

Network Rail, Office of  
Rail Regulation

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**Independent Reporter  
(Part A)**

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Q4 Data Assurance  
Report

FINAL

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Rail Regulation

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**Independent Reporter  
(Part A)**

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Q4 Data Assurance  
Report

Customer Satisfaction,  
Asset Management, and  
Environmental Initiatives

July 2010

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## Executive Summary

On completion of the 2009/10 Quarter 4 Data Assurance activities, and having examined the data and procedures employed in the production of the KPIs for Customer Satisfaction (TOC and FOC), Asset Management (Station Stewardship and Light Maintenance Depot Condition), and Environmental Initiatives, the Independent Reporter team's conclusions are that the processes used to generate the Customer Satisfaction and Network Capability KPIs are generally highly reliable and accurate, and the Environmental Initiatives KPI is reliable, but less accurate, but the Stations Stewardship and Light Maintenance Depot Condition KPIs are less robust, although this partly reflects the nature of the measures.

The findings for the individual KPIs are summarised in the following paragraphs (note: coverage of the quality of the processes used for the compilation of the Network Rail Annual Return, and of the reliability and accuracy of the data therein, is excluded from this report, and contained in a separate document).

### Customer Satisfaction (TOC)

- Confidence Rating = B2

This reflects the robustness and accuracy of the process (noting that this is designed to capture subjective opinions), but also the absence of formal internal documentation; the accuracy of the data in fact merits a score of 1, but 'B1' is not an 'allowed score', and the B2 rating is therefore applied.

### Customer Satisfaction (FOC)

- Confidence Rating = B2

Again, this reflects the robustness and accuracy of the process, the absence of formal internal documentation, and the fact that a rating of B1 cannot be applied.

### Asset Management (Station Stewardship Measure and Light Maintenance Depot Condition)

- Stations Stewardship (M17) – Confidence Rating = C4
- Depot Condition (M19) – Confidence Rating = C5

These scores reflect variations and inconsistencies in survey detail and reporting, and comparisons between the survey results and our independent findings.

### Network Capability

- Linespeed (C1) – Confidence Rating = B2
- Gauge (C2) – Confidence Rating = B2
- Route Availability (C3) – Reliability Confidence Rating = B2
- Electrified Track Capability (C4) – Confidence Rating = B2
- Ongoing Short-Term Network Change Proposals and Discrepancies between Actual and Published Capability Arising from the Infrastructure Capability Programme – Confidence Rating = BX
- Passenger and Freight Train Mileage, Gross Freight Tonne Mileage – Confidence Rating = B2
- Track Mileage and Layout – Confidence Rating = B2

These scores generally reflect the need for improvements to the process documentation for the measures.

### **Environmental Initiatives**

- Overall Confidence Rating = B3

This score reflects those for the underlying Performance Indicators that contribute to this KPI, and their widespread reliance on third-party data and the use of manual data transfer and calculation processes.

# 1 Introduction

## 1.1 Background

Arup was appointed by ORR and Network Rail (NR) to provide assurance as to the quality, accuracy and reliability of the NR data that are used to report performance to ORR, the Department for Transport (DfT) and the wider railway industry.

In order to hold NR effectively to account, it is essential for ORR to have confidence in these data, including any related systems, processes, methodologies and procedures. The Reporter is therefore required to undertake analysis of Network Rail's data reliability, quality, consistency, completeness and accuracy.

Whereas the focus of the Reporter's scrutiny in Control Period 3 (CP3) was on the data included in NR's Annual Return, ORR now requires assurance of the data received in support of a range of Key Performance Indicators (KPIs) at a more regular frequency. The Reporter is therefore required to prepare four quarterly data assurance reports per annum, in accordance with an agreed rolling audit programme. Due to an overlap with the outgoing reporter's final report, there was no Q1 report this year (2009/10) and all of the KPIs are therefore being covered in the reports for Quarters 2, 3 and 4 (coverage of the quality of the processes used for the compilation of the Annual Return itself, and of the reliability and accuracy of the data therein, is covered in a separate, standalone report).

## 1.2 Q4 Report

This report details the Reporter's data assurance activity in Quarter 4 of 2009/10, covers a range of KPIs, and is produced in accordance with Mandate AO/003: Data Assurance for Output Monitoring. The KPIs covered in this quarterly report are as follows:

- 2(a) and (b): Customer Satisfaction (TOC and FOC);
- 6(c): Asset Management (Station Stewardship Measure and Light Maintenance Depot Condition);
- 6(d): Asset Management (Network Capability); and
- 9: Environmental Initiatives.

(Note: under the original rolling programme of work, coverage of KPIs 2(a) and (b): Customer Satisfaction (TOC and FOC); 6(c) Asset Management (Station Stewardship Measure and Light Maintenance Depot Condition); and 6(d): Asset Management (Network Capability) was scheduled for Q3. However, because the results of the TOC and FOC Customer Satisfaction surveys did not become available until mid-January (i.e. after the end of Q3), and the Asset Management (Network Capability) results are covered in Network Rail's end-of-year Annual Return, it was agreed with Network Rail and ORR that these KPIs should be covered in our Q4 report, instead, although some preliminary work was conducted in the course of Q3. In the case of Asset Management (Station Stewardship Measure and Light Maintenance Depot Condition), the planned schedule of site visits was delayed by the poor weather conditions experienced in January.)

Following this introduction, each of the KPIs listed above is covered in turn as follows: the methodology employed, findings obtained, general observations made, and conclusions drawn. The findings are then brought together in a combined presentation of the confidence ratings obtained, and the recommendations made.

## 2 Handover from the CP3 Reporter

As previously described in our Q2 report, a handover meeting was held on 8<sup>th</sup> September 2009 between the incoming, newly-appointed Part A Reporter, and the outgoing CP3 Reporter team, to ensure a smooth and seamless handover. In the course of the handover, the outgoing Reporter team provided a number of documents and reports including:

- the Final Report on the audit of the Network Rail 2008/09 Annual Return
- an explanation and discussion of matters outstanding from this audit
- a schedule of recommendations from the audits conducted during CP3, including the status of the recommendations (the schedule has since been updated and consolidated by ORR, in consultation with NR)

This report includes a detailed annual review of progress with respect to the recommendations relating to the KPIs being covered in the corresponding Quarter, and, for the first time, a less detailed, quarterly review of the other recommendations. The recommendations covered include both those in ORR's updated and consolidated list, and new ones emerging from the ongoing Data Assurance activities.

### 2.1 Outstanding Recommendations from 2009 Final Report

The list of recommendations included in the outgoing Reporter's Final Report was reviewed and consolidated by ORR in consultation with Network Rail, and the outstanding consolidated recommendations for each KPI under detailed consideration in this report are summarised below.

#### 2.1.1 KPIs 2(a) and (b): Customer Satisfaction – TOC and Customer Satisfaction - FOC

There are no outstanding recommendations for the Customer Satisfaction KPIs

#### 2.1.2 KPI 6(c): Asset Management (Station Stewardship Measure and Light Maintenance Depot Condition)

##### 2.1.2.1 M17 [Station Stewardship Measure] Recommendation 1 (ORR Ref. Code 31)

*The process and definition for M17 have been updated. It is recommended that the new procedure is sufficiently clear and that guidance is provided to explain in detail how the SSM score is calculated.*

A draft version of the revised documentation has been provided to the Reporter team. This does provide improved guidance; however, only a 'high level' description is provided of the calculations undertaken, and it would be useful if the details of the calculation process were described in sufficient detail to enable the independent replication of the SSM scores.

##### 2.1.2.2 M19 [Light Maintenance Depot Condition] Recommendation 1 (ORR Ref. Code 33)

*It is recommended that Network Rail HQ carry out checks on the data that is provided by AMEY in CP4 for the LMDs on both an individual sheet basis and a summary levels basis, as the data that is currently being presented is not accurate.*

This recommendation is now superseded, on the grounds that Network Rail now has a new verification process in place, including selective audits of survey results and validation of survey data in the course of the data entry process.

#### 2.1.3 KPI 6(d): Asset Management (Network Capability)

There are no outstanding recommendations for Asset management (Network Capability).



## **2.1.4 KPI 9: Environmental Initiatives**

### **2.1.4.1 Environment Recommendation 1 (ORR Ref. Code 45)**

*It would be beneficial to carry out a briefing of the Level 2 Standard and KPIs to the responsible parties at all levels within Network Rail and the wider industry, and in the latter case most especially with the contractors and other stakeholders with a direct interest in the measures. This will help ensure understanding of the company's measured environmental deliverables.*

We understand from Network Rail that this recommendation has been implemented, in the form of internal and industry-wide briefings. We also understand that the development of a new Level 2 Standard is underway, with anticipated completion by the end of 2010, and that another briefing process will follow its implementation.

## 3 KPIs 2(a) and (b): Customer Satisfaction – TOC and Customer Satisfaction - FOC

### 3.1 KPI Definitions and Descriptions

Network Rail carries out an annual customer satisfaction survey, which is described in more detail below. One of the outputs from this is a measure of overall customer satisfaction, which is also disaggregated between TOCs and FOCs. This measure is calculated as a weighted average score across all respondents, who rate their satisfaction on a scale of 1 [very dissatisfied] to 5 [very satisfied].

This measure is not a regulated output: however, Network Rail's remuneration committee [RemCo] take into account the satisfaction of passenger and freight train operators in deciding whether to use its discretion to adjust bonuses under the Management Incentive Plan.

Note (i) that the methodology used for TOC and FOC scores is identical, and therefore they have been covered together in the write-up below, with any significant differences highlighted, and (ii) that a detailed review of the methodology employed by Ipsos MORI, Network Rail's market researchers for the KPI, is beyond the scope of this review.

### 3.2 Audit Methodology

An initial meeting was held with the (then) NR Data Champion and her colleagues on 5<sup>th</sup> November 2009, to discuss and agree the audit process. A detailed discussion was then held with Ipsos MORI on 18<sup>th</sup> March 2010 to review the methodology, following which a number of items were clarified through an exchange of emails. Ipsos MORI also provided more detailed data on individual responses which were analysed. Finally, a further meeting was held with Network Rail to clarify a small number of further issues.

### 3.3 Audit Findings

#### 3.3.1 Methodology Overview

The KPIs are produced as part of a much wider customer satisfaction survey carried out on an annual basis by Network Rail. For the past few years, the survey has been carried out by Ipsos MORI, who are specialists in this field. The survey is carried out by means of telephone interviews with TOC and FOC managers: the survey contains around 40 questions designed to elicit views on aspects of Network Rail's performance.

The target respondents are nominated by Network Rail, and generally comprise the Managing Director and senior management team of each operating company; Network Rail provided the Reporter team with the list of target respondents for the 2009/10 survey. Respondents are contacted by letter prior to the survey taking place. MORI aim to exhaust the sample: where they are unable to survey a respondent the reason for non-response is recorded and reported back to Network Rail.

The calculation of the KPIs is a two stage process. Firstly an average satisfaction score is calculated for each TOC (this is the unweighted average of scores for all respondents). Secondly, an average total score weighted by train miles for each TOC/FOC is calculated (this is produced for TOCs and FOCs separately, as well as total scores).

#### 3.3.2 Survey Specification

We noted that the specification of the survey has evolved incrementally over several years. Ipsos MORI provide Network Rail with a specification and proposal each year, which is reviewed and agreed by Network Rail before the survey takes place. We have seen the agreed specification for the 2009/10 survey, but we note that there is no formal Network Rail specification of the survey or the processes.

Whilst this is not a major defect in that the current process appears to work well, we would recommend that a formal specification is produced: this will be particularly important if and when the survey is re-tendered. However, this document will need to be at an appropriate level of detail so as not to unduly fetter the survey company.

### **3.3.3 Survey Sample and Response Rates**

The list of target respondents is produced by Network Rail, and consists essentially of the TOC/FOC's senior management team (i.e. MD and Executive team). This is designed to reflect those people with whom Network Rail's Customer Relationship Executives [CREs] have regular contact. Inevitably this means that the number of respondents varies by company, but this will be inevitable given that different companies have different organisational structures. However, we would recommend that a regular check is made with each company to ensure that no appropriate people are being missed: this check should be included in the process specification.

There has been no problem with response rates historically: in 2009 the response rate remained at 83% (256 out of 310), which is high for this type of survey. Reasons for non-response are monitored and reported by Ipsos MORI, and are generally down to availability issues rather than unwillingness to respond.

### **3.3.4 Survey Execution**

Ipsos MORI have particular expertise in this type of survey, and we did not audit their procedures in detail: from our discussions we are satisfied that the surveys are being carried out to an appropriate standard.

### **3.3.5 Calculation of KPIs**

Ipsos MORI provided us with individual responses (anonymised), average scores by TOC and the weightings used. We verified the calculation of the overall TOC and FOC averages and can confirm that these are correct.

The variation in sample size and weight between TOC/FOC means that individual responses will have different weightings within the overall final score. To evaluate the implication of this, we also calculated the unweighted average of all individual responses: this is very slightly higher than the weighted score, but the difference is only in the second decimal place. We are therefore satisfied that the weighting methodology is appropriate.

### **3.3.6 Effect of Performance**

Any survey of this type is open to potential sources of bias: one that has been particularly identified in this case is the possibility that individual respondents will be unduly affected by very recent events or incidents. We understand that it is made clear in the letter of invitation and by the interviewer that the survey should cover the whole of the previous year, which should mitigate any effect of this nature.

We also understand that Network Rail have examined whether there is any correlation at TOC/FOC level between satisfaction score and performance, and that no significant correlation has been found. This suggests that respondents are not being unduly influenced by short-term performance issues and that the survey is genuinely measuring a more broad-based customer satisfaction score.

## **3.4 General Observations**

The results are based on relatively small set of responses, particularly in the case of the FOCs. However, given that the objective of the survey is to contact all members of senior Operator management with relevant links to Network Rail, it is unlikely that the sample size could be meaningfully expanded, and we are satisfied that the results are sufficiently robust.

Whilst the two formally monitored KPIs are the subject of this audit, the survey produces a very wide range of measures disaggregated at a number of different levels. The real value

of this survey lies in the way in which these disaggregated measures are disseminated and acted on through the organisation.

We note that a recommendation was made by Halcrow, the previous Part A Independent Reporter, to develop a new score which is a composite of a number of different measures in the survey, although this recommendation was not carried forward to CP4, and is therefore not included in Section 2.1 above. In discussion Network Rail agreed that this was still an aspiration but there was an acknowledgement that, given the relatively small sample, particular care was needed in developing an appropriate calculation and weighting methodology. In the course of subsequent discussions between ORR, Network Rail and the Independent Reporter, it was agreed not to reinstate the recommendation.

### 3.5 Conclusions Drawn

The process for the production of the customer satisfaction scores is well-established, and appears to be well-managed both by Network Rail and by their chosen contractor, and we have only minor recommendations for the improvement of the process.

### 3.6 Assessment of Confidence Ratings

The ratings determined for the Customer Satisfaction KPIs are set out below. They are additionally summarised in Section 7, together with the ratings for the other KPIs covered in this report.

Network Rail has demonstrated a satisfactory process for calculating these KPIs; however there is no formal procedure in place for this KPI. Their reliability rating is therefore assessed as B.

As this measure is essentially qualitative, our accuracy rating can only relate to the processes used, and on this basis we believe that an accuracy rating of 1 is appropriate for both KPIs; however, B1 is an incompatible reliability/accuracy rating combination, as indicated in Section 7, and so the accuracy level is instead rated at 2.

Based on the foregoing, the maximum achievable score for both KPIs is A1, and should be achieved once the KPI calculation procedures are fully specified and documented; assuming the quality of the KPI calculation processes otherwise remains constant or improves further.

### 3.7 Recommendations

Table 3.1 contains our recommendation for the Customer Satisfaction KPIs. The recommendation is numbered 2010.2.1, to reflect the (end of the) current year and the Customer Satisfaction KPI number. The recommendation for these KPIs is combined, in Section 8, with those for the other KPIs under consideration in this report, in order to provide an overview of the recommendations made in the current Quarter.

**Table 3.1: Recommendations**

No.	Recommendation to NR	Location in Text	NR Data Champions	Due Date
2010.2.1	Create a documented procedure for the production of the KPI (including the provision of a survey specification, and the stipulation of a regular check within each Train and Freight Operating Company that no staff are being overlooked in the course of the survey process).	3.3.2, 3.6	Fiona Dolman	September 2010

## 4 KPI 6(c): Asset Management (Station Stewardship Measure and Light Maintenance Depot Condition)

### 4.1 KPI Definition and Description

#### 4.1.1 Introduction

The purpose of the Station (M17) and Depot (M19) Stewardship measures is to monitor the condition of these assets. The scoring is based on a survey of remaining asset life, described further below. The individual station and depot scores are published in Network Rail's Annual Return.

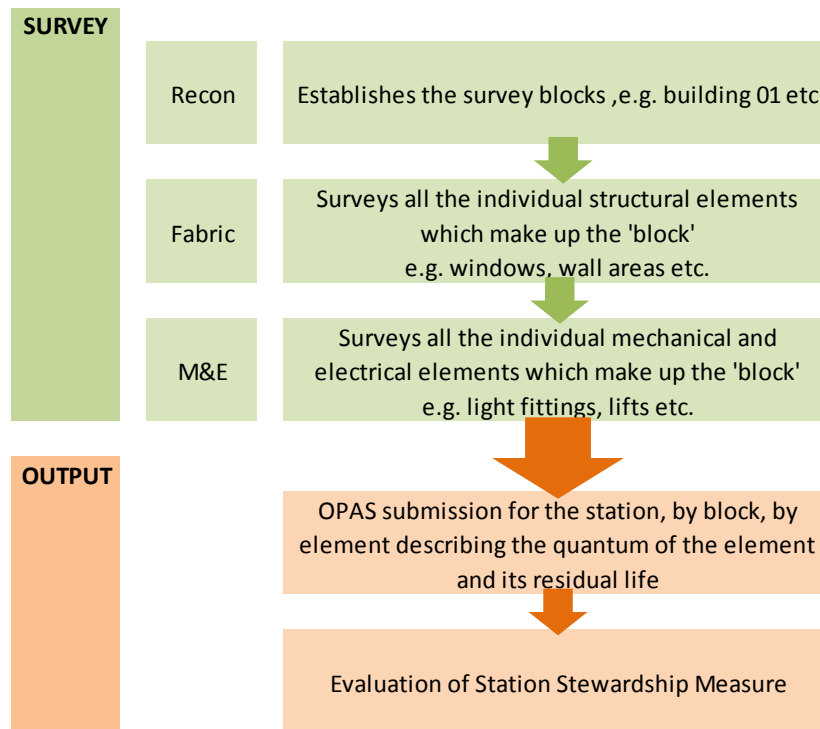
#### 4.1.2 Station Stewardship Measure (SSM)

All Network Rail stations are subject to five-yearly detailed inspections by their appointed contractor (currently Amey) to determine the condition of the asset. Amey took over the contract for this work in early 2009.

These surveys break the station down into a number of individual 'blocks' which are then further subdivided into elements covering the totality of the asset. A 'block' may be, for example, an individual building, and, within that, an 'element' would cover, for example, the windows, doors, flooring or light fittings.

The surveys undertaken cover both the fabric of the station and the mechanical and electrical equipment on site.

Figure 4.1: SSM Process



The surveys record the quantum of the assets present and include an assessment of the remaining asset life for each element. These individual records are then input to the Network Rail Operational Property Asset System (OPAS) where they are collated, weighted and, through the use of a bespoke algorithm, assimilated into an overall score for a station. This measure is based on the remaining life as a percentage of expected life and a weighting applied to more significant elements. The output of this is the Station

Stewardship Measure (SSM) for the station, based on a scale of 1 to 5, where 1 represents the best score, as shown in Table 4.1.

**Table 4.1: Residual Life Scores**

Remaining Life as a Percentage of Expected Full Life	Condition Rating
76% - 100%	1
46% - 75%	2
16% - 45%	3
1% - 15%	4
0%	5

Network Rail document NR/ARM/M17DF (Issue 4) provides a definition for the reporting of SSM, and document NR/ARM/M17PR (Issue 5 – we also received a draft version of Issue 6, but for our comment only) outlines the procedures for the reporting of this measure.

#### **4.1.3 Light Maintenance Depot - Condition**

The approach to determine the condition of depot assets is largely the same as for stations, but with a greater emphasis on the plant elements (e.g. wheel lathes, overhead cranes) on the site, and without the application of weightings. The output from the surveys is an overall measure of the depot asset condition, evaluated in a similar way to SSM for stations. The supporting documentation produced by Network Rail (NR/ARM/M19DF (Issue 3), NR/ARM/M19MN (Issue 2), NR/ARM/M19PR (Issue 5) is more detailed than that applicable for stations, including as it does a more detailed description of what constitutes a given score level.

## **4.2 Audit Methodology**

In previous years, Network Rail has appointed its own auditor (most recently WSP) to verify the results of the condition surveys, and their report was an important input to the previous Reporter's analysis: in particular the previous Reporter did not need to carry out any on-site verification. This independent verification has now been discontinued, but Network Rail is undertaking direct audits of the Amey results. This is due to the fact that Amey is relatively new to the process but also due to the significant levels of errors which have emerged in early checking of the Amey results. In Scotland nearly 20% of the Amey surveys have been reviewed, of which half have failed the Network Rail audit process. Network Rail should therefore maintain a high level of audit activity until the Amey survey outputs have stabilised at a consistently satisfactory level.

The absence of the WSP role has resulted in the need for a significant change in the Reporting methodology: in particular, on-site verification of survey results has been required. Inevitably, given the timescales, the scope of our survey work has been less than that covered by WSP.

An initial meeting was held on 2<sup>nd</sup> December 2009 with the ORR Data Champions for the KPI, to agree the scope of the KPI review. It was agreed that the review should cover both measures M17 (Station Stewardship Measure) and M19 (Light Maintenance Depot Condition).

A subsequent meeting was held with the then acting Network Rail Data Champion and his colleagues, on 15<sup>th</sup> December 2009.

In order to undertake a meaningful evaluation of the process it was necessary to undertake the audit in four stages:

- Review of OPAS - including system training;
- Review the approach of the Network Rail contractors during the site surveys;
- Undertake independent check on the quality of the survey outputs; and
- Review how the survey outputs are processed and subsequently used.

### 4.3 Audit Findings

#### 4.3.1 Station Stewardship Measure

##### OPAS

In order to improve our understanding of Network Rail’s asset management system, and to provide independent access to station and depot survey reports, a member of the Independent Reporter team attended two training sessions on the use of OPAS, at the Portishead office of Atrium (Network Rail’s software supplier) on 21<sup>st</sup> and 26<sup>th</sup> January 2010. The system was then used to obtain the survey outputs for the stations and depots visited in the course of the Independent Reporter activities.

##### Network Rail Contractors

In order to understand the process by which the survey results are gathered the Reporters accompanied the Amey surveyor during an inspection of the station at Prestwick Town.

The key points that were noted during the visit were:

- In order to survey some measures there may be a requirement to take a possession and/or isolation - this can impact on the programming of the work if possessions are particularly difficult to secure;
- Arrangements for access to the stations are made directly between Amey and the TOCs – there is generally a good level of co-operation; and
- Site survey data are recorded on hand-held units and are then passed back to the regional Amey office for a high level completeness check before being uploaded directly to the Network Rail database.

##### Independent Check on Results

Having established the overall approach taken by the Network Rail contractor a series of independent inspections were planned which aimed to audit the results obtained by the contractors. In order to ensure the widest possible coverage during the time committed, a carefully selected set of fifteen stations were chosen to be reviewed. These stations covered the full range of Station Categories, Network Rail Routes and aimed at including good, medium and bad scoring stations on each Route. The matrix of stations is shown in Figure 4.2. It should be noted that the choice of sites was not driven by which stations the current contractor had surveyed and so would inevitably include some dated survey reports. This was considered to be valid since all were part of the Network Rail submission to the ORR for 2009.

Figure 4.2: Independent Station Survey Audits

		Station Category						Total
		A	B	C	D	E	F	
Network Rail Routes	Scotland		Haymarket		Kilmarnock	Newton		3
	London North East	York			Leagrave	Redcar Central		3
	London North West			Kidderminster		Rock Ferry	Garsdale	3
	Southern & East Anglia			Stowmarket	Horsley		Ore	3
	Western		Newport	Warminster			Worle	3
Total		1	2	3	3	3	3	

At each site the team used the latest Network Rail survey results obtained from OPAS and sought to validate as many measures as was practical during the time allocated, and taking account that the team were not working under possession arrangements. In each case we sought to validate the quantum of the block elements and then assess their remaining life. To ensure consistency of approach a guidance note was prepared describing how the surveys were to be undertaken – a copy of this note is attached at Appendix A. In addition, a small, consistent team of reviewers was used throughout the audit.

The results obtained are shown in Table 4.2. This lists the number of measures in the original Network Rail survey, the number checked during the audit, those that were accepted and those where we reached a different conclusion to the original survey results. Where a discrepancy was found we allocated the deviation to one of five broad reason categories.



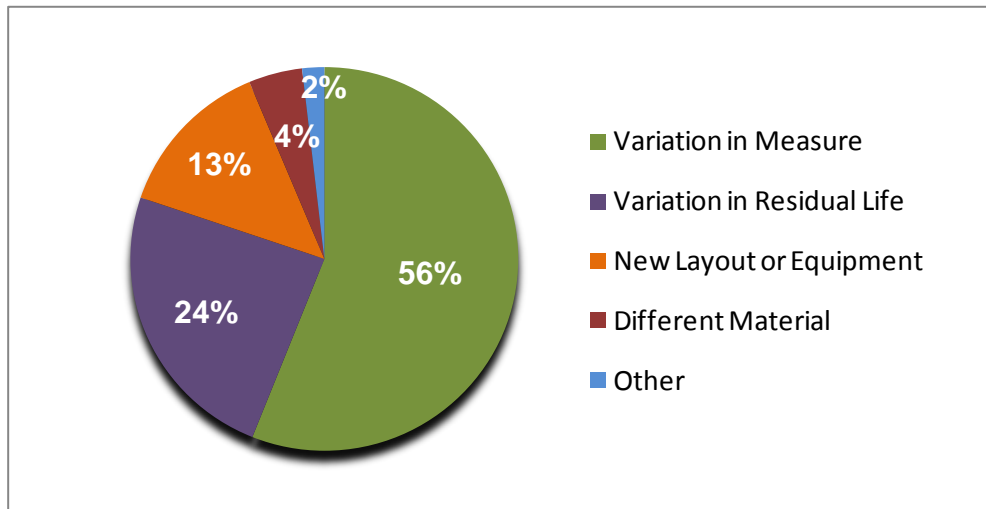
Table 4.2: Summary of Station Audit Results

Route	Station	Original Survey Measures	Audit Sample	Audit Sample %	Sample Found Compliant	Compliant %	Non-Compliant	Reasons for Non-Compliance				
								Variation in Measure	Variation in Residual Life	New Layout or Equipment	Different Material	Other
SCO	Kilmarnock	492	129	26%	112	87%	17	11	2	1	3	
	Newton	332	108	33%	92	85%	16	10	6			
	Haymarket	1062	276	26%	233	84%	43	14	16	12		1
LNE	Redcar	93	51	55%	42	82%	9	6	2		1	
	York	598	211	35%	139	66%	72	56	7	7	1	1
	Leagrave	103	70	68%	50	71%	20	4	7	5	3	1
LNW	Garsdale	187	83	44%	67	81%	16	9		3	4	
	Rock Ferry	150	92	61%	83	90%	9	5	4			
	Kidderminster	105	39	37%	29	74%	10	1	4	5		
WES	Warminster	210	88	42%	77	88%	11	5	3	2	1	
	Worle	71	63	89%	49	78%	14	3	10			1
	Newport	2848	637	22%	586	92%	51	23	15	13		
SEA	Horsley	134	83	62%	56	67%	27	21	6			
	Ore	73	58	79%	42	72%	16	8	4		2	2
	Stowmarket	972	221	23%	174	79%	47	36	5	3	2	1
<b>Overall</b>		<b>7430</b>	<b>2209</b>	<b>30%</b>	<b>1831</b>	<b>83%</b>	<b>378</b>	<b>212</b>	<b>91</b>	<b>51</b>	<b>17</b>	<b>7</b>
								<b>56%</b>	<b>24%</b>	<b>13%</b>	<b>4%</b>	<b>2%</b>

The audit highlighted a significant variation in the level of detail of the Network Rail surveys at the stations. In some cases the detail associated with building interiors was missing whilst at others all of this information had been comprehensively surveyed. Where there was a lack of detail, the survey reports in some cases had headings, but no detail, for certain measures. An example of this is York, which was the biggest station that was checked, and which had fewer measures than Stowmarket, which is a relatively simple two-platform station. There should be greater consistency across the network. At a meeting following the completion of the audit, Network Rail advised that the variation in the level of detail in the surveys was due to there being a transition between an older specification for the surveys and the current, more detailed surveys being carried out.

The breakdown of non-compliances is illustrated in Figure 4.3.

**Figure 4.3: Breakdown of Survey Non-Compliances**



The definitions of the non-compliances are as shown in Table 4.3.

**Table 4.3: Definition of Survey Non-Conformance Categories**

Non-Compliance	Description
Variation in Measure	The audit identified a discrepancy in the quantum within the individual element compared to the original survey
Variation in Residual Life	Following examination during the audit the assessment of residual life in the original survey was disputed
New Layout or Equipment	There was evidence that the site had been enhanced with new equipment or the layout was different to when the original survey was undertaken.
Different Material	The audit identified a discrepancy in the material in a particular item, e.g. may have quoted cast iron instead of steel
Other	Those discrepancies not covered by the other four categories

Based on the small survey sample, the outcome of the audit demonstrated a greater than 80% confirmation of the original survey results. Where non-conformances did occur, these were largely due to variations to the quantum of elements in the measure. Such variations included inconsistencies over platform areas, etc., where the Network Rail surveys were unclear to which boundaries the measures applied. It was recognised by the survey team

that some of the Network Rail surveys had been undertaken up to three years previously and thus there may have been changes made to the stations in that time which would explain the variations. The approach taken was to seek evidence of investment and where such evidence was found to still record the element as a variation but to then categorise it as being due to investment or renewal.

We found that 24% of the non-compliances were due to a disagreement in the residual life of the element. In undertaking the review the team recognised that the assessment of residual life is a highly subjective measure and as such we were prepared to give a certain degree of latitude in this area. This is reflected in the overall variation (taking account of the full sample) of about 4% (24% of the non-compliant 17%).

The key points to note from this part of the audit are:

- Based on the limited sample of surveys we were able to undertake, there appears to be quite a good correlation between Network Rail survey results and the audit carried out as part of this review;
- The level of detail of the studies varies enormously between sites and between the contractors who previously undertook this work for Network Rail;
- A number of the surveys were three years old and were out of date in some areas where it was clear that enhancement to the facilities had taken place; and
- There were a number of inconsistencies between the approaches to residual life across the country; examples of this were standard items like platform copes and lampposts which seemed to vary significantly for relatively new installations.

#### **Processing the Survey Outputs**

Interviews were conducted with two of the Network Rail Route Building Engineers to establish how the data from the site surveys translated into the outputs received by the ORR as part of the process. The following key points were identified in this review:

- Survey results are fed directly by the contractor into the Network Rail OPAS system. We were advised that under the current contractual arrangements if Network Rail does not respond within 30 days then the survey is deemed to have been accepted by them – this is a potential weakness of the arrangement, which will be reviewed in further detail during the 2010/11 audit round. The review will include coverage of any potential effects of the contractual arrangements on survey data quality;
- Because the contract with Amey is relatively new, Network Rail has undertaken a high level of audits on the quality of the survey data – from our sample, about half of these have indicated faults which have required re-working by Amey. Progress in this area will be reviewed in the course of the 2010/11 audit round, now planned for Quarter 3, and a view will be taken as to the ongoing requirement for detailed audit of survey outputs by Network Rail;
- There is concern that, in the early days at least, Amey were not properly resourced to deliver the programme of surveys – this led to them failing to meet the programmed number of surveys in 2009/10. This situation will also be reviewed during the 2010/11 audit round; and
- The fact that Network Rail purchased an ‘off-the-shelf’ property management package to handle the survey data has led to some frustration over the inflexibility of the software to handle rail-specific issues. However, an active ‘user community’ exists within Network Rail, identifying and discussing OPAS-related issues, which are then fed back to the software supplier for resolution, so no further action in this area is considered to be necessary at this point.

### **4.3.2 Light Maintenance Depot (LMD) Condition**

#### **OPAS**

The training applicable for the SSM is equally applicable for the LMD Condition measures.

#### **Network Rail Contractors**

The team undertook a joint inspection with Amey at Aberdeen Clayhills depot. This allowed us to focus more on the mechanical and electrical elements of the survey. The issues described in Section 4.3.1 apply equally to the depot condition surveys.

#### **Independent Survey Results**

An independent survey was carried out at Manchester Newton Heath depot by our team. Table 4.4 shows the results of the depot condition audit.

**Table 4.4: Summary of Depot Audit Results**

Route	Depot	Original Survey Measures	Audit Sample	Audit Sample %	Sample Found Compliant	Compliant %	Non-Compliant	Reasons for Non-Compliance				
								Variation in Measure	Variation in Residual Life	New Layout or Equipment	Different Material	Other
LNW	Manchester Newton Heath	721	147	20%	99	67%	48	30	5	5	6	2

### Processing the Survey Outputs

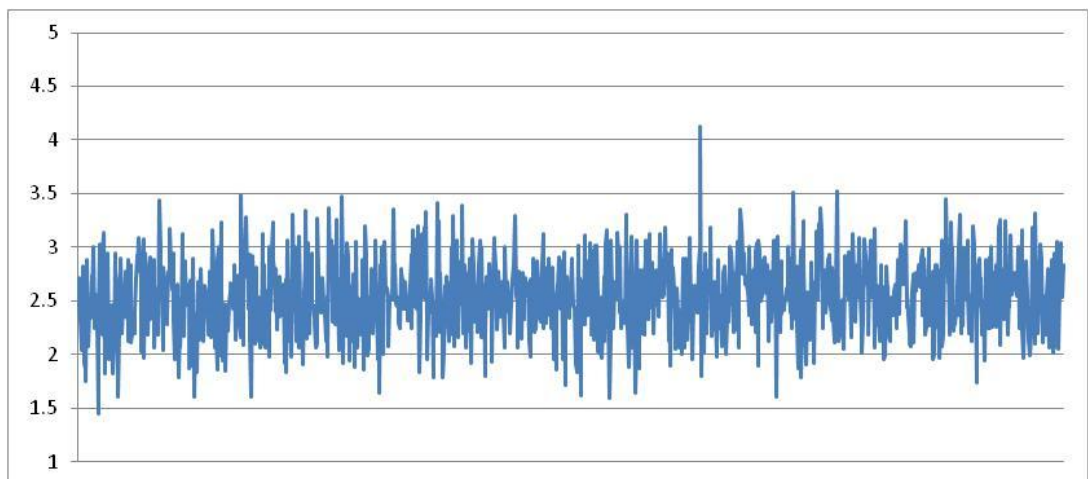
The interviews conducted with two of the Network Rail Route Building Engineers also covered the processing of data from depots – see our comments in Section 4.3.1.

## 4.4 Conclusions Drawn

The conclusions that have been drawn from the exercise are applicable to both the Station Stewardship Measure and the Light Maintenance Depot Condition surveys; these are:

- Allowing for the inevitable degree of subjectivity surrounding the process, the survey results are generally accurate, but there is a need to update the measures when significant investment has taken place at a site;
- The significant variations in the depth of the Network Rail surveys, and the numbers of measures included, means that there is a risk of results being skewed;
- There is a need for greater consistency in the approach to the measures – this is particularly true of the residual lives, which can vary significantly, leading to skewed results;
- The usefulness of the SSM measure in particular is questionable, as it appears to be a relatively insensitive measure of asset condition, due to the nature of its build-up of a large number of measures weighted by level of importance. This is demonstrated by the narrow band of SSM values as shown in Figure 4.4; and
- The ‘black box’ nature of the calculations reduces the understanding of the measures produced. However, this issue can be addressed by means of expanded and improved process documentation, as recommended below (Recommendation No. 2010.6.7) and agreed by Network Rail.

**Figure 4.4: Spread of Station Stewardship Measure Scores**



## 4.5 Assessment of Confidence Ratings

The confidence ratings for KPI 6(c) Asset Management are summarised below for both the SSM and LMD Condition measures. These are combined in Section 7 of this report with those for the other KPIs, where an explanation of the ratings system is also provided.

We note that the ratings for the both measures are considerably lower than assigned by the previous Part A Reporter. We believe this arises from the fact that there have been significant changes in the way in which these measures are measured and audited:

- The contract for inspections has been retendered and all inspections are now carried out by Amey: on the basis of discussions with Network Rail Route Buildings Engineers,

it appears that there have been some initial teething problems associated with the change of contractor, with inaccurate and incomplete survey results having significant short-term implications for the reliability and accuracy of the inspection and reporting processes;

- In previous years, Network Rail has commissioned its own independent audit of the inspections (carried out last year by WSP). Because of this the previous auditors relied upon the results of the NR audit, and did not carry out their own site visits.

#### **4.5.1 Station Stewardship Measure (SSM)**

The rating for the level of confidence for the SSM is based on the key findings in the surveys that were reviewed. This includes the variability in the detail of the surveys, the approach to residual life, and the apparent 'default acceptance' by Network Rail of unchallenged survey submissions from their contractor, if those submissions are not reviewed within 30 days. However, the principal justification for this confidence rating is that the current standard for surveys requires a high level of detail at each location to build up the SSM. Given that this 'full' survey requirement has only relatively recently been applied, and that the majority of the stations which we audited had the lower level of survey, then it was clear that the current SSMs reported for those stations was an extrapolation of the limited data. Beyond our sample, Network Rail accept that the majority (approximately 60%, at the time our review was undertaken) of the current surveys are of the less detailed level; however, this situation will improve over time. Our view is that whilst the extrapolation of the survey results is an issue currently, the confidence level will move to 'B' as the more detailed surveys filter through and reach approximately 75-80% of total coverage. It also reflects (but is not solely based upon) the levels of failure that Network Rail themselves are finding in the recent submissions.

- Reliability: Based on the sample level we have taken at each site (30%) and the findings, this is rated as 'C'
- Accuracy: Given that we have established that 83% of the records have been validated, this puts the accuracy level in band '4'

#### **4.5.2 Light Maintenance Depot - Condition**

- Reliability: Based on the sample level we have taken and the findings, this is rated as 'C'
- Accuracy: Given that we have established that 74% of the records have been validated, this puts the accuracy level in band '5'

#### **4.5.3 Potential Future Performance**

For both the Station Stewardship Measure and the Light Maintenance Depot Condition it is concluded that the accuracy level could be improved to a score of '3' whilst the reliability level, based on the system as described, is unlikely to improve beyond 'B'.

### **4.6 Recommendations**

Table 4.5 contains a set of recommendations. The recommendations are numbered 2010.6.1, 2010.6.2, etc. to reflect the (end of the) current year and the Asset Management KPI number.

Like the Confidence Ratings in the preceding sub-section, the recommendations for these KPIs are combined, in Section 8, with those for the other KPIs under consideration in this report, in order to provide an overview of the recommendations made in the current Quarter.

**Table 4.5: Recommendations**

No.	Recommendation to Network Rail	Locations in Text	NR Data Champions	Due Date
2010.6.1	The construction of the SSM and LMDC measures should be reviewed, with the aim of making them more meaningful and sensitive, such that considerable levels of investment do not produce only very small changes in the scores, and the measures can thus be used as the basis for investment decisions, and can provide useful indicators of changes in condition	4.4	John Chappell	March 2011 for initial proposal
2010.6.2	A greater level of competence and consistency should be ensured throughout the survey teams (by means of common standards of training, etc.) to ensure that the level of detail is consistent nationally	4.3.1, 4.4	John Chappell	March 2011
2010.6.3	A greater level of competence and consistency should be ensured throughout the survey teams (again by means of common standards of training, etc.) to ensure that the approach to residual life is consistent nationally	4.3.1, 4.4	John Chappell	March 2011
2010.6.4	Network Rail's high level of survey audit activities should be continued until Amey's survey outputs stabilise at a consistently satisfactory level	4.3.1	John Chappell	To be continued until consistency is achieved (to be reviewed during 2010/11 audit round)
2010.6.5	The results of any surveys conducted in addition to the regular five-yearly inspection cycle should be excluded from the SSM and LMDC measures (to avoid the introduction of bias to the results). However, consideration should be given as to how such ongoing improvements should best be recorded and reflected.	4.3.1, 4.4	John Chappell	March 2011
2010.6.6	Improved guidance should be provided to those receiving the Amey survey data to ensure a	4.3.1	John Chappell	September 2010



No.	Recommendation to Network Rail	Locations in Text	NR Data Champions	Due Date
	correct understanding of the validation and challenge process			
2010.6.7	The process documentation should be expanded to include details of the calculations used to produce the measures – a separate, specific document should be produced for this purpose, referenced from the higher-level Definition and Procedure documents.	4.4	John Chappell	March 2011

## 5 KPI 6(d): Asset Management (Network Capability)

By agreement with ORR, data assurance work was conducted for nine areas of Network Capability: Linespeed (C1); Gauge (C2); Route Availability (C3); Electrified Track Capability (C4); Ongoing Short-Term Network Change Proposals; Discrepancies between Actual and Published Capability; Passenger and Freight Train Mileage; Gross Freight Tonne Mileage; and Track Mileage and Layout.

An initial meeting was held on 24<sup>th</sup> November 2009 with the ORR Data Champions for the KPI, to agree the scope of the KPI review. It was agreed that the KPIs above should be reviewed (possessions-related KPIs are excluded, since they are now covered by and reviewed under the Network Availability KPI, reviewed in our Q3 Report), and that particular attention should be paid to the issue of discrepancies arising between (i) the differences between the annual values recorded in successive Annual Returns, and (ii) the totals of individual capability changes recorded during the intervening year.

### 5.1 Linespeed (C1)

#### 5.1.1 KPI Definition and Description

This KPI reports the number of kilometres of track nationally within five different speed bands (<35mph; 40-75mph; 80-105mph; 110-125mph; >125mph). The KPI, and the procedure for its production, are formally defined in the documents NR/ARM/C1DF and NR/ARM/C1PR. The process followed for amending linespeed records in Network Rail's GEOGIS infrastructure database is also described in the internal document *Engineering Knowledge Work Process: Amendment of linespeed data in GEOGIS*.

#### 5.1.2 Audit Methodology

A meeting was held in Derby on 14<sup>th</sup> April 2010 with Network Rail's Data Champion and her colleagues (now covering for her while she is on maternity leave), one of whom is normally based at George Stephenson House in York. The data collection and processing methodologies were described and demonstrated, and a subsequent meeting was held at Network Rail's Melton Street office with the member of staff responsible for the compilation of the data contained in the Annual Return.

In order to check the accuracy of the KPI we were provided with the following datasets (which were also used in our checks of KPIs C2, C3 and C4):

- An access database called 'ARUPcapabilities.mdb' containing the following tables:
  - Two tables, one for 2009 and one for 2010 containing data for the above measures mapped by ELR. GEOGIS data can only provide line speed and electrification data hence NR uses a separate database to assign Gauge and Route Availability (RA) information. The tables provided in the 'ARUPcapabilities.mdb' are the final assigned outputs. The results of assigning Gauge and RA to the GEOGIS download is also included in this audit check.
  - An area lookup table – A look-up for zones, IMC areas, NR routes etc.
  - An Availability band look-up table
  - An electrification look-up table
  - A Gauge type look-up table
  - A speed band look-up table
  - A record table showing NR internal audit trail of data checking
- A document 'AR-WI-024D.doc' detailing the extraction and processing of the data for the Capability Measures. The processes described in this document relates to the larger separate database mentioned above which is upstream to the data we have received.
- Spreadsheets containing provisional Annual Return data for Linespeed, Gauge and Electrification.

- GEOGIS data downloaded on April 6th in text format. This data contains line speed and electrification by ELR. It also includes start/finish track mileages and track ID.

Using the lookup tables provided, values from the database were aggregated and compared with the data produced for inclusion in the Annual Return.

### **5.1.3 Audit Findings**

Changes in line speeds are reported (along with many other, similar changes) in the Weekly Operating Notices (WONs). These are searched for linespeed changes, which are interspersed with other notices of change (in contrast to Temporary Speed Restrictions, which are published in a dedicated section of the WON), and are not necessarily reported in a consistent manner, meaning that it is essentially a manual search process, and thus subject to the possibility of human error. The GEOGIS database is then updated to reflect the changes identified. An intermediate report is then produced every month for consistency and quality checks. Data are checked against the Sectional Appendix and any missing linespeed values are identified and rectified accordingly. A spreadsheet is used to record and calculate the year-on-year variations in speeds, and the 2009-10 version has been provided. As well as the issues relating to manual search, the lengths of track affected have to be calculated from specified chainages, another potential source of error.

The procedures followed in the York and Derby offices are well documented and understood. No formal Work Instructions exist for the work conducted at Melton Street, although we understand that helpful prompts are provided in the database interface.

Several people have the skills and training to perform the tasks conducted at York, so there is cover for staff sickness, holidays and turnover. We understand that a similar policy is in place at Melton Street, although there does appear to be significant reliance on the knowledge and experience of one staff member, emphasising the importance of having suitably detailed Work Instructions in place for these tasks.

Our checks on the accuracy of the data showed there to be no errors.

### **5.1.4 General Observations**

The system used appears to rely on a combination of data sources and systems, which are not well linked. Although documentation for the processing of data for KPIs C1-C4 does already exist, an update is required. There are various data fields, which can either belong to new or old processes that have been left in the database over the years. These should be documented to avoid confusion as to which data fields should be used, for the benefit of any new users.

### **5.1.5 Conclusions Drawn**

The processes employed are partially documented and well understood, but there is scope for improvement of the documentation, and, in particular, for simplifying the process for reporting linespeed changes and for automating the process by which they are recorded in Network Rail's data systems. However, the process does appear to deliver accurate results.

### **5.1.6 Assessment of Confidence Ratings**

The confidence rating for the Linespeed (C1) Capability is summarised below. An explanation of the ratings system is provided in Section 7.

The reliability of this measure is assessed as 'B', given its reliance on manual search and data updating processes.

As noted above, our checks found the data to be error-free, thus meriting an accuracy rating of '1'. However, since 'B1' is an incompatible reliability/accuracy rating combination, as indicated in Section 7, the accuracy level is instead rated at '2'.

### 5.1.7 Recommendations

Table 5.1 contains a set of recommendations for the Linespeed Capability. The recommendations are numbered 2010.6.8 and 2010.6.9, to reflect the (end of the) current year and the Asset Management KPI number, and to follow on from the numbers used for KPI 6(c).

The recommendations for these KPIs are combined, in Section 8, with those for the other KPIs under consideration in this report, in order to provide an overview of the recommendations made in the current Quarter.

**Table 5.1: Recommendations**

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
2010.6.8	Develop Work Instruction to cover data processing activities conducted at Melton Street	5.1.3 – 5.1.5	Mary Jordan, Tony Smith	September 2010
2010.6.9	Investigate the feasibility of, and likely timescales for, automating the linespeed updating process as much as possible.	5.1.3, 5.1.6	Janine Beel (and others?)	March 2011

## 5.2 Gauge (C2)

### 5.2.1 KPI Definition and Description

This KPI reports the number of route kilometres nationally by gauge (W6; W7; W8; W9; W10). The KPI, and the procedure for its production, are formally defined in the documents NR/ARM/C2DF and NR/ARM/C2PR. Additional, internal documentation is available, incorporated in a wider Working Instruction, for some of the central processes conducted at Melton Street (see below), but this is not comprehensive.

### 5.2.2 Audit Methodology

A meeting was held at George Stephenson House in York on 16<sup>th</sup> April 2010 with Network Rail's Senior Gauging Engineer and Data Champion. The data collection and processing methodologies were described and demonstrated, and a subsequent meeting was held at Network Rail's Melton Street office with the staff member responsible for the compilation of the data contained in the Annual Return.

The processes were reviewed, and our initial findings are described below. We reviewed the data for accuracy based on the same datasets as were used for KPI C1. There is an additional step involved in the calculation of this KPI: ELRs have been split into legs, corresponding to changes in gauge, by NR to assist in the calculation of route km (as opposed to track km).

The Gauge capability in route km was aggregated by using these legs and the results of the checks compared to the Annual Return values.

The method by which ELRs were split into legs was checked by using the raw data from the GEOGIS download. The text file was imported into Excel and the yardage of the ELRs, (start and finish) was compared with the data provided in the database 'ARUPcapabilities.mdb'.

We received a sample of Certificates of Gauging Authority issued in the period 2009/10, together with a file containing data extracted from the Gauge Capability Database, maintained by NR Gauging Engineering Team in York.

We undertook two different checks to verify the accuracy of data recorded in the Gauge Capability Database, as follows:

- We checked that all information contained in the sample Gauging Certificates received were correctly recorded in the Gauge Capability Database and in the dataset extracted from the latter to inform the compilation of the Annual Return.
- After choosing a sample set of Engineer's Line References, we checked that the loading gauge band published in the relevant Sectional Appendix matched with the information recorded in the Gauge Capability Database and in the dataset extracted from the latter to inform the compilation of the Annual Return.

### 5.2.3 Audit Findings

The Senior Gauging Engineer and his team are responsible for maintaining and updating the information and records describing gauge across the national railway network, i.e. its ability to accommodate locomotives, passenger and, particularly, freight vehicles of various dimensions. This work includes the review and approval (where appropriate) of scheme designs to ensure no reduction in gauging capability, and the signing off of Gauging Certificates for completed schemes. These gauge records are held in the Gauge Capability Database, which also holds scanned copies of the corresponding Gauging Certificates, and is used to provide the gauge information contained in the Sectional Appendices.

The Gauge Capability Database provides the information contained in the Annual Return, which is extracted at the Melton Street office using a standard, pre-defined database query.

The current process requires the preparation of Gauging Certificates independently of the corresponding updating of the Gauge Capability Database with scanned versions of the certificates subsequently being stored in the database and linked to the corresponding database updates. There is an aspiration to develop a single, integrated process for this, whereby the preparation of a Gauging Certificate automatically results in the corresponding updating of the database, and the provision of links between an electronic copy of the certificate and the corresponding database records. We endorse this aspiration.

Our check on the accuracy of the calculations showed there to be no errors. Our check on the method by which ELRs were split into legs showed that accurate queries have been set up for this process.

We found that the changes regarding gauge banding contained in the sample Gauging Certificates were correctly recorded in both the Gauge Capability Database and the dataset extracted from the latter. We also found that the information published in the Sectional Appendix matched those contained in the two gauging datasets.

We are therefore satisfied with the level of accuracy found in gauging data processing and recording.

### 5.2.4 General Observations

Again, the system relies on a combination of data systems, which are better linked than those for Linespeed (C1), but still have room for improvement. Our comments on documentation in section 5.1.4 also apply here.

### 5.2.5 Conclusions Drawn

The processes employed are partially documented and well understood, but there is scope for improvement of the documentation, and for increasing the level of automation of the updating and maintenance of the Gauge Capability Database.

### 5.2.6 Assessment of Confidence Ratings

The confidence rating for the Gauge (C2) Capability is summarised below. An explanation of the ratings system is provided in Section 7.

The reliability of this measure is assessed as 'B', given its incomplete documentation and the scope for further automation of the processes used.

Again, the results of our checks merit an accuracy rating of '1', but the incompatibility of 'B1' as an reliability/accuracy rating combination means that the accuracy level is instead rated at '2'. (Note: it has come to our notice since the completion of our review that there are some concerns about the age of the data held within the Gauge Capability Database, of which over 40% were four or more years old in May 2010. The age of the data will be the subject of detailed review in the course of the 2010/11 audit programme.)

### 5.2.7 Recommendations

Table 5.2 contains a set of recommendations for the Gauging Capability. The recommendations are numbered 2010.6.10, 2010.6.11, etc. to reflect the (end of the) current year and the Asset Management KPI number, and to follow on from the numbers used for KPI 6(c) and the Linespeed Capability.

The recommendations for these KPIs are combined, in Section 8, with those for the other KPIs under consideration in this report, in order to provide an overview of the recommendations made in the current Quarter.

**Table 5.2: Recommendations**

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
2010.6.10	Develop Work Instruction to fully cover data processing activities conducted at Melton Street	5.2.1; 5.2.4 - 5.2.6	Mary Jordan, Tony Smith	September 2010
2010.6.11	Develop Work Instruction to fully cover data processing activities conducted at George Stephenson House.	5.2.4 - 5.2.6	Tim Fuller	September 2010
2010.6.12	Implement aspiration to further automate the generation of Gauging Certificates and their incorporation in the Gauge Capability Database	5.2.3 – 5.2.5	Tim Fuller	March 2011
2010.6.13	Formalise and document process for calculation of aggregate Route km values	5.2.1; 5.2.4 - 5.2.6	Mary Jordan, Tony Smith	March 2011

## 5.3 Route Availability (C3)

### 5.3.1 KPI Definition and Description

This KPI reports the number of kilometres of track nationally within three different Route Availability bands (RA 1-6; RA 7-9; RA10). The KPI, and the procedure for its production, are formally defined in the documents NR/ARM/C3DF and NR/ARM/C3PR. No internal documentation exists for the Route Availability verification or data handling processes.

### 5.3.2 Audit Methodology

A meeting was held at Network Rail's Melton Street office on 21<sup>st</sup> April 2010 with Network Rail's Data Champion, and with the staff members responsible for the compilation of the data contained in the Annual Return. The data collection and processing methodologies were described, and arrangements were made for the subsequent provision of data.

The processes and outputs were reviewed: using lookup tables provided, 'raw' Route Availability data obtained from Network Rail were aggregated in track km by NR routes and by RA values 0 to 10, (0 being the unknown values of RA reported by NR). Aggregate

results were produced and checked for 2009 and 2010 data, and then compared with the corresponding Annual Return outputs.

### **5.3.3 Audit Findings**

Route Availability values are published in the Sectional Appendices (except in Scotland, where a separate table of values is provided, pending their incorporation in the Sectional Appendices). A Route Availability verification process was undertaken in 2006/07, which led to significant changes in the values reported in the Annual Return. The values published in the Annual Return are now based on verified changes in Route Availability, reflecting the formal discrepancy management and Network Change processes, and industry stakeholder consultation. As the verification process continues, the number of discrepancies between actual and published capabilities is diminishing, also reflecting bridge-strengthening activities, etc. The 2010 Annual Return will not fully reflect this process, but it is planned that the 2011 version will do so once the Network Change process has been completed for the proposals being consulted on at the end of the reporting period for the 2010 Annual Return.

No errors were found in the comparison data checks, indicating that the overall RA values are accurately produced. There is, however, a minor issue involving the reporting of unknown RA values. The reporting of RA0 (unknown RAs) in the Annual Return only provides a figure for the current year, and none for the previous years. A check of 2009 data showed that the reported unknown track km were included in RA1-6, but this was not explicitly stated. We understand that the NR Asset Reporting Manual documentation does not explicitly state how unknown RA values should be reported, although NR does have the responsibility to collect and quantify it. This should be covered in the documentation enhancements recommended above.

### **5.3.4 General Observations**

It would be worthwhile undertaking a fuller review of the process once the 2011 Annual Return is published and the discrepancy reduction process is fully reflected.

### **5.3.5 Conclusions Drawn**

The processes employed are partially documented and well understood, but there is scope for improvement of the documentation.

### **5.3.6 Assessment of Confidence Ratings**

The confidence rating for the Route Availability (C3) Capability is summarised below. An explanation of the ratings system is provided in Section 7.

The reliability of this measure is assessed as 'B', reflecting the absence of complete documentation of the processes employed.

The results of our checks again merit an accuracy rating of '1', but the incompatibility of 'B1' as an reliability/accuracy rating combination means that the accuracy level is instead rated at '2'..

### **5.3.7 Recommendations**

Table 5.3 contains our recommendations for Route Availability. The recommendations are numbered 2010.6.13, etc. to reflect the (end of the) current year and the Asset Management KPI number, and to follow on from the numbers used for the preceding KPIs (Recommendation 2010.6.13 is repeated here, as it applies equally to the Gauge and Route Availability KPIs).

The recommendations for this KPI are combined, in Section 8, with those for the other KPIs under consideration in this report, in order to provide an overview of the recommendations made in the current Quarter.

**Table 5.3: Recommendations**

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
2010.6.13	Formalise and document process for calculation of aggregate Route km values	5.2.1; 5.2.4 - 5.2.6; 5.3.1, 5.3.5, 5.3.6	Mary Jordan, Tony Smith	March 2011
2010.6.14	Develop Work Instruction to fully cover Route Availability verification and data processing activities.	5.3.1, 5.3.5, 5.3.6	Ian Bucknall, Mary Jordan, Tony Smith	September 2010

## 5.4 Electrified Track Capability (C4)

### 5.4.1 KPI Definition and Description

This KPI reports the number of kilometres of electrified track nationally within four different categories: 25kV A.C. overhead electrification; 650/750V D.C. third rail electrification; dual 25kV A.C. overhead and 650/750V D.C. third rail electrification; and 1500V D.C overhead electrification. The KPI, and the procedure for its production, are formally defined in the documents NR/ARM/C4DF and NR/ARM/C4PR. Some internal documentation of the processes used is available, but it is unclear whether this is fully up-to-date.

### 5.4.2 Audit Methodology

A meeting was held at Network Rail's Melton Street office on 21<sup>st</sup> April 2010 with the staff members responsible for the compilation of the data contained in the Annual Return. The data collection and processing methodologies were described, and arrangements were made for the subsequent provision of data. The Data Champion for the KPI was unable to attend the meeting.

The processes were reviewed, and our initial findings are described below. The review of accuracy followed the same procedure and used the same data as for KPI C1, Linespeed.

### 5.4.3 Audit Findings

For the purposes of preparing the Annual Return, GEOGIS is used to identify recorded changes in Electrified Track capability over the preceding year (the process by which changes are recorded and uploaded to GEOGIS is unclear, but the recorded changes are assumed to be an accurate representation of events). There should be no blank records in the electrification data field (non-electrified track sections should be recorded in the field as 'No' or 'Unknown'), and any blank records are investigated and resolved. A list of changes is then passed to the Data Champion for review, identification of any anomalous records and comment. The view within Network Rail is that this capability is not as well handled as C1, for example. We concur that the compilation of this measure is insufficiently robust, and that the data are vulnerable to inadvertent corruption when being manipulated, and that the process should therefore be reviewed and updated as necessary to bring it up to a similar standard to that of C1, possibly including the equivalent use of dedicated, suitably trained staff.

Our check of the calculations showed that there were no errors, based on the data provided.

### 5.4.4 General Observations

There is considerable uncertainty about the recording and updating of this measure, and the documentation is incomplete.



#### 5.4.5 Conclusions Drawn

The processes employed are partially documented and well understood, but there is scope for improvement of the process and documentation. The process for updating electrification records in GEOGIS is unclear, and this should be reviewed in greater detail during the 2010/11 Reporting cycle.

#### 5.4.6 Assessment of Confidence Ratings

The confidence rating for the Electrified Track Capability (C4) is summarised below. An explanation of the ratings system is provided in Section 7.

The reliability of this measure is assessed as 'B', reflecting the absence of complete documentation of the processes employed, and the current vulnerability of the data to unintended corruption.

The error-free nature of the check calculations merits an accuracy rating of '1', but the incompatibility of 'B1' as an reliability/accuracy rating combination again means that the accuracy level is instead rated at '2'.

#### 5.4.7 Recommendations

Table 5.4 contains our single recommendation for Electrified Track Capability. The recommendation is numbered 2010.6.15 to reflect the (end of the) current year and the Asset Management KPI number, and to follow on from the numbers used for the preceding KPIs.

The recommendation for this KPI is combined, in Section 8, with those for the other KPIs under consideration in this report, in order to provide an overview of the recommendations made in the current Quarter.

**Table 5.4: Recommendation**

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
2010.6.15	Review process and Work Instruction, and update as necessary to fully cover Electrified Track Capability data processing activities, including the updating of records in GEOGIS.	5.4.1; 5.4.3 – 5.4.6	Simon Thick, Mary Jordan, Tony Smith	September 2010

### 5.5 Ongoing Short-Term Network Change Proposals and Discrepancies between Actual and Published Capability Arising from the Infrastructure Capability Programme

#### 5.5.1 KPI Definition and Description

No formal definition or documentation is available for these new measures, and no internal Network Rail documentation is available, apart from that for the procedure to be followed when a Gauging 'foul' is discovered.

#### 5.5.2 Audit Methodology

A meeting was held at Network Rail's King's Place office on 21<sup>st</sup> April 2010 with Network Rail's Data Champion for this KPI, at which the KPI objectives and processes were described.

#### 5.5.3 Audit Findings

These new processes and outputs are derived from Network Rail's Infrastructure Capability Programme (ICP), introduced in 2006 to address shortcomings in Network Rail's Asset Register and associated processes. A Discrepancy Register is maintained by a single

member of staff, containing statements of difference from stated headline capability, and the issue is overseen by an industry stakeholder group representing Network Rail, ORR, ATOC and the FOCs. A smaller working group is responsible for the implementation of the processes.

Data held in the Discrepancy Register are provided by the Senior Gauging Engineer and the Senior Structures Engineer, and a copy of the Register is taken at regular intervals and used to update NESA (the National Electronic Sectional Appendix). This is a simple, but labour-intensive, manual process. Discrepancies that arise are investigated via a number of means, including teleconferences, to gain a full understanding of the issues involved, possible means of mitigation, and the associated traffic impacts. The resolution of gauge discrepancies are being dealt with as a discrete programme of work, the scope of which ranges from simple interventions to major renewals projects, whereas the remediation of structural discrepancies is now embedded into the 'workbank', since their resolution generally requires renewals activities to be undertaken. The resolutions of all discrepancies seek to maximise synergy with enhancement aspirations, where possible.

From this year onwards, discrepancies identified by the ICP will be published in the Annual Return, as will ongoing short-term Network Changes arising from the ICP, together with the time remaining before their review. Another table will contain records of Permanent Network Changes (PNCs) arising from the discrepancies identified by the ICP. PNCs outside the ICP process, which originate from within the Routes, are not yet being consolidated centrally, but this is under consideration. Therefore, the PNCs originating from within the Routes will not be included in this year's Annual Return.

All infrastructure changes that go through the ICP Network Change process should be shown on the Network Change section of the Network Rail website, although generally this is not very well laid out, and could be improved by the provision of an index, for example.

A standard has been published to ensure that the Network Change process is followed prior to the issue of changes to published network capabilities in the Sectional Appendix, and checks have been introduced to the process to ensure that changes to Sectional Appendices are implemented only after completion of the Network Change process, where this is required.

#### **5.5.4 General Observations**

These are new measures, although the underlying processes have been in place for some time, and their preparation and documentation is therefore less well-established and robust than is the case for some of the other measures. Since the outputs of this measure are textual lists of discrepancies and network changes, they cannot be compared objectively with any independent data source, and an assessment of their accuracy is not particularly meaningful.

#### **5.5.5 Conclusions Drawn**

These measures and the associated processes are new, and still under development. This is reflected in the absence of documentation and the reliance on individuals and manual processes to update records and produce the measures. While the comparative simplicity of the processes used, combined with the experience of the individuals involved, reduces the risk of human error, this possibility remains, and the process appears to be heavily dependent on the knowledge and experience of the individuals involved, particularly in the absence of documentation, and thus vulnerable to staff absence or turnover.

#### **5.5.6 Assessment of Confidence Ratings**

The confidence rating for the measures is summarised below. An explanation of the ratings system used is provided in Section 7.

The reliability of this measure is assessed as 'B', reflecting the general absence of documentation of the processes employed, and the manual nature of the processes

involved, which are thus subject to the possibility of human error. The extent of these issues would normally result in a 'C' rating, but the high level of data coverage and the expertise of the staff involved raises the rating to 'B'.

As noted above, the accuracy of this measure cannot be meaningfully assessed, and it is therefore rated as 'X'.

### 5.5.7 Recommendations

Table 5.5 contains a set of recommendations for the measures. The recommendations are numbered 2010.6.16, 2010.6.17, etc. to reflect the (end of the) current year and the Asset Management KPI number, and to follow on from the numbers used for KPI 6(c) and the other Capability measures.

The recommendations for these KPIs are combined, in Section 8, with those for the other KPIs under consideration in this report, in order to provide an overview of the recommendations made in the current Quarter.

**Table 5.5: Recommendations**

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
2010.6.16	The processes should be fully documented	5.5.1;	David Rayner	September 2010
2010.6.17	The feasibility of presenting a single, central view of the Network Change process and outputs should be investigated	5.5.3 – 5.5.6	David Rayner	March 2011
2010.6.18	The presentation on the Network Rail website of infrastructure undergoing the Network Change process should be improved, and indexed	5.5.3	David Rayner	March 2011

## 5.6 Passenger and Freight Train Mileage, Gross Freight Tonne Mileage

### 5.6.1 KPI Definition and Description

In contrast to most of the other Network Capability KPIs, no formal definition or procedure documentation exists for these KPIs, but some of the processes used for their compilation are described in a draft internal Network Rail document (*Track Access Billing System – Journey Error Corrections*), a copy of which was provided to the Independent Reporter team.

### 5.6.2 Audit Methodology

An initial meeting was held at Network Rail's Melton Street office on 13<sup>th</sup> April 2010 with the Network Rail staff responsible for the production of the KPI data. A subsequent meeting was held at 1 Eversholt Street on 22<sup>nd</sup> April, during which data checking and amendment processes were described and demonstrated.

### 5.6.3 Audit Findings

Concerns were expressed by ORR and by the previous Independent Reporter about the accuracy of BIFS (Billing Information for Freight System), the billing system that was until recently in use by Network Rail, and the non-recording of Empty Coaching Stock (ECS), 'light locomotive' and maintenance train (i.e. internal Network Rail freight) movements. A further concern was the recording of Chiltern Railways train mileage on London Underground tracks, which should have been excluded.

During the past year, the transition has been made from BIFS to TABS (Track Access Billing System), which provides a centralised data processing and storage system, and, like BIFS, runs off actual, rather than planned, train running data. Records are drawn from PALADIN, with some automated cleansing and matching of data being conducted prior to entry to TABS, and further cleansing is conducted within TABS as necessary, prior to the billing of operators. The new system includes the previously-excluded categories noted above, and distinguishes between Network Rail and other infrastructure, and also allows the retrospective correction of errors and 'refreshment' of records. Data can be exported directly from TABS into Excel, examples of which have been provided to the Reporter team.

At the second meeting with Network Rail, a 'hands-on' demonstration of the TABS system and error correction process was provided, via Discoverer Plus. TABS automatically detects some errors, such as incorrect timings/calling patterns and train consists, and the system is considered to be approximately 98% accurate (as verified by a recent audit), generating approximately 200 errors per day, with a higher number of errors being experienced on Mondays, when the data volumes are at their highest (of approximately 200 possible errors, only about 12 are typically now encountered). Queries have been set up within the system to identify and rectify known errors, such as incorrect Service Codes provided by Operators, and scheduling errors (any remaining billing errors that find their way through the system are typically picked up by Operators on receipt of their charge files, and then rectified). In addition to the various 'error-trapping' processes within the systems and deployed by its users, a daily manual check is conducted of the records for freight services operated two days previously, to identify any otherwise undetected anomalies. This focus on freight reflects the inherently much greater variability of freight than passenger services, in terms of timetables, service frequencies, routeings and train consists.

#### **5.6.4 General Observations**

While TABS is quite user-friendly, and the means of correcting errors are documented, it would be useful if the overall billing system were documented in at least outline terms, for the benefit of new users and 'non-experts'.

#### **5.6.5 Conclusions Drawn**

TABS provides many improvements relative to its predecessor systems, and its introduction appears to have resulted in a much more robust, comprehensive and user-friendly system.

#### **5.6.6 Assessment of Confidence Ratings**

The confidence rating for Passenger and Freight Train Mileage and Gross Freight Tonne Mileage is partially summarised below. An explanation of the ratings system used is provided in Section 7.

The reliability of this measure is now close to 'A', based on the high degree of automation and the low level of manual intervention now in place, together with the addressing of the previous concerns described above, and the documentation of the error correction process. However, because the documentation is not comprehensive, the reliability of the measures is assessed as 'B'.

Since the calculation of these measures is now encapsulated within TABS, with no use of external spreadsheets or databases, there is little scope for manual or random checks of the calculation processes used, and their accuracy. Given the diminishing number of errors generated by the system, and the fact that its outputs are subject to review and rapid correction, where necessary, by the Operators being billed, Network Rail's estimate of 98% accuracy levels seems plausible. The Accuracy of these measures is therefore rated as '2'.

With improved documentation and further reductions in the numbers of errors, there is no obvious reason why these measures should not achieve a rating of A1 in due course.

### 5.6.7 Recommendations

Table 5.6 contains our single recommendation for Passenger and Freight Train Mileage and Gross Freight Tonne Mileage. The recommendation is numbered 2010.6.19, to reflect the (end of the) current year and the Asset Management KPI number, and to follow on from the numbers used for the preceding KPIs.

The recommendation for this KPI is combined, in Section 8, with those for the other KPIs under consideration in this report, in order to provide an overview of the recommendations made in the current Quarter.

**Table 5.6: Recommendation**

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
2010.6.19	Develop comprehensive documentation of the Billing process, to complement and include the TABS Journey Error Corrections manual.	5.6.1, 5.6.4, 5.6.6	Mairead Christie	September 2010

## 5.7 Track Mileage and Layout

### 5.7.1 KPI Definition and Description

Track and route mileage data are presented in the Annual Return for several of the capabilities listed above, and the production of consistent results has been and continues to be a problem (i.e. total national route mileages have historically varied from capability to capability). The calculation of route mileages presents its own particular problems, since these values can be difficult to derive from track mileages.

### 5.7.2 Audit Methodology and Findings

Our review of the Linespeed, Route Availability and Electrified Track Capability (C1, C3 and C4) measures indicates that their recorded track km values are identical, both by territory and overall, nationally. As noted above, we have reviewed the process for the calculation of route km values for the Gauge (C2) capability measure, and found it to be accurate.

### 5.7.3 Assessment of Confidence Ratings

The confidence rating for the measures is summarised below. An explanation of the ratings system used is provided in Section 7.

The reliability of this measure is assessed as 'B', reflecting the incomplete documentation of the four individual measures upon which it is based, and the scope for further automation of the processes used.

While the results of our checks merit an accuracy rating of '1', the incompatibility of 'B1' as an reliability/accuracy rating combination means that the accuracy level is instead rated at '2', as for the individual measures upon which the checks are based.

## 6 KPI 9: Environmental Initiatives

An initial meeting was held on 19<sup>th</sup> February 2010 with the ORR Data Champion for the KPI, to agree the scope and coverage of the review. An initial meeting was then held between Arup and the Network Rail Data Champion, on 23<sup>rd</sup> March 2010. The meeting agreed the KPIs for review and approach for obtaining associated information and data. A follow up meeting was held on the 7<sup>th</sup> April with the PI (Performance Indicator) Data leaders. At that meeting, an interview was conducted with each data leader to review the data capture process from obtaining data from staff/service providers; checking quality; documenting commentary on the data and collating data for reporting purposes.

In addition to the environmental PIs listed below, the process for monitoring and reporting on graffiti and fly tipping was also reviewed. Graffiti and fly-tipping do not come under the Environmental Sustainability Index; they feed into the 'Journey Experience Measure'. Therefore have been scored independently, and have not been scored as part of the collective Environment score.

### 6.1 KPI Definition and Description

The Standard for Environmental Performance Indicators (document NE/L2/ENV/050, April 2009), describes how data is collected as Environmental Performance Indicators (PIs) and brought together to feed into the Environmental Sustainability Index, which is part of the Company's Key Performance Indicator (KPI) Programme.

The Environmental Performance Indicators (EPIs) that form the Index have been discussed at Corporate Responsibility Group and approved at the Executive Committee. They are centred on three key environmental sustainability goals:

- to achieve sustainable consumption and production;
- to improve energy efficiency and reduce the reliance on fossil fuels in running the railway; and
- to protect natural resources.

Each indicator is designed to support Network Rail's environmental targets and overall environmental performance. Network Rail's environmental targets and corresponding performance indicators are summarised in Table 6.1.

**Table 6.1: Network Rail Environmental Targets and Performance Indicators**

Sustainable Consumption Targets	Sustainable Consumption PIs
<ul style="list-style-type: none"> <li>• To spend 25% of total materials spend on sustainable materials by 2014.</li> <li>• To divert 60% of waste from managed stations and Network Rail office and depots from landfill by 2014.</li> <li>• To divert 95% of waste managed by Network Rail National Delivery Service from landfill by 2014.</li> <li>• To use 85% of deployable water from the Severn and Mersey Tunnels by 2014.</li> </ul>	<ul style="list-style-type: none"> <li>• Operational Waste Management</li> <li>• Infrastructure Waste Management</li> <li>• Water Used against baseline</li> <li>• Water Recovered</li> <li>• Sustainable Materials</li> </ul>
Energy Efficiency Targets	Energy Efficiency PIs
<ul style="list-style-type: none"> <li>• To achieve a 20% reduction in energy related CO<sub>2</sub> emissions arising from corporate offices,</li> </ul>	<ul style="list-style-type: none"> <li>• Network Rail CO<sub>2</sub> (e) Emissions</li> <li>• Contractor CO<sub>2</sub> (e) Emissions</li> </ul>

<p>managed stations and depots by 2014, based on 2006/7 consumption figures.</p> <ul style="list-style-type: none"> <li>To replace around 5,200 electricity meters with automatic reader meters by 2012.</li> </ul>	
<p><b>Natural Resource Targets</b></p>	<p><b>Natural Resource PIs</b></p>
<ul style="list-style-type: none"> <li>95% of the SSSIs in favourable or recovering (target) condition by 2010 to support Natural England's 2010 target.</li> <li>10 miles of sustainable lineside designed to provide earthwork stability and habitat, require little maintenance and encourage specific species on to the railway by 2011.</li> <li>Update our Biodiversity Action Plan to incorporate the findings of the sustainable lineside trials by the end of 2010/11.</li> </ul>	<ul style="list-style-type: none"> <li>Environmental Incidents</li> <li>Land Management</li> </ul>

## 6.2 Audit Methodology

This audit was undertaken to assess the reliability and accuracy of data and commentary reported in Network Rail's Annual Return, Section 5, Safety and Environment. As noted above, a meeting was held with Network Rail's PI Data Leaders at King's Place on 7<sup>th</sup> April, during which the KPI and constituent PIs and data capture processes were reviewed. A copy of the data and available reporting templates were taken away for an in depth review.

In the majority of cases, the Data Leaders are reliant on environmental data supplied by contractors, suppliers or third parties. Within the scope of our audit it has not been possible to validate the reliability or accuracy of the source data. We have reviewed the commentary and the data provided by NR from the point of receipt from contractors, suppliers and third parties as evidence of the data having been accurately collected and reported.

## 6.3 Audit Findings

### 6.3.1 KPI 126: Environmental Sustainability Index

The Environmental Sustainability Index is an overall measure of Network Rail's environmental performance, which indicates to the Executive Committee how NR is performing across the range of environmental PIs.

A simple process is in place whereby, periodically, progress against each PI is compared against the previous year. Progress made is documented in the form of a written commentary within the NR summary reporting spreadsheet. Progress as at quarter 3 was reviewed as part of this audit and the process used was deemed to be reliable.

Annually, after all KPI data has been received and verified, an overall score is attributed by NR. This is equal to the number of component PIs equal to or exceeding targets, so a KPI value of 6 indicates that six of the nine environmental PIs met target. This audit took place before all the PI data had been received and verified; therefore it was not possible to fully verify this part of the process.

#### 6.3.1.1 Reliability

A simple, reliable and consistent process is in place to monitor and report overall progress against each PI, using the Environmental Sustainability Index. As the Environmental

Sustainability Index is calculated from each individual PI, it is reliant on the data and processes used to make up these component parts being reliable. Taking into account the reliability scores of each individual PI, based on the data available; an overall score of 'B' has been attributed.

### **6.3.1.2 Accuracy**

The commentary used to monitor and report progress against the Environmental Sustainability Index has been reviewed and is deemed to be accurate.

As the Environmental Sustainability Index is calculated from each individual PI, it is reliant on the data and processes used to make up these component parts being accurate. Taking into account the accuracy scores of each individual PI, and, again, based on the data available; an overall score of '3' has been attributed, due to the significant manual input required to input information and calculations.

### **6.3.2 KPI 129: Operational Waste Management**

Waste data is provided to NR periodically by email from the third party waste management provider. The data is reported quarterly.

A 'spot check' review of total waste collected and recycled data for Operations and Customer Services, for Q3, was reviewed. Data and reporting methods for total waste collected and recycled for Leeds station and St Pancras were used as a representative sample to determine reliability and accuracy.

A 'spot check' was also undertaken of the data and reporting methods for total waste produced and recycled for Infrastructure Maintenance, for Q3. Biffa's and UK Waste's total waste produced and recycled data and reporting methods were used as a representative sample to determine reliability, quality, consistency, completeness and accuracy.

The following documents were reviewed to assess the Operational Waste KPI:

- network rail\_baseline draft report\_Sept 07
- Quarter 3 Data 2009-2010
- RE Biffa NR Waste
- NR Reporting - Oct -Dec- 09
- Copy of Weight Report Totals.xls
- SITA Reports - Nov & Dec 09
- SITA Waste Reports - Oct 09
- Q3-St Pancras Station Waste
- KPI\_129\_2009-2010\_ Overall Spreadsheet Data
- KPI\_129\_2009\_2010\_Q03
- 129\_126\_Operational\_Waste\_Management\_Key\_Issues

#### **6.3.2.1 Reliability**

The auditors were unable to verify source data in the individual station spreadsheets, i.e. whether the data are extracted manually from weighbridge tickets or directly from Waste Transfer Notes (WTNs) and entered into the spreadsheet manually by third party contractors. Consequently the reliability of data in the spreadsheet from SITA and Viridor could not be fully verified. However, it is understood that Network Rail requires contractors to conduct their own 'duty of care' audits as a mechanism to verify the accuracy of waste data and to verify waste duty of care documentation. This requirement should be formally written into appropriate contracts i.e. that NR requires contractors to conduct waste duty of care audits and confirm the results back to NR.



Data for total waste collected and recycled is reported for each station in a spreadsheet. This data is transposed, using formulas, into a summary spreadsheet. The data for Leeds was reviewed and this transposition of data was correct and considered to be reliable.

Data for total waste collected and recycled in the summary spreadsheets containing a breakdown of all station data, was reviewed for October, November and December 2009. This data was transposed correctly and considered to be reliable.

An overall central spreadsheet aggregates all the data for Operations and Customer Services. This data is believed to be manually extracted from the summary spreadsheets of stations. The data within the spreadsheet uses formulas to aggregate the data from SITA and Viridor (St Pancras Station). The data is subsequently extracted into a summary spreadsheet detailing the annual performance of each quarter. The data transposed for total waste collected and recycling was transposed correctly and considered to be reliable.

The auditors were also unable to verify source data in the table provided in an email by Biffa and data provided by UK Waste. Thus, the reliability of data provided by Biffa could not be verified.

Data on total waste produced and recycled are provided in table format, in an email to Network Rail from Biffa. Thus manual transposition and manipulations are required to be transfer the data into Network Rail spreadsheets and consequently there could be a risk of human error when transposing the data from one spreadsheet to another.

The methods used for recording waste data for October, November and December 2009 were considered to be consistent. Due to limited information provided, a comparison for consistency was not undertaken with recording methods for Q1 and Q2.

A reliable and established process is in place for monitoring and reporting operational waste data. However, due to the reliance on third party data, which has not been verified, a score of 'B' has been attributed.

### **6.3.2.2 Accuracy**

Data on waste streams generated by Operations and Customer Services are not provided by SITA and Viridor. Also the amount of recovered or reused waste is not provided by SITA or Viridor. Completeness of waste data collection and reporting could be improved by extension to include all waste streams and final processing of the waste to include recovered and reused. No data are currently available for Charing Cross Station and Fenchurch Street. These stations have opted out of the wider NR waste management contract therefore the Landlord is responsible for waste management, not NR.

Based on the total waste collected and recycled data, the methods used to transpose Operational and Customer Services, and Infrastructure Maintenance waste data from third party contractors to Network Rail is considered to be accurate.

There are several spreadsheets where manual input and transposition of data was required. There could be a risk of human error when manually transposing the data from one spreadsheet to another and transposing the data from the email into a separate spreadsheet.

Operational waste data is deemed to be accurate; however there is a heavy reliance on manual input therefore a score of '3' has been attributed.

### **6.3.2.3 Specific Observations**

- The possibility of developing one master environmental KPI spreadsheet, allowing both third parties and Network Rail to populate and manipulate, is currently being investigated. As part of this review, formulas should be included on the spreadsheets where possible to avoid manual input. This will minimise the risk of error when transposing data between sources.

- Request the original spreadsheets from Biffa, rather than email (if the first bullet point is not achieved).
- Extend reporting to include all waste streams generated.
- Extend reporting to include recovered and reused waste.
- Provide definitions of:
  - Recycled materials
  - Recovered
  - Reused.
- Add job titles to the KPI maps in addition to individual role - thus reducing maintenance of the document.
- Provide consistent descriptions of business areas waste on KPI map – currently does not detail Operations and Customer Services, Commercial Property, or Infrastructure Maintenance.
- Provide source details of assumed densities for estimated waste collection vessels.

### **6.3.3 KPI 134: Infrastructure Waste Management**

Waste data are provided to NR periodically via email from the third party waste management provider. The data is reported quarterly.

A 'spot check' of total waste collected and reused data for Infrastructure, for Q3, was undertaken. Balfour Beatty's total waste produced and reused data were used as a representative sample to determine reliability, quality, consistency, completeness and accuracy.

The following documents were reviewed to assess the Operational Waste KPI:

- FW SMIS environment report for P10
- KPI\_134\_2009\_2010\_Q03
- 134\_126\_Infrastructure\_Waste\_Management\_Key\_Issues

#### **6.3.3.1 Reliability**

Balfour Beatty's data on total waste produced and reused, taken from the Infrastructure Investment IPI 134 Returns for Q3 on the following projects were reviewed for reliability:

- Enhancements
- Thameslink
- SP&C
- Building & Civils

Data on total waste produced and reused are extracted from tables set out within a spreadsheet. The data is extracted, through formulas, into a summary table in the same spreadsheet. These data were transposed correctly. This summary table had 'Quarter 2' in the column heading instead of Quarter 3. The data from this summary spreadsheet are subsequently transposed into a Network Rail summary sheet. The transposition of these data is correct and is considered to be reliable. Raw data are collected and submitted to NR as a total Quarter rather than individual months, and therefore, it is not possible to determine consistency of data collection and reporting methods.

A reliable and established process is in place for monitoring and reporting infrastructure waste data. However, due to the reliance on third party data, which have not been verified, a score of 'B' has been attributed.

### 6.3.3.2 Accuracy

Waste produced and reused data are considered to be complete, enabling progress against target to be monitored and achieved. Based on the data received and checked for total waste produced and reused data, the methods used to transpose Infrastructure waste data from third party contractors to Network Rail are considered to be accurate. There are several spreadsheets whereby manual input and transposition of data is required. There could be a risk of human error when manually transposing the data from one spreadsheet to another.

Infrastructure waste data are deemed to be accurate; however there is a heavy reliance on manual input therefore a score of '3' has been attributed.

### 6.3.3.3 Specific Observations

- A single spreadsheet document should be developed, which may have multiple sheets within, to allow for input by third party contractors and subsequently passed on for internal manipulation by Network Rail.

### 6.3.4 KPI 130: Water Used

A 'spot check' review of water purchased, for Q3, was undertaken for reliability, quality, consistency, completeness and accuracy.

The following documents were reviewed to assess the Operational Waste KPI:

- RE Corporate EPI Annual Data Due by 2nd April 2010
- TEMPLATE - WATER USED - KPI\_130\_YYYY\_YYYY\_A00

#### 6.3.4.1 Reliability

The quantity of data available is limited to the amount of water purchased to date for the financial year 2009/2010 and is not available split by quarter; therefore the reliability of the data cannot be determined. Due to limited data available at the time of the review, it was not possible to verify the consistency of reporting methods compared to previous quarters.

Network Rail are aware of the shortcomings of this process and have a three-year plan in place to establish a Utilities Team to cover water, electricity and gas. The team will review changes required including additional metering requirements. Progress of this team will be reviewed in Q4 2010-11.

There is a process in place to monitor and report water used, however it is based on estimated readings as water is not metered at present. On this basis a score of 'C' has been attributed.

#### 6.3.4.2 Accuracy

Water purchased data are considered to be complete at the present time, as the target is yet to be confirmed. Once a target has been set, an additional review of completeness may need to be undertaken to ensure progress against target can be monitored and achieved.

The water purchased data are estimated data; consequently the accuracy of the data cannot be confirmed.

Water used is not currently metered therefore consumption is estimated. On this basis a score of '4' has been attributed.

#### 6.3.4.3 Specific Observations

A progress review of the Utilities Team 3 year plan for improving the 'water used' monitoring process should be undertaken in a year's time.

### 6.3.5 KPI 146: Water Recovered

A 'spot check' review of water volume recovered and volume removed from tunnels, for Q3, was reviewed for reliability, quality, consistency, completeness and accuracy.

The following documents were reviewed to assess the Operational Waste KPI:

- RE KPI.msg
- Running Total Analysis Spreadsheet
- KPI\_146\_2009\_2010\_Q03
- 146\_126\_Water\_Recovered\_Key\_Issues

#### **6.3.5.1 Reliability**

All water abstracted is covered by a permit; therefore each abstraction is tightly controlled, metered and monitored. Raw data is taken from the abstraction meters. Water volume recovered and water removed data is supplied to Network Rail in a table, by email. However, it is not known how the figures from the water abstraction meters are transposed to the table in the email; there may be a spreadsheet which accumulates all data throughout the year, however this could not be verified. The data supplied in the email, appear to have been previously aggregated for both Severn and Mersey Water Authorities.

The water volume recovered and water removed data supplied have been transposed correctly into the summary spreadsheet by Network Rail.

The method used for reporting water volume recovered and water removed data each month is consistent. Due to limited data available at the time of the review, it was not possible to verify the consistency of reporting methods compared to previous quarters.

There is a reliable and accurate process in place for monitoring and reporting water recovered, which is metered consistently month by month. However there is significant reliance on third party data. On this basis a score of 'B' has been attributed.

#### **6.3.5.2 Accuracy**

Water volume recovered and water removed from tunnels data are considered to be sufficiently complete to ensure progress against target can be monitored and achieved.

Based on water volume recovered and water removed from tunnels data, the transposition of data supplied to the summary spreadsheet it is considered to be accurate. Verifying the raw data source provided by third party contractors has not been possible.

Water used data is provided by abstraction meters and is deemed to be accurate. On this basis a score of '2' has been attributed.

#### **6.3.6 KPI 128: Sustainable Materials**

A 'spot check' review of sustainable timber data, for Q3, was undertaken for reliability, quality, consistency, completeness and accuracy.

The following documents were reviewed to assess the Sustainable Materials KPI:

- Timber Quarterly data msg
- Quarterly data timber 09-10
- Q3 - Quarterly Data Timber 09-10
- KPI\_128\_2009\_2010\_Q03
- 128\_126\_Sustainable\_Materials\_Key\_Issues

#### **6.3.6.1 Reliability**

Network Rail specifies their requirement to procure sustainable timber within contract documentation. Sustainable timber data is taken from invoices and input into a spreadsheet. This data is subsequently summarised into another spreadsheet by Network Rail. The data were transposed correctly and considered to be reliable; however, this manual transposition of the data between spreadsheets may result in human error, particularly if reporting is to be extended to numerous sustainable materials. Reporting

methods for sustainable timber are consistent throughout the year. Individual months are provided, with a summary for each Quarter.

A reliable and established process is in place for monitoring and reporting sustainable materials, with the data feed coming directly from the NR procurement system. In addition, Network Rail has performed internal assurance audits to verify the reliability of sustainable timber data. On this basis a score of 'B' has been attributed.

#### **6.3.6.2 Accuracy**

Current reporting on Sustainable Materials is limited to sustainable timber. It is noted that Network Rail intends to extend the scope of reporting to meet their target for 25% of spend is on sustainable materials, to include paper, fuel, oils, ballast and concrete sleepers. Completeness will be improved once the scope of reporting is extended to include the above materials.

Based on sustainable timber transposition of data and reporting, the summary data reported by Network Rail, are considered to be accurate.

Sustainable materials data are deemed to be accurate; however there is some manual input. On this basis a score of '2' has been attributed.

#### **6.3.7 KPI 132: Network Rail CO<sub>2</sub>(e) Emissions**

A 'spot check' review was undertaken of Total CO<sub>2</sub> (tonnes) for the following fuel types for end of year data:

- Electricity
- Gas
- Gas Oil
- Diesel
- Petrol
- LPG
- Aviation Fuel.

The data and reporting methods were reviewed for reliability, quality, consistency, completeness and accuracy.

The following documents were reviewed to assess the NR Emissions KPI:

- KPI-132-2009\_ A09102010
- Q4 2009 – 10

#### **6.3.7.1 Reliability**

The source CO<sub>2</sub> data from suppliers and contracts was not verified as part of this review and thus cannot be determined for reliability.

For each of the individual suppliers and contractors report on their CO<sub>2</sub> emissions for the following fuel types:

- Aviation Fuel
- Diesel
- Electricity
- Gas
- Gas Oil
- LPG
- Petrol

CO<sub>2</sub> data are collated from suppliers and contractors, in a master Non-Traction Carbon Footprint Calculation spreadsheet. CO<sub>2</sub> data for fuel types only, are extracted from the master spreadsheet and then summarised in a separate spreadsheet. The data reviewed were transposed correctly and considered to be reliable. The method used for reporting Network Rail's CO<sub>2</sub> data for the different fuel types was consistent throughout all four quarters, and thus the information is considered consistent.

From the spot check of total tonnes of CO<sub>2</sub>, NR Rail CO<sub>2</sub> (e) Emissions for the fuel types listed is deemed to be reliable. On this basis a score of 'B' has been attributed.

#### **6.3.7.2 Accuracy**

A target has been set to reduce NR CO<sub>2</sub> emissions. The method used for reporting NR CO<sub>2</sub> emissions is considered to be sufficiently complete to monitor progress towards meeting the target to reduce energy related CO<sub>2</sub> emissions.

The end of year data for gas and electricity have been transposed correctly and the calculations used in the summary spreadsheet are accurate. On this basis a score of '2' has been attributed.

#### **6.3.8 KPI 127: Contractor CO<sub>2</sub>(e) Emissions**

A 'spot check' review was undertaken of Infrastructure Investment IPI 127 Returns for the following projects for Quarters 1, 2 and 3:

- Building & Civils
- SP&C
- King's Cross
- FTN
- WCRM
- Crossrail
- Enhancements.

The following documents were reviewed to assess the Contractor Emissions KPI:

- MM Corporate metrics Final.Q2
- KPI\_127\_2009\_2010\_Q1&2
- 127\_126\_Contractor\_CO2\_Emissions\_Key\_Issues

#### **6.3.8.1 Reliability**

For each of the projects listed above, individual contractors report on their energy CO<sub>2</sub> emissions for the following categories:

- Aviation Fuel
- Diesel
- Electricity
- Gas
- Gas Oil
- LPG
- Petrol

The data are collected in a spreadsheet and then summarised in table in the same sheet using formulas. A spot check of data and formulas for the contractor Osborne, Murphy, May Gurney and the category 'All Others' was undertaken. The data reviewed were transposed

correctly and considered to be reliable. The method used for reporting contractor CO<sub>2</sub> data for each project and contractor is considered consistent.

From the spot check of total tonnes of CO<sub>2</sub>, NR Rail Contractor CO<sub>2</sub> (e) Emissions for the contractors listed is deemed to be reliable. On this basis a score of 'B' has been attributed.

### **6.3.8.2 Accuracy**

A target for contractors CO<sub>2</sub> emissions has not currently been developed. The method used for reporting contractors CO<sub>2</sub> emissions is considered to be complete at the present time. Once a target has been set, an additional review of completeness may need to be undertaken to ensure progress against target can be monitored and achieved.

Verifying the raw data source provided by third party contractors has not been possible. Consequently, the reliability and accuracy of this data cannot be assured. However, the summary data reported by Network Rail, is considered to be accurate as the transposition of data reported by contractors is considered to be accurate.

From the spot check of total tonnes of CO<sub>2</sub>, NR Rail Contractor CO<sub>2</sub> (e) Emissions for the contractors listed is deemed to be accurate. On this basis a score of '2' has been attributed.

### **6.3.9 KPI 133: TOC CO<sub>2</sub>(e) Emissions**

Raw data on passenger CO<sub>2</sub> emissions are obtained by the NR Data leader from ORR. The data are transposed into a NR spreadsheet; equivalent tonnes of passenger CO<sub>2</sub> are calculated using DEFRA conversion factors and total mileage travelled.

#### **6.3.9.1 Reliability**

TOC CO<sub>2</sub> is a new KPI reported this year therefore consistency with previous years cannot be determined. Raw data are obtained from ATOC and is entered into a NR monitoring spreadsheet. NR then applies a conversion factor to evaluate TOC CO<sub>2</sub> emissions; these calculations were not available at the time of the audit.

A process has been established for monitoring and reporting TOC CO<sub>2</sub>; however, data was not available for review at the time of the audit. In addition, the reliability of the external data provided by ATOC cannot be evaluated. On this basis a score of 'X' has been attributed.

#### **6.3.9.2 Accuracy**

Complete NR figures for TOC CO<sub>2</sub> were not available at the time of the audit. In addition the accuracy of external data provided by ATOC cannot be determined. On this basis a score of 'X' has been attributed.

#### **6.3.9.3 Specific Observations**

- At the time of the audit the calculations to determine passenger CO<sub>2</sub> had not been completed therefore it was not possible to review this KPI fully. It is hoped that the process will be more established by the time of the next audit.
- A description of the TOC PI was not available in the Level 2 Standard for Environmental Performance Indicators.
- A KPI map was not available for the TOC PI.

### **6.3.10 KPI 147: FOC CO<sub>2</sub>(e) Emissions**

Raw data on freight CO<sub>2</sub> emissions are obtained by the NR Data leader from the ORR website. The data are transposed into a NR spreadsheet, and equivalent tonnes of freight CO<sub>2</sub> are calculated using DEFRA conversion factors and total mileage travelled.

#### **6.3.10.1 Reliability**

FOC CO<sub>2</sub> is a new KPI reported this year therefore consistency with previous years cannot be determined. Raw data taken from ORR are entered into a NR monitoring spreadsheet. The calculations that NR perform on the data were not available at the time of the audit therefore it was not possible to fully evaluate reliability. In addition, the reliability of the data provided by ORR cannot be evaluated. A process has been established for monitoring and

reporting FOC CO<sub>2</sub>, however data were not available for review at the time of the audit and the reliability of data provided by ORR cannot be evaluated. On this basis a score of 'C' has been attributed.

#### **6.3.10.2 Accuracy**

Complete figures for FOC CO<sub>2</sub> were not available at the time of the audit; therefore accuracy of the data could not be determined. In addition, the reliability of the external data provided by ORR cannot be evaluated. On this basis a score of 'X' has been attributed.

#### **6.3.10.3 Specific Observations**

- At the time of the audit the calculations to determine passenger CO<sub>2</sub> had not been completed therefore it was not possible to review this KPI fully. It is hoped that the process will be more established by the time of the next audit.
- A description of the FOC CO<sub>2</sub> PI was not available in the Level 2 Standard for Environmental Performance Indicators.
- A KPI map was not available for the FOC CO<sub>2</sub> PI.

#### **6.3.11 KPI 135: Environmental Incidents**

A 'spot check' review was undertaken of data and reporting methods for environmental incidents for reliability, quality, consistency, completeness and accuracy.

The following documents were reviewed to assess the Contractor Emissions KPI:

- Env p12
- Incident reporting procedure – Period 12
- Prd 12 Apdx A
- KPI\_135\_2009\_2010\_P12
- 135\_126\_Environmental\_Incidents\_Key\_Issues

##### **6.3.11.1 Reliability**

Incidents are reported periodically within the incident reporting Excel spreadsheet. The SEAR Report - Period 12 Annex A was also reviewed. For this reporting period no incidents were reported, and consequently, no incidents were reported in the SEAR Report - Period 12 Annex A. A subsequent KPI summary sheet is also populated with the data; the data reported in this document were consistent with the previous two documents. The method used for reporting environmental incidents is considered consistent. Thus data transposition and reporting methods for environmental incidents are considered to be reliable.

A spot check review of incidents was conducted. The incidents reported were consistent and data transposition and reporting methods were reliable. On this basis a score of 'B' has been attributed.

##### **6.3.11.2 Accuracy**

The summary data reported by Network Rail, are considered to be accurate as transposition of data from the SEAR Report and the incident reporting spreadsheet match. On this basis a score of '2' has been attributed.

##### **6.3.11.3 Specific Observations**

It is recommended that a procedure, in flowchart format, would benefit users in completing the correct documentation in the event of an environmental incident. It may be that this document is already in place, but it was not provided by Network Rail at the time of the review.

#### **6.3.12 KPI 137: Land Management**

The auditors have seen and reviewed evidence which demonstrated the process for monitoring and reporting this measure. Land management data is collated and reported



annually. Data are obtained from the Natural England and Major Owner Group (MLG) database and entered onto the corporate database. The KPI only relates to England, not Wales or Scotland as yet, however this is not clear from the KPI description.

The following documents were reviewed to assess the Land Management KPI:

- KPI\_137\_2009\_2010\_A0910.xls
- SSSI Status in NR Ownership (England) 260310.xls
- TEMPLATE – LAND MANAGEMENT-KPI\_137\_2009\_2010\_A00.xls
- Email - RE Corporate EPI Annual Data Due by 2nd April 2010.msg

#### **6.3.12.1 Reliability**

Raw data are taken from the Natural England database and entered into a NR spreadsheet. The process for designating SSSIs and evaluating their status is tightly controlled and managed by legislation therefore the data source is deemed to be reliable.

The land management data supplied have been transposed correctly into the summary spreadsheet by Network Rail and the method used for reporting Land Management annually is consistent.

A reliable and established process is in place for monitoring and reporting on land management, which is reliant on third party data. On this basis a score of 'B' has been attributed.

#### **6.3.12.2 Accuracy**

Using the information supplied by the Natural England database, Network Rail calculates the percentage area of land owned by Network Rail that is defined as 'favourable' or 'recovering'. Each calculation within the NR spreadsheet was checked and deemed to be accurate. Land Management data is considered to be complete to ensure progress against target can be monitored and achieved.

A complete set of NR land management data was reviewed. The methods used to extract and interpret data were found to be accurate. On this basis a score of '2' has been attributed.

#### **6.3.12.3 Specific Observations**

- It is not clear from the KPI description that this KPI only covers England and not Scotland and Wales (this is because only England data are currently available).

#### **6.3.12.4 IPI 211: Graffiti and Fly-Tipping**

Graffiti and fly-tipping are classified as crime and come under the new Lineside Visual Environment IPI (Indexed Performance Indicator no.211). The IPI takes effect from period 1 2009/10, and measures Network Rail's responsiveness in resolving public enquiries relating to the lineside visual environment. A compliant closure is one that takes place within 20 calendar days from the date the service request is first logged (usually at the point of the call or letter being received by the National Helpline).

Incidents of graffiti and fly-tipping are reported by the public, local councils or members of parliament using the Network Rail helpline number. Contact information and details of the issue are recorded on a Network Rail Oracle database and the incident is allocated to the appropriate local maintenance team for resolution. Upon completion the community relations team validate that the required actions are complete and call the customer back to confirm resolution.

The following documents were reviewed to assess the Land Management KPI:

- IPI-211-2009-2010-P3.xls
- 211\_Lineside\_Visual\_Environment.pdf

- 2663066 report.pdf
- 2660808 report.pdf
- 2667514 report.pdf
- 2658352 report.pdf

#### **6.3.12.5 Reliability**

Raw data are taken from public observation reports and entered into a Network Rail database. A spot check of reported incidents was conducted and the raw data for reporting period 3 and method for transposing this into the KPI dashboard were reviewed.

A reliable and robust process is in place for monitoring and reporting graffiti and fly-tipping incidents. Each of the incidents reviewed had been fully investigated and the data supplied were consistent with the reporting fields requested. The method used for reporting graffiti and fly-tipping and monitoring against the 20 day KPI was consistent. On this basis a score of 'B' has been attributed.

#### **6.3.12.6 Accuracy**

Graffiti and fly-tipping data is deemed to be accurate from the point of receipt and management by NR. It is not possible to determine the level of accuracy of information provided by members of the public. The method of transposing raw data into the KPI analysis graphs was reviewed and found to be accurate for the period (3) reviewed. On this basis a score of '2' has been attributed.

#### **6.3.12.7 Specific Observations**

- During the audit it was not clear how incidents of graffiti and fly-tipping reported by members of staff are managed. This should be clarified before the next audit.
- Graffiti and fly-tipping come under the Lineside Visual Environment IPI. This IPI also covers:
  - Vegetation (includes general vegetation, trees, vegetation clearance, giant hogweed, Japanese knotweed, ragwort)
  - Site clearance
  - Fencing and boundary walls
  - Bridge appearance.

Therefore it would follow that these should also be covered in the review. This should be considered before the next annual review of environmental data.

### **6.4 General Observations**

Overall, the KPIs used are considered to be suitable for monitoring and reporting environmental performance. Specific observations have been summarised within each KPI sub section above. More general observations, relevant to all of the KPIs collectively are summarised here:

- There is a heavy reliance on manual input and manipulation of data.
- A single spreadsheet document should be developed for both third parties and Network Rail to populate and manipulate, thus minimising the amount of transposition of data between sources.
- The verification process is limited to the data and information provided by Network Rail at the time of the review.
- Verification of the raw data source provided by third party contractors has not been possible. Consequently, the reliability and accuracy of this data cannot be assured / verified. Consequently it is unlikely that an A1 score can be achieved for environmental

data. As a result a theoretical maximum score for environmental data has been provided below:

The theoretical maximum score that NR can achieve on for this KPI is B for Reliability, on the basis that NR relies on data from a 3<sup>rd</sup> party, and 1 for Accuracy, assuming 3<sup>rd</sup> party data can be fully verified. However, as shown in Section 7, below, B1 is an incompatible reliability/accuracy rating combination, and so the maximum feasible score is B2.

## **6.5 Conclusions Drawn**

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There are systems and processes in place to ensure the reliable collection of accurate environmental data, which are well documented and understood. However, they rely heavily on manual input and manipulation of data, often from third parties, which is then summarised and collated on further spreadsheets for centralised reporting.

NR would benefit greatly from a centralised spreadsheet that can be used to manage and report environmental data collectively. It is understood from the audit that this is currently being investigated.

## **6.6 Assessment of Confidence Ratings**

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### **6.6.1 KPI 126: Environmental Sustainability Index**

**Reliability:** A simple, reliable and consistent process is in place to monitor and report overall progress against each PI, using the Environmental Sustainability Index. As the Environmental Sustainability Index is calculated from each of individual PI, it is reliant on the data and processes used to make up these component parts being reliable. On this basis a score of 'B' has been attributed.

**Accuracy:** As the Environmental Sustainability Index is calculated from each of individual PI, it is reliant on the data and processes used to make up these component parts being reliable. On this basis a score of '3' has been attributed, due to the significant manual input required to enter information and perform calculations.

### **6.6.2 KPI 129: Operational Waste Management**

**Reliability:** A reliable and established process is in place for monitoring and reporting operational waste data. However, due to the reliance on third party data, which has not been verified, a score of 'B' has been attributed.

**Accuracy:** Operational waste data is deemed to be accurate; however there is a heavy reliance on manual input therefore a score of '3' has been attributed.

### **6.6.3 KPI 134: Infrastructure Waste Management**

**Reliability:** A reliable and established process is in place for monitoring and reporting infrastructure waste data. However, due to the reliance on third party data, which has not been verified, a score of 'B' has been attributed.

**Accuracy:** Infrastructure waste data are deemed to be accurate; however there is a heavy reliance on manual input therefore a score of '3' has been attributed.

### **6.6.4 KPI 130: Water Used**

**Reliability:** There is a process in place to monitor and report water used, however it is based on estimated readings as water is not metered at present. On this basis a score of 'C' has been attributed.

**Accuracy:** Water used is not currently metered therefore consumption is estimated. On this basis a score of '4' has been attributed.

### **6.6.5 KPI 146: Water Recovered**

There is a reliable and accurate process in place for monitoring and reporting water recovered, which is metered consistently month by month. However there is significant reliance on third party data. On this basis a score of 'B' has been attributed.

Accuracy: Water used data are provided by abstraction meters and is deemed to be accurate. On this basis a score of '2' has been attributed.

#### **6.6.6 KPI 128: Sustainable Materials**

Reliability: A reliable and established process is in place for monitoring and reporting sustainable materials, with the data feed coming directly from the NR procurement system. In addition, Network Rail has performed internal assurance audits to verify the reliability of sustainable timber data. On this basis a score of 'B' has been attributed.

Accuracy: Sustainable materials data are deemed to be accurate; however there is some manual input. On this basis a score of '2' has been attributed.

#### **6.6.7 KPI 132: Network Rail CO<sub>2</sub> (e) Emissions**

Reliability: From the spot check of total tonnes of CO<sub>2</sub>, NR Rail CO<sub>2</sub> (e) Emissions for the fuel types listed is deemed to be reliable. On this basis a score of 'B' has been attributed.

Accuracy: A target has been set to reduce NR CO<sub>2</sub> emissions. The method used for reporting NR CO<sub>2</sub> emissions is considered to be complete to meet the target to reduce energy related CO<sub>2</sub> emissions. The end of year data for gas and electricity have been transposed correctly and the calculations used in the summary spreadsheet are accurate. On this basis a score of '2' has been attributed.

#### **6.6.8 KPI 127: Contractor CO<sub>2</sub> (e) Emissions**

Reliability: From the spot check of total tonnes of CO<sub>2</sub>, NR Rail Contractor CO<sub>2</sub> (e) Emissions for the contractors listed is deemed to be reliable. On this basis a score of 'B' has been attributed.

Accuracy: From the spot check of total tonnes of CO<sub>2</sub>, NR Rail Contractor CO<sub>2</sub> (e) Emissions for the contractors listed is deemed to be accurate. On this basis a score of '2' has been attributed.

#### **6.6.9 KPI 133: TOC CO<sub>2</sub> (e) Emissions**

Reliability: A process has been established for monitoring and reporting TOC CO<sub>2</sub>; however, data was not available for review at the time of the audit. In addition, the reliability of the external data provided by ATOC cannot be evaluated. On this basis a score of 'X' has been attributed.

Accuracy: Complete NR figures for TOC CO<sub>2</sub> were not available at the time of the audit. In addition the accuracy of external data provided by ATOC cannot be determined. On this basis a score of 'X' has been attributed.

#### **6.6.10 KPI 133: FOC CO<sub>2</sub> (e) Emissions**

Reliability: A process has been established for monitoring and reporting FOC CO<sub>2</sub>, however data was not available for review at the time of the audit and the reliability of data provided by ORR cannot be evaluated. On this basis a score of 'X' has been attributed.

Accuracy: Complete figures for TOC CO<sub>2</sub> were not available at the time of the audit; therefore accuracy of the data could not be determined. In addition, the reliability of the external data provided by ORR cannot be evaluated. On this basis a score of 'X' has been attributed.

#### **6.6.11 KPI 147: Environmental Incidents**

Reliability: A spot check review of incidents was conducted. The incidents reported were consistent and data transposition and reporting methods were reliable. On this basis a score of 'B' has been attributed.

Accuracy: The summary data reported by Network Rail, are considered to be accurate as transposition of data from the SEAR Report and the incident reporting spreadsheet match. On this basis a score of '2' has been attributed.

#### **6.6.12 KPI 137: Land Management**

Reliability: A reliable and established process is in place for monitoring and reporting on land management, which is reliant on third party data. On this basis a score of 'B' has been attributed.

Accuracy: A complete set of NR land management data was reviewed. The methods used to extract and interpret data were found to be 100% accurate. On this basis a score of '2' has been attributed.

#### **6.6.13 IPI 211: Graffiti and fly-tipping**

Reliability: A spot check of reported incidents was conducted and the raw data for reporting period 3 and method for transposing this into the KPI dashboard had been reviewed. A reliable and robust process is in place for monitoring and reporting graffiti and fly-tipping incidents. Each of the incidents reviewed had been fully investigated and the data supplied was consistent with the reporting fields requested. The method used for reporting graffiti and fly-tipping and monitoring against the 20 day KPI was consistent. On this basis a score of 'B' has been attributed.

Accuracy: Graffiti and fly-tipping data is deemed to be accurate from the point of receipt and management by NR. It is not possible to determine the level of accuracy of information provided by members of the public. The method of transposing raw data into the KPI analysis graphs was reviewed and found to be accurate for the period (3) reviewed. On this basis a score of '2' has been attributed.

### **6.7 Recommendations**

It is understood that NR are already actioning a number of items highlighted in this report. Tables 6.2 and 6.3 contain two sets of recommendations: respectively, those that are currently in progress and are to be followed up at the next review and those that are new recommendations. The recommendations are numbered 2010.9.1, 2010.9.2, etc. to reflect the (end of the) current year and the Environmental Initiatives KPI number.

The recommendations for these KPIs are combined, in Section 7, with those for the other KPIs under consideration in this report, in order to provide an overview of the recommendations made in the current Quarter.

**Table 6.2: Recommendations in Progress**

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
2010.9.1	The possibility of developing one master environmental KPI spreadsheet, allowing population and manipulation by both third parties and Network Rail, is currently being investigated. Formulas should be included on spreadsheets where possible, to avoid manual input. This will minimise the risk of error when transposing data between sources. Progress will be reviewed during the next Data Assurance cycle.	6.3.2.2, 6.3.2.3, 6.3.3.3, 6.3.6.1, 6.3.7.1, 6.5	Diane Booth	March 2011
2010.9.2	KPI maps are currently being reviewed and documented for each KPI. As part of the review, job titles should be added to the KPI maps in addition to individual roles, thus reducing the maintenance requirements of the document. In addition, consistent descriptions should be provided of business areas for waste on the KPI map – it	6.3.2.3, 6.3.9.3, 6.3.10.3	Diane Booth	September 2010

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
	currently does not detail Operations and Customer Services, Commercial Property, or Infrastructure Maintenance. Again, progress will be reviewed during the next Data Assurance cycle.			
2010.9.3	Progress with the Utilities Team 3-year plan for improving the 'water used' monitoring process is under review. Again, progress will be reviewed during the next Data Assurance cycle.	6.3.4.1	Diane Booth	September 2010

**Table 6.3: New Recommendations**

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
2010.9.4	Key targets and data required from contractors by Network Rail should be formally written into appropriate contracts, when up for renewal. For example where NR requires contractors to conduct waste duty of care audits and confirm results back to NR; where NR require ISO 14001 certification for principal contractors.	6.3.2.1, 6.4, 6.5	Diane Booth	As contracts are renewed
2010.9.5	Reporting should be extended to include all waste streams generated, including reused, recovered and recycled waste.	6.3.2.2, 6.3.2.3	Diane Booth	March 2011
2010.9.6	Definitions should be provided of: <ul style="list-style-type: none"> <li>• Recycled materials</li> <li>• Recovered</li> <li>• Reused.</li> </ul>	6.3.2.3	Diane Booth	September 2010
2010.9.7	Source details should be provided of assumed densities for estimated waste collection vessels.	6.3.2.3	Diane Booth	September 2010
2010.9.8	A procedure should be developed, in a flow chart format, to benefit users in completing the correct documentation in the event of an environmental incident.	6.3.11.3	Diane Booth	September 2010
2010.9.9	The clarity of KPI 137: Land Management should be improved to indicate that it only covers England and not Scotland and Wales.	6.3.12	Diane Booth	September 2010
2010.9.10	Clarify how incidents of graffiti and fly-tipping reported by members of staff are managed.	6.3.13.3	TBC	September 2010
2010.9.11	Graffiti and fly-tipping come under the Lineside Visual Environment KPI. This KPI	6.3.13.3	TBC	September

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
	<p>also covers:</p> <ul style="list-style-type: none"> <li>• Vegetation (includes general vegetation, trees, vegetation clearance, giant hogweed, Japanese knotweed, ragwort)</li> <li>• Site clearance</li> <li>• Fencing and boundary walls</li> <li>• Bridge appearance.</li> </ul> <p>Confirm if the bullets above should also be covered by this review process.</p>			2010
2010.9.12	It was highlighted in the review that there are additional KPIs and environmental information reported within the CR Report that did not form part of this review. NR took an action to confirm how best to raise the profile of this work with ORR.	N/A	Diane Booth, Angelique Tjen	September 2010

## 7 Assessment of Confidence Ratings

### 7.1 Confidence Grading System

The confidence grading system used in this report is based on the approach taken by previous Reporter in their reports, whereby a two-character alphanumeric rating (e.g. 'A2') is used to provide a combined assessment of reliability and accuracy, with the letter used as a reliability rating, and the number as a confidence rating. The rating system used is summarised in Table 7.1 which again is adopted from the previous Reporter's final report.

It has been recognised in the first year of Independent Reporting that this rating system has some shortcomings, particularly in respect of the Accuracy Bands. Based on our experience during 2009/10, an alternative, more quantitative-based, accuracy banding system has therefore been developed and circulated to ORR and Network Rail for comment. Once agreed, it is intended to use the revised system from 2010/11 onwards.

**Table 7.1: Confidence Grading System**

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.	
X	Process wholly or largely managed by a Third Party and therefore unavailable for review.	
Accuracy Band	Accuracy to or 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 (see Table 9.2)	

Again, as in the previous Reporter's reports, some reliability/accuracy combinations are considered to be incompatible, as shown as 'N/A' in Table 7.2.



**Table 7.2: Confidence Grading Compatibilities**

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

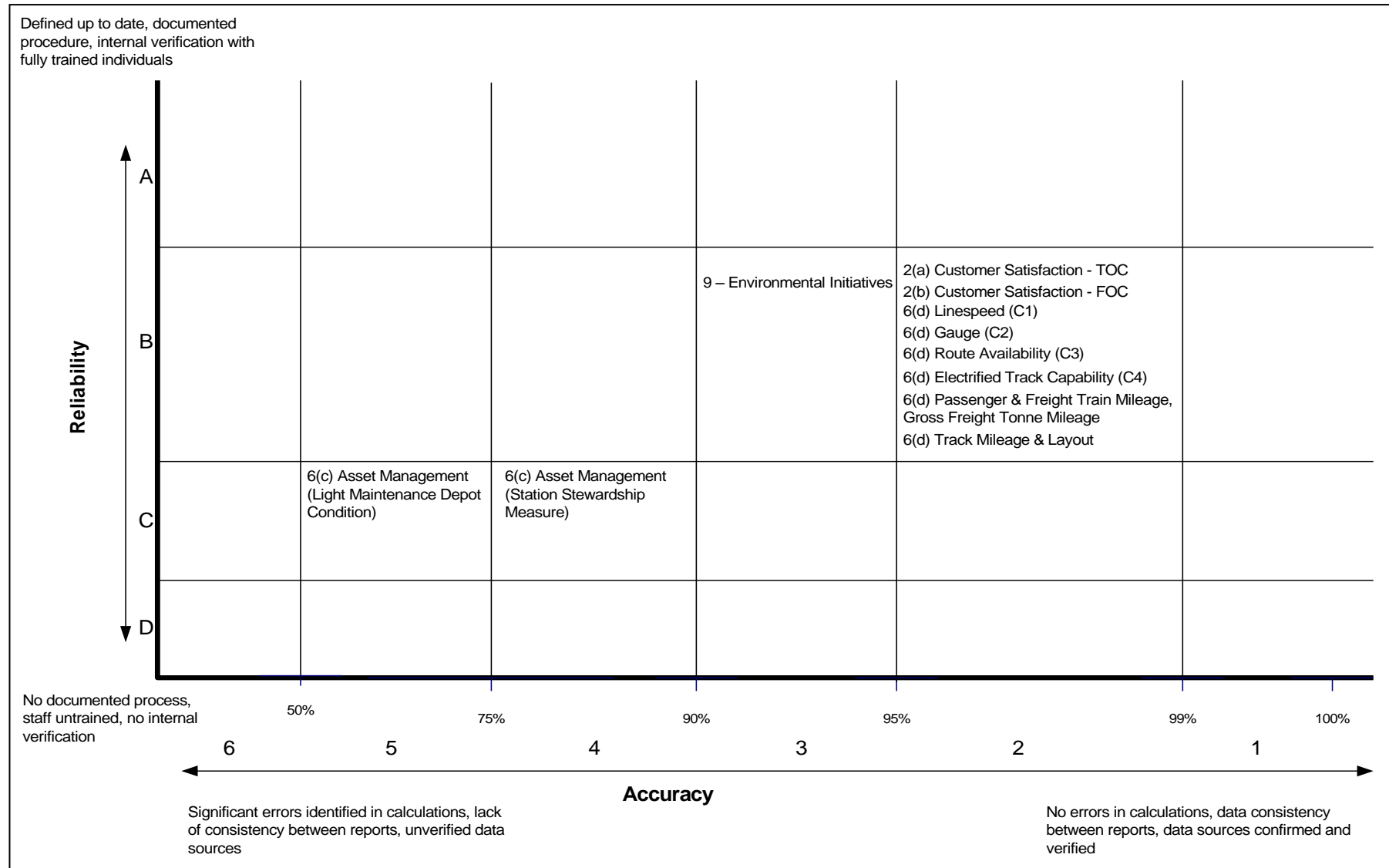
This grading system is subject to review, and our graphical interpretation of the gradings we have awarded is included in the following section.

## 7.2 Confidence Ratings Achieved

Our confidence ratings for the Quarter 4 KPIs are summarised below, and their values are represented graphically in Figure 7.1:

- 2(a): Customer Satisfaction – TOC: B2
- 2(b): Customer Satisfaction – FOC: B2
- 6(c): Asset Management (Station Stewardship Measure): C4
- 6(c): Asset Management (Light Maintenance Depot Condition): C5
- 6(d): Linespeed (C1): B2
- 6(d): Gauge (C2): B2
- 6(d): Route Availability (C3): B2
- 6(d): Electrified Track Capability (C4): B2
- 6(d): Ongoing Short-Term Network Change Proposals and Discrepancies between Actual and Published Capability Arising from the Infrastructure Capability Programme: BX
- 6(d): Passenger and Freight Train Mileage, Gross Freight Tonne Mileage: B2
- 6(d): Track Mileage and Layout: B2
- 9: Environmental Initiatives: B3

**Figure 7.1: Confidence Ratings Matrix**



## 8 Recommendations

The table below contains a combined set of draft recommendations for ORR, to be discussed with ORR and the Network Rail Data Champions for Customer Satisfaction, Station Stewardship and Light Maintenance Depot Condition, and Environmental Initiatives on 12<sup>th</sup> May 2010, and provides the basis for a work plan and schedule to be agreed with Network Rail. The recommendations are numbered 2010.2.1, 2010.6.1, etc. to reflect the current year and the relevant KPI numbers.

**Table 8.1: Combined Recommendations**

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
2010.2.1	Create a documented procedure for the production of the KPI (including the provision of a survey specification, and the stipulation of a regular check within each Train and Freight Operating Company that no staff are being overlooked in the course of the survey process).	3.3.2, 3.6	Fiona Dolman	September 2010
2010.6.1	The construction of the SSM and LMDC measures should be reviewed, with the aim of making them more meaningful and sensitive, such that considerable levels of investment do not produce only very small changes in the scores, and the measures can thus be used as the basis for investment decisions, and can provide useful indicators of changes in condition	4.4	John Chappell	March 2011 for initial proposal
2010.6.2	A greater level of competence and consistency should be ensured throughout the survey teams (by means of common standards of training, etc.) to ensure that the level of detail is consistent nationally	4.3.1, 4.4	John Chappell	March 2011
2010.6.3	A greater level of competence and consistency should be ensured throughout the survey teams (again by means of common standards of training, etc.) to ensure that the approach to residual life is consistent nationally	4.3.1, 4.4	John Chappell	March 2011
2010.6.4	Network Rail's high level of survey audit activities should be continued until Amey's survey outputs stabilise at a consistently satisfactory level	4.3.1	John Chappell	To be continued until consistency is achieved (to be reviewed during 2010/11 audit round)
2010.6.5	The results of any surveys conducted	4.3.1, 4.4	John Chappell	March

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
	in addition to the regular five-yearly inspection cycle should be excluded from the SSM and LMDC measures (to avoid the introduction of bias to the results). However, consideration should be given as to how such ongoing improvements should best be recorded and reflected.			2011
2010.6.6	Improved guidance should be provided to those receiving the Amey survey data to ensure a correct understanding of the validation and challenge process	4.3.1	John Chappell	September 2010
2010.6.7	The process documentation should be expanded to include details of the calculations used to produce the measures – a separate, specific document should be produced for this purpose, referenced from the higher-level Definition and Procedure documents.	4.4	John Chappell	March 2011
2010.6.8	Develop Work Instruction to cover data processing activities conducted at Melton Street	5.1.3 – 5.1.5	Mary Jordan, Tony Smith	September 2010
2010.6.9	Investigate the feasibility of, and likely timescales for, automating the linespeed updating process as much as possible.	5.1.3, 5.1.6	Janine Beel (and others?)	March 2011
2010.6.10	Develop Work Instruction to fully cover data processing activities conducted at Melton Street	5.2.1; 5.2.4 - 5.2.6	Mary Jordan, Tony Smith	September 2010
2010.6.11	Develop Work Instruction to fully cover data processing activities conducted at George Stephenson House.	5.2.4 - 5.2.6	Tim Fuller	September 2010
2010.6.12	Implement aspiration to further automate the generation of Gauging Certificates and their incorporation in the Gauge Capability Database	5.2.3 – 5.2.5	Tim Fuller	March 2011
2010.6.13	Formalise and document process for calculation of aggregate Route km values	5.2.1; 5.2.4 - 5.2.6; 5.3.1, 5.3.5, 5.3.6	Mary Jordan, Tony Smith	March 2011
2010.6.14	Develop Work Instruction to fully cover Route Availability verification and data processing activities.	5.3.1, 5.3.5, 5.3.6	Ian Bucknall, Mary Jordan, Tony Smith	September 2010

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
2010.6.15	Review process and Work Instruction, and update as necessary to fully cover Electrified Track Capability data processing activities, including the updating of records in GEOGIS.	5.4.1; 5.4.3 – 5.4.6	Simon Thick, Mary Jordan, Tony Smith	September 2010
2010.6.16	The processes should be fully documented	5.5.1;	David Rayner	September 2010
2010.6.17	The feasibility of presenting a single, central view of the Network Change process and outputs should be investigated	5.5.3 – 5.5.6	David Rayner	March 2011
2010.6.18	The presentation on the Network Rail website of infrastructure undergoing the Network Change process should be improved, and indexed	5.5.3	David Rayner	March 2011
2010.6.19	Develop comprehensive documentation of the Billing process, to complement and include the TABS Journey Error Corrections manual.	5.6.1, 5.6.4, 5.6.6	Mairead Christie	September 2010
2010.9.1	The possibility of developing one master environmental KPI spreadsheet, allowing population and manipulation by both third parties and Network Rail, is currently being investigated. Formulas should be included on spreadsheets where possible, to avoid manual input. This will minimise the risk of error when transposing data between sources. Progress will be reviewed during the next Data Assurance cycle.	6.3.2.2, 6.3.2.3, 6.3.3.3, 6.3.6.1, 6.3.7.1, 6.5	Diane Booth	March 2011
2010.9.2	KPI maps are currently being reviewed and documented for each KPI. As part of the review, job titles should be added to the KPI maps in addition to individual roles, thus reducing the maintenance requirements of the document. In addition, consistent descriptions should be provided of business areas for waste on the KPI map – it currently does not detail Operations and Customer Services, Commercial Property, or Infrastructure Maintenance. Again, progress will be reviewed during the next Data Assurance cycle.	6.3.2.3, 6.3.9.3, 6.3.10.3	Diane Booth	September 2010
2010.9.3	Progress with the Utilities Team 3-year plan for improving the 'water used' monitoring process is under review. Again, progress will be reviewed during the next Data Assurance cycle.	6.3.4.1	Diane Booth	September 2010
2010.9.4	Key targets and data required from contractors by Network Rail should be formally written into appropriate	6.3.2.1, 6.4, 6.5	Diane Booth	As contracts are

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
	contracts, when up for renewal. For example where NR requires contractors to conduct waste duty of care audits and confirm results back to NR; where NR require ISO 14001 certification for principal contractors.			renewed
2010.9.5	Reporting should be extended to include all waste streams generated, including reused, recovered and recycled waste.	6.3.2.2, 6.3.2.3	Diane Booth	March 2011
2010.9.6	Definitions should be provided of: <ul style="list-style-type: none"> <li>• Recycled materials</li> <li>• Recovered Reused.</li> </ul>	6.3.2.3	Diane Booth	September 2010
2010.9.7	Source details should be provided of assumed densities for estimated waste collection vessels.	6.3.2.3	Diane Booth	September 2010
2010.9.8	A procedure should be developed, in a flow chart format, to benefit users in completing the correct documentation in the event of an environmental incident.	6.3.11.3	Diane Booth	September 2010
2010.9.9	The clarity of KPI 137: Land Management should be improved to indicate that it only covers England and not Scotland and Wales.	6.3.12	Diane Booth	September 2010
2010.9.10	Clarify how incidents of graffiti and fly-tipping reported by members of staff are managed.	6.3.13.3	TBC	September 2010
2010.9.11	Graffiti and fly-tipping come under the Lineside Visual Environment KPI. This KPI also covers: <ul style="list-style-type: none"> <li>• Vegetation (includes general vegetation, trees, vegetation clearance, giant hogweed, Japanese knotweed, ragwort)</li> <li>• Site clearance</li> <li>• Fencing and boundary walls</li> <li>• Bridge appearance.</li> </ul> Confirm if the bullets above should also be covered by this review process.	6.3.13.3	TBC	September 2010
2010.9.12	It was highlighted in the review that there are additional KPIs and environmental information reported within the CR Report that did not form	N/A	Diane Booth, Angelique	September 2010

No.	Recommendation to NR	Locations in Text	NR Data Champions	Due Date
	part of this review. NR took an action to confirm how best to raise the profile of this work with ORR.		Tjen	

## 9 Quarterly Recommendations Review

As noted in Section 2, following discussions with ORR, and reflecting the move in 2009-10 to a rolling programme of quarterly reports, a system has been developed since our previous (Quarter 3) report for the quarterly tracking of Network Rail’s progress with outstanding recommendations associated with the KPIs not being covered in the current quarter (in this quarter, the KPIs not being covered in the quarterly report relate to Performance, Safety, Network Availability and the Infrastructure Condition Report/Network Condition Report).

The system developed comprises a spreadsheet containing multiple worksheets, with a single worksheet for each KPI area/Data Champion containing a list of all outstanding recommendations for the KPI area (e.g. Performance). Some of the recommendations have been carried over from those made by the previous Reporter (by agreement between ORR and Network Rail), while the remainder have been made by the current Reporter since the start of reporting in 2009-10. A sample worksheet is shown (for illustrative purposes only) in Figure 9.1, below.

**Figure 9.1: Performance Worksheet in Recommendations Tracking Spreadsheet**

KPI - 5 a)(b)(c)(d) & 6 a)(b) Performance									
Recommendation No#	Outstanding CP3 Recommendations	Date	Recommendation	Due Date	Data Champion	Progress	Last Updated	Updated By	Any change?
2010.5.1		23/11/2009	Formalise key National processes, procedures, controls and definitions to mitigate the effects of personnel changes and ensure the retention of specialist knowledge for business continuity purposes; incorporate these into Performance Manual • Formalisation of PPM Definition • Documentation of Data Modifications and Verification Checks • Formalisation and Control of Definitions and Requirements for CaSL • Formalisation and Documentation of Procedures for Accommodating Train Service Changes	Jul-10	Paul Kelly				
2010.5.2		23/11/2009	Improve Document/Data Version Control • Performance Spreadsheets Version Control	Mar-10	Stephen Draper				
2010.5.3		23/11/2009	Establish guidelines for and use of Spreadsheet Best Practice • Avoidance of 'Hard Coding' • Automation of Processes • Highlighting of Unavoidable Exceptions to these	Jan-10	Stephen Draper				
2010.5.4			Devise and agree a plan to resolve outstanding freight data issues	Mar-10	Stephen Draper				
2010.5.5		23/11/2009	Review System Upgrades • Verify that Business Objects migration and SRP 77 upgrade have taken place successfully • Note: NR Part A Reporter to review NR documentation of processes and outcomes during 2010/11	2010/11	N/A				
	Ref Code 21: M9 recommendation on 1	08/01/2010	A more reliable system is established for the transfer of data between FMS and TRUST. At the current time this information is only transferred verbally and therefore there is room for error or for omission.		Recommendation rejected				
	Ref Code 26: M11 & M12 recommendation on 1	08/01/2010	Following discussions with the IMPMs it was agreed that the IMPMs role is nothing more than a mailbox and therefore this role adds nothing to the process. Therefore it is recommended that the IMPMs take ownership of this data and a process to valid this d		N/A				
	Ref Code 28: M11 & M12 recommendation on 3	08/01/2010	It is recommended that procedure (NR/ARM/M11PR, February 2005 (issue 4) is updated to reflect the change process, in organisation and the creation on new job titles in Network Rail.		N/A				

This spreadsheet was circulated to the relevant Network Rail Data Champions for the first time in Quarter 4 of 2009-10, with a request to update their respective worksheets to reflect progress made. The system appears to have worked well and smoothly – a 100% response rate was achieved. The feedback was collated into a single spreadsheet for Quarter 4, which is being circulated to ORR and Network Rail with this report.

### 9.1 KPI 1: Safety Risk

All but one of the Safety Risk recommendations has been accepted by the Network Rail Data Champion, and has either been completed or is in the course of implementation. One of the recommendations in the course of implementation is now overdue, but this, and progress generally, will be verified in the course of our detailed review of the Safety Risk KPI during the 2010/11 Independent Reporting cycle, currently scheduled for Quarter 3.

### 9.2 KPIs 4(a) and (b): Network Availability

All the Network Availability recommendations, including some carried over from Halcrow’s



2009 Final Report as Part A Independent Reporter, have been accepted by Network Rail, and, again, have either been completed or are being implemented by means of improved documentation, processes or data reviews. No recommendations are overdue.

The progress made will be reviewed and verified in the course of the 2010/11 reporting cycle, in which coverage of Network Availability is currently scheduled for Quarter 2.

### **9.3 KPIS 5(a-d), 6(a-b): Performance**

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The Performance recommendations made in our 2009/10 Quarter 2 report, and allocated to the Network Rail Data Champion, have all been accepted and are in the course of implementation. Progress with these will be reviewed during our 2010/11 Quarter 1 Reporting activities, together with the implementation of another, general, 2009/10 recommendation, that the success of the then planned Business Objects migration and SRP 77 upgrade should be reviewed by the Independent Reporter. Some of the recommendations in progress are now overdue, and this will be raised in the course of the wider Quarter 1 review.

One of the three recommendations carried over from the 2009 Final Report has been rejected by Network Rail, and no comment has been made on the two others, as they were not allocated to the current Data Champion; this allocation will be reviewed and resolved.

### **9.4 Infrastructure Condition Report, Network Condition Report**

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The two recommendations made for in our 2009/10 Quarter 3 report in respect of the Infrastructure Condition Report (ICR) and Network Condition Report (NCR) have been accepted, and action taken. Network Rail and ORR have discussed asset reporting requirements, and, at the time the recommendations tracking spreadsheet was completed and returned, feedback was awaited from ORR. Minor documentation and formatting issues relating to the ICR spreadsheet have been resolved. Again, these updates will be verified in 2010/11, with the ICR/NCR review currently scheduled for Quarter 3. All these recommendations have been implemented by the due dates.

The Data Champion allocation of the sole recommendation carried over from the 2009 Final Report is incorrect, and will be reviewed and resolved.

Appendix A

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**Audit Survey Guidance  
Note**

# A1 Station Stewardship Measure and Light Maintenance Depot Condition Survey Audit

## A1.1 Purpose

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The Purpose of this note is to provide guidance to the survey audit teams in their assessment of the accuracy of the Network Rail surveys for the stations and depots identified to be audited as part of the ORR Independent Reporter role.

## A1.2 Scope of the Surveys

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The purpose of undertaking the audit of the Network Rail surveys is to validate their accuracy in terms of the quantum of elements recorded and confirm the recorded residual life assessment (F1 and F2) of asset elements. Other measures (F3, F4 etc) are not to be considered during the course of the survey.

## A1.3 Methodology

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The stations have been selected for audit to provide as broad a range of geographic, category and quality parameters given the scale of the survey permissible. In each case the approach to be taken will be to compare as many measures as possible from the last Network Rail survey report to observations on site. The number of measures checked should not be less than 10% for any site but, it is recognised that there are safety and time limitations on what will be possible. Having checked an element a record of the agreement or discrepancy should be marked in a copy of the Network Rail survey or on the associated plans during the course of the survey.

## A1.4 Compliance

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For each element where we are able to undertake a check non-compliance will have occurred if either the quantum or the residual life of the asset on site does not accord with the survey record.

In considering the **quantum** of the asset the general principle to adopt is that if there are clearly defined discrete elements the site observations should match exactly with the survey score. Where there is some ambiguity regarding the measure in terms of its boundary or coverage some degree of latitude should be applied; this will vary depending on the scale of the element and the degree of ambiguity. Where part of an asset is split into a number of elements, consideration should be given to the possibility that the boundaries are not well defined and thus the respective totals should be compared before identifying it as a non-compliance.

In general, where there is doubt about whether a measure conforms or not then do not count it in the audit.

When considering the **residual life** of an element if there is clear evidence that the survey record is wrong it should be marked as a non-compliance. What could be considered as subjective variations in the measure should be ignored.

In general, where there is no specific evidence that the residual life assessment in the survey is wrong then it should not be identified as a non-compliance.

## A1.5 Categorisation of Non-Compliances

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Where an element has been identified as being non-compliant a categorisation should be applied to justify the observation. Where there is clearly a discrepancy in the quantum then this should be tagged to the element. In doing so however if there is evidence that the variation is as a result of investment or renewal then it should be flagged as such – this is a

second category. Where the non-conformance is due to a disagreement with the recorded residual life then this category should be applied.

The fourth category relates to circumstances where the material identified in the survey is different to that observed on site.

Finally, a catch-all category is available for those elements that do not meet any of the above criteria. This could include where a specific element is double counted.

#### Summary of Non-Compliance Categories

- Variation in Measure;
- Variation in Residual Life;
- New Layout or Equipment;
- Different Material; and
- Other.