling of ballast MUC, rather than a single Reprofiling of ballast MUC. This will allow us to better understand our

cost base and the most appropriate way of maintaining the network in future.

In Table 7.5 above, we have re-aggregated the measures to enable comparison with 2007/08. We have also introduced some entirely new MUCs in order to increase our coverage of Maintenance spend. However, from 2009/10 we will cease to record thermit welding as a separate MUC, this activity will be incorporated with the appropriate unit cost, (egg. rail changing, or S&C unit renewal).

For 2008/09 we had 44 MUCs in our recording framework, compared with the 23, (of which 22 we were capturing data for) at the time of the 2008 Annual Return. The new MUCs we have begun to report are listed below:

- Transportation of Materials
- Replacement of Ballast (by Train)
- Maintenance of Rail Lubricators
- Replacement of Pads and Insulators
- Maintenance of Longitudinal Timbers.

Our new S&T MUCs are:

- Level Crossings
- Train Protection Services
- Equipment Housing/Cabinets.

In addition, we have comprehensively restructured off-track MUCs;

- Inspection (fencing, vegetation & drainage)
- Inspections (level crossings & access points)
- Fences & boundary walls
- Drainage
- Vegetation management
- Vegetation management by train
- Level crossings
- Lift and replace level crossing
- Signs

- Litter at stations
- Spoil & debris clearance outside station area
- Graffiti
- Vegetation removal of boundary trees.

From next year provided that we, and our independent auditors, are satisfied with the data quality both in terms of period-to-period and geographical consistency, we will begin publishing a greater number of MUCs in the Annual Return. However, from next year we will be reporting unit costs that have been recorded in Oracle Projects software, this only records time spent on the MUC activity, while previously travel and mobilisation time were also recorded. These changes will improve our ability to understand our cost base but will preclude comparison with pre-2009/10 MUCs.

Change to process

In 2008/09 we successfully rolled out Oracle Projects software for maintenance and put in place a national labour appropriation system together with a comprehensive training programme to ensure that all appropriate staff are trained and competent with its use. The change in software, in conjunction with the national roll-out of information and training to the delivery units is intended to ensure that activities and time spent of jobs are accurately recorded.

As part of our continued focus on improving the recording of MUCs, our documentation and staff training has undergone a number of revisions and amendments throughout the year. Particular attention has been paid to address inconsistencies and variations between Routes. These updates address issues where potential ambiguities may have been present and potentially open to misinterpretation.

Description of published maintenance activities

- Rail changing – rail yards of plain line CWR or jointed rail replaced due to wear, corrosion, damage or defects
- Re-sleeping – number of sleepers (irrespective of type) replaced manually and mechanically
- 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
- 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
- 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.

Renewals

Assessing the efficiency of our renewals programme continues to be a complex activity. 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

The most consistent overall indicator of efficiency across Control Period 3 (CP3) has been the budget variance analysis which is summarised below for 2008/09. Most of the annual budgets were set on the basis of meeting the overall efficiency improvement target of 30 per cent savings for 2008/09 compared to the ACR assumptions but for track the budget assumed a saving of 23 per cent.

Table 7.6 Budget financial variance year-end efficiency reconciliation

	Actual expenditure (£m)	Budget (£m)	Variance (£m)	Scope change (£m)	Activity efficiency (£m)	Rescheduled activity (£m)	Core renewals % efficiency (%)
Renewals							
Track	887	888	1	–	(82)	83	16.0
Structures	437	441	4	(2)	19	(13)	29.3
Signalling	446	488	42	4	4	34	28.5
Electrification	98	123	25	–	(2)	27	18.9
Information technology	126	115	(11)	(9)	3	(5)	N/A
Telecoms	238	378	140	8	0	131	34.4
Stations	201	207	6	2	3	1	30.7 ⁽¹⁾
Depots	38	62	24	(2)	1	25	
Plant machinery/other	195	311	116	26	15	75	
Renewals (less WCRM)	2,666	3,013	347	28	(39)	358	24.0
WCRM	491	481	(10)	(8)	(13)	12	
Total renewals	3,157	3,494	337	19	(52)	370	
Total enhancements including WCRM ⁽²⁾							
	1,378	1,278	(100)	(86)	(72)	58	
Total expenditure	4,535	4,772	237	(67)	(124)	428	

⁽¹⁾ Combined figure for stations, depots and plant.

⁽²⁾ Excludes third party funded schemes

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 7.6.

The scope changes as stated in previous years 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 unbudgeted 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 7.6 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 2008/09 is 24 per cent, below the regulatory target of 30 per cent. This is due in part to a particularly challenging economic climate for construction work due to raw material prices (such as steel and copper cable and fuel) that are still well above the levels envisaged at the time of ACR2003.

Increases in traffic on the network are also making engineering access more restricted and more expensive in terms of compensation payments to operators. For track the actual savings were 16 per cent due to the impact of specified work mix changes, inflationary factors above RPI and increases in technical specification.

Renewals Unit cost indices

A key element of improving efficiency is reducing the unit costs of specific activities on the network. During 2008/09 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 as was the case 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 CAF forms has been excluded due to the narrow range of comparable data. In addition, some activity types have predominantly included partial renewals

activity, particularly in the case of 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 Operational Property 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 15 repeatable activity types are reported in this return. Compared to 2007/08, the number of RWIs reported in the Annual Return has decreased by five, and the percentage reported against total expenditure has fallen slightly, although it remains at approximately the 2006/07 level. This decrease has been due to a rise in the number of RWI categories where the annual total of completed CAF returns is below four. Therefore, the changing mix of our work

activities has driven an apparent deterioration in coverage, despite the fact that compliance with our unit cost reporting framework is generally improving.

Unit cost improvements in 2008/09 are shown in Table 7.7 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 2008/09. The actual costs in 2008/09 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 2008/09. The table also indicates the approximate proportion of renewals expenditure for each asset that is covered by the unit cost analysis.

An overall unit cost index performance is indicated in Table 7.7. This is generated by weighting

Table 7.7 2008/09 final costs of profiled RWIs per asset as % of renewals spend and efficiency indices

Asset	Activity type	Activity costs reported 2008/09 (£000)	Proportion of each asset total renewals spend (%)	Unit cost index
Signalling				
	101 – Re-signalling	90,891		64.9
	102 – Control renewal	2,368		–
	103 – Interlocking renewal	1,825		–
	108 – Level crossing renewals - MCB type	595		–
	108 – Level crossing renewals - MCB type with CCTV	5,243		81.0
	Total	100,922	22.9	66.1
Telecoms				
	501 – Large concentrator	3,197		–
	502 – DOO CCTV	4,134		–
	503 – PETS/level crossing	798		–
	504 – Small signal box concentrator	3,560		64.5
	506 – Customer Info system	12,714		73.4
	507 – Long line address system	641		–
	Total	25,044	39.9	69.3
Civils				
	701 Overbridge	10,757		92.5
	702 Underbridge	47,596		87.0
	703 Overbridge – Bridgeguard 3	13,720		80.8
	704 Footbridge	4,073		128.6
	705 Tunnel	8,074		61.5
	706 Culvert	2,794		61.4
	707 Retaining wall	3,206		111.5
	708 Earthworks	37,853		76.7
	709 Coastal & estuarial defences	3,882		11.9
	Total	131,955	30.2	69.8
Track				
	401 – Plain line	645,378		83.8
	403 – Switches & crossings	196,503		78.5
	Total	841,881	94.9	82.3
	Subtotal	1,086,244		
	Overall renewals total (less WCRM)	2,666,000	41	79.8

together the asset indices in proportion to spend. The overall index of 79.8 implies an aggregate unit cost efficiency of 20.2 per cent. However, it should be noted that this is dominated by the track renewals performance (and in any case slightly less than half of our 2008/09 spend (not including WCRM) in these asset categories is covered by the unit cost framework). The track data above reflects composite unit rates – see Table 7.9.

There has been a fall in the percentage of Civils spend recorded compared with the 2007/08 annual return. This is partly the result of the impact of the completion of the Newcastle High Level Bridge project: £44m was spent on this project but it has not been added to the CAF as the unique features of the project made it inappropriate for inclusion in benchmarked data. Additionally, a large proportion of our Civils projects are completed towards the end of financial year and are not processed through the CAF system until after the publication of the Annual Return. The final coverage of the Civils CAF for 2008/09 will be far higher, in 2007/08 final coverage of the CAF framework for Civils was 86 per cent, and we expect a final figure nearly as high for 2008/09. However, the reduction in signalling and telecoms unit costs is due to changes in our spend profile and the composition of our workbanks.

Table 7.8 below shows that we have continued to make reductions in our unit costs both relative to 2007/08 and to the 2003/04 baseline. The one exception to this trend is the increase in unit costs for S&C.

Structures renewals unit cost performance has achieved an overall efficiency of 30.2 per cent in 2008/09, ahead of the 30 per cent regulatory targeted efficiency for renewals investment. Year-on-year improvement compared with 2007/08 is four per cent, this is consistent with the steady, incremental efficiency improvements we have been achieving since 2005/06.

Track renewals has reported across CP3 two measures of unit cost data and subsequently two efficiency indices: 1) composite rates which include overhead charges made to Track renewals by the National Delivery Service (NDS) (these figures are shown in Table 7.9) and; 2) unit costs which exclude these overheads.

As shown in Table 7.9, 2008/09 has seen continued improvement in our plain line unit costs but S&C unit costs have risen slightly. However it should be noted that the underlying unit rate has continued to improve, with the reported unit rate increase due to the deferral of 68 S&C units to future years.

Although the total track renewals efficiency of 17.7 per cent is below the ORR efficiency target of 30 per cent, we made some significant improvements; restructuring the cost base, changing the contracting strategy and contractors' incentive regime and utilising our in-house Maintenance organisation to do less complex works, all whilst continuing to improve safety, track quality and reducing the impact on train performance.

Unit costs have been reported against five signalling activity types in 2008/09. As in 2007/08 four major re-signalling renewals (RWI 101) have been completed in 2008/09 achieving an overall efficiency of 35.1 per cent relative to 2003/04 benchmark. Overall signalling renewals has achieved a unit cost efficiency of 33.9 per cent, with the reported projects representing 22.9 per cent of total signalling spend.

Unit costs have been reported against six Telecoms activities in 2008/09, with only two of these having sufficient data to warrant reporting in this return. Overall telecoms expenditure achieved efficiencies of 30.7 per cent in 2008/09 compared with the 2003/04 base year.

Table 7.8 Unit cost indices for CP3 to-date compared to 2003/04 benchmark (index = 2003/04)

	2004/05	2005/06	2006/07	2007/08	2008/09	2008/09 RWI Costs as % of asset spend	Efficiency 2008/09 from base of 2003/04 (%)	UC indices movement 2007/08 to 2008/09 (%)
Structures	85	77	75	73	69.8	30	30	4
Track – plain line (composite)	91	91	91	90	83.8	73	16	6
Track – S&C (equiv units)	89	80	81	78	78.5	22	21	-1
Track – total	91	88	88	87	82.3	95	18	5
Major signalling	N/A	N/A	58	69	66.1	23	34	4
Telecoms			85	73	69.3	40	31	5
Overall rating			80	84	79.8	41	20	5

Notes: 2007/08 Civils numbers differ from the 2007/08 Annual Return due to the fact that the CAF process was completed for a large number of projects after the publication of the 2007/08 Annual Return.

Track unit rates

The data below shows the composite rate measures per metre of track and per S&C unit (inclusive of National Delivery Service and central overheads) from 2003/04 to 2008/09.

Table 7.9 shows the year-end plain line unit rate per metre (at 2008/09 prices) has reduced from £265 to £248, but S&C costs per equivalent unit increased from £500,000 to £504,000. 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 17.7 per cent, while 2008/09 efficiency relative to 2007/08 is 5.4 per cent.

Comparison of variance analysis and unit costs

The efficiency indicated by the variance analysis for track of 16 per cent is below that indicated by the composite unit rate analysis of 17.7 per cent.

The efficiency indicated by the variance analysis for structures renewals of 29.3 per cent is below that indicated by the unit costs analysis (30.2 per cent), partly reflecting additional scope inefficiencies. It should be noted that the latter index currently only covers 30 per cent of structures expenditure, so it is not fully representative.

For signalling renewals, the variance analysis indicates a lower level of efficiency (28.5 per cent) than the unit costs index (33.9 per cent). The difference is likely to be due to the limited coverage of unit costs this year.

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 7.6) indicates that overall efficiency savings across the entire renewals programme to be around 24 per cent, and therefore below the 30 per cent regulatory target for the end of CP4.

A comparison between the different renewal efficiency assessments is shown in Table 7.10.

Financial efficiency index

The Financial Efficiency Index (FEI) is one of our key performance indicators and is used as a measure of efficiency achieved over CP3. It measures the efficiency of our operating, maintenance and renewal expenditure normalised to take account of changes in the volume of work required and is a sum of the following components:

- controllable operating costs for the Operating Units and support functions
- expenditure on maintenance, normalised for traffic patterns and network size
- expenditure on plain line track renewals, normalised for the volume of track replaced
- expenditure on switches and crossings renewals and major re-signalling schemes, normalised by signalling equivalent units.

A score of 100 represents actual performance in the baseline year 2003/04, and hence a reduction in the index in Table 7.11 represents savings over the control period.

Table 7.9 Composite rate measures (rate at 2008/09 prices)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2008/09 efficiency saving from 2003/04 (%)	2008/09 efficiency saving from 2007/08 (%)
Plain line renewal (£ per metre)	296.0	270.5	271.8	266.9	264.8	248.2	16.2	6.3
S&C equivalent unit renewal (£000 per unit)	642.0	572.7	514.1	514.2	499.6	504.2	21.5	-0.9
Aggregate efficiency							17.7	5.4

Table 7.10 2008/09 comparative renewal efficiency assessments (%)

Assets	Budget variance analysis	Unit cost analysis	Difference
Signalling	28.5	33.9	5.4
Telecoms	34.4	30.7	-3.7
Civils	29.3	30.2	0.9
Track – aggregate	16.0	17.7	1.7
Renewals overall	24.0	20.2	-3.8

Table 7.11 Financial Efficiency Index

	2007/08	2008/09
Business plan target FEI	77.9	75.3
Actual FEI achieved	78.1	75.3

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.

The measure is calculated by dividing the company's regulatory net 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 debt and RAB as defined by the Regulatory Accounting Guidelines.

Under Licence Condition 3 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 70.0 per cent against a target of 68.4 per cent. This variance mainly reflects a lower than forecast RAB due to the deferral of some investment expenditure and lower than forecast inflation. This was partly offset by lower than forecast net debt mainly due to spending less than planned on renewals.

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. franchised 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. freight train miles, and
2. freight gross tonne miles.

The final values for the change in passenger and freight traffic over CP3 compared to the baseline assumptions give a RAB addition of £581.5m (at 2008/09 prices). All of this is driven by the passenger element of the incentive and none by freight traffic, and most of the passenger element is as a result of the growth in train miles over CP3 for franchised passenger services. Over the last year there was particularly strong growth in the number and mileage of franchised passenger services mainly due to the new very high frequency timetable that was introduced on the upgraded West Coast Main Line. There were also other new services that contributed to the growth in 2008/09.

Table 7.12 Debt to RAB ratio (%)

	Regulatory limit	2007/08 actual	2008/09 target	2008/09 actual
Net debt to RAB ratio	85.0	69.4	68.4	70.0

Table 7.13 Volume incentives RAB adjustment (£m)

	2008/09
Passenger volume incentive	581.5
Freight volume incentive	0.0
RAB adjustment	581.5

Appendix 1: Station stewardship measure – list of stations

The following tables provide a full list of the stations surveyed using the station stewardship measure (SSM) grouped by category of station. The measure assesses the condition of stations using a grading system from one to five with the lower the score the better the condition. It should be noted that this measure was introduced in 2007/08 to replace the old station condition index (SCI) and that the scores from each measure cannot be directly compared. However, we have provided parallel information using the old SCI score for each station but this will cease as we move forward into the new Control Period (CP4).

The stations are listed by category, namely:

- A – national hub
- B – regional hub
- C – important feeder
- D – medium, staffed
- E – small, staffed
- F – small, unstaffed

Table A1.1 Grade for Category A				Table A1.2 Grade for Category B			
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Birmingham New Street	LNW	2.71	2.35	Ashford International	SEA	1.45	1.53
London Blackfriars	SEA	2.42	2.12	Basingstoke	SEA	2.37	1.99
Bristol Temple Meads	WES	2.3	2.07	Billericay	SEA	3.03	2.67
London Charing Cross	SEA	2.04	1.86	Birmingham International	LNW	2.27	1.95
Crewe	LNW	2.79	2.45	Birmingham Moor Street	LNW	2.19	1.71
London Fenchurch Street	SEA	2.82	2.44	Birmingham Snow Hill	LNW	2.94	2.46
Gatwick Airport	SEA	1.92	1.63	Brentwood	SEA	3.14	2.75
Glasgow Central	SCO	1.86	1.69	Brighton	SEA	1.82	1.56
Glasgow Queen Street (High Level)	SCO	1.75	1.92	Bristol Parkway	WES	2.71	2.17
London Euston	LNW	2.88	2.43	Cardiff Central	WES	2.55	2.03
London Liverpool Street	SEA	2.08	1.63	Chelmsford	SEA	2.94	2.67
London Paddington	WES	2.43	2.22	Chingford	SEA	1.95	1.51
London Victoria	SEA	2.49	2.03	Clapham Junction	SEA	2.17	1.93
London Waterloo	SEA	2.34	2.04	Coventry	LNW	2.45	2.32
London Marylebone	LNW	2.74	2.22	Darlington	LNE	2.46	1.98
Newcastle	LNE	2.52	2.15	Didcot Parkway	WES	2.4	2.29
Preston	LNW	3.01	2.59	East Croydon	SEA	1.82	1.60
Reading	WES	2.24	2.17	Haymarket (Edinburgh)	SCO	2.06	1.81
Sheffield	LNE	2.41	2.22	Haywards Heath	SEA	2.94	2.53
Stockport	LNW	2.56	2.08	Huddersfield	LNE	2.77	2.37
York	LNE	2.27	1.90	Ilford	SEA	2.65	2.08
				Inverness	SCO	2.01	1.74
				Kingston	SEA	1.6	1.57
				Luton Airport Parkway	LNE	2.23	2.10
				Milton Keynes Central	LNW	2.9	2.58
				Newport (S. Wales)	WES	2.51	2.23
				Norwich	SEA	2.2	1.95
				Nottingham	LNE	2.49	2.20
				Oxford	WES	2.53	2.42
				Perth	SCO	2.35	1.72
				Putney	SEA	2.77	2.08
				Raynes Park	SEA	2.34	1.93
				Richmond (Greater London)	SEA	2.88	2.23
				Romford	SEA	2.13	1.60
				Shenfield	SEA	2.69	2.17
				Southampton Central	SEA	2.84	2.28
				Stansted Airport	SEA	2.11	1.95
				Stirling	SCO	2.18	1.68
				Stratford (London (High Level & Low Level)	SEA	2.25	2.03
				Surbiton	SEA	2.2	1.93
				Tonbridge	SEA	2.41	2.05
				Twickenham	SEA	2.72	2.09
				Vauxhall (London)	SEA	2.93	2.45
				Wakefield Westgate	LNE	2.78	2.57
				London Waterloo East	SEA	3.09	2.58
				Watford Junction	LNW	2.94	2.54
				Wimbledon	SEA	2.69	2.19
				Winchester	SEA	2.03	1.82
				Woking	SEA	2.24	2.03
				Wolverhampton	LNW	3.08	2.75

Table A1.3 Grade for Category C

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Abbey Wood	SEA	1.97	1.84	Edmonton Green	SEA	1.87	2.05
Aldershot	SEA	2.95	2.49	Egham	SEA	2.69	2.22
Altrincham	LNW	2.79	2.59	Eltham	SEA	2.51	2.06
Andover	SEA	2.66	2.49	Enfield Town	SEA	1.9	1.29
Arbroath	SCO	2.18	1.74	Epsom	SEA	2.89	2.46
Ascot	SEA	2.58	2.27	Ewell West	SEA	1.6	1.61
Ashford (Middlesex)	SEA	2.91	2.58	Exeter St Davids	WES	2.38	2.34
Aviemore	SCO	2.33	1.83	Falkirk Grahamston	SCO	1.93	1.65
Balham	SEA	2.88	2.09	Fareham	SEA	1.83	1.52
Banbury	LNW	2.82	2.16	Farnham	SEA	2.68	2.41
Barnes	SEA	2.88	2.30	Feltham	SEA	2.68	1.99
Barnsley	LNE	2.06	1.73	Finsbury Park	LNE	2.14	1.67
Basildon	SEA	2.49	2.41	Fleet	SEA	2.8	2.54
Bath Spa	WES	2.62	2.07	Folkestone Central	SEA	2.37	2.08
Beckenham Junction	SEA	2.31	1.95	Forest Gate	SEA	2.46	2.18
Bedford	LNE	2.18	1.87	Forest Hill	SEA	2.13	2.04
Benfleet	SEA	3.44	2.81	Fort William	SCO	2.49	1.88
Berkhamsted	LNW	2.99	2.67	Fratton	SEA	2.64	2.22
Bexleyheath	SEA	2.8	2.49	Gidea Park	SEA	2.57	2.11
Bishops Stortford	SEA	2.65	2.33	Gillingham (Kent)	SEA	2.53	2.19
Blackburn	LNW	2.04	1.45	Godalming	SEA	2.26	1.88
Blackpool North	LNW	2.81	2.34	Goodmayes	SEA	2.18	1.63
Bletchley	LNW	2.71	2.62	Gravesend	SEA	2.78	2.43
Bolton	LNW	2.53	2.27	Grays	SEA	2.37	1.88
Bracknell	SEA	2.28	2.19	Grove Park	SEA	2.16	1.90
Bridgend	WES	2.38	1.99	Hampton Court	SEA	3.16	2.83
Brookwood	SEA	2.78	2.32	Harold Wood	SEA	2.82	2.44
Burgess Hill	SEA	2.7	2.57	Harrogate	LNE	2.49	2.22
Bury St Edmunds	SEA	3.17	2.61	Haslemere	SEA	2.07	1.63
Cardiff Queen Street	WES	2.86	2.21	Hastings	SEA	2.15	1.92
Carlisle	LNW	2.61	2.11	Havant	SEA	1.86	1.42
Chadwell Heath	SEA	2.95	2.53	Hemel Hempstead	LNW	2.89	2.43
Chalkwell	SEA	2.3	2.10	Hereford	WES	3.01	2.59
Chatham	SEA	1.96	1.46	Herne Hill	SEA	1.99	1.72
Cheltenham Spa	WES	2.07	1.99	Highams Park	SEA	3.23	2.66
Cheshunt	SEA	2.08	2.05	Highbury & Islington (North London Line) (High Level)	SEA	2.57	2.04
Chester	LNW	2.65	2.55	Hitchin	LNE	1.94	1.61
Chichester	SEA	1.79	1.35	Hither Green	SEA	2.28	1.98
Chippenham	WES	2.37	1.81	Hockley	SEA	2.48	2.11
Dalmuir	SCO	2.07	2.07	Huntingdon	LNE	1.85	1.61
Derby	LNE	2.34	1.93	Inverkeithing	SCO	2.4	1.95
Diss	SEA	3.13	2.64	Kidderminster	LNW	2.48	2.10
Dorking	SEA	2.49	2.10	Kirkcaldy	SCO	2.22	1.75
Dunbar	SCO	2.17	1.72	Laindon	SEA	2.49	1.86
Ealing Broadway	WES	2.87	2.38	Lancaster	LNW	2.6	2.44
Earley	SEA	2.79	2.61	Leamington Spa	LNW	2.67	2.31
Earlsfield	SEA	2.46	2.42	Leatherhead	SEA	2.56	2.24
East Grinstead	SEA	2.65	2.44	Leicester	LNE	2.42	1.94
Eastbourne	SEA	2.56	2.15				

Table A1.3 Grade for Category C (continued)							
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Leigh-on-Sea	SEA	2.46	1.97	Scarborough	LNE	2.35	2.24
Leighton Buzzard	LNW	2.83	2.61	Selly Oak	LNW	2.73	2.51
Lewes	SEA	2.14	1.76	Seven Kings	SEA	2.36	2.24
Lichfield City	LNW	2.44	1.87	Shrewsbury	WES	2.51	2.28
Lincoln Central	LNE	2.36	2.12	Slough	WES	2.38	2.43
Liverpool Central	LNW	2.74	2.34	Solihull	LNW	2.66	2.35
Loughborough	LNE	2.33	1.81	South Woodham Ferrers	SEA	1.92	1.97
Lowestoft	SEA	2.16	1.64	Southend Victoria	SEA	2.7	2.42
Luton	LNE	3.49	2.85	St Mary Cray	SEA	1.83	1.69
Maidenhead	WES	2.65	2.19	Stafford	LNW	3.07	2.75
Manchester Airport	LNW	2.09	1.58	Staines	SEA	2.59	2.25
Manchester Oxford Road	LNW	2.9	2.65	Stevenage	LNE	2.12	1.74
Manchester Victoria	LNW	2.88	2.52	Stoke-on-Trent	LNW	2.5	2.05
Manningtree	SEA	3.28	2.68	Stonehaven	SCO	1.98	1.47
Manor Park	SEA	2.71	2.52	Stoneleigh	SEA	2.8	2.60
Mirfield	LNE	2.94	2.71	Stourbridge Junction	LNW	3.31	2.72
Montrose	SCO	2.43	1.75	Stowmarket	SEA	2.56	2.38
Mortlake	SEA	2.93	2.73	Strawberry Hill	SEA	3	2.56
Motspur Park	SEA	2.12	2.01	Sunderland	LNE	2.77	2.76
New Cross	SEA	1.6	1.74	Sutton Coldfield	LNW	2.13	1.48
New Eltham	SEA	2.92	2.55	Sutton (Surrey)	SEA	2.67	2.22
Newbury	WES	2.59	2.00	Swanley	SEA	2.06	1.87
Norbiton	SEA	2.28	2.29	Swansea	WES	3.1	2.60
Norbury	SEA	2.1	1.80	Swindon	WES	2.45	1.93
Northampton	LNW	2.81	2.48	Telford Central	LNW	2.06	1.79
Norwood Junction	SEA	2.13	1.93	Thornton Heath	SEA	2.51	2.15
Nuneaton	LNW	2.33	1.78	Three Bridges	SEA	1.91	1.71
Oxenholme Lake District	LNW	2.54	2.19	Tring	LNW	2.6	2.15
Oxted	SEA	2.26	1.86	Truro	WES	2.86	2.61
Palmers Green	LNE	2.07	1.71	Wallington	SEA	3.34	2.55
Petersfield	SEA	2.1	2.08	Walsall	LNW	2.15	1.80
Petts Wood	SEA	3.13	2.86	Walton-On-Thames	SEA	3.04	2.51
Pitsea	SEA	2.13	2.16	Wandsworth Town	SEA	2.89	2.24
Plymouth	WES	2.83	2.28	Welwyn Garden City	LNE	2.2	1.77
Ponders End	SEA	2.07	1.88	Wembley Central	LNW	2.84	2.64
Poole	SEA	2.41	2.24	West Byfleet	SEA	2.95	2.40
Portsmouth & Southsea	SEA	2.59	2.50	Weybridge	SEA	2.45	2.05
Portsmouth Harbour	SEA	2.34	2.22	Weymouth	SEA	2.46	2.35
Potters Bar	LNE	1.98	1.57	Whitton	SEA	2.33	2.07
Purley	SEA	3.01	2.52	Wickford	SEA	2.28	2.20
Rainham (Essex)	SEA	2.41	2.31	Wigan North Western	LNW	2.07	1.55
Rayleigh	SEA	2.98	2.46	Windsor & Eton Riverside	SEA	2.1	1.91
Redditch	LNW	3.23	2.84	Witham	SEA	3.27	2.87
Redhill	SEA	2.87	2.57	Wokingham	SEA	2.77	2.64
Rochdale	LNW	2.78	2.14	Worcester Foregate Street	WES	2.55	2.01
Rochford	SEA	2.4	2.42	Worcester Park	SEA	2.53	2.23
Rugby	LNW	2.8	2.40	Worcester Shrub Hill	WES	2.39	2.22
Salford Crescent	LNW	2.23	1.62	Worle	WES	2.72	2.14
Salisbury	SEA	2.63	2.51				

Table A1.4 Grade for Category D							
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Abergavenny	WES	2.49	1.86	Cuffley	LNE	2.06	1.72
Aberystwyth	WES	2.48	2.37	Denmark Hill	SEA	2.54	1.95
Albany Park	SEA	2.37	1.98	Dorchester South	SEA	2.46	2.36
Alexandra Palace	LNE	2.12	1.84	Dorrige	LNW	2.8	2.45
Argyle Street	SCO	2.55	1.97	Droitwich Spa	WES	2.52	2.09
Ash Vale	SEA	1.98	1.60	Dumfries	SCO	2.2	2.05
Audley End	SEA	3.37	2.77	Effingham Junction	SEA	2.51	1.99
Axminster	SEA	2.74	2.57	Elmers End	SEA	2.35	2.00
Aylesbury	LNW	2.73	2.50	Elmstead Woods	SEA	3.07	2.86
Bangor (Gwynedd)	LNW	3.06	2.71	Ely	SEA	2.51	2.17
Barnham	SEA	2.3	2.06	Enfield Chase	LNE	1.96	1.59
Barrow-in-Furness	LNW	2.74	2.09	Erdington	LNW	2.32	2.05
Battersea Park	SEA	3.01	2.76	Farncombe	SEA	1.64	1.31
Battle	SEA	2.28	2.19	Five Ways	LNW	2.83	2.75
Beaconsfield	LNW	3.26	2.85	Flitwick	LNE	2.07	1.50
Bearsted	SEA	2.52	2.13	Four Oaks	LNW	3.01	2.74
Bicester North	LNW	2.61	2.51	Freshford	WES	2	1.76
Biggleswade	LNE	2.04	1.61	Gerrards Cross	LNW	3.05	2.69
Birchwood	LNW	2.72	2.40	Gillingham (Dorset)	SEA	2.59	2.38
Bishopbriggs	SCO	2.45	1.94	Glasgow Central Low Level	SCO	2.63	2.05
Blake Street	LNW	3.47	2.93	Greenwich	SEA	2.62	2.44
Bognor Regis	SEA	2.68	2.22	Grimsby Town	LNE	2.54	2.12
Borough Green & Wrotham	SEA	1.92	1.78	Gunnersbury	SEA	2.08	1.93
Bourville	LNW	2.92	2.61	Halifax	LNE	2.51	2.44
Brockley	SEA	2.6	2.36	Hamilton Square	LNW	2.51	2.24
Bromley North	SEA	2.17	1.90	Hampton Wick	SEA	2.56	2.38
Burnham-On-Crouch	SEA	3.04	2.89	Harlington	LNE	2.51	1.98
Burton-on-Trent	LNE	2.91	2.77	Hartford	LNW	3.35	2.90
Bush Hill Park	SEA	1.94	1.55	Hartlepool	LNE	2.57	2.18
Canterbury West	SEA	2.64	2.49	Hatfield Peverel	SEA	2.85	2.44
Catford	SEA	2.12	1.87	Hayes & Harlington	WES	2.47	2.38
Charlton	SEA	2.28	2.13	Hayes (Kent)	SEA	2.45	2.17
Cheadle Hulme	LNW	2.75	2.40	Hazel Grove	LNW	2.54	2.35
Cheam	SEA	2.45	2.21	Headcorn	SEA	2.29	2.05
Chelsfield	SEA	1.88	1.81	Helensburgh Central	SCO	2.25	2.11
Chessington North	SEA	2.9	2.48	Herne Bay	SEA	2.8	2.51
Chislehurst	SEA	3.05	2.72	Hersham	SEA	2.76	2.68
Chorley	LNW	2.07	1.59	Hexham	LNE	2.69	2.35
London City Thameslink	SEA	2.52	2.26	High Brooms	SEA	2.43	1.94
Clapton	SEA	2.47	2.13	Hildenborough	SEA	2.42	1.88
Claygate	SEA	2.42	1.97	Honiton	SEA	2.68	2.34
Clock House	SEA	2.18	1.98	Honor Oak Park	SEA	2.47	2.20
Cobham & Stoke D'Abemon	SEA	2.2	1.56	Horley	SEA	2.45	2.19
Cooden Beach	SEA	2.88	2.40	Horsey	LNE	2.32	1.95
Cosham	SEA	1.86	1.54	Horsley	SEA	2.32	1.73
Coulsdon South	SEA	3.2	2.61	Hounslow	SEA	2.65	2.41
Cradley Heath	LNW	2.92	2.48	Huyton	LNW	2.93	2.46
Crayford	SEA	2.06	1.76	Hyndland	SCO	2.25	2.03
Crystal Palace	SEA	1.99	1.65	Ingatestone	SEA	3.16	2.60

Table A1.4 Grade for Category D (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Johnstone	SCO	2.45	2.21	Plumstead	SEA	2.16	1.87
Kemble	WES	3.08	2.66	Polegate	SEA	2.78	2.64
Kensal Green	LNW	3.06	2.94	Port Talbot Parkway	WES	2.46	1.95
Kensington Olympia	SEA	2.43	1.78	Porth	WES	2.87	2.33
Kent House	SEA	3.2	2.92	Portslade	SEA	2.5	2.28
Kettering	LNE	2.71	2.47	Prestatyn	LNW	3.39	2.96
Kew Gardens	SEA	1.84	1.36	Preston Park	SEA	2.2	2.20
Kidbrooke	SEA	2.37	2.17	Princes Risborough	LNW	2.84	2.49
Kilmamock	SCO	2.53	2.06	Pulborough	SEA	2.47	1.88
Kings Lynn	SEA	3.13	2.65	Purfleet	SEA	2.06	1.87
Kings Norton	LNW	2.9	2.54	Purley Oaks	SEA	2.6	2.24
Knutsford	LNW	3.19	2.92	Radlett	LNE	2.76	2.52
Lancing	SEA	2.52	2.24	Ramsgate	SEA	2.22	1.77
Leagrave	LNE	3.33	2.63	Rhyl	LNW	2.9	2.52
Lee	SEA	2.26	1.96	Royston	LNE	1.92	1.62
Letchworth Garden City	LNE	1.96	1.61	Runcorn	LNW	2.77	2.37
Leyland	LNW	2.38	1.71	Sandwell & Dudley	LNW	3.08	2.51
Linlithgow	SCO	2.44	1.71	Seaford	SEA	2.82	2.71
Liphook	SEA	2.66	2.03	Selhurst	SEA	2.59	2.26
Liss	SEA	2.7	2.22	Shepperton	SEA	2.31	2.22
Littlehampton	SEA	2.52	2.15	Sherborne	SEA	2.61	2.43
London Road (Guildford)	SEA	1.79	1.38	Shildon	LNE	2.21	2.10
Long Eaton	LNE	2.36	2.03	Shirley	LNW	2.75	2.41
Longbridge	LNW	2.49	2.06	Shoreham-by-Sea (Sussex)	SEA	2.85	2.58
Longfield	SEA	2.17	1.97	Shortlands	SEA	3.07	2.88
Margate	SEA	3.42	2.73	Singer	SCO	2.16	1.83
Market Harborough	LNE	2.27	1.95	Skegness	LNE	3.01	2.66
Marks Tey	SEA	3.25	2.76	South Croydon	SEA	2.26	1.63
Marston Green	LNW	2.21	1.93	Southall	WES	2.66	2.48
Martins Heron	SEA	2.76	2.38	Southend Central	SEA	1.8	1.82
Maze Hill	SEA	2.44	2.21	Southend East	SEA	2.21	1.82
Meopham	SEA	2.36	1.88	Southport	LNW	2.73	1.98
Merstham	SEA	1.79	1.70	St Leonards Warrior Square	SEA	2.57	2.37
Micklefield	LNE	2.01	1.53	St Albans	LNE	2.42	2.11
Mill Hill Broadway	LNE	2.64	2.16	St Austell	WES	2.85	2.73
Milngavie	SCO	2.47	2.28	St Helens Central	LNW	2.43	1.99
Moorfields	LNW	2.73	2.32	St James Street (Walthamstow)	SEA	2.66	1.98
Mottingham	SEA	2.35	2.07	St Neots	LNE	1.93	1.53
New Clee	LNE	2.13	2.15	Stalybridge	LNW	2.73	2.54
New Cross Gate	SEA	2.67	2.46	Stourbridge Town	LNW	3.09	2.64
Northallerton	LNE	2.18	2.06	Streatham	SEA	3.02	2.63
Northfield	LNW	3	2.67	Stroud	WES	2.83	2.27
Oakleigh Park	LNE	2.25	1.77	Sunbury	SEA	2.23	1.71
Olton	LNW	3.29	2.94	Sydenham	SEA	2.49	2.38
Oxshott	SEA	2.08	1.67	Theobalds Grove	SEA	2.77	2.24
Paignton	WES	2.79	2.66	Thorpe Bay	SEA	2.53	2.32
Penge East	SEA	2.51	2.26	Tilbury Town	SEA	2.35	2.27
Penzance	WES	3.07	2.67	Tiverton Parkway	WES	2.41	1.87
				Torquay	WES	2.68	2.55

Table A1.4 Grade for Category D (continued)				Table A1.5 Grade for Category E			
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Totnes	WES	2.36	1.89	Aberdour	SCO	2.24	1.81
Tottenham Hale	SEA	2.07	1.48	Accrington	LNW	2.65	2.15
Twyford	WES	3	2.57	Acocks Green	LNW	2.87	2.60
Uckfield	SEA	2.53	2.08	Acton Central	SEA	2.64	2.02
Virginia Water	SEA	2.4	2.28	Acton Main Line	WES	2.6	2.45
Waddon	SEA	2.68	2.59	Adderley Park	LNW	2.34	2.02
Wandsworth Common	SEA	2.51	2.19	Adlington (Lancashire)	LNW	2.31	1.69
Ware	SEA	2.2	2.05	Aigburth	LNW	2.85	2.43
Wareham	SEA	2.48	2.40	Ainsdale	LNW	3.13	2.69
Warrington Central	LNW	2.45	2.01	Aintree	LNW	2.24	1.98
Watford High Street	LNW	2.7	2.27	Alderley Edge	LNW	2.81	2.43
Wellingborough	LNE	2.85	2.64	Alexandria	SCO	2.29	2.06
Wellington (Shropshire)	LNW	2.84	2.60	Alfreton	LNE	2.54	2.16
West Croydon	SEA	3.29	2.51	Alresford	SEA	2.36	1.89
West Malling	SEA	2.55	2.29	Anerley	SEA	2.9	2.56
West Norwood	SEA	2.49	2.31	Angmering	SEA	2.59	2.48
West Wickham	SEA	2.06	1.84	Anniesland	SCO	2.7	2.58
West Worthing	SEA	2.77	2.53	Appleby	LNW	2.25	1.75
Westbury (Wilts)	WES	2.29	1.94	Apsley	LNW	2.81	2.52
Westcombe Park	SEA	2.33	2.03	Ardrossan South Beach	SCO	2.77	1.85
Westerton	SCO	2.15	2.06	Arlesey	LNE	1.95	1.68
Weston-super-Mare	WES	2.76	2.52	Arundel	SEA	2.32	2.08
Whitcraigs	SCO	2.33	1.85	Ash	SEA	1.86	1.46
Whitstable	SEA	2.65	2.16	Ashton-Under-Lyne	LNW	2.53	2.22
Widney Manor	LNW	2.71	2.09	Ashwell & Morden	LNE	2.66	2.13
Wigan Wallgate	LNW	2.55	2.30	Aston	LNW	2.91	2.40
Willesden Junction (High Level/Low Level)	SEA	2.64	2.32	Atherton	LNW	2.82	2.47
Wilmslow	LNW	2.67	2.36	Aughton Park	LNW	2.42	2.26
Winchfield	SEA	2.11	1.57	Aylesham	SEA	2.87	2.58
Winchmore Hill	LNE	1.98	1.56	Baldock	LNE	1.96	1.76
Windsor & Eton Central	WES	2.7	2.49	Balloch	SCO	2.3	1.90
Winnersh	SEA	2.43	2.14	Bank Hall	LNW	2.96	2.39
Wood Street	SEA	2.4	1.86	Barming	SEA	1.71	1.72
Wrexham General	LNW	2.9	2.51	Barmouth	WES	2.47	2.17
Yeovil Junction	SEA	2.21	2.26	Barnstaple	WES	2.73	2.21
				Barrhead	SCO	2.54	2.51
				Barrhill	SCO	2.34	1.69
				Barry	WES	2.42	1.97
				Bearsden	SCO	2.62	2.38
				Bebington	LNW	2.89	2.43
				Beckenham Hill	SEA	2.81	2.55
				Beeston	LNE	2.46	2.32
				Bellingham	SEA	2.43	2.14
				Bellshill	SCO	2.43	1.99
				Belvedere	SEA	1.91	1.87
				Bentley (Hants.)	SEA	1.83	1.34
				Berkswell	LNW	3.02	2.49
				Berrylands	SEA	1.99	1.65
				Berwick	SEA	2.71	2.34

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Berwick-Upon-Tweed	LNE	1.62	1.32	Carpenders Park	LNW	3.31	2.77
Bexhill	SEA	2.69	2.11	Carshalton Beeches	SEA	2.42	1.85
Bidston	LNW	2.58	2.05	Carstairs	SCO	2.22	1.70
Billingshurst	SEA	2.28	2.15	Cathcart	SCO	1.88	1.57
Bingley	LNE	3.11	2.94	Chafford Hundred	SEA	2.3	1.96
Birchington-On-Sea	SEA	2.28	1.97	Charlbury	WES	2.8	2.69
Birkdale	LNW	2.79	2.40	Chassen Road	LNW	3.1	2.67
Birkenhead Central	LNW	2.87	2.34	Cheddington	LNW	2.71	2.22
Birkenhead North	LNW	2.37	2.01	Chessington South	SEA	2.06	1.61
Birkenhead Park	LNW	2.49	2.29	Chestfield & Swalecliffe	SEA	2.65	2.47
Blundellsands & Crosby	LNW	3.04	2.44	Chipstead	SEA	1.64	1.51
Bodmin Parkway	WES	2.85	2.73	Chiswick	SEA	2.25	2.08
Bookham	SEA	2.19	1.57	Cholsey	WES	3.07	2.60
Bootle New Strand	LNW	2.97	2.63	Christs Hospital	SEA	2.38	2.13
Bosham	SEA	2.57	2.19	Clandon	SEA	1.87	1.38
Boston	LNE	2.14	1.77	Clarkston	SCO	2.12	1.71
Bourne End	WES	3.02	2.58	Clydebank	SCO	2.79	2.58
Bradford Forster Square	LNE	3.02	3.10	Coatbridge Sunnyside	SCO	2.2	2.22
Bramhall	LNW	2.55	2.38	Colwyn Bay	LNW	2.79	2.43
Bramley	LNE	2.03	1.60	Congleton	LNW	2.26	1.84
Bridgeton	SCO	2.24	1.72	Conway Park	LNW	2.19	2.06
Bridgwater	WES	2	2.00	Cookham	WES	3.06	2.65
Brighouse	LNE	2.54	2.37	Cowdenbeath	SCO	2.38	1.79
Brimsgate	SEA	1.97	2.02	Cressington	LNW	2.61	2.21
Brixton	SEA	2.29	1.85	Crewkerne	SEA	2.33	1.90
Broad Green	LNW	2.73	2.36	Cricklewood	LNE	3.13	2.58
Broadstairs	SEA	2.12	1.72	Crofton Park	SEA	2.61	2.25
Bromborough Rake	LNW	3.04	2.45	Crosshill	SCO	2.44	1.90
Bromborough	LNW	3.16	2.50	Crowborough	SEA	2.69	2.51
Bromley Cross	LNW	2.38	1.95	Crowhurst	SEA	2.86	2.58
Bruce Grove	SEA	2.39	2.34	Croy	SCO	2.2	1.78
Brunswick	LNW	1.59	1.59	Cumbernauld	SCO	2.64	2.19
Burnage	LNW	2.18	2.24	Cupar	SCO	2.46	1.82
Burnham	WES	3.06	2.71	Cwmbran	WES	2.79	2.12
Burnley Central	LNW	2.61	1.96	Dagenham Dock	SEA	2.6	2.05
Burton Island	SCO	2.34	1.79	Daisy Hill	LNW	2.69	2.65
Bushey	LNW	2.25	2.10	Dalmeny	SCO	2.35	2.09
Butlers Lane	LNW	2.68	2.40	Datchet	SEA	3.12	2.54
Buxted	SEA	2.63	2.17	Davenport	LNW	2.82	2.58
Buxton	LNW	2.52	2.28	Dawlish	WES	2.78	2.33
Byfleet & New Haw	SEA	3.14	2.97	Deal	SEA	2.54	2.17
Cadoxton	WES	2.89	2.32	Deansgate	LNW	2.56	2.53
Caledonian Road & Barnsbury	SEA	2.39	1.95	Denham	LNW	2.96	2.57
Camborne	WES	3	2.51	Deptford	SEA	3.19	2.64
Camden Road	SEA	2.25	2.20	Dingwall	SCO	2.71	2.36
Canley	LNW	2.36	2.04	Disley	LNW	2.95	2.25
Cardonald	SCO	2.33	1.86	Dormans	SEA	2.13	1.67
Cardross	SCO	2.5	2.41	Downham Market	SEA	2.91	2.56
Carlisle	SCO	2.29	2.11	Drayton Park	LNE	1.9	1.54

Table A1.5 Grade for Category E (continued)							
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Drumchapel	SCO	2.98	2.87	Giffnock	SCO	1.98	1.77
Drumry	SCO	2.69	2.59	Gipsy Hill	SEA	2.28	2.11
Duddeston	LNW	2.81	2.23	Girvan	SCO	2.88	2.33
Dudley Port	LNW	2.59	2.09	Exhibition Centre	SCO	2.24	1.60
Dunblane	SCO	2.29	1.82	Glazebrook	LNW	2.56	2.15
Dunfermline Town	SCO	2.05	1.81	Goole	LNE	2.32	1.85
Durrington-on-Sea	SEA	2.62	2.19	Goring & Streatley	WES	2.08	2.06
Earlestown	LNW	2.39	1.96	Goring-by-Sea	SEA	2.64	2.05
Earlswood (Surrey)	SEA	2.3	1.72	Gorton	LNW	2.76	2.66
East Dulwich	SEA	2.07	1.88	Gospel Oak	SEA	2.82	2.26
East Kilbride	SCO	2.41	2.12	Gourock	SCO	2.61	1.96
East Tilbury	SEA	2	1.58	Grange-over-Sands	LNW	2	1.48
Easterhouse	SCO	2.27	2.07	Grange Park	LNE	2.35	2.08
Eastham Rake	LNW	2.89	2.41	Gravelly Hill	LNW	2.3	2.15
Eccles	LNW	2.06	1.73	Great Bentley	SEA	2.68	2.10
Eccleston Park	LNW	2.38	1.93	Great Chesterford	SEA	3.01	2.79
Edenbridge Town	SEA	2.9	2.59	Great Missenden	LNW	2.96	2.48
Edge Hill	LNW	2.14	1.50	Green Lane	LNW	2.74	2.36
Elgin	SCO	2.56	2.02	Greenfield	LNW	2.7	2.36
Ellesmere Port	LNW	2.31	1.93	Greenock Central	SCO	2.21	1.82
Elsenham	SEA	3.09	2.69	Greenock West	SCO	2.23	1.61
Elstree & Borehamwood	LNE	2.42	2.22	Guide Bridge	LNW	2.78	2.53
Emsworth	SEA	2.65	2.44	Haddenham & Thame Parkway	LNW	2.67	2.02
Enfield Lock	SEA	1.96	2.07	Hadfield	LNW	3.05	2.67
Eridge	SEA	2.49	2.17	Hadley Wood	LNE	2.07	1.63
Essex Road	LNE	2.57	1.89	Hag Fold	LNW	2.69	2.61
Evesham	WES	2.64	2.52	Hagley	LNW	3.36	2.77
Farningham Road	SEA	2.42	2.08	Hale	LNW	3.21	2.81
Farnworth	LNW	2.41	1.83	Halewood	LNW	2.93	2.63
Fazakerley	LNW	2.39	1.77	Hall Green	LNW	2.75	2.59
Flint	LNW	2.84	2.45	Hall Road	LNW	2.94	2.64
Flixton	LNW	3	2.61	Ham Street	SEA	2.66	2.15
Folkestone Harbour	SEA	4.13	3.77	Hamilton Central	SCO	2.74	2.13
Folkestone West	SEA	1.8	1.74	Hamilton West	SCO	2.64	2.11
Ford	SEA	2.75	2.27	Hampden Park	SEA	2.59	2.48
Formby	LNW	2.76	2.59	Hampstead Heath	SEA	2.37	2.10
Forres	SCO	2.01	2.06	Hampton-in-Arden	LNW	3	2.52
Frant	SEA	2.94	2.59	Hamstead	LNW	2.36	1.71
Freshfield	LNW	2.48	2.11	Hamworthy	SEA	2.59	2.41
Frimley	SEA	2.2	1.96	Handforth	LNW	2.28	2.26
Frinton-on-sea	SEA	2.79	2.30	Hanwell	WES	2.78	2.33
Frome	WES	2.71	2.67	Harlesden	LNW	2.8	2.42
Fulwell	SEA	2.56	2.37	Harlow Mill	SEA	2.21	2.03
Furze Platt	WES	3.18	2.72	Hatch End	LNW	2.97	2.77
Garforth	LNE	2.17	1.77	Haverfordwest	WES	3.04	2.63
Garrowhill	SCO	2.39	2.03	Haydons Road	SEA	1.89	1.53
Garscadden	SCO	2.3	2.47	Headstone Lane	LNW	3.06	2.69
Garswood	LNW	2.68	2.13	Heald Green	LNW	2.97	2.49
Gatley	LNW	2.37	2.24	Heaton Chapel	LNW	2.5	2.29

Table A1.5 Grade for Category E (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Hebden Bridge	LNE	2.56	2.29	Lanark	SCO	2.45	2.12
Hendon	LNE	2.69	1.93	Langley Green	LNW	2.58	2.19
Henley-On-Thames	WES	2.88	2.54	Langley	WES	2.51	1.89
Hertford East	SEA	2.77	2.57	Larbert	SCO	2.23	1.82
High Street (Glasgow)	SCO	2.91	2.28	Largs	SCO	2.14	1.98
Higham	SEA	2.57	1.92	Lea Hall	LNW	2.86	2.15
Hightown	LNW	2.83	2.33	Leasowe	LNW	2.35	1.77
Hillington East	SCO	2.28	1.96	Ledbury	WES	2.34	2.35
Hillington West	SCO	2.13	1.99	Leuchars (for St. Andrews)	SCO	1.92	1.45
Hillside	LNW	2.76	2.37	Levenshulme	LNW	2.68	2.44
Hilsea	SEA	2.78	2.34	Liskeard	WES	2.66	2.64
Hinchley Wood	SEA	2.31	1.94	Littleborough	LNW	3.15	2.74
Hinckley	LNE	2.55	2.41	Littlehaven	SEA	2.51	2.33
Hindley	LNW	3.07	2.39	Llandaf	WES	3.22	2.66
Holmes Chapel	LNW	2.8	2.42	Llandudno Junction	LNW	2.99	2.60
Holyhead	LNW	3.07	2.87	Llandudno	LNW	3.37	2.95
Homerton	SEA	1.6	1.39	Llanelli	WES	3.15	2.78
Hooton	LNW	3.1	2.58	Lockerbie	SCO	2.25	1.76
Hough Green	LNW	3.06	2.52	London Road (Brighton)	SEA	2.58	2.11
Hoylake	LNW	2.3	1.89	Long Buckby	LNW	2.79	2.37
Huntly	SCO	2.21	1.89	Lostock	LNW	2.39	2.27
Hunts Cross	LNW	2.87	2.26	Loughborough Junction	SEA	2.49	2.23
Hurst Green	SEA	2.38	1.78	Lower Sydenham	SEA	2.73	2.47
Ilkley	LNE	2.53	2.38	Lye	LNW	2.89	2.43
Inverurie	SCO	2.41	2.09	Lymington Town	SEA	2.48	2.20
Irvine	SCO	2.45	2.00	Machynlleth	WES	2.93	2.54
Iver	WES	2.54	2.00	Maghull	LNW	2.44	1.97
James Street	LNW	2.62	2.27	Maidstone West	SEA	2.32	1.90
Jewellery Quarter	LNW	2.52	2.19	Malden Manor	SEA	2.81	2.44
Kearsney	SEA	3.01	2.57	Mallaig	SCO	2.33	1.91
Keith	SCO	2.58	2.00	Malton	LNE	2.11	1.52
Kensal Rise	SEA	2.39	1.70	Malvern Link	WES	2.55	2.56
Kenton	LNW	2.89	2.65	Manor Road	LNW	2.69	2.12
Kidsgrove	LNW	2.25	1.71	March	SEA	3.52	3.12
Kilburn High Road	LNW	3.51	2.83	Martin Mill	SEA	2.25	1.99
Kilwinning	SCO	2.59	2.58	Mauldeth Road	LNW	2.12	1.72
Kingham	WES	2.42	1.93	Meldreth	SEA	2.19	2.00
Kinghorn	SCO	2.33	1.88	Melton Mowbray	LNE	2.4	2.08
Kings Langley	LNW	2.82	2.40	Meols	LNW	2.51	1.95
Kings Park	SCO	2.26	1.90	Milford (Surrey)	SEA	2.49	2.32
Kingswood	SEA	1.87	1.81	Mitcham Junction	SEA	2.05	1.72
Kingussie	SCO	2.6	2.21	Moorside	LNW	2.74	2.52
Kirkby	LNW	2.98	2.42	Moorthorpe	LNE	2.92	2.37
Kirkdale	LNW	1.79	1.76	Moreton (Merseyside)	LNW	2.7	2.39
Kirkham & Wesham	LNW	2.35	2.00	Moreton-in-Marsh	WES	2.56	2.39
Knockholt	SEA	3.25	2.90	Mossley Hill	LNW	2.96	2.44
Kyle of Lochalsh	SCO	2.84	2.19	Mossley	LNW	2.51	2.11
Ladybank	SCO	2.33	1.79	Moulsecobomb	SEA	2.63	2.56
Ladywell	SEA	1.91	1.70	Mount Florida	SCO	2.16	1.80

Table A1.5 Grade for Category E (continued)							
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Muirend	SCO	2.6	1.96	Port Glasgow	SCO	2.44	1.76
Mytholmroyd	LNE	3.13	2.94	Port Sunlight	LNW	2.88	2.52
Nailsea & Backwell	WES	2.73	2.32	Portchester	SEA	2.38	2.12
Nairn	SCO	2.37	1.86	Poulton-Le-Fylde	LNW	3.03	2.64
Narborough	LNE	2.3	2.11	Poynton	LNW	2.87	2.41
New Beckenham	SEA	2.84	2.43	Prescot	LNW	2.83	2.15
New Brighton	LNW	2.62	2.10	Prittlewell	SEA	2.66	2.30
New Mills Central	LNW	2.54	2.31	Pwllheli	WES	3.01	2.71
New Mills Newtown	LNW	3.09	2.50	Queenborough	SEA	2.73	2.06
New Southgate	LNE	2.54	2.07	Queens Park (London)	LNW	3.25	3.02
Newark North Gate	LNE	2.21	1.99	Queens Road, Peckham	SEA	2.44	2.00
Newhaven Town	SEA	2.01	1.75	Radyr	WES	2.57	2.15
Newington	SEA	2.3	1.99	Rainhill	LNW	2.34	2.08
Newport (Essex)	SEA	2.97	2.70	Ravensbourne	SEA	2.18	1.96
Newton (Lanarks)	SCO	3.08	2.78	Rectory Road	SEA	2.1	1.97
Newton-le-Willows	LNW	2.91	2.60	Redcar Central	LNE	2.08	1.43
Newtown (Powys)	WES	2.71	2.62	Reddish North	LNW	2.59	2.43
Normans Bay	SEA	2.61	2.10	Redruth	WES	2.75	2.65
North Camp	SEA	2.19	2.07	Reedham (Surrey)	SEA	2.11	1.61
North Sheen	SEA	2.8	2.42	Renton	SCO	2.72	2.60
North Wembley	LNW	3.06	2.65	Rice Lane	LNW	2.6	2.11
North Woolwich	SEA	2.76	2.06	Robertsbridge	SEA	2.76	2.46
Northfleet	SEA	2.53	1.91	Roby	LNW	2.64	2.05
Northolt Park	LNW	3.07	2.61	Rock Ferry	LNW	2.84	2.38
Northumberland Park	SEA	2.07	1.86	Rose Hill Marple	LNW	2.84	2.59
Northwich	LNW	3.17	2.96	Rotherham Central	LNE	2.63	2.40
Nunhead	SEA	2.27	1.74	Rowlands Castle	SEA	2.91	2.74
Nutbourne	SEA	2.64	2.00	Rowley Regis	LNW	2.98	2.56
Oakhams	LNE	2.63	2.12	Roydon	SEA	2.37	2.05
Oban	SCO	2.32	1.96	Runcorn East	LNW	2.9	2.37
Ockendon	SEA	2.12	1.67	Ryde Esplanade	SEA	2.18	2.12
Old Roan	LNW	2.83	2.60	Rye House	SEA	2.26	2.12
Old Street	LNE	2.3	1.67	Rye	SEA	2.55	2.07
Oldham Mumps	LNW	2.17	1.53	Salford Central	LNW	2.58	1.84
Orrell Park	LNW	2.63	2.46	Salfords	SEA	2.99	2.60
Overton	SEA	1.95	1.66	Saltcoats	SCO	2.27	2.11
Pangbourne	WES	1.99	2.07	Sandbach	LNW	2.45	1.96
Par	WES	2.82	2.74	Sandhills	LNW	2.61	2.31
Parbold	LNW	2.55	2.04	Sandling	SEA	2.77	2.52
Penarth	WES	2.64	2.27	Sandwich	SEA	1.96	1.76
Penge West	SEA	2.17	2.11	Sandy	LNE	2	1.71
Penrith	LNW	2.12	1.62	Sankey for Penketh	LNW	2.84	2.34
Perry Barr	LNW	2.35	1.74	Sawbridgeworth	SEA	2.25	1.87
Pevensey & Westham	SEA	2.54	2.32	Scotstounhill	SCO	2.84	2.65
Pitlochry	SCO	2.37	1.83	Seaforth & Litherland	LNW	2.43	1.95
Pluckley	SEA	2.43	2.21	Seer Green	LNW	2.79	2.29
Plumpton	SEA	2.6	2.47	Selby	LNE	1.97	1.42
Pollokshields East	SCO	2.65	2.05	Settle	LNW	2.27	2.05
Polmont	SCO	2.24	1.76	Severn Tunnel Junction	WES	3.06	2.60

Table A1.5 Grade for Category E (continued)							
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Shanklin	SEA	2.08	1.90	Sydenham Hill	SEA	2.27	2.08
Shaw & Crompton	LNW	2.18	2.01	Tadworth	SEA	2.24	2.02
Sheerness-on-Sea	SEA	2.93	2.80	Tal-y-Cafn	LNW	2.91	2.41
Shelford	SEA	2.99	2.81	Tame Bridge Parkway	LNW	2.25	1.60
Shenstone	LNW	3.45	3.09	Taplow	WES	3	2.65
Shepherds Well	SEA	2.88	2.63	Tattenham Corner	SEA	2.26	1.79
Shettleston	SCO	2.67	2.35	Teignmouth	WES	2.76	2.24
Shoeburyness	SEA	2.85	2.39	Templecombe	SEA	2.37	2.08
Shotts	SCO	2.19	1.74	Teynham	SEA	2.59	2.06
Slade Green	SEA	3.23	2.77	Thatcham	WES	2.26	2.08
Sleaford	LNE	2.48	2.36	Thatto Heath	LNW	2.83	2.39
Small Heath	LNW	3.01	2.72	The Hawthorns	LNW	2.57	2.01
Smethwick Galton Bridge	LNW	2.22	1.88	Theale	WES	3.18	2.68
Smethwick Rolfe Street	LNW	2.45	2.01	Thetford	SEA	3.26	2.72
Smitham (for Coulsdon)	SEA	2.28	1.91	Thurso	SCO	2.09	1.91
Sole Street	SEA	2.4	2.14	Tile Hill	LNW	2.8	2.53
South Acton	SEA	2.36	2.24	Tilehurst	WES	2.7	2.26
South Bermondsey	SEA	2.66	2.54	Tipton	LNW	2.65	2.37
South Hampstead	LNW	3.01	2.33	Tisbury	SEA	2.33	2.17
South Kenton	LNW	3.3	2.62	Todmorden	LNW	3.24	2.69
Southbourne	SEA	2.2	2.31	Tolworth	SEA	2.62	2.45
Southbury	SEA	2.29	1.61	Tooting	SEA	2.75	2.27
Southwick	SEA	2.27	1.89	Totton	SEA	2.19	1.72
Spital	LNW	2.99	2.49	Town Green	LNW	2.69	2.58
Spring Road	LNW	2.94	2.64	Treffeorest	WES	2.44	2.47
Springburn	SCO	2.52	2.32	Tyseley	LNW	3.11	2.74
St Annes-on-the-Sea	LNW	2.56	2.48	Uddingston	SCO	2.56	2.03
St Erth	WES	3.07	2.69	Ulverston	LNW	2.67	2.35
St Helens Junction	LNW	2.55	2.41	Upper Halliford	SEA	2.61	2.26
St Johns	SEA	2.2	2.31	Urmston	LNW	2.76	2.62
St Margarets (Greater London)	SEA	2.36	2.14	Walkden	LNW	2.73	2.58
St Michaels	LNW	2.56	2.37	Wallasey Grove Road	LNW	2.64	2.20
Stamford Hill	SEA	2.13	1.58	Wallasey Village	LNW	2.55	1.90
Stamford	LNE	3.2	2.84	Walmer	SEA	3.01	2.43
Stansted Mountfitchet	SEA	3.02	2.69	Waltham Cross	SEA	2.25	2.44
Stechford	LNW	2.66	2.32	Walton-On-Naze	SEA	2.48	1.87
Stoke Mandeville	LNW	2.69	2.44	Waterloo (Merseyside)	LNW	2.46	2.10
Stoke Newington	SEA	1.74	1.44	Watton-At-Stone	LNE	3.16	2.80
Stone Crossing	SEA	2.34	1.60	Welham Green	LNE	2.22	1.73
Stonebridge Park	LNW	2.83	2.58	Welwyn North	LNE	1.97	1.66
Stonehouse	WES	2.89	2.72	Wemyss Bay	SCO	2.48	1.72
Stranraer	SCO	2.45	2.47	Wendover	LNW	2.79	2.35
Sturry	SEA	2.71	2.30	West Allerton	LNW	2.87	2.42
Swanscombe	SEA	2.18	1.60	West Drayton	WES	2.56	2.44
Swanwick	SEA	2.32	2.04	West Dulwich	SEA	2.14	1.85
Sway	SEA	2.5	2.26	West Ealing	WES	2.13	2.15
Swaythling	SEA	1.94	1.81	West Hampstead	SEA	1.99	1.86
Swinton (Gr. Manchester)	LNW	2.88	2.63	West Hampstead Thameslink	LNE	2.2	1.77
Swinton (South Yorks.)	LNE	2.4	2.08	West Horndon	SEA	3.18	2.46

Table A1.5 Grade for Category E (continued)				Table A1.6 Grade for Category F			
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
West Kirby	LNW	2.97	2.45	Aber	WES	2.81	2.63
West St Leonards	SEA	2.61	2.43	Aberdare	WES	2.86	2.55
Westgate-On-Sea	SEA	2.1	1.76	Aberdovey	WES	2.64	2.41
Whaley Bridge	LNW	3.32	2.74	Abererch	WES	2.25	2.00
Whiston	LNW	2.49	2.04	Abergele & Pensarn	LNW	3.1	2.73
Whitchurch (Salop)	WES	2.2	1.77	Achanalt	SCO	2.57	2.45
White Hart Lane	SEA	2.51	2.28	Achnasheen	SCO	2.41	2.44
Whitehaven	LNW	2.62	2.11	Achnashellach	SCO	2.2	2.44
Whitland	WES	3.03	2.76	Acton Bridge	LNW	3.13	2.93
Whittlesford Parkway	SEA	2.88	2.52	Addiewell	SCO	2.54	2.60
Whyteleafe South	SEA	2.82	2.35	Adlington (Cheshire)	LNW	2.44	2.29
Wick	SCO	2.11	1.63	Adwick	LNE	2	1.55
Widnes	LNW	2.55	2.17	Airbles	SCO	2.08	2.15
Williamwood	SCO	2.18	1.83	Airdrie	SCO	2.25	2.32
Windermere	LNW	2.36	2.07	Albrighton	LNW	3.04	2.84
Winnersh Triangle	SEA	2.58	2.36	Aldermaston	WES	2.48	2.45
Winsford	LNW	2.8	2.47	Aldrington	SEA	2.66	2.35
Wishaw	SCO	2.37	1.68	Alexandra Parade	SCO	2.32	2.12
Witley	SEA	2.07	1.62	Allens West	LNE	2.38	1.94
Witton	LNW	2.22	1.71	Alness	SCO	3.14	2.54
Wivelsfield	SEA	2.55	2.32	Alsager	LNW	2.63	2.16
Wolverton	LNW	2.88	2.64	Althorpe	LNE	2.17	1.83
Woodmansterne	SEA	2.02	1.76	Altnabreac	SCO	2.66	2.25
Woodsmoor	LNW	2.94	2.52	Alvechurch	LNW	3.2	2.92
Wool	SEA	2.06	1.86	Amberley	SEA	2.56	1.96
Woolston	SEA	2.27	1.74	Ammanford	WES	3	2.50
Woolwich Dockyard	SEA	3.05	2.65	Ancaster	LNE	2.23	1.69
Workington	LNW	2.94	2.46	Angel Road	SEA	2.23	1.82
Worplesdon	SEA	2.05	1.41	Annan	SCO	2.65	2.42
Wye	SEA	2.59	2.28	Ansdel & Fairhaven	LNW	2.15	1.59
Wythall	LNW	3.04	2.59	Appledore	SEA	2.98	2.55
Yardley Wood	LNW	2.67	2.15	Appleford	WES	2.64	2.49
Yatton	WES	2.54	2.38	Appley Bridge	LNW	2.25	1.99
Yeovil Pen Mill	SEA	2.83	2.59	Ardgay	SCO	2.26	2.27
				Ardlui	SCO	2.32	1.78
				Ardrossan Harbour	SCO	2.52	2.00
				Ardrossan Town	SCO	2.74	1.89
				Ardwick	LNW	2.8	2.30
				Arisaig	SCO	2.56	2.09
				Armathwaite	LNW	2.45	2.17
				Armside	LNW	2.53	2.41
				Arram	LNE	1.96	1.79
				Arrochar & Tarbet	SCO	2.33	1.93
				Ashburys	LNW	2.9	2.83
				Ashchurch for Tewkesbury	WES	1.94	1.73
				Ashley	LNW	3.15	2.75
				Ashurst	SEA	2.91	2.61

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Askam	LNW	3	2.59	Belmont	SEA	2.2	1.75
Aslockton	LNE	2.27	2.18	Belper	LNE	2.29	1.76
Aspatria	LNW	3.18	2.51	Beltring	SEA	2.98	2.56
Atherstone	LNW	2.49	2.02	Bempton	LNE	1.97	2.07
Attadale	SCO	2.33	2.23	Ben Rhydding	LNE	2.21	2.27
Attenborough	LNE	2	2.05	Bentham	LNW	2.83	2.31
Attleborough	SEA	3.44	3.00	Bere Alston	WES	2.92	2.46
Auchinleck	SCO	2.58	2.01	Bere Ferrers	WES	2.33	1.83
Avoncliff	WES	3.08	2.45	Berney Arms	SEA	2.53	2.23
Aylesford	SEA	2.39	1.79	Berry Brow	LNE	2.34	1.95
Bache	LNW	2.27	1.83	Bescar Lane	LNW	2.12	1.56
Baglan	WES	2.42	1.86	Betchworth	SEA	2.76	2.35
Bagshot	SEA	2.67	2.29	Bethnal Green	SEA	3.01	2.51
Baillieston	SCO	2.03	1.81	Betws-Y-Coed	LNW	3.14	2.67
Balmossie	SCO	2.81	2.52	Bilbrook	LNW	2.83	2.58
Bamber Bridge	LNW	2.14	1.63	Billingham	LNE	2.03	1.71
Bamford	LNW	2.48	2.13	Bingham	LNE	2.01	2.10
Banavie	SCO	2.06	1.97	Birkbeck	SEA	1.71	1.71
Banstead	SEA	2.88	2.41	Bishop Auckland	LNE	2.01	1.51
Barassie	SCO	2.24	1.84	Bishopstone	SEA	2.85	2.56
Bardon Mill	LNE	2.08	2.15	Blackhorse Road	SEA	2.2	2.17
Bare Lane	LNW	2.97	2.59	Blackpool Pleasure Beach	LNW	3.21	2.97
Bargeddie	SCO	2.25	2.52	Blackpool South	LNW	2.67	2.57
Bargoed	WES	2.83	2.70	Blackrod	LNW	1.97	1.80
Barlaston	LNW	2.38	1.77	Blackwater	SEA	1.91	1.57
Barnes Bridge	SEA	2.36	1.79	Blaenau Ffestiniog	LNW	2.93	2.53
Barnhill	SCO	2.47	2.12	Blair Atholl	SCO	2.41	1.97
Barnt Green	LNW	2.27	2.26	Blakedown	LNW	3.23	2.69
Barrow Haven	LNE	1.91	1.91	Blaydon	LNE	2.95	2.78
Barrow Upon Soar	LNE	2.36	1.92	Bleasby	LNE	2.17	1.75
Barry Docks	WES	2.56	2.17	Bloxwich North	LNW	2.15	1.83
Barry Island	WES	3.05	2.47	Bloxwich	LNW	2.31	1.89
Barry Links	SCO	2.29	1.78	Blythe Bridge	LNE	2.78	2.39
Barton-On-Humber	LNE	1.48	1.61	Bodorgan	LNW	3.53	3.06
Bat & Ball	SEA	2.18	2.00	Bogston	SCO	2.48	1.95
Bathgate	SCO	2.18	1.72	Bootle	LNW	2.23	1.69
Batley	LNE	1.88	1.47	Bordesley	LNW	2.76	2.02
Battersby	LNE	2.94	2.54	Borth	WES	2.78	2.54
Battlesbridge	SEA	2.68	2.25	Bottesford	LNE	2.29	2.07
Bayford	LNE	1.98	1.54	Bow Brickhill	LNW	2.65	2.25
Bearley	LNW	3.25	2.65	Bowes Park	LNE	2.03	1.65
Beasdale	SCO	2.27	1.92	Bowling	SCO	2.79	2.47
Beaully	SCO	2.4	2.17	Boxhill & Westhumble	SEA	2.97	2.49
Bedminster	WES	2.61	2.17	Bramley (Hants)	SEA	2.25	2.46
Bedworth	LNW	3.29	2.81	Brampton (Suffolk)	SEA	3.24	2.69
Bedwyn	WES	2.75	2.19	Brampton (Cumbria)	LNE	3.01	2.71
Bekesbourne	SEA	2.81	2.20	Brandon	SEA	2.43	2.39
Belle Vue	LNW	2.75	2.48	Braystones	LNW	2.65	2.26
Bellgrove	SCO	2.42	2.14	Breich	SCO	2.85	2.33

Table A1.6 Grade for Category F (continued)				Table A1.6 Grade for Category F (continued)			
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Brentford	SEA	1.89	1.63	Cark	LNW	2.37	2.13
Bricket Wood	LNW	2.95	2.57	Carlton	LNE	2.3	1.76
Bridge of Allan	SCO	2.14	1.69	Carmyle	SCO	2.35	2.49
Bridge Of Orchy	SCO	2.25	1.93	Carnforth	LNW	2.78	2.38
Brierfield	LNW	2.73	2.08	Golf Street	SCO	2.46	2.23
Redcar British Steel	LNE	2.22	1.53	Carnoustie	SCO	1.91	1.61
Briton Ferry	WES	2.46	1.81	Carntyne	SCO	2.62	2.23
Brockholes	LNE	3.37	2.88	Carrbridge	SCO	1.93	1.64
Brockley Whins	LNE	2.1	1.50	Castleford	LNE	2.02	1.49
Bromsgrove	WES	2.42	2.60	Castleton Moor	LNE	2.65	2.27
Broome	WES	3.3	2.90	Castleton (Greater Manchester)	LNW	2.53	2.34
Broomfleet	LNE	2.35	2.22	Cathays	WES	2.78	2.47
Brora	SCO	2.21	2.27	Cattal	LNE	2.2	2.11
Broughty Ferry	SCO	2.22	1.83	Causeland	WES	2.72	2.23
Brundall Gardens	SEA	3.4	2.65	Cefn-Y-Bedd	LNW	3.18	2.72
Brundall	SEA	3.29	2.83	Chandlers Ford	SEA	2.13	1.64
Brunstane	SCO	1.61	1.55	Chapel-en-le-Frith	LNW	3.19	2.64
Bruton	WES	2.77	2.36	Chapleton	WES	2.77	2.61
Bryn	LNW	2.69	2.00	Chapeltown	LNE	2.38	2.22
Buckley	LNW	3.08	2.75	Chartham	SEA	2.36	1.97
Bucknell	WES	2.96	2.58	Chathill	LNE	3.13	2.75
Bugle	WES	2.95	2.54	Chelford	LNW	2.33	1.79
Builth Road	WES	2.85	2.25	Cherry Tree	LNW	2.54	1.92
Bulwell	LNE	2.24	2.08	Chester-Le-Street	LNE	1.99	1.44
Bures	SEA	2.83	2.32	Chetnole	SEA	2.42	2.32
Burley-in-Wharfedale	LNE	2.69	2.60	Chilham	SEA	2.96	2.74
Burley Park	LNE	2.68	2.60	Chilworth	SEA	2.05	1.48
Burneside	LNW	1.97	1.64	Chinley	LNW	2.72	2.49
Burnley Barracks	LNW	2.63	1.87	Chirk	WES	3.11	2.63
Burnley Manchester Road	LNW	2.65	2.20	Church & Oswaldtwistle	LNW	2.77	2.16
Burscough Bridge	LNW	2.14	1.63	Church Fenton	LNE	2.99	2.77
Burscough Junction	LNW	3.01	2.41	Church Stretton	WES	2.07	2.04
Burton Joyce	LNE	2.16	2.08	Cilmeri	WES	2.04	1.89
Busby	SCO	2.27	1.88	Clapham High Street	SEA	2.67	2.35
Penychain	WES	2.21	1.76	Clapham	LNW	2.95	2.71
Bynea	WES	2.38	1.95	Clarbeston Road	WES	3.15	2.64
Caergwrle	LNW	2.77	2.56	Claverdon	LNW	3.39	2.93
Caersws	WES	2.63	2.39	Cleland	SCO	2.55	1.98
Calstock	WES	3.06	2.67	Clifton Down	WES	2.81	2.28
Cambridge Heath	SEA	3.56	2.91	Clifton	LNW	2.91	2.39
Camelon	SCO	2.1	1.73	Clitheroe	LNW	2.12	1.79
Cannock	LNW	2.1	1.94	Clunderwen	WES	2.94	2.59
Cantley	SEA	3.13	2.79	Blairhill	SCO	2.94	2.72
Capenhurst	LNW	2.49	1.76	Coatbridge Central	SCO	2.92	2.51
Cardenden	SCO	2.11	1.61	Coatdyke	SCO	3.03	2.83
Rhose - Cardiff International Airport	WES	1.7	2.32	Codsall	LNW	2.94	2.83
Carfin	SCO	2.2	1.79	Cogan	WES	2.85	2.37

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Collingham	LNE	2.34	2.08	Dalton	LNW	2.99	2.45
Colne	LNW	2.54	1.58	Dalwhinnie	SCO	2.36	1.90
Combe	WES	2.85	3.00	Danby	LNE	1.96	1.47
Commondale	LNE	1.67	1.55	Danzey	LNW	3.07	2.72
Conisbrough	LNE	2.68	2.32	Darnall	LNE	2.66	2.00
Connel Ferry	SCO	2.53	2.32	Darton	LNE	2.16	2.12
Cononley	LNE	1.7	1.48	Darwen	LNW	2.59	1.78
Conwy	LNW	2.92	2.57	Dawlish Warren	WES	2.52	2.49
Cooksbridge	SEA	2.25	2.08	Dean Lane	LNW	2.7	2.42
Coombe	WES	2.96	2.68	Deganwy	LNW	3.31	2.90
Copplestone	WES	2.96	2.38	Deighton	LNE	3.43	2.80
Corbridge	LNE	2.96	2.64	Delamere	LNW	3.12	2.64
Corkerhill	SCO	2.06	1.82	Denby Dale	LNE	2.43	2.37
Corkickle	LNW	2.77	2.61	Denham Golf Club	LNW	2.96	2.49
Corpach	SCO	3.27	2.58	Dent	LNW	2.2	1.87
Corrour	SCO	3	3.00	Denton	LNW	3.08	2.90
Coryton	WES	3.03	2.37	Derby Ramsline	LNE	2.63	1.71
Cosford	LNW	2.73	2.58	Derby Road (Ipswich)	SEA	2.79	2.40
Cottingham	LNE	2.24	2.00	Derker	LNW	1.32	1.00
Cottingley	LNE	2.27	2.37	Devonport	WES	2.53	2.29
Cowden	SEA	3.06	2.67	Dilton Marsh	WES	2.69	2.60
Craigendoran	SCO	2.59	1.91	Dinas Rhondda	WES	3.11	2.48
Craven Arms	WES	3.17	2.63	Dinas Powys	WES	2.8	2.19
Crediton	WES	2.79	2.37	Dingle Road	WES	2.98	2.77
Creswell	LNE	1.86	1.46	Dinsdale	LNE	2.1	2.05
Crews Hill	LNE	1.85	1.64	Dockyard (Devonport)	WES	2.59	2.31
Crianlarich	SCO	2.32	2.03	Dolau	WES	2.82	2.68
Criccieth	WES	2.85	2.71	Doleham	SEA	3.03	2.18
Cromer	SEA	3.27	2.92	Dolgarrog	LNW	2.97	2.90
Crookston	SCO	2.03	1.69	Dolwyddelan	LNW	3.22	2.56
Cross Gates	LNE	2.54	2.38	Dorchester West	SEA	2.3	2.17
Crossflatts	LNE	2.71	2.63	Dorking Deepdene	SEA	2.89	2.52
Crossmyloof	SCO	2.25	1.90	Dorking West	SEA	2.25	1.85
Croston	LNW	2.66	2.02	Dovey Junction	WES	2.05	2.20
Crouch Hill	SEA	2.51	2.33	Drayton Green	WES	2.4	1.70
Crowle	LNE	2.41	2.18	Drem	SCO	2.44	1.91
Crowthorne	SEA	2.92	2.51	Driffield	LNE	2.13	1.77
Cuddington	LNW	3.13	2.81	Drigg	LNW	2.1	1.56
Culham	WES	2.85	2.66	Dronfield	LNE	2.46	2.36
Culrain	SCO	2.13	1.91	Drumfrochar	SCO	2.48	1.77
Curriehill	SCO	2.18	2.32	Drumgelloch	SCO	3.06	2.64
Cuxton	SEA	2.08	2.05	Duffield	LNE	1.96	1.73
Cwmbach	WES	2.63	2.27	Duirinish	SCO	2.75	2.26
Cynghordy	WES	2.26	2.00	Duke Street	SCO	2.28	1.99
Dalgety Bay	SCO	2.04	1.55	Dullingham	SEA	2.98	2.55
Dalmally	SCO	2.74	2.11	Dumbarton East	SCO	2.7	2.51
Dalry	SCO	2.8	2.42	Dumbreck	SCO	2.37	1.82
Dalston (Cumbria)	LNW	2.4	1.92	Dunbridge	SEA	2.58	2.36

Table A1.6 Grade for Category F (continued)							
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Duncraig	SCO	2.33	1.89	Ferryside	WES	3.03	2.51
Dunfermline Queen Margaret	SCO	2.64	2.05	Ffairfach	WES	2.44	2.51
Dunkeld & Birmam	SCO	2.37	1.90	Filey	LNE	2.91	2.64
Dunlop	SCO	1.98	1.84	Filton Abbey Wood	WES	2.18	1.80
Dunrobin Castle	SCO	2.51	1.89	Finchley Road & Frognal	SEA	1.8	1.42
Dunston	LNE	1.8	1.60	Finstock	WES	2.98	2.47
Dyce	SCO	2.51	2.61	Fishbourne	SEA	1.98	1.39
Dyffryn Ardudwy	WES	2.07	2.00	Fishguard Harbour	WES	3.02	2.48
Eaglescliffe	LNE	2.28	1.94	Fiskerton	LNE	2.24	2.12
Earlwood (West Midlands)	LNW	2.98	2.35	Fitzwilliam	LNE	2.22	2.22
East Boldon	LNE	2.02	1.32	Flimby	LNW	2.13	1.91
East Farleigh	SEA	2.26	2.05	Flowery Field	LNW	2.27	2.15
East Garforth	LNE	2.31	2.12	Forsinard	SCO	2.45	2.15
East Malling	SEA	2.46	2.21	Fort Matilda	SCO	2.47	1.84
East Worthing	SEA	2.63	2.23	Foxfield	LNW	2.72	2.37
Eastbrook	WES	2.31	2.35	Foxton	SEA	2.8	2.52
Eccles Road	SEA	3.18	2.64	Frizinghall	LNE	2.4	2.44
Edale	LNW	2.74	2.06	Frodsham	LNW	2.8	2.42
Edenbridge	SEA	2.76	2.47	Gainsborough Central	LNE	2.57	2.22
Edinburgh Park	SCO	1.59	1.75	Gainsborough Lea Road	LNE	2.15	1.80
Slateford	SCO	2.26	2.41	Garelochhead	SCO	2.41	2.00
Eggesford	WES	2.48	2.42	Gargrave	LNE	1.88	1.39
Egton	LNE	1.88	1.61	Garsdale	LNW	2.42	2.05
Elmswell	SEA	2.5	2.15	Gartcosh	SCO	1.82	2.02
Elton & Orston	LNE	2.38	2.28	Garth (Mid Glamorgan)	WES	2.4	2.08
Emerson Park	SEA	2.72	2.43	Garth (Powys)	WES	2.51	2.38
Entwistle	LNW	2.44	1.72	Garve	SCO	2.53	2.77
Epsom Downs	SEA	1.94	1.60	Metrocentre	LNE	2.07	1.62
Euxton Balshaw Lane	LNW	1.9	1.54	Gathurst	LNW	2.97	2.71
Exeter St Thomas	WES	2.62	2.18	Georgemas Junction	SCO	2.35	2.03
Failsworth	LNW	2.71	2.60	Giggleswick	LNW	2.18	1.85
Fairbourne	WES	2.61	2.46	Gilberdyke	LNE	2.3	1.91
Fairfield	LNW	3.09	2.74	Gilshochill	SCO	2.43	1.95
Fairlie	SCO	2.7	2.54	Glaisdale	LNE	2.03	1.45
Falls Of Cruachan	SCO	2.61	2.30	Glan Conwy	LNW	3.01	2.38
Falmouth Docks	WES	3.02	2.62	Queens Park (Glasgow)	SCO	1.93	1.82
Falmouth Town	WES	2.68	2.03	Glasshoughton	LNE	1.66	1.53
North Farnbridge	SEA	3.02	2.60	Gleneagles	SCO	2.26	1.67
Fauldhouse	SCO	2.19	1.48	Glenfinnan	SCO	2.32	1.83
Faygate	SEA	1.97	1.79	Glengarnock	SCO	2.83	2.68
Fearn	SCO	2.87	2.47	Glenrothes with Thornton	SCO	1.94	1.65
Featherstone	LNE	2.08	1.77	Glynde	SEA	2.65	2.50
Felixstowe	SEA	3.48	2.74	Gobowen	WES	3.03	2.60
Fenny Stratford	LNW	2.96	2.56	Godley	LNW	2.89	2.53
Fernhill	WES	2.82	2.32	Godstone	SEA	2.97	2.57

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Goldthorpe	LNE	2.42	2.17	Healing	LNE	2.32	2.09
Golspie	SCO	2.12	2.08	Heckington	LNE	1.86	1.40
Gomshall	SEA	2.52	2.10	Hednesford	LNW	2.47	2.07
Goostrey	LNW	2.69	2.40	Heighington	LNE	2.65	2.10
Gowerton	WES	2.88	2.69	Hele & Bradninch	WES	3	2.55
Goxhill	LNE	1.68	1.51	Helensburgh Upper	SCO	2.97	2.52
Grangetown	WES	2.31	1.80	Hellifield	LNW	2.51	1.90
Grateley	SEA	1.66	1.61	Helmsdale	SCO	2.11	1.67
Great Ayton	LNE	2.09	1.78	Helsby	LNW	3.15	2.55
Great Coates	LNE	2.06	1.74	Henley-in-Arden	LNW	3.17	2.75
Green Road	LNW	2.65	2.36	Hensall	LNE	2.38	1.84
Greenbank	LNW	2.97	2.58	Hessle	LNE	2.43	1.83
Greenfaulds	SCO	2.43	1.84	Heswall	LNW	2.92	2.48
Branchton	SCO	2.48	2.00	Hever	SEA	2.13	1.90
Cartsdyke	SCO	2.35	1.95	Heworth	LNE	2.37	2.05
Gretna Green	SCO	2.77	2.60	Heyford	LNW	2.51	2.31
Grimsby Docks	LNE	2.25	1.91	Heysham Port	LNW	2.28	1.83
Grindleford	LNW	2.93	2.62	Highbridge & Burnham-On-Sea	WES	2.63	2.37
Grosmont	LNE	2.09	1.72	Highbury & Islington (GN & City Line) (Low level)	LNE	2.25	1.67
Gunnislake	WES	2.72	2.28	Hillfoot	SCO	3.06	2.77
Gunton	SEA	2.05	1.65	Hollinwood	LNW	2.33	1.71
Gwersyllt	LNW	3.13	2.62	Holmwood	SEA	2.34	2.08
Gypsy Lane	LNE	2.43	2.24	Holton Heath	SEA	2.08	2.28
Habrough	LNE	2.33	2.11	Holytown	SCO	2.71	2.20
Hairmyres	SCO	1.98	1.76	Honley	LNE	3.74	3.15
Hall i' th' Wood	LNW	1.78	2.08	Hope (Flintshire)	LNW	2.99	2.38
Halling	SEA	2.97	2.75	Hope (Derbyshire)	LNW	2.42	2.32
Haltwhistle	LNE	2.49	2.06	Hopton Heath	WES	3.48	3.05
Hammerton	LNE	1.76	1.30	Hornbeam Park	LNE	2.39	2.34
Hanborough	WES	2.6	2.38	Horsforth	LNE	2.51	2.37
Hapton	LNW	2.77	2.19	Horton-in-Ribblesdale	LNW	2.5	1.79
Harlech	WES	2.92	2.78	Horwich Parkway	LNW	2.39	2.23
Harling Road	SEA	2.34	1.81	Hoscar	LNW	2.64	2.18
Harringay Green Lanes	SEA	2.19	1.96	Hoveton & Wroxham	SEA	2.82	2.31
Harringay	LNE	2.28	1.85	Howden	LNE	2.3	1.90
Harrington	LNW	3.05	2.76	How Wood (Herts)	LNW	3.04	2.24
Hartebury	LNW	2.65	2.33	Howwood (Renfrewshire)	SCO	2.81	2.61
Hartwood	SCO	2.75	2.07	Hubberts Bridge	LNE	1.97	1.69
Harwich Town	SEA	2.77	2.21	Hucknall	LNE	2.05	1.84
Hatfield & Stainforth	LNE	1.4	1.75	Humphrey Park	LNW	2.78	2.50
Hathersage	LNW	2.23	2.19	Huncoat	LNW	2.56	2.09
Hatton (Warwickshire)	LNW	2.67	2.61	Hungerford	WES	2.71	2.11
Havenhouse	LNE	2.78	2.27	Hutton Cranswick	LNE	2.61	2.14
Hawarden Bridge	LNW	3.03	2.47	Hyde Central	LNW	2.72	2.53
Hawarden	LNW	3.34	2.72	Hyde North	LNW	2.67	2.38
Hawkhead	SCO	2.22	1.79	Hykeham	LNE	2.48	2.20
Haydon Bridge	LNE	2.91	2.70	Hythe (Essex)	SEA	2.78	2.25
Hayle	WES	2.98	2.84	IBM	SCO	2.32	2.04

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Ince & Elton	LNW	2.77	2.21	Knucklas	WES	2.9	2.54
Ince	LNW	3.04	2.55	Lairg	SCO	2	1.62
Insch	SCO	2.41	2.15	Lake	SEA	2.95	2.61
Invergordon	SCO	2.32	1.91	Lakenheath	SEA	2.3	2.00
Invergowrie	SCO	2.42	2.07	Lamphey	WES	3.35	2.61
Inverkip	SCO	2.04	1.97	Landywood	LNW	2.79	2.02
Invershin	SCO	2.39	2.39	Langbank	SCO	2.14	1.72
Ipswich	SEA	2.55	1.99	Langley Mill	LNE	2.26	2.02
Irlam	LNW	2.77	2.17	Langside	SCO	2.21	1.53
Ivybridge	WES	2.3	2.09	Langwathby	LNW	2.98	2.73
Johnston	WES	3.21	2.78	Langwith - Whaley Thorns	LNE	2.1	1.56
Jordanhill	SCO	2.77	2.50	Lapford	WES	2.59	2.45
Kearsley	LNW	2.47	2.34	Lapworth	LNW	2.66	1.98
Kelvindale	SCO	1.77	2.37	Laurencekirk	SCO	3.48	3.00
Kempston Hardwick	LNW	2.66	2.50	Lawrence Hill	WES	2.79	2.37
Kemsing	SEA	2.33	2.46	Layton	LNW	2.26	1.65
Kemsley	SEA	2.68	2.20	Lazonby & Kirkoswald	LNW	2.86	2.55
Kendal	LNW	2.52	1.83	Lea Green	LNW	3.02	2.38
Kennett	SEA	3.36	2.97	Leaholm	LNE	2.42	1.76
Kennishead	SCO	2.69	2.10	Leigh (Kent)	SEA	3.09	2.48
Kentish Town	LNE	2.35	1.99	Leominster	WES	3.19	2.76
Kents Bank	LNW	2.9	2.35	Leyton Midland Road	SEA	2.63	2.39
Keyham	WES	2.81	1.98	Leytonstone High Road	SEA	3.1	2.73
Keynsham	WES	2.66	2.51	Lidlington	LNW	2.74	2.23
Kidwelly	WES	3.13	2.72	Lingwood	SEA	2.1	1.67
Kildale	LNE	1.64	1.66	Lisvane & Thornhill	WES	2.37	2.33
Kildonan	SCO	2.06	2.00	Little Kimble	LNW	2.87	2.41
Kilgetty	WES	3.26	2.73	Littleport	SEA	2.88	2.59
Kilmaurs	SCO	2.12	1.81	Walton (Merseyside)	LNW	2.54	2.23
Kilpatrick	SCO	2.35	2.15	Livingston North	SCO	2.24	1.70
Kinbrace	SCO	2.48	2.03	Livingston South	SCO	2.34	2.18
Kings Nympton	WES	2.43	2.42	Llanaber	WES	2.17	1.89
Kings Sutton	LNW	2.6	2.11	Llanbedr	WES	2.57	2.13
Kingsknowe	SCO	2.6	1.98	Llanbister Road	WES	3	2.57
Kintbury	WES	2.71	2.14	Llandanwg	WES	2.2	2.30
Kirby Cross	SEA	2.85	2.22	Llandecwyn	WES	2.61	2.77
Kirby-in-Furness	LNW	2.56	2.18	Llandeilo	WES	2.81	2.25
Kirby Stephen	LNW	2.27	1.91	Llandoverly	WES	3.02	2.83
Kirby in Ashfield	LNE	2.07	1.54	Llandybie	WES	3.08	2.60
Kirkconnel	SCO	2.84	2.52	Llanfairfechan	LNW	2.98	2.74
Kirkhill	SCO	2.69	2.06	Llanfairpwll	LNW	2.87	2.76
Kirknewton	SCO	2.66	1.91	Llangadog	WES	2.71	2.54
Kirkwood	SCO	2.2	2.43	Llangammarch	WES	2.36	2.26
Kirton Lindsey	LNE	2.01	1.76	Llangennech	WES	3.19	2.72
Kiveton Bridge	LNE	1.8	1.36	Llangynllo	WES	3.06	2.71
Kiveton Park	LNE	2.24	1.96	Llanishen	WES	2.86	2.28
Knaresborough	LNE	2.22	1.60	North Llanrwst	LNW	2.95	2.42
Knottingley	LNE	2.75	2.64	Llansamlet	WES	2.54	1.99
				Llantwit Major	WES	1.79	2.20

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Llanwrda	WES	2.85	2.38	Melton	SEA	2.52	2.19
Llanwst	LNW	3.32	2.76	Menheniot	WES	3.24	3.04
Llanwrtyd	WES	2.39	2.25	Menston	LNE	2.46	2.33
Llwyngrïl	WES	2.69	2.57	Meols Cop	LNW	2.66	1.98
Llwynypia	WES	2.99	2.29	Metheringham	LNE	1.72	1.38
Loch Awe	SCO	2.65	2.08	Mexborough	LNE	2.38	2.36
Loch Eil Outward Bound	SCO	3.11	2.50	Middlewood	LNW	2.32	2.27
Lochailort	SCO	2.47	2.11	Midgham	WES	2.72	2.18
Locheilside	SCO	2.48	2.10	Milford Haven	WES	3.25	2.69
Lochgelly	SCO	2.18	1.70	Mill Hill (Lancashire)	LNW	2.22	1.56
Lochluchart	SCO	2.24	2.66	Millbrook (Hants)	SEA	2.54	2.05
Lochwinnoch	SCO	2.89	2.70	Millbrook (Bedfordshire)	LNW	2.7	2.10
Lockwood	LNE	2.52	2.25	Milliken Park	SCO	2.22	2.00
London Fields	SEA	2.23	2.14	Millom	LNW	2.49	2.05
Long Preston	LNW	1.87	1.98	Mills Hill	LNW	2.49	2.52
Longbeck	LNE	1.68	2.03	Milnrow	LNW	2.48	2.23
Longcross	SEA	2.32	1.68	Minffordd	WES	2.45	2.19
Longniddry	SCO	2.24	1.70	Minster	SEA	2.33	1.67
Longport	LNW	2.45	2.05	Mistley	SEA	2.42	1.90
Longton	LNE	2.83	2.44	Mobberley	LNW	3.16	2.73
Looe	WES	2.72	2.52	Monifieth	SCO	2.26	1.62
Lostock Gralam	LNW	3.35	2.80	Monks Risborough	LNW	3.02	2.60
Lostock Hall	LNW	2.59	2.30	Montpelier	WES	2.79	2.46
Lostwithiel	WES	2.89	2.66	Moorgate	LNE	2.65	1.87
Lowdham	LNE	2.29	2.24	Morar	SCO	2.53	1.80
Ludlow	WES	3.11	2.68	Morchar Road	WES	2.72	2.13
Lydney	WES	2.97	2.47	Morden South	SEA	1.83	1.41
Lymington Pier	SEA	1.93	1.89	Morecambe	LNW	2.86	2.41
Lytham	LNW	2.78	2.20	Moreton (Dorset)	SEA	2.51	1.93
Maesteg (Ewenny Road)	WES	2.62	2.24	Morfa Mawddach	WES	2.43	2.47
Maesteg	WES	2.49	2.05	Morpeth	LNE	1.94	1.35
Maiden Newton	SEA	2.12	1.79	Moses Gate	LNW	2.95	2.56
Maidstone Barracks	SEA	1.89	1.70	Moss Side	LNW	3.02	2.27
Manchester United Halt	LNW	2.51	2.15	Mossspark	SCO	2.54	1.97
Manea	SEA	2.47	2.06	Moston	LNW	2.76	2.44
Manorbier	WES	3.15	2.87	Mouldsworth	LNW	3.25	2.94
Mansfield	LNE	2.36	2.07	Mount Vernon	SCO	2.08	2.18
Mansfield Woodhouse	LNE	2.22	1.84	Mountain Ash	WES	2.91	2.32
Marlow	WES	3.06	2.75	Muir Of Ord	SCO	2.06	1.80
Marsden	LNW	2.88	2.75	Musselburgh	SCO	2.24	1.91
Marske	LNE	2.43	2.06	Nafferton	LNE	2.08	1.64
Marton	LNE	1.72	1.48	Nantwich	WES	2.6	2.52
Maryhill	SCO	2.23	2.14	Narberth	WES	3.21	2.71
Maryport	LNW	3.36	2.88	Navigation Road	LNW	3.1	2.76
Matlock	LNE	1.96	2.08	Needham Market	SEA	3.26	2.65
Maxwell Park	SCO	2.08	1.74	Nelson	LNW	2.73	1.98
Maybole	SCO	2.3	1.93	Neston	LNW	3.06	2.51
Meadowhall	LNE	2.15	1.98				
Melksham	WES	2.99	2.58				

Table A1.6 Grade for Category F (continued)							
Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Netherfield	LNE	2.96	2.51	Pegswood	LNE	2.5	2.34
Nethertown	LNW	2.74	2.49	Pemberton	LNW	2.74	2.07
New Barnet	LNE	2.11	1.83	Pembrey & Burry Port	WES	3.17	2.82
New Cumnock	SCO	2.7	2.50	Pembroke Dock	WES	3.35	3.12
New Hey	LNW	1.97	1.69	Pembroke	WES	3.17	2.69
New Holland	LNE	2.49	2.43	Pen-Y-Bont	WES	3.3	2.73
New Hythe	SEA	2.51	2.60	Penally	WES	3.35	3.13
New Lane	LNW	2.95	2.62	Pencoed	WES	2.53	1.96
New Pudsey	LNE	2.07	2.00	Penhelig	WES	2.37	2.54
Newark Castle	LNE	2.24	2.04	Penistone	LNE	2.6	2.37
Newbury Racecourse	WES	2.6	2.60	Penkridge	LNW	2.4	1.98
Newcraighall	SCO	1.98	1.68	Penmaenmawr	LNW	2.34	1.63
Newhaven Harbour	SEA	2.91	2.54	Penmere	WES	2.81	2.56
Newhaven Marine	SEA	3.52	3.11	Penrhiwceiber	WES	2.82	2.40
Newmarket	SEA	2.35	1.55	Penrhyndeudraeth	WES	2.14	1.96
Newstead	LNE	2.23	1.89	Penryn	WES	3.11	2.76
Newton Aycliffe	LNE	2.16	1.55	Pensam (Gwynedd)	WES	2.1	2.00
Newton-on-Ayr	SCO	2.88	2.62	Penshurst	SEA	2.19	2.18
Newton St Cyres	WES	2.74	2.12	Penyffordd	LNW	2.95	2.49
Newtonmore	SCO	2.32	1.96	Perranwell	WES	3.13	2.79
Nitshill	SCO	1.98	1.86	Pevensey Bay	SEA	2.71	2.35
Normanton	LNE	1.98	1.54	Pilning	WES	2.98	2.80
North Berwick	SCO	2.38	1.98	Pinhoe	WES	3.14	2.59
North Queensferry	SCO	2.52	2.08	Pleasington	LNW	2.31	1.69
North Road	LNE	2.36	1.81	Plockton	SCO	2.79	2.33
North Walsham	SEA	3.64	2.98	Plumley	LNW	3.09	2.68
Norton Bridge	LNW	2.75	1.85	Polesworth	LNW	3.01	2.48
Nunthorpe	LNE	2.13	1.74	Pollokshaws East	SCO	2.27	1.82
Oakengates	LNW	2.72	2.62	Pollokshaws West	SCO	2.07	1.71
Ockley	SEA	1.97	1.52	Pollokshields West	SCO	1.81	1.66
Oldfield Park	WES	2.65	2.61	Pont-y-Pant	LNW	3.01	2.25
Oldham Werneth	LNW	2.03	1.69	Pontarddulais	WES	2.56	2.12
Ore	SEA	2.68	2.32	Pontefract Baghill	LNE	1.65	1.81
Orrell	LNW	2.92	2.03	Pontefract Monkhill	LNE	2.75	2.63
Oulton Broad North	SEA	3.48	3.00	Pontefract Tanshelf	LNE	2.91	2.72
Oulton Broad South	SEA	3.46	2.85	Pontyclun	WES	2.63	1.97
Outwood	LNE	2.03	1.89	Pontypool & New Inn	WES	2.45	1.82
Overpool	LNW	2.56	1.92	Poppleton	LNE	2.11	1.98
Padgate	LNW	2.76	2.38	Porthmadog	WES	2.51	2.36
Paisley Canal	SCO	2.47	1.85	Portlethen	SCO	2.09	1.75
Pantyyffynnon	WES	2.98	2.83	Portsmouth Arms	WES	2.57	2.62
Park Street	LNW	3.18	2.44	Possilpark & Parkhouse	SCO	2.36	1.99
Parson Street	WES	2.73	2.41	Prees	WES	2.26	1.96
Parton	LNW	2.44	2.06	Prestbury	LNW	2.78	2.38
Patchway	WES	2.76	2.43	Prestonpans	SCO	2.31	1.68
Patricroft	LNW	2.88	2.57	Prestwick International Airport	SCO	2.78	2.48
Patterton	SCO	1.93	1.69	Priesthill & Damley	SCO	2.21	1.92
Peartree	LNE	2.95	2.39	Prudhoe	LNE	1.95	1.45

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Pyle	WES	2.48	2.08	Saxilby	LNE	2.09	2.07
Queenstown Road (Battersea)	SEA	3.6	3.14	Saxmundham	SEA	2.65	2.39
Radcliffe (Nottinghamshire)	LNE	2.08	1.71	Scotscalder	SCO	2.57	2.19
Radley	WES	1.97	1.92	Sea Mills	WES	2.74	2.38
Rainford	LNW	2.76	2.12	Seaburn	LNE	2.13	1.36
Ramsgreave & Wilpshire	LNW	2.11	1.60	Seaham	LNE	1.88	1.41
Rannoch	SCO	2.1	1.59	Seamer	LNE	1.68	1.41
Rauceby	LNE	2.53	1.96	Seascale	LNW	2.26	1.54
Ravenglass for Eskdale	LNW	2.24	2.33	Seaton Carew	LNE	2.31	1.91
Ravensthorpe	LNE	3.47	2.72	Sellafield	LNW	2.37	1.83
Rawcliffe	LNE	2.47	1.98	Selling	SEA	2.64	2.30
Reading West	WES	2.87	2.56	Severn Beach	WES	3.13	2.79
Redcar East	LNE	1.83	1.94	Shalford	SEA	2.53	1.91
Reddish South	LNW	3.05	2.88	Shawford	SEA	2.66	2.36
Redland	WES	2.66	2.24	Shawlands	SCO	2.02	1.89
Reedham (Norfolk)	SEA	2.54	2.33	Sheffield Victoria	LNE	4.07	3.79
Retford	LNE	2.56	2.13	Shepley	LNE	2.52	2.36
Rhiwbina	WES	3	2.30	Shepreth	SEA	2.54	2.45
Rhosneigr	LNW	3.02	2.77	Sherburn in Elmet	LNE	2.2	1.85
Ribblehead	LNW	2.27	1.71	Sheringham	SEA	2.61	2.54
Riding Mill	LNE	1.81	1.74	Shieldmuir	SCO	2.41	1.93
Rishton	LNW	2.51	2.11	Shifnal	LNW	3.05	2.77
Rogart	SCO	2.11	2.00	Shipleigh	LNE	2.56	2.38
Rolleston	LNE	2.32	1.86	Shippea Hill	SEA	3.17	2.69
Roman Bridge	LNW	3.2	2.79	Shipton	WES	2.8	2.58
Rose Grove	LNW	2.58	1.97	Shirebrook	LNE	2.15	1.75
Roughton Road	SEA	3.32	2.90	Shirehampton	WES	2.51	2.13
Roy Bridge	SCO	3.11	2.41	Shireoaks	LNE	2.13	1.79
Ruabon	WES	3.32	2.88	Shoreham (Kent)	SEA	2.69	2.48
Rufford	LNW	2.52	2.28	Shotton (High Level & Low Level)	LNW	3.48	3.03
Rugeley Town	LNW	2.53	1.88	Sileby	LNE	2.43	1.74
Rugeley Trent Valley	LNW	2.51	1.90	Silecroft	LNW	2.69	2.52
Ruskington	LNE	1.67	1.69	Silverdale	LNW	3	2.58
Ruswarp	LNE	2.11	1.63	Sinfin Central	LNE	2.12	1.83
Ryde St. Johns Road	SEA	2.09	2.04	Sinfin North	LNE	2.86	2.40
Ryder Brow	LNW	2.96	2.48	Skewen	WES	2.71	2.05
Salhouse	SEA	2.47	1.88	Skipton	LNE	2.97	2.91
Saltaire	LNE	2.43	2.09	Slaithwaite	LNE	3.03	2.59
Saltash	WES	2.87	2.72	Sleights	LNE	2.73	2.35
Saltburn	LNE	1.86	1.42	Smallbrook Junction	SEA	3.1	2.81
Saltmarshe	LNE	2.57	2.24	Smithy Bridge	LNW	2.48	2.69
Salwick	LNW	2.93	2.39	Snaith	LNE	2.6	2.19
Sandown	SEA	1.82	1.77	Snodland	SEA	2.09	1.46
Sandplace	WES	2.73	2.35	Snowdown	SEA	2.65	2.54
Sanquhar	SCO	2.72	2.39	Somerleyton	SEA	2.11	1.69
Sarn	WES	2.47	2.08	South Bank	LNE	2.07	1.77
Saundersfoot	WES	3.29	2.67				
Saunderton	LNW	2.84	2.23				

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
South Elmsall	LNE	1.82	1.46	Sunnymeads	SEA	3.03	2.64
South Gyle	SCO	2.88	2.26	Sutton Parkway	LNE	2.38	1.64
South Merton	SEA	2.33	1.96	Swale	SEA	2.62	1.87
South Milford	LNE	1.76	1.36	Swinderby	LNE	2.43	1.83
South Ruislip	LNW	2.64	2.20	Swineshead	LNE	2.41	2.30
South Tottenham	SEA	1.95	1.89	Syon Lane	SEA	2.79	2.40
South Wigston	LNE	2.93	2.63	Syston	LNE	2.24	1.77
Southminster	SEA	2.86	2.48	Tain	SCO	2.34	2.11
Sowerby Bridge	LNE	2.37	1.89	Talsarnau	WES	2.43	2.13
Spean Bridge	SCO	2.53	2.24	Talybont	WES	2.13	1.87
Spondon	LNE	2.62	2.18	Taynuilt	SCO	2.43	2.08
Spooner Row	SEA	2.38	1.93	Tenby	WES	3.08	2.63
Springfield	SCO	2.43	2.06	The Lakes (Warwickshire)	LNW	2.84	2.66
Squires Gate	LNW	2.31	1.87	Thornaby	LNE	2	1.96
St Budeaux Victoria Road	WES	2.55	2.00	Thome South	LNE	2.21	1.43
St Albans Abbey	LNW	2.51	2.36	Thornford	SEA	3.2	2.52
St Andrews Road	WES	2.63	2.43	Thornliebank	SCO	2.65	2.01
St Bees	LNW	2.49	1.67	Thornton Abbey	LNE	2.33	1.83
St Budeaux Ferry Road	WES	2.7	2.38	Thorntonhall	SCO	1.99	1.78
St Germans	WES	3.08	2.97	Thorpe Culvert	LNE	2.06	1.67
St Helier (Surrey)	SEA	2.17	1.67	Three Oaks	SEA	3.32	2.73
St Keyne	WES	2.67	2.20	Thurgarton	LNE	2.33	1.98
Stallingborough	LNE	1.86	1.59	Thurnscoe	LNE	1.93	1.52
Stanford-Le-Hope	SEA	2.19	1.75	Thurston	SEA	2.34	2.03
Stanlow & Thornton	LNW	2.82	2.50	Ton Pentre	WES	2.74	2.20
Stapleton Road	WES	2.09	1.96	Tondu	WES	2.63	2.74
Starbeck	LNE	1.71	1.45	Tonfanau	WES	2.54	2.32
Starcross	WES	2.6	2.49	Tonypandy	WES	2.7	2.27
Staveley (Cumbria)	LNW	2.47	2.45	Torre	WES	2.72	2.45
Steeton & Silsden	LNE	1.96	1.86	Trafford Park	LNW	3.14	2.56
Stepps	SCO	2.42	1.84	Trehafod	WES	2.77	2.37
Stevenston	SCO	2.88	2.56	Treherbert	WES	3.09	2.38
Stewarton	SCO	2.28	1.76	Treorchy	WES	2.83	2.06
Stocksfield	LNE	2.12	2.04	Trimley	SEA	2.99	2.55
Stocksmoor	LNE	3.17	2.65	Trowbridge	WES	2.8	2.27
Stockton	LNE	2.83	2.53	Tulloch	SCO	2.5	2.16
Stone	LNW	2.48	1.94	Tutbury & Hatton	LNE	2.67	2.76
Strathcarron	SCO	2.49	2.42	Ty Croes	LNW	3.24	2.84
Streethouse	LNE	1.96	1.92	Tygwyn	WES	2.41	2.70
Strines	LNW	2.83	2.40	Tyndrum Lower	SCO	2.18	2.07
Stromeferry	SCO	2.51	2.07	Tyndrum Upper	SCO	2.52	2.02
Styal	LNW	2.16	2.23	Tywyn	WES	2.47	2.46
Sudbury & Harrow Road	LNW	3.28	2.79	Uiceby	LNE	2.56	2.19
Sudbury Hill Harrow	LNW	2.78	2.52	Ulleskelf	LNE	2.49	2.10
Sudbury (Suffolk)	SEA	3.05	2.52	Umberleigh	WES	2.43	2.44
Sugar Loaf	WES	2.34	2.16	Uphall	SCO	1.86	1.53
Summerston	SCO	2.02	1.62	Upholland	LNW	2.9	2.37
				Upper Holloway	SEA	2.08	1.74

Table A1.6 Grade for Category F (continued)

Station name	Territory	Category SSM	Grade score	Station name	Territory	Category SSM	Grade score
Upwey	SEA	2.55	2.38	Whitlock's End	LNW	2.64	2.24
Uttoxeter	LNE	2.19	1.77	Whittlesea	SEA	3.6	2.94
Valley	LNW	3.31	3.05	Whitwell	LNE	1.92	1.40
Wakefield Kirkgate	LNE	3.33	2.95	Wickham Market	SEA	2.69	2.29
Wallyford	SCO	2.16	1.70	Widdrington	LNE	2.34	1.85
Walsden	LNW	2.55	2.70	Wigton	LNW	2.9	2.34
Walthamstow Queens Road	SEA	2.78	2.40	Wildmill	WES	2.57	2.18
Wanborough	SEA	2.27	1.58	Willington	LNE	2.5	1.85
Wandsworth Road	SEA	1.71	1.68	Wilmcote	LNW	3.46	2.92
Wanstead Park	SEA	3.53	2.88	Wilnecote	LNW	2.51	1.79
Wargrave	WES	2.78	2.52	Wimbledon Chase	SEA	2.83	2.47
Warminster	WES	2.33	1.87	Winchelsea	SEA	1.85	1.62
Warnham	SEA	1.88	1.55	Wombwell	LNE	1.89	1.52
Water Orton	LNW	2.31	1.74	Wood End	LNW	3.13	2.55
Wateringbury	SEA	2.5	1.98	Woodgrange Park	SEA	1.77	1.60
Watford North	LNW	2.97	2.55	Woodhouse	LNE	2.45	2.25
Wavertree Technology Park	LNW	2.79	2.30	Woodlesford	LNE	1.96	1.66
Wedgwood	LNW	2.5	1.94	Woodley	LNW	2.52	2.24
Weeton	LNE	2.56	2.14	Wootton Waven	LNW	2.78	2.36
Welshpool	WES	2.63	2.53	Worstead	SEA	2.34	1.95
Wern	WES	2.24	2.13	Wrabness	SEA	3.04	2.55
Wembley Stadium	LNW	2.35	1.95	Wrenbury	WES	2.2	1.80
Wennington	LNW	1.99	1.58	Wressle	LNE	1.99	1.64
West Brompton	SEA	2.3	2.09	Wrexham Central	LNW	2.84	2.58
West Calder	SCO	2.61	2.63	Wylam	LNE	1.97	1.65
Westhoughton	LNW	2.74	2.50	Wyndham	SEA	3.33	2.68
West Kilbride	SCO	2.97	2.76	Yalding	SEA	3.01	2.55
West Ruislip	LNW	2.86	2.27	Yarm	LNE	2.45	2.08
West Runton	SEA	2.38	1.73	Yeoford	WES	2.61	2.40
West Sutton	SEA	2.22	1.65	Yetminster	SEA	2.72	2.33
Westcliff	SEA	2.13	1.96	Ynyswen	WES	3.2	2.65
Westenhanger	SEA	1.78	1.74	Yoker	SCO	2.65	2.44
Wester Hailes	SCO	2.44	2.61	Yorton	WES	2.16	1.83
Westerfield	SEA	2.75	2.17	Ystrad Rhondda	WES	2.79	2.37
Weston Milton	WES	3.01	2.56				
Wetheral	LNE	2.21	2.00				
Whalley	LNW	2.2	1.73				
Whatstandwell	LNE	2.46	2.15				
Whifflet	SCO	2.23	1.72				
Whimble	SEA	2.58	2.32				
Whinhill	SCO	2.08	1.80				
Whitby	LNE	2.71	2.50				
Whitchurch (Hants.)	SEA	2.7	2.28				
White Notley	SEA	2.77	2.41				
Whitley Bridge	LNE	2.12	1.63				

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 one, 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 one being 'as installed' and five 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	Average 2001/09
Cambridge (CAM)	Anglia			2.37	2.37	2.37	2.37	2.37	2.77
Clacton (CLA)	Anglia						3.83	3.83	3.83
Colchester (COL)	Anglia			2.82	2.82	2.82	2.82	2.82	2.97
London Chingford (CHI)	Anglia					2.79	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	2.72
London Ilford (ILF)	Anglia	3.54	3.54	3.54	3.54	3.54	3.54	3.54	2.46
Norwich Crown Point (NCP)	Anglia	3.10	3.10	3.10	3.10	3.10	3.10	2.43	2.43
Shoeburyness (SHO)	Anglia					2.74	2.74	2.74	2.74
Southend (SOU)	Anglia						2.72	2.72	2.72
Ashford (ASH)	Kent						0.00	0.00	—*
Gillingham (GIL)	Kent						2.69	2.69	2.69
London Grove Park (GRP)	Kent					2.21	2.21	2.21	2.21
London Orpington (ORP)	Kent						2.14	2.14	2.14
London Slade Green (SLG)	Kent					2.13	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	2.64
Hull Botanic Gardens (HBG)	London North East			2.44	2.44	2.44	2.44	2.44	2.83
Leeds Neville Hill - MML (LNM)	London North East	3.28	3.28	3.28	3.28	3.28	3.28	3.28	2.59
Leeds Neville Hill - RNE (LNR)	London North East	3.33	3.33	3.33	3.33	3.33	3.33	3.33	2.43
Letchworth (LET)	London North East					1.7	2.52	2.52	2.52
London Bounds Green (BOG)	London North East						1.87	1.87	1.87
London Ferme Park (FEP)	London North East						2.83	2.83	2.83
London Hornsey (HOR)	London North East	2.70	2.70	2.70	2.70	2.70	2.70	3.02	3.02
Newcastle-upon-Tyne Heaton (NEH)	London North East						2.31	2.31	2.31
Nottingham, Eastcroft (NOE)	London North East	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.08
Sheffield (SHE)	London North East						2.94	2.94	2.94
Skipton (SKI)	London North East			1.35	1.35	1.35	1.35	1.35	2.49
Welwyn Garden City (WGC)	London North East						2.80	2.80	2.80
Bedford Midland (BEM)	Midland & Continental	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08
Derby Etche's Park (DEP)	Midland & Continental	3.10	3.10	3.10	3.10	3.10	3.10	2.45	2.45
Aylesbury (AYL)	London North West			1.49	1.49	1.49	1.49	2.02	2.02
Barrow-in-Furness (BIF)	London North West	3.70	3.70	3.70	3.70	3.70	3.70	3.70	2.41
Birkenhead North (BKN)	London North West	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.84
Birmingham Soho (BIS)	London North West			1.94	1.94	1.94	1.94	1.94	2.21
Birmingham Tyseley (BIT)	London North West	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.58
Blackpool North (BLN)	London North West			2.20	2.20	2.20	2.20	2.20	2.37
Bletchley (BLE)	London North West					£2.43	2.43	2.43	2.43
Holyhead (HOL)	London North West			2.65	2.65	2.65	2.65	2.65	2.68
Liverpool Edge Hill (LEH)	London North West						2.60	2.60	—*
Liverpool Kirkdale (LKD)	London North West						1.71	1.71	1.71
London Camden Primrose Hill (CAP)	London North West						2.52	2.52	2.52
London Wembley Central (WEC)	London North West			2.20	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	3.04
Watford Junction (WAJ)	London North West						3.00	3.00	3.00
Wolverhampton Oxley (WOO)	London North West						2.08	2.08	2.08
Aberdeen Clayhills (ABC)	Scotland			2.50	2.50	2.50	2.50	2.50	2.23
Ayr- Townhead (AYR)	Scotland						2.30	2.30	2.30

Table A2.1 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	Average 2001/09
Edinburgh Craighentiny/Portobello (EDC)	Scotland	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.63
Edinburgh Haymarket (EDH)	Scotland	2.40	2.40	2.40	2.40	2.40	2.40	2.73	2.73
Glasgow Cokerhill (GLC)	Scotland						2.56	2.56	2.56
Glasgow Shields (GLS)	Scotland	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.81
Glasgow Yoker (GLY)	Scotland			1.98	1.98	1.98	1.98	1.98	2.36
Inverness (INV)	Scotland	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.23
Perth (PER)	Scotland						3.19	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	2.31
Barton Mills	Wessex							2.03	2.03
Bournemouth West (BOW)	Wessex					2.46	2.46	2.46	2.46
Farnham	Wessex							1.94	1.94
Fratton (FRA)	Wessex						2.57	2.57	2.57
London Clapham Junction (CLJ)	Wessex						2.53	2.53	2.53
London Stewart's Lane (STL)	Wessex					2.44	2.44	2.44	2.44
London Strawberry Hill (STH)	Wessex						2.83	2.83	2.83
London Wimbledon (WIM)	Wessex					2.32	2.32	2.32	2.32
Ryde	Wessex					2.69	2.69	2.69	2.69
Salisbury (SAL)	Wessex			2.02	2.02	2.02	2.02	2.02	1.95
Bristol St. Phillips Marsh (BSP)	Western					2.15	2.15	2.15	2.15
Cardiff Canton (CAC)	Western			2.34	2.34	2.34	2.34	2.34	2.94
Exeter St. David's (ESD)	Western			2.01	2.01	2.01	2.01	2.01	2.54
London Kensal Green (KEG)	Western					3.11	3.11	3.11	3.11
London Old Oak Common (OOC)	Western					1.88	1.88	1.88	1.88
Machynlleth (MAC)	Western							1.98	1.98
Penzance Long Rock (PEN)	Western					2.41	2.41	2.41	2.41
Plymouth Laira (PLY)	Western			2.37	2.37	2.37	2.37	2.37	2.85
Reading (REA)	Western					2.30	2.30	2.30	2.30
Shrewsbury Abbey Foregate (SAF)	Western						3.22	3.22	3.22
Swansea High Street (SWH)	Western					2.36	2.36	2.36	2.36
Swansea Landore (SWL)	Western					2.97	2.97	2.97	2.97
Worcester Shrub Hill (WSH)	Western			2.05	2.05	2.05	2.05	2.05	1.93

* These depots are leased to the Depot Facility Owner on a 'Full Repairing' basis and Network Rail has no responsibility for the maintenance and repair of the elements within them; they have therefore been omitted from this year's return.

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Network Rail
Kings Place
90 York Way
London N1 9AG

Tel: 020 3356 9595

www.networkrail.co.uk

CDS014/July 2009