

Network Rail, Office of  
Rail Regulation

---

**Independent Reporter  
(Part A)**

---

Q2 Data Assurance  
Report - Performance

Network Rail, Office of  
Rail Regulation

---

**Independent Reporter  
(Part A)**

---

Q2 Data Assurance  
Report - Performance

November 2009

**Ove Arup & Partners Ltd**  
13 Fitzroy Street, London W1T 4BQ  
Tel +44 (0)20 7636 1531 Fax +44 (0)20 7755 3671  
[www.arup.com](http://www.arup.com)

This report takes into account the  
particular instructions and requirements  
of our client.

It is not intended for and should not be  
relied upon by any third party and no  
responsibility is undertaken to any third  
party

Job number 209830-03

## Contents

	Page
Executive Summary	i
1 Introduction	1
1.1 Background	1
1.2 Q2 Report	1
2 Handover from the CP3 Reporter	2
3 Train Performance Data Audit Methodology	3
4 Findings – NR Processes and Procedures	4
4.1 PPM	4
4.2 CaSL	5
4.3 NR Delay Minutes to TOCs	7
4.4 NR Delay Minutes to FOCs per 100 Train Km	8
4.5 Asset Management (Track/Non-Track Delay Minutes)	9
5 Findings - Data Accuracy for PPM and CaSL	10
5.1 Summary	10
5.2 Data Export from PSS	10
5.3 Update of Individual TOC/Sector Spreadsheets	11
5.4 PPM Detailed Spreadsheet	13
5.5 PPM Sector Level Summary Spreadsheet	13
5.6 Cancellations and Significant Lateness Spreadsheet	13
5.7 Industry Reporting	14
5.8 Data Version Control	14
6 General Observations	16
6.1 Performance Manual	16
6.2 Specialist Staff	16
6.3 Reference Data	16
7 Conclusions	17
7.1 Definitions	17
7.2 Data Collection and Performance Reporting	17
7.3 Systems Issues	17
7.4 Data accuracy	17
7.5 Documentation	17
7.6 Verification	17
7.7 Service Group & Franchise Changes	18
7.8 Transport Scotland	18
7.9 Specialist staff	18

---

8	Assessment of Confidence Rating	19
	8.1 Confidence Grading System	19
	8.2 Confidence Ratings Achieved	20
9	Recommendations	22

## Appendices

Appendix A

Glossary of Terms

Appendix B

Meeting Remit Document

Appendix C

PPM Definitions – April 2009

Appendix D

CASL Definitions - 2nd Draft

Appendix E

Data Accuracy

## Executive Summary

The Reporter team examination of the data management and assurance arrangements in the Network Rail Performance organisation has concluded that, overall, very high levels of data accuracy are being achieved - accuracy levels generally in excess of 99% across a range of very large data sets. There are only two general aspects of the arrangements which have raised concerns with the Reporter team, and which need to be addressed:

- Actual and potential inaccuracies in the data received from TOCs in respect of cancellations. However, the need to source cancellations data from TOCs will cease if and when the planned upgrade of TRUST (SRP 77) has been implemented in early 2010, at which point cancellations data will be collected automatically and will have the same levels of accuracy and assurance as all other similarly sourced and collected performance data.
- The lack of documented processes, procedures, controls and definitions across a range of different activities within the National Performance office. Whilst the routines witnessed by and described to the Reporter team were generally satisfactory, the organisation is populated with a number of uniquely specialist roles which renders it vulnerable to staff changes; comprehensive documentation of procedures provides a measure of protection and mitigation for such eventualities.

It should be noted that the capture of delay data has not been reviewed for the purposes of this report, and is therefore a possible area to be focussed upon in the Reporting programme for 2010/11.

The findings for the individual KPIs are summarised in the following paragraphs.

### PPM

Confidence Rating = A1

Most data is collected automatically at National level (but see the following section (CaSL) for exceptions). Network Rail (NR) has focused on ensuring the integrity of Route level data input and data quality at Control Office and Route Performance office level, and as a consequence, high levels of data accuracy are being achieved.

NR national routines and controls for managing PPM data appear robust, but are not adequately formalised or documented.

### CaSL

Confidence Rating = B2

This rating was a result of the KPI definition still being formulated and the impact of the manual collection and editing of TOC part cancellation data.

Most data is collected automatically at National level, where it has been recorded in TRUST (i.e. all full cancellations and some part cancellations.) Where TRUST does not capture part cancellations - mainly 'fail to call' services, and some which terminate short of destination or start up in advance of booked origin – these require a manual edit of CaSL data, using information supplied direct from TOCs.

Neither NR, nor the TOCs interviewed, had audit, check, or assurance procedures in place for data quality in respect of CaSL. The processes and procedures are very reliant on knowledgeable, experienced personnel in a large number of organisations performing manual edit on a frequent, and, in most cases, daily basis.

Whilst TOC monitoring and management of cancellations and severe lateness appears to be of a high order, their monitoring of the CaSL KPI appears generally passive, and their appreciation of its status as a regulated measure is limited. In Scotland, the CaSL measure is not required to be monitored or reported.

Overall, the levels of data accuracy would be improved further by greater automation of cancellations data collection.

## NR Delay Minutes to TOCs

Confidence Rating = A1

All delay minute data is collected automatically. NR has focused on ensuring the integrity of Route level data input and data quality at Control Office and Route Performance office level, and as a consequence, high levels of data accuracy are being achieved.

The continuing development of delay attribution policy and principles, and relevant definitions, ensures that this area of activity remains well managed.

## NR Delay Minutes to FOCs per 100 Train Km

Confidence Rating = A3. The lower Accuracy rating was due to the acknowledged but not fully understood inaccuracies in the train kilometres (km) data.

Data collection and management arrangements are identical to those described for TOCs, and all Freight companies are now established on a common performance regime. There remain some difficulties in populating the KPI because of perceived inaccuracies in the train km data, and some remaining issues around sectional running times for modern traction.

## Asset Management (Track/non-track Delay Mins)

Confidence Rating = A1

There are no regulated outputs or KPIs covering these asset categories. These categories, and other similar infrastructure/asset categories are well understood within the company, and have been in the suite of Performance Indicators on the Corporate Dashboard for a considerable period of time.

# 1 Introduction

## 1.1 Background

---

Arup have been appointed by ORR and Network Rail (NR) to provide assurance as to the quality, accuracy and reliability of NR's data that is used to report performance to ORR, the DfT and the wider industry.

In order to effectively hold NR to account, it is essential for ORR to have confidence in this 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 requires assurance of the data received in support of a range of Key Performance Indicators (KPIs) at a more regular frequency. The Reporter is required to prepare four quarterly 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 and all of the KPIs will be covered over the remaining three quarters.

## 1.2 Q2 Report

---

This report details the Reporter's data assurance activity in Q2 2009, and is focused upon Train Performance data and is produced in accordance with Mandate AO/003: Data Assurance for Output Monitoring. The report covers

- Handover from the CP3 Reporter
- Train Performance Data Audit Methodology
- Findings – NR processes and Procedures
- Findings – Data Accuracy for PPM and CaSL
- General Observations
- Conclusions
- Assessment of Confidence Rating
- Recommendations

The KPIs agreed for review at this audit are:

- 5(a) Public Performance Measure of punctuality (PPM)
- 5(b) Cancellations and Significant Lateness (CaSL)
- 5(c) NR delays minutes to passenger train operating companies (TOCs)
- 5(d) NR delay minutes to Freight Operating Companies (FOCs) per 100 train km
- 6(a) Asset Management (track infrastructure delay minutes)
- 6(b) Asset Management (non-track infrastructure delay minutes)

A glossary of terms is provided in Appendix A.

## 2 Handover from the CP3 Reporter

Discussions have taken place between the newly appointed Part A Reporter, and the outgoing CP3 Reporter team, to ensure a smooth and seamless handover. In the handover, the outgoing Reporter team has furnished a number of documents and reports including:-

- the audit of the NR 2008/09 Annual Return
- a disposition of matters outstanding from this audit
- a schedule of recommendations from previous audits during CP3, including the status of these recommendations

A standing item on the remit for all quarterly audits in future will be a review of progress on outstanding recommendations, including those outstanding from the CP3 Reporter.

In respect of outstanding recommendations from train performance data, there is only one, from the most recent report of the CP3 Reporter, as follows: "We recommend the use of a single source of data will improve the data accuracy and reliability of the output findings. It will ensure TOC data is a true reflection of the events which took place."

This recommendation is superseded by the conclusions and recommendations of this Report.

### 3 Train Performance Data Audit Methodology

The KPIs agreed to be reviewed at this audit are detailed above. As the CP3 Reporter has only recently completed a data assurance audit of NR train performance data (March-June 2009), it was agreed with the ORR and Network Rail that the Reporter would focus attention at this audit on CaSL. This is a new CP4 measure not previously collated, although the CP3 Reporter did look briefly at this new measure in their final report.

Following an initial meeting with Stephen Draper, the National Performance Analysis Manager, on 11<sup>th</sup> September 2009 to agree the process, the audit was undertaken during October and comprised four meetings between the Reporter team and NR Managers involved in the collation, verification and reporting of performance data and information. These were:

- with the National Performance team at Milton Keynes on 2<sup>nd</sup> October 2009
- with the Route Performance Manager, Scotland in Glasgow on 7<sup>th</sup> October 2009
- with the Route Performance Manager, London North Eastern in York on 16<sup>th</sup> October 2009
- with the Route Performance Manager, Anglia in London on 19<sup>th</sup> October 2009

Details of meeting attendees are shown at Appendix B.

A remit was prepared, approved and circulated to the relevant Managers in advance of the meetings, allowing them the opportunity to prepare for the audit. The same remit was used for each meeting, tailored and adapted to the circumstances of each route. The remit is attached at Appendix B.

The Reporter team that undertook this work was Phil Dargue, Keith Winder and Matthew Ablett.

The National team meeting took the form of a series of structured interviews with individual managers, to cover particular specialisms - collation of weekly and periodic PPM, CaSL data, performance systems issues, processes and procedures, and data management.

At the Route meetings, a representative from a TOC performance team was requested to attend, specifically in relation to cancellation data, as NR currently relies upon TOCs as its main data source for cancellations. The arrangements are described more fully in section 4.2.4.

At each meeting, various data sets were requested by the Reporter for off site analysis. These data sets were used to test:-

- the integrity of data uploads, from proprietary systems, and from TOCs/Routes
- the application of rules and definitions in the collation of data
- the extent of any discrepancy between data sets
- the integrity of data adjustments undertaken manually

A commentary on data analysis is included in this Report at section 5.

A comprehensive note of each meeting has been retained by the Reporter as a formal record of the proceedings, and evidence from these meetings has been incorporated into this report.

## 4 Findings – NR Processes and Procedures

### 4.1 PPM

---

#### 4.1.1 Definitions

The 'high level' definition for PPM has been developed by the PPM Policy Group, a cross-industry forum. The documented version of the definition is attached at Appendix C. The status of this free-standing document - its currency, issue date, version number, distribution, ownership and authority – is unclear. The only formal documents that contain the definition of PPM appear to be franchise agreements although these are not all identical, because of variations between franchises. The fact that franchise agreements are made between TOCs and DfT means that these variations are beyond NR's control.

Route Performance Managers confirmed that they had no practical need or use for the definitions contained in this document, as all the necessary route instructions and guidance are contained in the Performance Manual (see Section 6.1). It was however confirmed by the Routes that scenarios outlined within the definition remain incomplete, and continue to be enhanced by precedent, Case Law and ongoing resolution of matters of principle, etc.

We therefore recommend that a formal definition of PPM should be developed and maintained in a controlled document, which also reflects any TOC-specific variations contained within franchise agreements.

#### 4.1.2 Briefing

A briefing on the PPM definition has taken place within NR HQ and was confirmed, by all Route Performance Managers seen, to have been carried out in the Routes. The Route meetings confirmed that the PPM definition had been circulated to Route level.

#### 4.1.3 Data Collection

It was confirmed that all data used for routine reporting of PPM, both in NR and to the wider industry, is collated at national level, and is gathered from TRUST via PSS (Performance Systems Strategy) with the exception of cancellation data.

The Industry Period Performance Report (IPPR) is produced on the second Monday of each period using Day 8 data. Daily reports are produced from the data within PSS automatically. These reports contain a provisional PPM figure which is collated using NR cancellation data from TRUST, and TOC cancellation data if available. Usually around 50% of TOCs have provided this data by Day 8. Final PPM figures are compiled using TOC cancellation data (see section 4.2 for a more detailed explanation).

#### 4.1.4 Systems Issues

NR is currently managing the final stages of the transition to Performance Systems Strategy (PSS). All data will eventually be stored centrally with all reports produced through a standard reporting platform called Business Objects (BO). The key reference data is maintained and managed by the National Team in Milton Keynes.

The systems arrangements for PPM information are stable and have operated satisfactorily for over 2 years. The planned migration to Business Objects as the preferred reporting platform for periodic PPM will take place over the next 12 months, replacing the Oracle Discoverer software currently in use. There are perceived to be few risks in this migration. PSS is already the data source for PPM and a period of parallel running is included in the migration strategy as part of the risk management/mitigation process. Business Objects is already in use for daily PPM reporting. We recommend that the outcome of this migration should be subject to audit in the 2010/11 Reporting programme.

#### 4.1.5 Amendments to Base Train Service data

It was stated by both the National Team, and by Route Performance Managers, that NR has strict control over how reference data within PSS may be modified and who is authorised to

undertake such amendments. No documented evidence of these procedures or of these controls could be produced. It was also stated that such amendments do not alter base TRUST data, and both original and amended data is shown in PSS. Staff at Route level have no access to PSS reference data.

We therefore recommend that these procedures and controls should be formally specified and documented.

#### 4.1.6 Verification

Various verification checks are undertaken frequently at National level on the aggregated high level data, including a reconciliation between PPM, delay minutes and Schedule 8 payment data, to assure that no significant data discrepancies are present. These checks are not, however, mandated, nor are the required routines documented in a comprehensive manner.

We therefore recommend that the verification process should be formalised and documented.

#### 4.1.7 Transport Scotland

The Route Performance Manager described and evidenced the arrangements for reporting PPM to Transport Scotland (TS), which are:-

- PPM is initially formulated from First ScotRail (TOC) data
- The TOC data is then checked against Route data - any discrepancies are investigated by NR and resolved, in conjunction with the TOCs, at this stage
- The NR National team is supplied with fully corroborated and refreshed data direct from the TOC

## 4.2 CaSL

---

### 4.2.1 Definitions

The 'high level' definitions for CaSL are being established at PPM Policy Group, a cross-industry forum, but this work remains incomplete, and a documented version of the definition is currently in draft only - attached as Appendix D. The draft has been used for briefing both National and Route staff, but the draft status of this free-standing document is not evident to readers or users and at least one of the Route teams met (LNE Route) thought it was the final version.

NR stated that completion of the Definitions document was imminent, but had been delayed by the need to ensure as complete and accurate a document as possible - a number of TOCs have bespoke arrangements (the FCC Thameslink services for instance) which need to be described separately within the Definitions document.

We endorse NR's efforts in this regard and recommend that these definitions should be finalised and circulated, and that a control document should be maintained.

### 4.2.2 Briefing

A briefing on the draft CaSL definitions had taken place within NR HQ and in the Routes. The Route meetings confirmed that the draft CaSL definition had been circulated to Route level. However, no evidence was found of a wide ranging cascade of the new measure across Route teams. On LNE, for example, the deliberate policy has been adopted of not specifically briefing the Control team on the new CaSL measure. This has left Control to focus on managing for PPM, with the CaSL data and monitoring taking place in the Route Performance team. However, this does not present any risk to the integrity of the KPI.

### 4.2.3 TOC rollout of CaSL

Of the TOCs spoken to, ScotRail do not monitor CaSL at all since it is not a measure they report to Transport Scotland. Similarly Northern currently make little use of CaSL data,

feeling it adds little to their requirements to manage performance. NX East Anglia have a very clear focus on cancellations because of their very demanding franchise commitments in this area, but have no use or need for the CaSL KPI itself. From these discussions, it was clear that CaSL is a passive, background measure which TOCs are aware of but do not actively use for their own business monitoring purposes, since their interest in cancellations is at a more detailed level. The fact that NR will be held to account for CaSL appears not to have been fully appreciated to date by the TOCs interviewed. However, this is not an issue for the collation of the data and therefore does not present a risk to the KPI.

#### 4.2.4 Data Collection

It was confirmed that all data used for routine reporting of CaSL, both in NR and to the wider industry is collated at national level. However, because TRUST is unable to capture all cancellation events in its current configuration, the source data for the CaSL metric is gathered from TOCs in the same way as it is for PPM. Historically, NR has not captured full cancellations data, whereas, in general, TOCs capture full cancellation data from TRUST via Bugle, the preferred TOC Performance Management System. However, a manual adjustment is required to produce "part cancellation" data – a part cancellation is a service that fails to complete 50% of its scheduled journey or fails to call at one or more booked stations. Calculation of whether a service has completed 50% of its journey is generally done as a Day 2 process in the TOC performance team. The most problematic part of the process is the identifying and recording of services which fail to call at one or more booked stations. None of the current systems automatically record services that fail to stop at stations which are not TRUST reporting points. To ensure all these are captured the TOC must retrospectively check control logs to identify any that have not been picked up manually on the day. This is a time consuming, and not wholly reliable, process which relies heavily on the experience of the performance team member to identify incidents which may have caused services to fail to call at booked stations – for example, diversions from booked route, station closures due to security alerts, etc. NR is working towards total self-reliance, however, and we understand that these issues are being addressed through a planned systems upgrade (SRP77), as described in the following paragraph.

#### 4.2.5 Systems Issues

**TRUST upgrade (SRP 77)** - a mainframe upgrade to TRUST, planned for early in 2010, will allow TRUST to capture all cancellations data, and thereby reduce NR's dependence on TOC data; TOC cancellations data will still be required as part of a joint process to ensure consistency and jointly-agreed levels of service cancellations. The planned upgrade, which includes making all stations reporting points, is a major upgrade to this heritage mainframe system, and will take place in three phases, to mitigate any risks of major system malfunction:

1. Hardware changes, entailing a major mainframe computer change;
2. The introduction of the new functionality, with existing functionality still fully available (i.e. 'parallel running'); and
3. Switching off of the existing functionality, once its replacement is functioning satisfactorily.

Assurance was given that the Control Office/TRUST DA (Delay Attribution) processes will not change significantly, and the additional functionality will be fully supported by 'friendly' screen prompts.

**Business Objects** - the migration from the Oracle Discoverer reporting platform to Business Objects, described earlier, will also apply for CaSL data.

We recommend that the outcomes of the upgrade and migration should be subject to audit in the 2010/11 Reporting programme.

#### 4.2.6 Verification

There is no formal verification, either by sample check or audit, of TOC cancellations data by NR (although there is believed to be some verification carried out by DfT). There is a routine NR national reconciliation of TOC and NR data, which, if broadly in line (i.e. no more than 0.1% discrepancy) is accepted without further enquiry. NR believes that the experience within the National Performance team is sufficient to ensure that any high level discrepancy or trend in TOC data will be spotted, and then investigated further. What verification arrangements there are appear not be documented, or mandated, within internal procedures. However, after the SRP77 upgrade in 2010, this issue will no longer arise.

The Routes have no involvement in the TOC/National HQ data processes for cancellations, and the Routes do not carry out any form of data verification, or quality checks on TOC data, or on the application of CaSL definitions.

All the TOC representatives described a similar and largely manual process both in Control and in the Performance Office the following day, for recording full, part and 'failed to call' cancellations, which are then entered into the TOC Performance Management System, known as Bugle. These details are not subject to any subsequent superimposed or sample check, or audit, by the TOC or by NR. It was acknowledged that when very disruptive events occur, the capture of such data is likely to be incomplete, especially as relatively few stations are currently reporting points in TRUST. Again, these issues will be resolved by the SRP77 upgrade.

The First ScotRail representative at the Scotland Route Review explained that a FirstGroup audit of TOC cancellation data was undertaken 2 years ago, but that this was specifically carried out to provide reassurance to Group following the issues relating to Service Recovery dispensations at First Great Western. Following this audit and the recommendations which followed, First ScotRail's arrangements are now less manual and more formulae driven than previously; for example, through the creation of 'look up' tables for mileages run.

Northern stated that their part cancellation data was subject to a formal audit by Sheffield University Statistical Unit as part of the formal Passenger Charter verification process. Paper records of each incident are retained for seven years.

We observe that it may be worth raising these initiatives at the RSMG forum, with a view to encouraging the dissemination of good practice among the TOCs.

#### 4.2.7 Transport Scotland

The Route confirmed that the CaSL metrics were not recognised in Scotland, and that no KPI for CaSL had been established. Consequently CaSL data is not collated or reported upon.

### 4.3 NR Delay Minutes to TOCs

---

#### 4.3.1 Definitions

It was confirmed that the appropriate definitions for NR delay minutes are calibrated within PSS, though it is unclear whether the arrangements and details are formally documented, or consistent with the definitions described in NR's formal guidance document. This formal guidance is acknowledged to require a refresh and update for the 2009/10 financial year, and beyond. The guidance is used by various Performance team members preparing specialist reports such as the Period Operating Performance Report (POPR - the "Ministerial Dashboard"), IPPR and the Network Period Performance Report (NPPR).

#### 4.3.2 Data Collection

These arrangements are fully automated, from TRUST via PSS, and are used to populate the various performance regimes, the Corporate Dashboard, and a plethora of internal

functional performance reports, as well as the various industry reports, and the calculation of Schedule 8 payments.

#### 4.3.3 Verification

The importance of verifying delay minute data, and ensuring the integrity of delay attribution at the level of first input is recognised within NR, and the Performance Manual describes, in detail, the arrangements to be applied at Route level. The Performance Manual is described in more detail in Section 6.1. Each Route has a Data Quality Manager, who is responsible for undertaking a range of structured, pre-determined data checks, and is empowered to rectify errors found. An audit trail is provided against all corrected or amended data. Checks are carried out in real time in the Control Office; for example, by the Attribution Manager in each Control Office, or by staff in the Route Performance team. The teams appear to be adequately resourced to undertake these tasks, which were stated to be recorded in accordance with the Performance Manual. The Reporter team did not carry out a detailed audit of the verification checks undertaken.

#### 4.3.4 Policy on Delay Attribution

Whilst the Routes apply the Delay Attribution Guide (DAG) requirements fully, delay attribution precedents crop up regularly, and the Routes gather these for ultimate submission to the industry Delay Attribution Board for inclusion in future updates of the DAG. These arrangements are increasingly 'owned' by the Route Measurement Managers and the HQ Working Group which has been formed to promote discussion and spread good practice. The working group highlighted the "12 Top Inconsistencies in Delay Attribution" (all of which are internal to NR) which require to be resolved and documented/ codified as a pre-requisite for improving consistency of application. The Route teams are very supportive of the work being done by the National team in this area and believe it is significantly improving the management of delay minutes.

### 4.4 NR Delay Minutes to FOCs per 100 Train Km

---

#### 4.4.1 Definitions

There are no issues specific to NR delay minutes in respect of Freight Operating Companies which have not already been described above. All FOCs are now established on a common performance regime which measures absolute delay normalised against mileage/km operated.

#### 4.4.2 Verification

It was suggested that the verification of freight mileages is not fully accurate and that mileages are likely to be routinely understated (causing the delay minutes/mileage metric to be overstated). The issue has been recognised at NR National level and is to be targeted for improvement, although the level of discrepancy in the delay minutes/mileage metric is felt by the Performance Analyst (Nigel Salmon) to be unlikely to be higher than 2% overall.

At least one Route (Anglia) is having considerable difficulty in understanding a large rise in freight delay minutes because of lack of visibility of traffic level variations through the metric.

#### 4.4.3 Schedules

At Route level, it was confirmed that the robustness and integrity of freight schedules, notably those associated with Short Term Planning (STP/VSTP), are now very much improved on the position 2-3 years ago. There remain accuracy concerns relating to sectional running times which need to be resolved, particularly where modern traction is concerned, although this is a matter for NR's Planning, rather than its Performance, team.

#### 4.4.4 Addressing these Issues

We recommend that NR devises an integrated plan to resolve these issues, if it considers that it would be beneficial to do so, and observe that it would be useful to review and update freight sectional running times, especially for modern traction.

## 4.5 Asset Management (Track/Non-Track Delay Minutes)

---

### 4.5.1 Definitions and Reporting

There are no regulated outputs or KPIs covering these asset categories. However, the categories, and other similar infrastructure/asset categories are well understood within NR, and have been in the suite of Performance Indicators on the Corporate Dashboard for a considerable period of time. As such, definitions were established even before Network Rail was created, and performance against internal targets is reported on a periodic basis in the NPPR. This data set is as reliable as all other delay data since it is a subset of the TRUST data which is reported through Business Objects.

## 5 Findings - Data Accuracy for PPM and CaSL

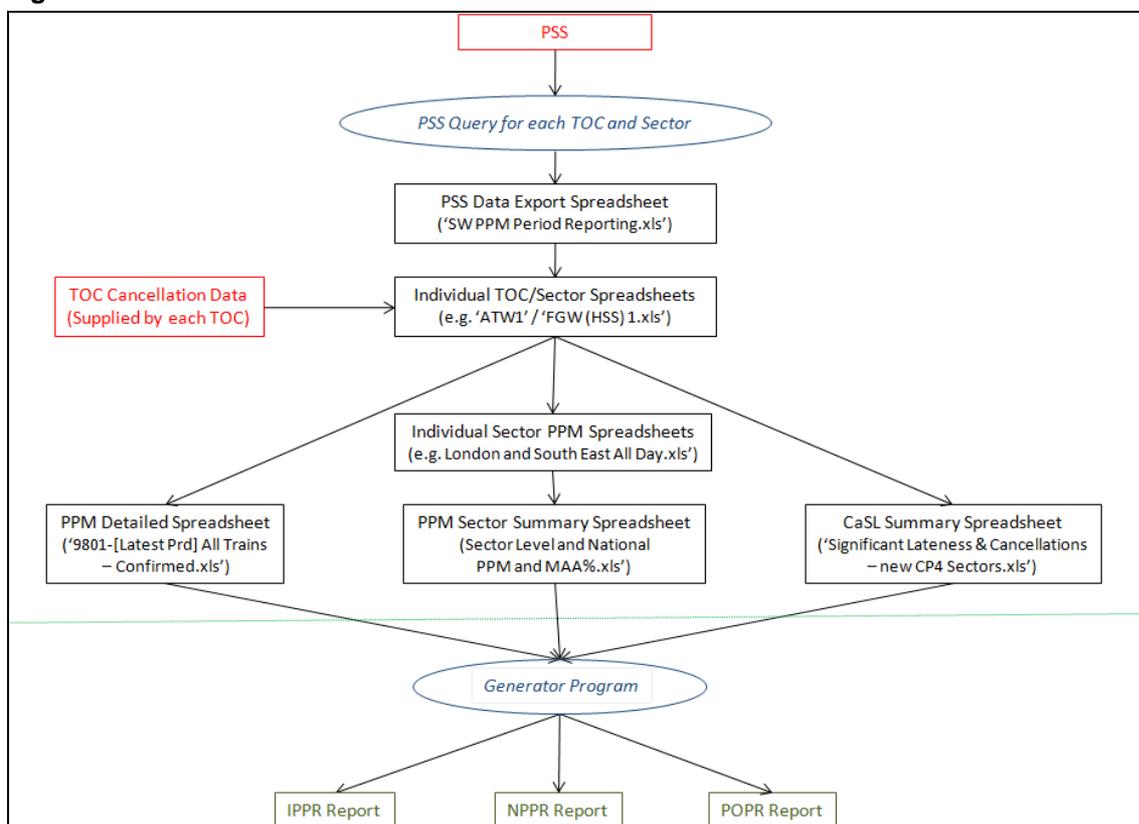
### 5.1 Summary

All data used for routine reporting of PPM and CaSL, both in Network Rail and the wider industry is collated by the National Performance Team within Network Rail. With the exception of cancellation data, this is all sourced from within the PSS system (from TRUST).

Daily reporting is carried out automatically within the PSS system. Queries have been set up to automatically download, summarise and circulate (via email) the daily figures within Network Rail.

The process of data collection, analysis and dissemination for periodic reporting of PPM and CaSL is outlined in the flow chart in Figure 5.1 below (example spreadsheet names are included for reference). The process up to the green line in this chart is currently carried out by a single resource within the National Performance Team (by the Performance Analyst). Although the process has been largely automated, there are a small number of manual interventions still required, which are outlined in further detail in this section.

**Figure 5.1: Data Process for PPM and CaSL**



A brief summary of the process and observations is presented in the sections below. The KPIs which form the subject of this Audit are reported upon in the three principal reports (IPPR, NPPR, POPR) which are output from the Generator Programme.

### 5.2 Data Export from PSS

All data are initially extracted from the PSS system via a set of predefined queries. These queries automatically export the relevant periodic data into the 'PSS Data Export Spreadsheet'<sup>1</sup>. This spreadsheet has separate worksheets for each TOC / Sector and contains historical periodic data stretching back for 10 years.

<sup>1</sup> 'SW PPM Period Reporting.xls': provided by the Performance Analyst on 2 October 09.

These predefined queries are TOC specific, to account for the particular issues which need to be covered for individual TOCs (for example, some London Midland trains run through more than one Sector, and so the query uses train direction to correctly identify the appropriate sector).

Data extracted are overall period summary data from TRUST on:

- Planned Trains;
- Distribution of number of Trains by 'lateness' at destination (e.g. early, on time, within 5, etc); and
- Total cancellations as recorded in TRUST.

The automatic data extraction is carried out for all TOCs with the exception of the Island Line part of the South Western franchise. This data is added manually to this TOC's individual spreadsheet (see Section 5.3) by the Performance Analyst, since this network is not connected to the TRUST system.

No further sampling checks have been carried out this quarter on the accuracy of the data coming out of PSS. A more detailed review of this data and the specific queries used within PSS could form an area to explore in next year's review.

The Reporter noted that if there is any change in service on the network (e.g. recent transfer of Redhill-Tonbridge service from Southeastern to Southern), the queries would need to be updated. There appears to be no formal or documented process for doing this, and it is currently reliant on the Performance Analyst being aware of any changes.

We therefore recommend that the process for accommodating such service changes should be formalised and documented.

### 5.3 Update of Individual TOC/Sector Spreadsheets

---

#### 5.3.1 Flow of Data from 'PSS Data Export Spreadsheet'

Separate spreadsheets have been set up for each TOC /sector which contain as initial inputs the historic periodic data from the 'PSS Data Export Spreadsheet' (for example there are four separate spreadsheets for First Great Western, covering Long Distance services, London and South services, Regional services and the TOC as a whole). Currently there are 32 such spreadsheets<sup>2</sup>.

These spreadsheets are used to calculate the data required for calculations of PPM and CaSL.

Each of these spreadsheets is updated each period through formulae linked directly to the 'PSS Data Export Spreadsheet'. This ensures a clear audit trail of where the data comes from.

Spot checks were carried out by the Reporter on the data fed through to a selection of these individual TOC worksheets from the 'PSS Data Export Directory'. Details of these are provided in Appendix E to this report. In the vast majority of cases, this automated process was found to be sound.

However, In one period (0905), it was noted that the train numbers within the First ScotRail spreadsheet had been manually altered to account for a small number of services being miscoded as Cross Country on one day in the period (13 trains added out of 53,000). The extra trains in that period were 'hard coded' in the relevant formulae, with a comment attached confirming this change. However, the formulae with the hard coded extra trains have been copied for all subsequent periods, thus very slightly overstating the number of trains in certain categories. While this is too small to have any impact on headline figures, it demonstrates the risks of such manual alterations to formulae.

---

<sup>2</sup> Copies of all TOC spreadsheets provided by the Performance Analyst on 2 October 09.

We therefore recommend that such hard coding should be avoided wherever possible, that 'preceding formulae' should be copied through the following cells, and that 'spreadsheet best practice' should generally be encouraged and followed.

#### 5.3.2 Update of Cancellation Data

Each TOC supplies Network Rail with cancellation data, which is manually added into the respective spreadsheet. In most cases, this data replaces the NR data to form the basis for PPM/CaSL reporting. It is noted that each TOC provides this information in a different format, leading to a necessarily manual process of updating each individual TOC Spreadsheet.

#### 5.3.3 Verification of TOC Cancellation data

A limited general verification check is made to ensure that the TOC and NR cancellation data are within an expected tolerance level, as described in section 4.2.6.

Two bespoke TOC-specific issues were identified:

- Arriva Cross Country – cancellations which are 'disregarded' by the DfT are removed from the cancellation figures supplied by the TOC. Separate details of these are also supplied by the TOC, and so are manually added back to the TOC Cancellation figures by Network Rail (since they count towards PPM/CaSL).
- First Capital Connect – due to the complexities of recording this service, historically both NR and the TOC have tended to under-report cancellations by around 10% (but each under-reports different cancellations; the TOC due to problems in Bugle with split Service Code trains, and NR due to not capturing all services which Fail to Call). It is understood that a bespoke (but informal) agreement is in place between the TOC and NR, such that NR use the figures from PSS, and make some adjustments.

Spot checks on the application of TOC-provided cancellation data were carried out – details are provided in Appendix E. Details of TOC cancellations were collated from two sources

- Data for First ScotRail and Northern was obtained from Route visits;
- A selection of other TOCs data was provided by NR on the visit to Milton Keynes on 2 October 2009.

Findings from these spot checks were that in the majority of cases, the data included in the NR spreadsheets matched that provided by the TOC. However, two minor observations were made:

- Arriva Cross Country – as outlined above, a manual adjustment is required to add 'DfT disregarded' cancellations back into the figures. Two spreadsheets containing Cross Country cancellation data were provided by NR for Period 201005. These recorded differing levels of overall cancellation (350 and 353). The final NR Cross Country spreadsheet contains 351 cancellations. This contains a manually typed figure, so the source of this figure is not clear.
- First Capital Connect – as outlined above, it was understood by the Reporter that it had been agreed with the TOC that the PSS figures should be used, with some adjustment made to account for known under-reporting of services which Fail to Call. However, a review of the figures indicates that up to Period 200913, the TOC figures were used for reporting. Since Period 201001, it appears that the data exported from PSS are used, with no further adjustments within these spreadsheets. It is not clear from the data supplied whether any further adjustments are made in the PSS Export Query.

The supply of data in varying formats from each TOC requires different levels of manual input (and in some cases, further calculation). This process could be automated, thus reducing risk of error, by exploring the option of requesting this data from TOCs in a specified format.

We therefore recommend that spreadsheet-based processes should be automated wherever possible, to improve efficiency and consistency, that any exceptions to this should be commented clearly, and, again, that spreadsheet best practice should generally be encouraged and followed.

It should be noted that no checks of the veracity of TOC cancellation data have been made. As highlighted in Section 4.2.4, the manual collation of this data, specifically Fail to Call services, could lead to an under-reporting of the level of CaSL failures. Currently, around 1.2% of all trains are part cancelled (within which category Fail to Call services fall), which represents 46% of all CaSL failures and 13% of overall PPM failures.

#### 5.4 PPM Detailed Spreadsheet

---

This spreadsheet<sup>3</sup> is updated with the latest periodic data which forms PPM calculations, and is used as the basis for populating industry reports.

Data are automatically read in from the individual TOC spreadsheets via a macro held within the PPM Detailed Spreadsheet.

A spot check of data for a sample of TOCs and periods indicates that this automated data process is sound. Details of this spot check are provided in Appendix E.

#### 5.5 PPM Sector Level Summary Spreadsheet<sup>4</sup>

---

Seven spreadsheets are generated directly from the individual TOC spreadsheets to enable calculation of PPM at Sector level. These levels are:

- London and South East: All Day and Peak separate
- Regional: Including and Excluding Scotland
- Long Distance
- England and Wales
- Whole UK

All data in the sample of these spreadsheets checked are entirely populated through formulae linked to the individual TOC spreadsheets.

A summary spreadsheet providing a periodic trend of PPM for each of these sectors is provided in a 'PPM Sector Level Summary Spreadsheet'. This is also entirely formulae driven with links to each of the above spreadsheets.

Following spot checks of these spreadsheets (details of which are provided in Appendix E), the Reporter has no concerns over this stage of the process.

#### 5.6 Cancellations and Significant Lateness Spreadsheet<sup>5</sup>

---

This spreadsheet is updated with the latest period of data for trains which are cancelled or over 30 minutes late for calculation of CaSL by TOC, Sector and National. This spreadsheet is then used as the basis for populating industry reports.

This spreadsheet is entirely populated via formulae linking to each individual TOC spreadsheet, and so provides a clear audit trail for the data.

Following spot checks (details of which provided in Appendix E), the Reporter has no concerns over this stage of the process, with the exception of one minor observation. For Northern Rail, the number of trains running over 60 minutes late in the CaSL spreadsheet is

---

<sup>3</sup> Spreadsheet '9801-1005 All Trains – Confirmed.xls' provided by the Performance Analyst on 2 October 2009.

<sup>4</sup> Spreadsheet 'Sector Level and National PPM and MAA %\_s with MRail.xls' provided by the Performance Analyst on 2 October 2009, along with intermediate calculation spreadsheets as listed in Paragraph 5.5.1.

<sup>5</sup> Spreadsheet 'Significant Lateness & Cancellations – new CP4 Sectors.xls' provided by the Performance Analyst on 2 October 2009.

a hard coded figure rather than a formula. Since Period 2008/07, this has been increasing by a value of 1 each period as the rows of data are copied down. The number of trains running over 60 minutes late is currently overstated by 21 trains. While this will have no impact on the CaSL figures reported for this TOC, this highlights a small element of risk within these spreadsheets. No such issues were observed for any other TOC within this spreadsheet.

Again, we recommend that spreadsheet-based processes should be automated wherever possible, that any exceptions to this should be commented clearly, and that spreadsheet best practice should generally be encouraged and followed.

## 5.7 Industry Reporting

---

The PPM and CaSL spreadsheets described above are then used to generate various Industry Reports, including:

- Period Operating Performance Report
- Network Period Performance Report.
- Industry Period Performance Report

These spreadsheets are populated via a macro-driven 'Generator' spreadsheet. This reads the data held in the PPM and CaSL spreadsheets, and populates the relevant reports.

The process is highly automated making it efficient to produce the many reports for each TOC. The use of standard macros for each TOC reduces the risk of error through manual intervention.

A spot check of figures in the PPM and CaSL spreadsheets, and in the copies of Industry Reports provided, confirms that the data is correctly feeding through this process. Details of these spot checks are provided in Appendix E. Industry reports provided by the National Performance Team on 2 October 2009 include:

- 'POPR Provisional Commentary Graphics P1005' showing summary PPM and CaSL figures for each TOCs for period 2010/P05
- 'POPR Cancellation and Significant Lateness Graphic' showing the historic trend of CaSL by Sector
- 'IPPR Franchised Pages P1005' showing charts to feed into IPPR reports for each franchised TOC for period 2010/P05
- Period 'Dashboards' for each TOC for period 2010/P05.

The only minor discrepancies which can be observed between the spreadsheets relate to the latest period of data. Minor differences have been noted between the PPM/CaSL spreadsheets and the industry reports in the latest period. This is understood to be due to the PPM/CaSL spreadsheets being continually updated throughout the period as TOC cancellation data arrives. Data is extracted on Day 8 of the period for these Reports, when only about 50% of TOCs have provided cancellation data. For these TOCs, the data remains provisional, with cancellations based on those extracted from PSS. The Reports are updated with the final period figures in the following period. For example a difference of 0.02% was noted for First ScotRail for both CaSL and PPM for 2010/P05. Figures for all previous periods matched exactly.

## 5.8 Data Version Control

---

The spreadsheets updated by the Performance Analyst are not version controlled within each period. Given that various reports such as the IPPR report are generated on Day 8 using the 'Generator' program, by the end of the period there will be some discrepancy between the data stored in the National Performance Team spreadsheets and the industry

reports which are circulated during the period. Specifically, it is not clear which TOCs have been updated post-Day 8.

We therefore recommend that a version control process should be introduced to resolve these discrepancies.

## 6 General Observations

### 6.1 Performance Manual

---

The creation of a NR Performance Manual in the last 12 months was described as a significant step forward in providing a comprehensive, consistent, current and documented suite of procedures for application throughout NR. The Manual is in two parts - Part A is the Performance Improvement Process and Part B the Performance Measurement Process. The 'controlled' copies of these documents are electronic, in 'read only' format on the company intranet. We understand that ongoing updates of the Manual will result in the inclusion of coverage of the national processes highlighted below.

The key issues noted by the Reporters were:

- The Manual is acknowledged to be still 'work in progress' and currently has a range of gaps, omissions and inconsistencies.
- The Manual is currently focused on Route-based processes, including data verification, data cleansing and data refresh arrangements at Route level, and the off-line processes associated with dispute resolution, Schedule 8 calculation, TOC sign off etc.
- There are currently few of the National processes or controls described or mandated in the Manual, and even those National procedures which have been documented (such as PPM) are not yet incorporated in the Manual.
- The Manual has a separate section devoted to Verification Checks and Audits (Section 6). This currently concentrates on Base Train Service Data, assurance of Route data, and the application of the DAG. There are no HQ level verification checks mandated or described in the Manual currently.
- Two Working Groups have been established, involving HQ and Route staff, to 'own' the Part B Manual and further its development. These Groups - the Route Performance Measurement Managers Group and a Data Quality Group reporting to it - are now functioning but ultimately depend upon the filling of a number of HQ vacancies in the Performance Process and Controls team to ensure the planned improvements are delivered.

### 6.2 Specialist Staff

---

The Reporters noted that several HQ and Route Performance posts were of a particularly specialist nature, and could not be easily deputised or covered in the event of absence. An example would be the Performance Analyst in the HQ team. This is potentially a matter of concern at HQ where relatively few of the specialist routines and procedures are documented and where the expertise is narrowly focused; the significance of the issue is acknowledged by NR. We understand that processes are in place to ensure continuing coverage during periods of sickness or leave. We also understand that the migration to Business Objects should reduce the dependency on historic processes and thus also on key staff members.

We therefore recommend that steps be taken to facilitate the retention of specialist knowledge and thus to ensure business continuity.

### 6.3 Reference Data

---

Currently key HQ staff are authorised to amend reference data within PSS. Whilst this was described as tightly controlled no procedures appear to exist which describe the relevant authorities nor is there any form of internal audit described.

## 7 Conclusions

### 7.1 Definitions

---

Definitions have been or, in the case of CaSL, are being established by NR HQ Performance, where appropriate in conjunction with cross-industry bodies such as the PPM Policy Group. This work remains incomplete and none of the definitions are codified within NR processes.

### 7.2 Data Collection and Performance Reporting

---

These functions are now almost wholly managed at NR HQ, and largely automated. It is suggested that a more detailed review of data emerging from PSS, and the specific queries used within PSS could form an area to explore in a future review.

### 7.3 Systems Issues

---

The development of systems applications to support national performance monitoring and reporting is now almost complete with two significant outstanding issues:-

- The migration from Oracle Discoverer to Business Objects as the reporting platform for PSS
- The upgrade of TRUST to report all cancellation events.

The scale of the TRUST upgrade is considerable, but neither scheme is perceived as likely to import significant risk to the integrity of performance reporting.

### 7.4 Data accuracy

---

The overall level of data accuracy being achieved by NR is very high indeed, as only relatively minor discrepancies were found in the very large data sets examined. Where discrepancies were found, they almost always occurred as a result of a legitimate manual editing process. Data accuracy will be further improved if and when NR can automate the remaining manual editing processes and encourage the general adoption of spreadsheet best practice.

### 7.5 Documentation

---

The National suite of procedures and controls are largely undocumented and have developed over time and with experience. Where documentation does exist, there is only limited version control. The use of document footers, validity dates and other means of signifying the currency and applicability of documents was almost non-existent. By comparison, most Route procedures and routines are comprehensively documented in the Performance Manual.

### 7.6 Verification

---

There is limited verification of data at HQ level, and this generally relies upon reconciliation of high level data sets, such as PPM, delay minutes and Schedule 8. These verification routines are not prescribed or mandated. In respect of cancellations data, this is drawn wholly from TOC sources and is not verified or audited by NR, despite the manual recording which, of necessity, takes place in TOC Control Offices. Where verification routines appear to be at their strongest is at Route level, where the checks are mandated in the Performance Manual, and where Data Quality Managers organise and undertake verification checks. Two specific verification issues highlighted in respect of freight were the lack of adequate verification of freight mileage/km data (which potentially overstates the delay min/mileage KPI) and the absence of robust Sectional Running Times for modern freight traction.

---

### 7.7 Service Group & Franchise Changes

---

NR has no formal or documented process for updating its data management arrangements, including data export from PSS, when service group or franchise changes take place.

### 7.8 Transport Scotland

---

The CaSL metric is not recognised in Scotland, therefore the KPI is not populated or reported by the Route.

### 7.9 Specialist staff

---

NR is vulnerable in both HQ and Route Performance organisations to the loss of very specialist staff, especially where the specialist knowledge, routines and procedures are not adequately codified or documented.

## 8 Assessment of Confidence Rating

### 8.1 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 8.1 which again is adopted from the previous Reporter's final report.

**Table 8.1: 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.	
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 8.2.

**Table 8.2: Confidence Grading Compatibilities**

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

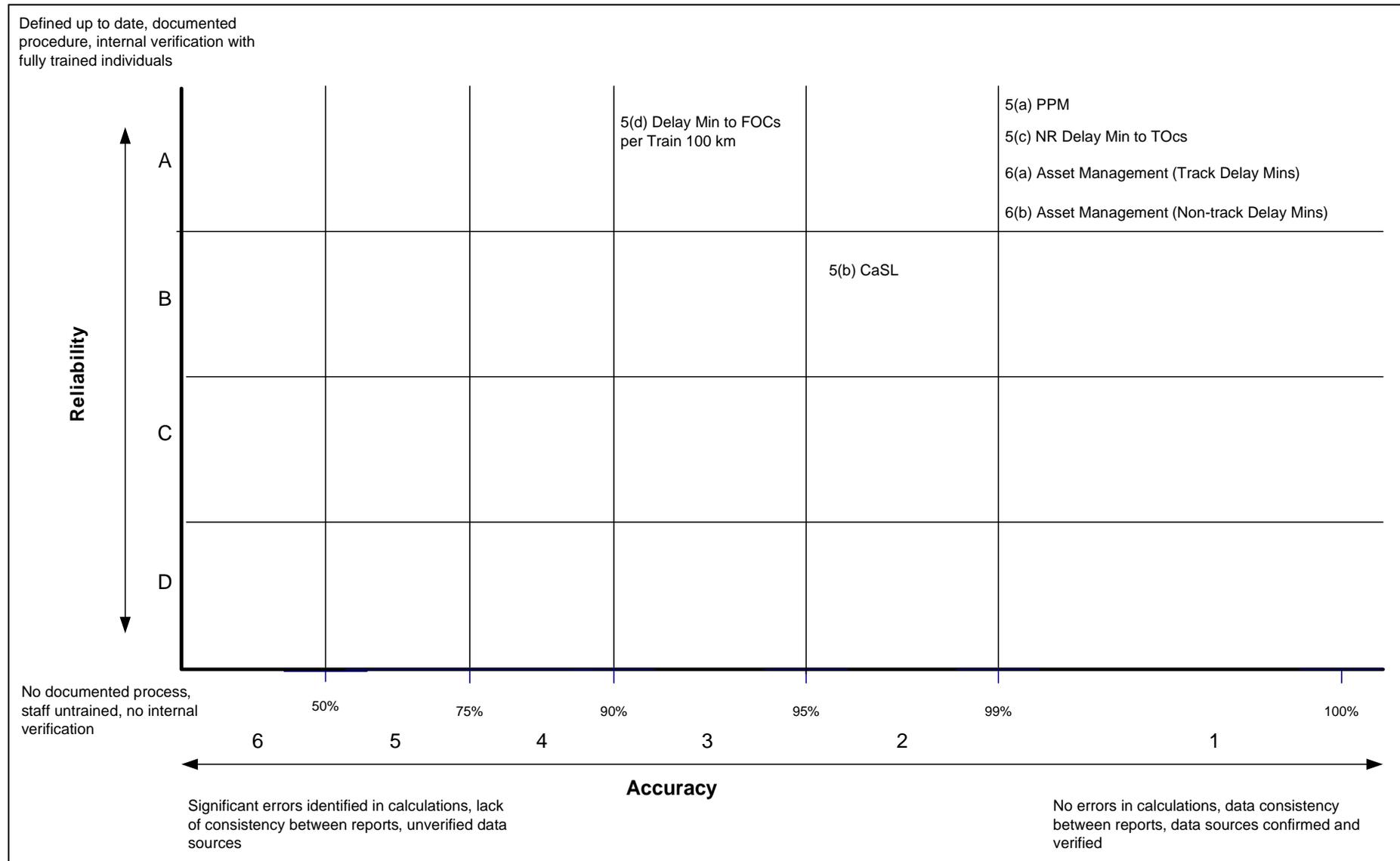
This grading system is subject to review, and our graphical interpretation of the gradings we have awarded is included in the following section.

## 8.2 Confidence Ratings Achieved

Our confidence ratings for the Quarter 2 KPIs are summarised below, and explained further in Figure 9.1:

- PPM – the audited data has a rating of A for Reliability and 1 for Accuracy.
- CaSL – the audited data has a rating of B for reliability and 2 for Accuracy, as a result of the KPI definition still being formulated, and the greater proportional impact of the manual collection and editing of TOC part cancellation data.
- NR Delay Minutes to TOCs – the audited data has a rating of A for Reliability and 1 for Accuracy.
- NR Delay Minutes to FOCs per 100 Train km – the audited data has a rating of A for Reliability and 3 for Accuracy, as a result of acknowledged but not fully understood inaccuracies in train km/mileage data.
- Asset Management (Track/Non-Track Delay Minutes) - the audited data has a rating of A for Reliability and 1 for Accuracy.

**Figure 9.1: Confidence Ratings Matrix**



## 9 Recommendations

Table 9.1 contains a set of draft recommendations for ORR, to be discussed with Stephen Draper on Thursday, November 12, and provides the basis for a work plan and schedule to be agreed with NR. The recommendations are numbered 2010.5.1, 2010.5.2, etc. to reflect the (end of the) current year and the Performance KPI number.

**Table 9.1: Recommendations**

No.	Recommendation to NR	NR Data Champion	Due Date
2010.5.1	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 <ul style="list-style-type: none"> <li>• Formalisation of PPM Definition</li> <li>• Documentation of Data Modifications and Verification Checks</li> <li>• Formalisation and Control of Definitions and Requirements for CaSL</li> <li>• Formalisation and Documentation of Procedures for Accommodating Train Service Changes</li> </ul>	Paul Kelly	March 2010
2010.5.2	Improve Document/Data Version Control <ul style="list-style-type: none"> <li>• Performance Spreadsheets Version Control</li> </ul>	Stephen Draper	March 2010
2010.5.3	Establish guidelines for and use of Spreadsheet Best Practice <ul style="list-style-type: none"> <li>• Avoidance of 'Hard Coding'</li> <li>• Automation of Processes</li> <li>• Highlighting of Unavoidable Exceptions to these</li> </ul>	Stephen Draper	January 2010
2010.5.4	Devise and agree a plan to resolve outstanding freight data issues	Stephen Draper	March 2010
<b>General Recommendations</b>			
No.	General Recommendation	Data Champion	Due Date
2010.5.5	Review System Upgrades <ul style="list-style-type: none"> <li>• Verify that Business Objects migration and SRP 77 upgrade have taken place successfully</li> <li>• Note: NR Part A Reporter to review NR documentation of processes and outcomes during 2010/11</li> </ul>	N/A	2010/11

Appendix A

---

**Glossary of Terms**

## A1 Glossary of Terms

<b>BO</b>	-	<b>Business Objects</b>
<b>CaSL</b>	-	<b>Cancellations &amp; Severe Lateness</b>
<b>CP3</b>	-	<b>Control Period 3</b>
<b>DAG</b>	-	<b>Delay Attribution Guide</b>
<b>DfT</b>	-	<b>Department for Transport</b>
<b>FCC</b>	-	<b>First Capital Connect (TOC)</b>
<b>FOC</b>	-	<b>Freight Operating Company</b>
<b>IPPR</b>	-	<b>Industry Period Performance Report</b>
<b>KPI</b>	-	<b>Key Performance Indicator</b>
<b>LNE</b>	-	<b>London North Eastern Route</b>
<b>MAA</b>	-	<b>Moving Annual Average</b>
<b>NPPR</b>	-	<b>Network Period Performance Report</b>
<b>NR</b>	-	<b>Network Rail</b>
<b>ORR</b>	-	<b>Office of Rail Regulation</b>
<b>POPR</b>	-	<b>Periodic Operating Performance Report</b>
<b>PPM</b>	-	<b>Public Performance Measure</b>
<b>PSS</b>	-	<b>Performance Systems Strategy</b>
<b>RSMG</b>	-	<b>Rail Statistics Management Group</b>
<b>STP</b>	-	<b>Short Term Planning</b>
<b>TOC</b>	-	<b>Train Operating Company</b>
<b>TRUST</b>	-	<b>NR train running monitoring system</b>
<b>TRUST DA</b>	-	<b>TRUST Delay Attribution</b>
<b>TS</b>	-	<b>Transport Scotland</b>
<b>VSTP</b>	-	<b>Very Short Term Planning</b>



Appendix B  

---

**Meeting Remit  
Document**

## B1 Part A Reporter Data Assurance Meeting Remit

The focus of each meeting is to provide an assurance that the performance data reported by NR against the KPIs set by ORR for CP4 are collated correctly and accurately.

The following KPIs will be covered within this meeting:

- 5(a) PPM
- 5(b) CaSL
- 5(c) NR delay minutes to TOCs
- 5(d) NR delay minutes to FOCs per 100 train km
- 6(a) Asset Management (track infrastructure delay minutes)
- 6(b) Asset Management (non track infrastructure delay minutes)

The key focus within this report will be on CaSL which is a new measure but we are required to report on all other elements. For each KPI there is a standard series of questions with specific supplementaries where necessary.

### Standard Questions

1. Is there a formal procedure for the collation of the KPI?
  - a. Where is it contained?
  - b. Does it contain a clear definition?
  - c. How is it issued?
  - d. Is it up to date?
2. Who is involved in the production of the KPI?
  - a. Is there a responsible manager for KPI?
  - b. What is the linkage between HQ and route teams
  - c. What training has been given to relevant personnel
3. What data sources are used to compile the KPI?
  - a. Internal
  - b. Any external sources?
4. How is the KPI produced?
  - a. Straight from PSS?
  - b. Is it currently in Business Objects or due to transfer over?
  - c. What risks exist in transferring data into BO?
  - d. Any spreadsheets used?
  - e. Amalgamated from lower level data?
5. How is the KPI used?
  - a. What reports are produced?
  - b. Who gets the reports?
  - c. How does this link to action plans?
6. What verification procedures exist?
  - a. Routine checks?
  - b. Regular internal audit?
  - c. Verification with TOC/FOC?

### CaSL Specific Questions

1. Have NR briefed out this new regulatory target?
2. Do Controllers/TDA staff recognise the significance of this new measure?
3. How is cancellation data collated?
4. How does NR capture cancellation data?
  - a. What level of manual intervention is required?
5. What verification that all data is captured exists?
  - a. In particular part cancellations e.g. failure to call
6. Does NR check against TOC data?
  - a. What happens if two organisations have a different CaSL figure?
7. How is 30+ minutes data captured?

### Freight Delays Specific Questions

1. Are there any differences in data collation by FOC?
2. Are the performance regimes the same for each FOC?

### Data Requirements

1. We will require access to standard industry reports such as IPPR.
2. CaSL data. We understand this is currently stored in spreadsheet format. Can a copy of this spreadsheet be provided for review which covers CaSL data for the past two years? Ultimately, we will need access to:
  - a. Cancellation data generated by NR.
  - b. Cancellation data provided by TOCs
  - c. Significant Lateness data as generated by NR
  - d. Number of Trains as used for CaSL measure.
  - e. CaSL Outputs
3. Other KPIs. Initial high level data requirements are as below although it is likely we may want to request additional data depending on outcome of questions above. We understand this data needs to be acquired from an Oracle database:
  - a. Delay by TOC, delay code and Period from PSS/Paladin for past 2 years.
  - b. Number of Trains by TOC by period from PSS/Paladin for past 2 years.
  - c. Delay by FOC and Period from PSS/Paladin for past 2 years.
  - d. Number of Train km by FOC and period from PSS/Paladin for past 2 years.

## B2 NR Meeting Attendees

1. National:
  - Stephen Draper (Introductions only)
  - Bill Whitton
  - Dominic Medway
  - Paul Kelly
  - Nigel Salmon

2. Scotland Route:

- Anne Marie Harmon
- Euan MacIntyre
- Graham Higgins (First ScotRail)

3. LNE Route:

- Dave Irwin
- Alun Woods
- Alastair Rutter (Northern Rail)

4. Anglia Route:

- Alun Fowles
- Alison Hockett
- Steve Buttle (NX East Anglia)



Appendix C

---

**PPM Definitions – April  
2009**

## C1 Definitions of PPM

The Public Performance measure (PPM) is defined explicitly in some Franchise Agreements (FAs) between Operators and DfT. This is the only place where a formal definition exists, and as with most definitions in the FA it refers to other defined terms.

This paper will state a simplified version of the formal definition, and indicate how this is applied, both in terms of extracting and interpreting data from industry performance systems, and in dealing with specific scenarios where the systems do not accurately reflect the timetable.

It will also outline the PPM thresholds for the different operators, and the process Network Rail goes through to produce the industry PPM figures. It is hoped that it can be used as an aid in resolving any issues regarding PPM as a measure.

### C1.1 Franchise Agreement Definitions

#### A PPM

(The definitions below have been simplified slightly and made more general in nature. As there are several versions of FAs currently in use, there may be slight differences in wording between them)

##### Definition:

**“Public Performance Measure”** means the measure of the number of trains (expressed as a percentage of the number of trains which are scheduled to be provided under the Applicable Timetable) which arrive punctually at their final scheduled destination in the Applicable Timetable measured on the basis that:

- (i) for this purpose, “punctually” means within a specified time of the scheduled public arrival time at destination as shown in the **Applicable Timetable**;
- (ii) any train which is a **Total** or **Other Cancellation** as measured by reference to the **Applicable Timetable** will be regarded as not arriving punctually;

**“Applicable Timetable”** means, in respect of any particular day, the passenger timetable which reflects the working timetable for the Passenger Services required to be drawn up by Network Rail in accordance with the Track Access Conditions, as at 2200 on the immediately preceding day, being the Timetable for that particular day, as amended from time to time (including to reflect the following:

- (a) any amendment to the working timetable for the Passenger Services under the applicable Rules of the Route or Rules of the Plan;
- (b) any amendment to the working timetable for the Passenger Services under Condition H of the Track Access Conditions; and
- (c) any amendment which is required to the Timetable to reflect the introduction, removal or alteration of a service by the Franchise Operator).

#### B Cancellations

**“Other Cancellation”** means a train which is scheduled to be provided under the Applicable Timetable and which:

- (a) begins its journey after its scheduled departure point in the Applicable Timetable or terminates its journey before its scheduled destination point in the Applicable Timetable; or
- (b) does not call at one or more stations at which it is scheduled to call in the Applicable Timetable (or fails to call at a relevant Request Stop Station which it passes but at which a passenger or intending passenger has indicated he wishes to join or leave such train); or
- (c) arrives at its final destination scheduled in the Applicable Timetable more than 120 minutes late.

**“Total Cancellation”** means a train which is scheduled to be provided under the Applicable Timetable and which is cancelled or does not otherwise operate for more than half its scheduled

mileage under the Applicable Timetable.

## C1.2 Interpreting the Definitions:

---

### A PPM

- i) **Thresholds** – the lateness thresholds for arriving ‘punctually’ at destination as at February 2008 are as follows:

#### **Less than 5 minutes –**

Arriva Trains Wales  
c2c  
Chiltern Railways  
East Midlands Trains (local/regional services)  
First Capital Connect  
First Great Western (West and London & Thames Valley services)  
First Scotrail  
London Midland  
London Overground  
Merseyrail  
Northern Rail  
National Express East Anglia (excl former Inter City services)  
Southeastern  
Southern  
South West Trains

#### **Less than 10 minutes –**

Cross Country  
East Midlands Trains (services out of St Pancras, and Liverpool – Norwich services)  
First Great Western (High Speed Services)  
First Transpennine Express  
National Express East Coast  
National Express East Anglia (Inter City services)  
Virgin Trains

- ii) **Applicable Timetable** – below are the criteria used by Network Rail performance systems to extract the timetable by which PPM is usually measured.
- a) PPM each day based on the applicable timetable as agreed between Train Operator and Network Rail by 2200 the night before
  - b) PPM is always based on GBTT (Great Britain Timetable) timings, not WTT (Working Timetable) timings
  - c) This shall be assumed to be the timetable loaded into TRUST with the schedules marked ‘Applicable’ unless informed otherwise by the TOC and /or Network Rail.
  - d) It shall be measured against all franchised passenger services with no exclusions. A passenger service is a schedule with a passenger carrying TOPS Train Category (e.g OH, OO, XH, XX), and one carrying a headcode starting with 1, 2 or 9, or any other train class designated by Network Rail for passenger trains, unless informed otherwise by the TOC and /or Network Rail.

It is acknowledged that the information within source systems may not be complete at all times, and some examples of these situations, and the way these scenarios should be handled, are outlined later in the paper.

## B Cancellations – Systems Criteria

- i) Below are the additional criteria used by Network Rail performance systems to extract cancellations for PPM purposes. Due to known inaccuracies within TRUST in recording reliability events for PPM purposes (e.g. Fail to Stop (does not call) cannot always be recorded), system cancellations are only used for preliminary PPM. For the final PPM figures TOC-provided cancellation numbers are used, combined with editing of the TRUST data in Network Rail performance systems to improve PPM accuracy as and when needed.
  - a) Services that are marked as ‘Scheduled’ cancellations (type ‘S’ in TRUST) will be ignored.
  - b) Services fully cancelled on the day (type ‘C’) but given a causation code in TRUST starting with ‘P’ (planned event) will be ignored.
  - c) Services with other reliability event codes on the day (‘D’, ‘F’, ‘O’ & ‘P’) but given a causation code in TRUST starting with ‘P’ (planned event) will be measured against the element of the schedule with no planned events.

## C PPM Measures

- i) There are two PPM measures – All Day & Peak
  - a) All Day PPM measures all services Sunday – Saturday, with no exclusions
  - b) Peak PPM measures all services for specified operators scheduled to arrive at specified London stations between 0700-0959 inclusive, and those scheduled to depart specified London stations between 1600-1859 inclusive, Monday-Friday, excluding public holidays. All times are based on GBTT.
  - c) Current operators with a peak measure are as follows:

c2c	London Overground
Chiltern	National Express East Anglia (excluding former Inter City services)
First Capital Connect	Southeastern
First Great Western (London & Thames Valley)	Southern
London Midland	South West Trains

- ii) **Trains Planned** - PPM is a percentage based on the number of trains arriving at destination punctually (excluding any form of cancellation) divided by the number of trains planned. Because of the data quality issues with TRUST cancellation data, the trains planned figure is currently defined as follows:

The number of trains with punctuality extracted from Network Rail performance systems, excluding any cancellations, plus the number of trains cancelled as provided by the operator.

It is envisaged that all the figures will eventually be derived from Network Rail performance systems, once data quality improvements have been made.

## D TOC-specific PPM Rules

- i) For the services within **First Capital Connect** which pass through the Farringdon-City Thameslink corridor, the train service is effectively split into two linked train services for the measurement of PPM and the recording of cancellations. This is defined as follows:
  - a) Any southbound service shall be counted as two services, the first recorded at Blackfriars and the second at its destination.
  - b) Any northbound service shall be counted as two services, the first recorded at Farringdon and the second at its destination.

All other First Capital Connect trains (i.e. those not passing through the Farringdon-City Thameslink corridor) are only measured once for PPM at their destination.

- ii) For **Island Line** services only (now part of **South West Trains**), PPM is calculated using TOC supplied data, as TRUST does not operate on the Isle of Wight.

### C1.3 Dealing with Specific Scenarios:

Outlined below are some of the more common reasons for perceived or actual inaccuracies in the PPM data. It is by no means an exhaustive list, and may be added to when other situations arise. It is intended as a guide for operators and Routes to show how certain situations should be handled with regard to measuring PPM. For Network Rail, it is intended as an aid to treating TOCs and scenarios consistently.

- i) **An emergency timetable was agreed between Network Rail and the TOC prior to 2200, but none/not all the revised schedules were uploaded into TOPS/TRUST by the cut-off – PPM should be measured against the emergency timetable, provided the changes were advertised to the passengers the same evening.** Evidence, in the form of the revised timetable or at least a summary of the changes by route, the time period they were being revised for, which demonstrates that this was agreed before 2200, will be needed.
- ii) **An emergency timetable was agreed between Network Rail and the TOC prior to 2200, but some/all of the revised schedules were uploaded into TOPS/TRUST incorrectly – PPM should be measured against the emergency timetable.** Evidence required will be the same as i).
- iii) **A revised timetable was issued for weekend engineering works, but the timings in TOPS failed to reflect this – PPM should be measured against the revised timetable.** Evidence needed would be the timetable booklet (in electronic form) showing the correct timings and TRUST printouts showing the incorrect plan as measured against.
- iv) **Neither the public timetable as advertised nor TOPS/TRUST reflected the GBTT timings the TOC requested in its timetable bid – PPM should not be altered.** Typically this applies when the public differential is applied incorrectly when the schedules are made for GBTT. As far as the passenger is concerned the train should run to the times advertised, regardless of whether they are incorrect due to a process error.
- v) **Trains were unable to run to the timetable due to emergency speed restrictions imposed by Network Rail on the day – PPM should not be altered.** It is measured against the plan as agreed the night before, regardless of what happened on the day.
- vi) **We ran VSTP schedules on the day to deal with the disruption that occurred – PPM should not be altered.** It is measured against the plan as agreed the night before, regardless of what happened on the day.
- vii) **We've had a major TRUST outage at a key origin/destination point – PPM can be altered, depending on the circumstances.** In theory, the DA specialist in the Route should manually infill any missing data at reporting points in TRUST. Unfortunately, there are occasions when this doesn't happen. In these cases, Network Rail performance systems have certain rules on how to treat missed reporting points which were the origin or destination, and will infer whether or not a train reached its destination or departed its origin from the record at the previous or following reporting point. On the occasions when information is supplied that shows that this is not to be appropriate, the train record can be manually edited.
- viii) **The record for that service in TRUST is incomplete – PPM can be altered, depending on the circumstances.** We know that TRUST isn't perfect, especially with regard to FTS. When information is received that will complete the record, editing at train level may be appropriate.
- ix) **FTS is recorded at a location in TRUST but the service was not advertised to the public as stopping at this location – PPM can be altered, as this should not be seen as a genuine FTS.** This scenario can occur when a train is shown as calling at a station purely for operational purposes – e.g. reversing, or changing electric traction type. Evidence, usually in

the form of the timetable for the train(s) affected, will be needed. On these occasions, the train record can be manually edited.

#### C1.4 Current Industry PPM Reporting Process:

---

An outline of the timescales for PPM production, and the 'quality' of the PPM shown.

- i) **PPM Initial Estimate** – produced on the Tuesday after period end. This is an initial snapshot of PPM for the previous period, and is based purely on systems data. As such this is an indicative figure, used for internal Network Rail purposes. Does not include the Peak measure.
- ii) **Provisional PPM** – produced on the Monday of week 2 after period end. This includes the additional input of TOC cancellation data for some operators, and is also based on Day 8 TRUST data, meaning no more changes can be made to the TRUST data. Considerably more reliable than the Initial Estimate, but still not the final number. Does include the Peak measure. Provisional figures are sent to industry bodies (DfT, ATOC, ORR, Passenger Focus) and to selected Network Rail staff.
- iii) **Final PPM** – should normally be produced by the end of week 4 after period end. This includes the additional input of TOC cancellation data for all operators, and is finalised after being sent to TOC performance contacts for any comments. Will reflect any editing that has been done in the data following discussions with the TOCs and Routes. Final figures are sent to the industry, TOCs, Network Rail staff via the intranet. They are also published on the Network Rail website, and appear in industry reports published by Network Rail.



Appendix D

---

**CASL Definitions - 2nd  
Draft**

## D1 CASL Definitions – 2<sup>nd</sup> Draft

Cancellations and Significant Lateness (CASL) is a new measure, introduced by the Department for Transport as part of its High Level Output Statement for Control Period 4, 2009 - 2014. It is designed to show the level of serious disruption passengers experience on the railway. Control Period 4 (CP4) sees the introduction of targets for CASL, set at PPM Sector level.

Although CASL is a new measure, it uses similar rules and definitions to PPM. Because of this, a lot of the information contained within this document will also be found in the PPM Definitions. Unlike PPM, CASL has no formal definition written in any existing agreement or document, so this document is intended to provide this.

Unlike PPM, there is no formal CASL target for Scotland, only England and Wales. In practical terms, this means that First Scotrail is excluded from the Regional Sector for the CASL measure.

### D1.1 1. CASL Definitions

#### A CASL

##### Definition:

**Cancellations and Significant Lateness (CASL)** means the measure of the proportion of trains (expressed as a percentage of the number of trains which are scheduled to be provided under the Applicable Timetable in accordance with PPM) which are cancelled, or arrive significantly late at their final scheduled destination in the Applicable Timetable measured on the basis that:

- (i) for this purpose, “significantly late” means arriving thirty minutes or more after the scheduled public arrival time at destination as shown in the **Applicable Timetable**;
- (ii) any train which is a **Total** or **Other Cancellation** as measured by reference to the **Applicable Timetable** will be included in this measure;

“**Applicable Timetable**” means, in respect of any particular day, the passenger timetable which reflects the working timetable for the Passenger Services required to be drawn up by Network Rail in accordance with the Track Access Conditions, as at 2200 on the immediately preceding day, being the Timetable for that particular day, as amended from time to time (including to reflect the following:

- (a) any amendment to the working timetable for the Passenger Services under the applicable Rules of the Route or Rules of the Plan;
- (b) any amendment to the working timetable for the Passenger Services under Condition H of the Track Access Conditions; and
- (c) any amendment which is required to the Timetable to reflect the introduction, removal or alteration of a service by the Franchise Operator).

#### B Cancellations

“**Other Cancellation**” means a train which is scheduled to be provided under the Applicable Timetable and which:

- (a) begins its journey after its scheduled departure point in the Applicable Timetable or terminates its journey before its scheduled destination point in the Applicable Timetable; or
- (b) does not call at any one or more stations at which it is scheduled to call in the Applicable Timetable (or fails to call at a relevant Request Stop Station which it passes but at which a passenger or intending passenger has indicated he wishes to join or leave such train); or
- (c) arrives at its final destination scheduled in the Applicable Timetable more than 120 minutes late.

“**Total Cancellation**” means a train which is scheduled to be provided under the Applicable

Timetable and which is cancelled or does not otherwise operate for more than half its scheduled mileage under the Applicable Timetable.

## D1.2 Interpreting the Definitions:

### A CASL

- i) **Sectors** – the operators and services which form the three PPM Sectors (excluding First Scotrail) which are the basis for the CASL targets from April 2009 are as follows:

#### London & South East

c2c

Chiltern Railways

First Capital Connect

First Great Western (London & Thames Valley services)

London Midland (London Euston services and St Albans and Bedford branches only)

London Overground

National Express East Anglia (excl former Inter City services)

Southeastern

Southern (including former Gatwick Express services)

South West Trains (including Island Line)

#### Long Distance

Cross Country

East Midlands Trains (services out of St Pancras, and Liverpool – Norwich services)

First Great Western (High Speed services)

First Transpennine Express

National Express East Anglia (Inter City services)

National Express East Coast

Virgin Trains

#### Regional

Arriva Trains Wales

East Midlands Trains (local/regional services)

First Great Western (West services)

London Midland (West Midlands local and regional services)

Merseyrail

Northern Rail

- ii) **Applicable Timetable** – below are the criteria used by Network Rail performance systems to extract the timetable by which CASL is usually measured.
- a) CASL each day based on the applicable timetable as agreed between Train Operator and Network Rail by 2200 the night before
  - b) CASL is always based on GBTT (Great Britain Timetable) timings, not WTT (Working Timetable) timings
  - c) This shall be assumed to be the timetable loaded into TRUST with the schedules marked 'Applicable' unless informed otherwise by the TOC and /or Network Rail.
  - d) It shall be measured against all franchised passenger services with no exclusions. A passenger service is a schedule with a passenger carrying TOPS Train Category (e.g. OH, OO, XH, XX), and one carrying a headcode starting with 1, 2 or 9, or any other train class designated by Network Rail for passenger trains, unless informed otherwise by the TOC and /or Network Rail.

It is acknowledged that the information within source systems may not be complete at all times, and some examples of these situations, and the way these scenarios should be handled, are outlined later in the paper.

## B Cancellations – Systems Criteria

- i) Below are the additional criteria used by Network Rail performance systems to extract cancellations for CASL purposes. Due to known inaccuracies within TRUST in recording reliability events for CASL purposes (e.g. Fail to Stop (does not call) cannot always be recorded), system cancellations are only used for preliminary CASL. For the final CASL figures TOC-provided cancellation numbers are used, combined with editing of the TRUST data in Network Rail performance systems to improve CASL accuracy as and when needed.
  - a) Services that are marked as ‘Scheduled’ cancellations (type ‘S’ in TRUST) will be ignored.
  - b) Services fully cancelled on the day (type ‘C’) but given a causation code in TRUST starting with ‘P’ (planned event) will be ignored.
  - c) Services with other reliability event codes on the day (‘D’, ‘F’, ‘O’ & ‘P’) but given a causation code in TRUST starting with ‘P’ (planned event) will be measured against the element of the schedule with no planned events.

## C CASL Measure

- i) There is one CASL measure – All Day
  - a) All Day CASL measures all services Sunday – Saturday, with no exclusions
- ii) **Trains Planned** - CASL is a percentage based on the number of trains cancelled or arriving at destination significantly late divided by the number of trains planned. Because of the data quality issues with TRUST cancellation data, the trains planned figure is currently defined as follows:

The number of trains with punctuality extracted from Network Rail performance systems, excluding any cancellations, plus the number of trains cancelled as provided by the operator.

It is envisaged that all the figures will eventually be derived from Network Rail performance systems, once data quality improvements have been made.

## D TOC-specific CASL Rules

- i) For the services within **First Capital Connect** which pass through the Farringdon-City Thameslink corridor, the train service is effectively split into two linked train services for the measurement CASL. This is defined as follows:
  - a) Any southbound service shall be counted as two services, the first recorded at Blackfriars and the second at its destination.
  - b) Any northbound service shall be counted as two services, the first recorded at Farringdon and the second at its destination.All other First Capital Connect trains (i.e. those not passing through the Farringdon-City Thameslink corridor) are only measured once for CASL at their destination.
- ii) For **Island Line** services only (now part of **South West Trains**), CASL is calculated using TOC supplied data, as TRUST does not operate on the Isle of Wight.

### D1.3 Dealing with Specific Scenarios

---

Outlined below are some of the more common reasons for perceived or actual inaccuracies in the CASL data. It is by no means an exhaustive list, and may be added to when other situations arise. It is intended as a guide for operators and Routes to show how certain situations should be handled with regard to measuring CASL. For Network Rail, it is intended as an aid to treating TOCs and scenarios consistently.

- i) **An emergency timetable was agreed between Network Rail and the TOC prior to 2200, but none/not all the revised schedules were uploaded into TOPS/TRUST by the cut-off** – *CASL should be measured against the emergency timetable, provided the changes were advertised to the passengers the same evening.* Evidence, in the form of the revised timetable or at least a summary of the changes by route, the time period they were being revised for, which demonstrates that this was agreed before 2200, will be needed.
- ii) **An emergency timetable was agreed between Network Rail and the TOC prior to 2200, but some/all of the revised schedules were uploaded into TOPS/TRUST incorrectly** - *CASL should be measured against the emergency timetable.* Evidence required will be the same as i).
- iii) **A revised timetable was issued for weekend engineering works, but the timings in TOPS failed to reflect this** – *CASL should be measured against the revised timetable.* Evidence needed would be the timetable booklet (in electronic form) showing the correct timings and TRUST printouts showing the incorrect plan as measured against.
- iv) **Neither the public timetable as advertised nor TOPS/TRUST reflected the GBTT timings the TOC requested in its timetable bid** – *CASL should not be altered.* Typically this applies when the public differential is applied incorrectly when the schedules are made for GBTT. As far as the passenger is concerned the train should run to the times advertised, regardless of whether they are incorrect due to a process error.
- v) **Trains were unable to run to the timetable due to emergency speed restrictions imposed by Network Rail on the day** – *CASL should not be altered.* It is measured against the plan as agreed the night before, regardless of what happened on the day.
- vi) **We ran VSTP schedules on the day to deal with the disruption that occurred** – *CASL should not be altered.* It is measured against the plan as agreed the night before, regardless of what happened on the day.
- vii) **We've had a major TRUST outage at a key origin/destination point** – *CASL can be altered, depending on the circumstances.* In theory, the DA specialist in the Route should manually infill any missing data at reporting points in TRUST. Unfortunately, there are occasions when this doesn't happen. In these cases, Network Rail performance systems have certain rules on how to treat missed reporting points which were the origin or destination, and will infer whether or not a train reached its destination or departed its origin from the record at the previous or following reporting point. On the occasions when information is supplied that shows that this is not appropriate, the train record can be manually edited.
- viii) **The record for that service in TRUST is incomplete** – *CASL can be altered, depending on the circumstances.* We know that TRUST isn't perfect, especially with regard to FTS. When information is received that will complete the record, editing at train level may be appropriate.
- ix) **FTS is recorded at a location in TRUST but the service was not advertised to the public as stopping at this location** – *CASL can be altered, as this should not be seen as a genuine FTS.* This scenario can occur when a train is shown as calling at a station purely for operational purposes – e.g. reversing, or changing electric traction type. Evidence, usually in the form of the timetable for the train(s) affected, will be needed. On these occasions, the train record can be manually edited.

#### D1.4 Current Industry CASL Reporting Process:

---

An outline of the timescales for CASL production, and the 'quality' of the CASL shown.

- i) **Provisional CASL** – produced on the Monday of week 2 after period end. This includes the additional input of TOC cancellation data for some operators, and is also based on Day 8 TRUST data, meaning no more changes can be made to the TRUST data.
- ii) **Final CASL** – should normally be produced by the end of week 4 after period end. This includes the additional input of TOC cancellation data for all operators, and is finalised after being sent to TOC performance contacts for any comments. Will reflect any editing that has been done in the data following discussions with the TOCs and Routes.



Appendix E

---

**Data Accuracy**

## E1 PPM and CaSL Data Accuracy Spot Checks

This Appendix provides examples of the checks of data flow carried out by the Reporters on Network Rail's performance data.

### Flow of Data from 'PSS Data Export Spreadsheet' to Individual TOC Spreadsheets

The data as directly output from PSS, and which is read into each TOC's individual spreadsheet was compared for a selection of TOCs from each sector to confirm consistency. A subset of those TOCs tested is shown in the table below. These checks were carried out for the latest period of data (2010 Period 5).

#### Table A1: Flow of Data from PSS to Individual TOC Spreadsheets

□

Source: 'SW PPM Period Reporting.xls', 'FCC1.xls', 'SWT1.xls', 'Northern1.xls', 'CrossCountry1.xls', 'ScotRail1.xls'. Network Rail 02/10/09

The only issue discovered was for First ScotRail where a hard coded addition of an extra 13 trains in formulae in the ScotRail1.xls spreadsheet in Period 0905 have been carried forward to all subsequent periods. The effect on reported PPM / CaSL statistics will be minimal.

Table A2 contains a screenshot of the relevant data in the ScotRail spreadsheet showing the commented changes in period 0905.

#### Table A2: FirstScotRail Discrepancy

□

Source: 'ScotRail1.xls'. Network Rail 02/10/09

At this stage, checks were also made on a sample of TOCs which operate trains covering more than one sector, to confirm that the individual Sector figures matched the overall TOC figures in the individual spreadsheets. No issues were observed, and this is summarised in Table A3 below, again for Period 2010/P05.

#### Table A3: Consistency of Data Between Overall TOC and Individual TOC Sector

□

Source: 'FGW1.xls', 'FGW (HSS)1.xls', 'FGW (L&TV)1.xls', 'FGW (West)1.xls', 'LondonMidland1.xls', 'LondonMidland (LSE)1.xls', 'LondonMidland (Regional)1.xls', 'ONE1.xls', 'ONE (GE, WA & Locals)1.xls', 'ONE Inter City (Provisional)1.xls'. Network Rail 02/10/09

### TOC Cancellation Data

Spot checks on the data supplied by TOCs and that which has been reported by Network Rail were carried out for all TOCs for which cancellation data has been supplied to the Reporters.

#### Table A4: TOC and NR (PSS) Cancellation Data

□

As noted in this table, small discrepancies were noted for two TOCs, as outlined in Section 5.3.8 of the report.

### Transfer of Data to Detailed PPM Spreadsheet

The flow of data into the Detailed PPM spreadsheet from a sample of individual TOC spreadsheets has been checked. This transfer of data is carried out via macros within Excel. A sample of data has been checked and is displayed below for the same five TOCs as shown in Table A1. This demonstrates no concerns over data consistency within this part of the process.

**Table A5: Flow of data from Individual TOC Spreadsheets to PPM Detailed Spreadsheet**

[]

Source: '9801-1005 All Trains - Confirmed.xls', 'FCC1.xls', 'SWT1.xls', 'Northern1.xls', 'CrossCountry1.xls', 'ScotRail1.xls'.  
Network Rail 02/10/09

**Transfer of Data into PPM Sector Level Spreadsheet**

The flow of data into the PPM Sector Level spreadsheet from a sample of individual TOC spreadsheets has been checked. This is carried out via formulae linking between spreadsheets, so providing a clear audit trail. A sample of data for Long Distance and London & SE TOCs was checked for consistency. Note, no data was supplied for Regional services. Details for the Long Distance services are shown in Table A6, demonstrating no concerns with this part of the process.

**Table A6: Flow of data on Long Distance Sector from Individual Spreadsheets to PPM Sector Spreadsheet**

[]

Source: 'Long Distance High Speed.xls', 'GNER1.xls', 'FGW (HSS)1.xls', 'ONE Inter City (Provisional)1.xls', 'CrossCountry1.xls', 'TPE1.xls', 'VWC1.xls', 'EastMidlands (Long Distance)1.xls'. Network Rail 02/10/09

The amalgamation of individual TOC data to Sector level figures have also been checked. The table below confirms the TOC data included within each Sector in the NR calculations.

**Table A7: Classification of TOC to Sector**

[]

Source: 'Significant Lateness & Cancellations – new CP4 Sectors.xls'. Network Rail 02/10/09

**Transfer of Data to CaSL Spreadsheet**

The flow of data into the CaSL spreadsheet from a sample of individual TOC spreadsheets has been checked. This transfer of data is carried out via formulae within Excel. A sample of data for the same five TOCs as shown in Table A1 is shown below.

**Table A8: Flow of Data from Individual TOC Spreadsheets to CaSL Spreadsheet**

[]

Source: 'Significant Lateness & Cancellations – new CP4 Sectors.xls', 'FCC1.xls', 'SWT1.xls', 'Northern1.xls', 'CrossCountry1.xls', 'ScotRail1.xls'. Network Rail 02/10/09

One minor issue was found in this process for Northern Rail. The number of trains running more than 60 minutes late is not populated via a formula in the CaSL spreadsheet. This has been set to 0 until period 0807 after which the value increases in increments of 1 for each period. This difference of 21 trains represents a very small number of trains compared to all trains operated by Northern, and so has no impact on the reported CaSL numbers for this TOC.

It is noted that following this discovery, all other TOC worksheets in the CaSL spreadsheet were subsequently checked, and no similar problems were identified elsewhere.

**Transfer of Data into Industry Reports**

The flow of data from the PPM and CaSL spreadsheets into the spreadsheets which feed the various industry reports (POPR, IPPR, etc) has been checked for a sample of TOCs covering each sector. The spreadsheets which hold this information are referred to the 'dashboard' for each TOC.

This transfer of data is carried out via a macro on Day 8 of the period. Therefore, the latest period (2010/P05) of data in the 'dashboard', and industry reports, will be provisional since not all TOC cancellation data has been supplied (where this is not available, PSS generated cancellation data is provisionally reported). The PPM and CaSL spreadsheets as supplied by NR on the 2 October 09 are now finalised for period 2010/P05, so there will be small observed differences with the 'dashboards'.

**Table A9: Flow of Data from PPM and CaSL Spreadsheets to POPR Spreadsheet**

[]

Source: 'Significant Lateness & Cancellations – new CP4 Sectors.xls', '9801-1005 All Trains – Confirmed.xls', 'Dashboards P1005.zip'. Network Rail 02/10/09

In the majority of these sample cases, the PPM and CaSL data matches between the PPM / CaSL spreadsheets and the 'dashboard' with the exception of the final period. One small discrepancy is noted for FCC for 2010/P04, although it is recognised that this data might not have been refreshed in the 'dashboard' yet with final period figures.