Network Rail and Office of Rail Regulation

AO/29: Review of CP4 Regulated Outputs

Issue | 1 August 2012

Job number 223767-05

Ove Arup & Partners Ltd
13 Fitzroy Street
London
W1T 4BQ
United Kingdom
www.arup.com

ARUP

Contents

Appendices

Executive Summary

Introduction

In our role as one of the Independent Reporters, Arup was asked by Network Rail (NR) and the Office of Rail Regulation (ORR) to review the success of NR's current Regulated Outputs in driving the desired behaviours and outcomes. The purpose of this review is to inform the forthcoming consultation in August 2012 on the Regulated Outputs for Control Period 5, covering the 5 year period 2014-2019.

Our approach has been to carry out a series of interviews from people within NR and ORR, and other representatives from Train Operating Companies, Freight Operating Companies, the Association of Train Operating Companies and Transport Scotland. We asked them for their views of the success of the current outputs in CP4 and what changes they would like to see in CP5. This report provides a synopsis of their views as well as providing our own views based on experience of auditing some of the output measures and our wider experience. The main findings in each area are presented below.

Not surprisingly given the cross section of the people we interviewed, a number of different views were expressed. The consultation will be an important opportunity to explore these in more detail and we highlight some possible themes to include. We would also make the point that any changes to the Regulated Outputs will need careful thought and clear definition in advance of CP5 so that all parties know the expected outcomes.

We would like to thank all those people we interviewed for their openness and ideas for improving the outputs.

Overall Framework

There are a number of different types of output that are monitored by the ORR during CP4. There are top-level outputs which are formally regulated and set out in the CP4 Determination. There are also disaggregated outputs which are defined in NR's Delivery Plan, some of which have the status of 'customer reasonable requirements' and are similarly regulated. In addition, NR are responsible for meeting their network licence obligations which are monitored through a number of measures, as well as a number of legal obligations (for example, related to safety). Finally, ORR expects NR to make specified progress on two key enablers, excellence in health and safety risk control and in asset management.

We found this structure confusing in some areas and would suggest that it should be made clearer for CP5. This should include clarifying the status of different measures and whether they are output targets or for monitoring purposes. As well as a clearer regime, NR would like the regime to be simpler with fewer outputs and no overlaps between them.

Linked to this, the role of monitoring inputs for example the two CP4 enablers should be made clear. In our view there is a role for measuring NR's capability to provide confidence or early warning of a potential weakness before it results in an output target being missed. However, the case for setting regulated targets for

these inputs is less clear and runs the risk of micro-managing NR and restricting their ability to respond to circumstances.

Network Capability

The CP4 outputs of track mileage and layout, linespeed, gauge, route availability and electrified track capability are viewed as useful measures to ensure network capability does not deteriorate.

However, they do not measure the outcomes of capability in terms of train service provided. It is reported that there have been instances where extra recovery time has been inserted into the timetable to protect performance but which has resulted in longer journey times. This too can reduce the number of available train paths.

The appetite for regulating journey times should be investigated during the consultation. Any targets, though, would need to be balanced against train performance targets. An alternative approach might be to introduce a 'System Operator' enabler measure of NR's timetable and operations planning capabilities. This could include monitoring a sample of journey times, and taking views from operators on NR's performance in these areas. Our view is that this could be useful to highlight strengths and weaknesses but the resulting score(s) should not be measured against regulated targets.

Questions were raised on whether the published gauge capability was completely up-to-date. Investigating whether this is a serious concern and how it could be addressed as an output could be taken forward in the consultation.

There are some concerns over whether the capability of the network is being fully exploited. For example, a recent linespeed improvement has not resulted in faster journey times. The operators would also like their aspirations for improvements to be taken into account. Finding a mechanism to address these concerns could be considered.

Network Capacity

The targeted passenger arrivals metrics in the HLOS have worked well in CP4 because they are understandable and based on forecasts fixed before CP4 rather than subject to emerging changes in passenger numbers. The second metric of additional passenger kilometres has been less useful as in most cases it has been met when achieving the passenger arrivals targets. It is, though, not clear to us whether there is an obligation on NR to meet the capacity metrics or whether their obligation is to deliver the enhancement projects in the CP4 Delivery Plan.

The change control implemented by NR has worked well during CP4 and provided the flexibility to adapt to changes in underlying assumptions such as the number of additional vehicles. This poses the question as to whether the change control should be broadened to cover trade-offs with other targets; NR's view is that trade-offs with performance and cost are particularly important - we would agree if reliable relationships can be established.

Both operators and NR view the most successful enhancement schemes as those with early involvement by the operators. This has also been seen by the freight operators and NR as the main reason for the success of the Strategic Freight

Network Fund. Finding a mechanism for facilitating this early involvement in CP5 could be explored.

Some views have been expressed that the non-project specific funds should have some high level outputs attached to them. This, though, should be balanced against giving NR the freedom to prioritise and innovate.

A comment made by NR is that if the HLOS contains schemes that are new to them then they will have little time to develop and cost them in time for the Strategic Business Plan. Alternative ways for developing and procuring such schemes could be considered.

Network Availability

The ORR view the two Regulated Outputs of PDI-P and PDI-F as being successful in focussing the industry on reducing the disruption caused by possessions to passenger and freight trains respectively. They take into account various factors such as the likely number of passengers affected and the availability of freight diversionary routes. Both measures are currently beating their targets.

Whilst the objectives of the 7 Day Railway are well understood, NR and the operators are less clear on the impact of the measures. They argue that they do not understand how their planning decisions can influence the measures. Both measures rely on complex algorithms and are produced by a model and unlike for example PPM which is transparent, the impact of individual possession strategies on the overall result can appear obscure. In contrast the overall target of a 37% reduction in disruption to passengers is a simple target. It is the linkages between the PDI measures and this target that are difficult to understand.

This is therefore an important topic for consultation, to explore the trade off between a 'direction of travel' measure such as PDI-P/F and more understandable measure or set of measures. NR is developing an alternative measure with operators, with the aims of it being simpler and more transparent. In the meantime, better communication of the way that PDI-P/F work, could be considered.

The development of Alliances between NR and TOCs in response to the McNulty Report may lead to agreed local possession strategies which may lead to an increase in disruption to passengers on a local basis. ORR should consult on how such initiatives should be facilitated against any national proposal for continued reduction in disruption.

The operators would welcome a measure of the efficiency of NR's use of possessions, though this might be difficult to set up in practice in time for CP5.

Performance

PPM is seen by all in the industry as a useful measure that has incentivised good train performance. For CP5, NR would like to replace the regulated sector targets with a national target supplemented by individual TOC targets governed by customer reasonable requirements. The TOCs also focus on their own targets with NR rather than the sector targets. However, the view was expressed to us

that the recent focus on long distance operations would not have happened without the sector targets.

The consultation should therefore explore the pros and cons of sector targets versus operator targets.

Cancellations and Significant Lateness (CaSL) as a new measure is not as universally understood as PPM NR have tended to focus less historically on cancellations than delay minutes, partly because their systems are less capable of capturing cancellation data. This has caused some frustrations for TOCs in the past given cancellations are very disruptive to passengers. The operators are supportive of CaSL as a regulated output, and it is likely to become more important if Delay/Repay compensation is included in more franchise agreements.

Regulating delay minutes is seen as less beneficial by both NR and the operators. They believe it can detract from the overall service delivery, for example too strong a focus on delay numbers and attribution instead of the passenger experience during times of disruption. Both see the value in monitoring delay minutes but question whether this should be a regulated output.

The CP4 freight regulated output of delays per 100 train kilometres is seen as inadequate by both NR and freight operators. Both parties are in discussion about an alternative measure but it is proving difficult to reach agreement. Emerging thinking from the Freight Recovery Group is that the focus should shift to performance on strategic freight corridors. This is becoming urgent if an alternative measure is to be used in CP5.

Safety

There are no regulated outputs for safety, instead this area is governed by NR's legal obligations. However, the HLOS included a 3% reduction in the risk of death or injury from accidents on the railway for passengers and rail workers on the British network during CP4. This is an industry target and not a Regulated Output. NR are responsible for their own contribution as set out in its 2009 Delivery Plan.

Two KPIs measure NR's contribution. The Fatalities and Weighted Injuries (FWI) per million hours worked measures the risk to all NR employees and is seen as easy to understand and normalised in a sensible way. The Passenger Safety Index (PSI) is a composite measure of actual data on stations and a risk model for trains. This is less well understood and in reality NR manages risks in this area by focussing on the underlying data such as the number of Signals Passed At Danger. An alternative measure to PSI should be explored that treats risks at stations and on trains in a consistent way.

During CP4, NR has dropped the use of specific targets to prevent any under-reporting. The setting of targets in this area should therefore be considered carefully.

ORR also monitor NR's approach to excellence in health and safety as measured by ORR's Management Maturity Model. We have not reviewed this before in our role as Part A Reporter, but the feedback we received from NR in a meeting for this review suggested they were unaware of the results and where they are on the scale. The degree to which such input indicators of safety should be regulated could be an issue for consultation.

There should also be a very clear distinction between the legal enforcement of health and safety law by ORR and the management of licence breach. Any blurring of these roles is unhelpful for both ORR and NR.

Environmental Sustainability

CP4 is the first time that environmental performance has been monitored. There are no Regulated Outputs but NR put forward a number of measures and targets in its 2009 Delivery Plan. The intention was that these would improve data collection processes and bring about organisational change.

The experience to date reflects the immaturity of these measures. Data collection has improved. The most useful measure is reported to be the Operational Recycling which has resulted in waste contracts being retendered. The impact of other measures has, though, been less obvious. The Environmental Incidents target might have produced a perverse incentive to under-report incidents, although it is still seen as an important output to measure.

Looking forward to CP5, we believe that it is important to link the outputs with NR's goals and strategic priorities. We also believe that any targets should not be over-ambitious. The operators believe that Government need to be very clear about both the targets and the cost to achieve them (i.e. make clear what they want to buy from the rail industry). They also see the largest benefit in this area will be for NR to improve the cost efficiency of railways and so to attract more customers.

It would be worth exploring these issues during consultation and to ask which environmental initiatives would have the most benefit for the rail industry. In addition, for CP5 and beyond, it would be worth considering the amount of resilience to build into assets for any impacts of climate change and how this would be measured.

Asset Serviceability & Sustainability

There are a number of outputs and measures that are monitored by the ORR. Stations, being the only passenger facing asset, have the only Regulated Output in this area, namely the Station Stewardship Measure (SSM). The condition of depots is measured using the Light Maintenance Depot Condition (LMDC) score which has the status of customer reasonable requirement. There are no formal outputs for Network Rail's other assets, instead NR's compliance with its licence requirements is tested against an extensive dashboard of indicators.

A wide range of views was given on the success of these outputs. Some outputs are not considered useful management information by NR (for example, SSM) or by the operators (for example, LMDC). NR find the aggregate Asset Stewardship Index (ASI) to be a useful high-level management measure, but ORR find it of little value as an asset stewardship measure for their purposes.

Both ORR and NR consider that the counts of 'Civils assets subject to additional examinations' and 'Temporary Speed Restrictions' (TSRs) could potentially drive perverse behaviours since, for example, additional examinations are a way of managing risk. The operators, though, would like the number of TSRs to be measured as they impact the train service.

A general point made by NR is that the degree of oversight applied by ORR in the overall Asset Management area is considered to be unduly restrictive, time consuming and inefficient. Some in ORR felt that the Licence Conditions have provided an effective sanction for non compliance with the CP4 Monitoring KPIs, making specific Regulated Outputs unnecessary.

For CP5, the view was expressed that there should be a mix of leading and lagging indicators. Leading indicators for a measure can provide an early indication of progress made; and as the performance improves, some of the leading indicators can then be phased out.

Overall we found it difficult to find a clearly articulated purpose and hierarchy for the CP4 indicators. Work is required to define a suitable hierarchy for CP5, with clear purposes, and the right mix of leading and lagging indicators. Targets should be set taking into account performance, cost and the penalty of non-compliance. ORR and NR should agree a suitable degree of oversight and reporting. This is, therefore, an area for further consultation and we would suggest that several explicit 'straw-man' tables of proposed measures should be developed to set out the key alternatives.

1 Introduction

1.1 Background and Purpose of Review

1.1.1 In its Determination for the Periodic Review of 2008 (PR08), the ORR set out a framework of Regulated Outputs, enablers and monitoring KPIs that NR were expected to deliver during CP4. This was expanded in a subsequent letter from Bill Emery dated 1st March 2011 that set out what success for Network Rail would look like by the end of CP4.

1.1.2 The ORR is now considering what an appropriate framework would be for CP5. Defining this framework and setting the targets to be delivered will be finalised after NR's Strategic Business Plan for CP5, either in the PR13 Determination or by approval of NR's 2014 Delivery Plan. Following the publication of HLOS by the Government in July 2013, the ORR is planning to carry out a consultation in August to present options for this framework.

1.1.3 To help prepare the consultation, NR and the ORR have asked Arup, in its role as one of the Independent Reporters, to undertake a short review of the success of NR's CP4 regulated outputs and to present initial options for CP5.

1.2 Scope of Review

1.2.1 The review should identify:

1. How the CP4 output obligations & targets have changed the behaviour of Network Rail and operators. i.e. what has happened that wouldn't have happened without the obligation in place?
2. How that behaviour compares with the intended outcome of the obligation (e.g. as stated in ORR's determinations or in Network Rail's delivery plan).
3. What are the strengths and weaknesses of the CP4 output measures/metrics?
4. Are there alternative measures or metrics that might align better with the intended outcome than the CP4 obligations? How certain is it that these could be ready (in terms of data collection, verification, forecasting) in time to be used as obligations for CP5?
5. What are the options for further disaggregation of measures (so the outputs are apparent at a more local level)?

1.2.2 The following topics should be covered by the review. The measures shown are those relevant to CP4.

Topic	Measure
Performance (reliability)	PPM Cancellations & Significant Lateness Delay minutes
Network Capacity	Delivery of HLOS outputs Delivery of enhancement schemes Delivery of electrification schemes
Safety	Passenger Safety Index Employee Health & Safety Index Excellence in health and safety culture and risk control maturity model
Stations	SSM
Depots	LMDC[1]
Network Availability	PDI-P, PDI-F
Network Capability	Track mileage and layout Linespeed Gauge Route Availability Electrification Type
Environmental Impact	Sustainability Outputs[2]
Asset Serviceability and Sustainability	Table of indicative asset condition measures (total network) Proposed renewal volumes Excellence in asset management maturity model

1.2.3 The mandate for this review is provided in Appendix A.

[1] Not formally regulated but NR must show how depot condition changes
[2] Not formally regulated but NR made commitments in 2009 Delivery Plan

1.3 Structure of Report

1.3.1 Following this Introduction:

- Section 2 describes our approach to the review
- Section 3 outlines the characteristics of outputs that can measure the performance of an organisation
- Section 4 provides an overview to the output framework for NR in CP4

1.3.2 The findings of our review are then presented as follows:

- Section 5 – Network Capability
- Section 6 – Network Capacity
- Section 7 – Network Availability
- Section 8 – Performance
- Section 9 – Safety
- Section 10 – Environmental Sustainability
- Section 11 – Stations, Depots, Asset Serviceability & Sustainability

2 Approach to Review

2.1.1 Following an inception meeting with NR and ORR on the 20th of April to clarify the terms of reference of the review, we held a number of interviews with industry representatives. The purpose of these interviews was to garner their views on the success of the output framework in CP4 and what changes might be made in CP5.

2.1.2 There were broadly two types of interview. We met representatives from the following organisations to gain an overview of the outputs:

- NR
- ORR
- Transport Scotland
- South Eastern and First Great Western to represent Trains Operating Companies (TOCs)
- DB Schenker to represent Freight Operating Companies (FOCs)
- Association of Train Operating Companies (ATOC)

2.1.3 Our specialists also met NR's output owners for a more in-depth interview in each of the following topic areas:

- Network capacity
- Network availability
- Performance
- Safety
- Environmental Sustainability
- Network capability and Asset Serviceability & Sustainability (several meetings)
- Stations and depots

2.1.4 A list of all the meetings is provided in Appendix B.

2.1.5 Our findings are based on these interviews. In addition, we reviewed several documents including the PR08 Determination, the 2009 and 2010 Delivery Plans, the 2011 Annual Return and various papers provided by some of the NR output owners.

3 Characteristics of outputs

3.1.1 This section briefly describes the characteristics of Key Performance Indicators for monitoring the performance of an organisation. They are based on a short literature review[3] and should be borne in mind when reviewing NR's regulated outputs.

3.1.2 A typical Service Framework is shown below (Figure 3.1). On the left hand side, the framework shows 'what we do' with linkages between Goals (typically broad statements outlining the vision and intention and reflecting the needs of customers), Strategies & Plans (typically high-level statements providing further clarity to the Goals and broadly outlining how these will be met), and Outcomes / Outputs (where typically the specific service to be delivered by an asset is set out). Below that will be a set of activities that contribute in different ways to achieving the Outcomes / Outputs.

3.1.3 How well this is done is measured through a series of indicators shown on the right hand side of the Framework diagram. These indicators are typically predominantly quantifiable, verifiable and relate to management activities and aspects such as physical condition of assets.

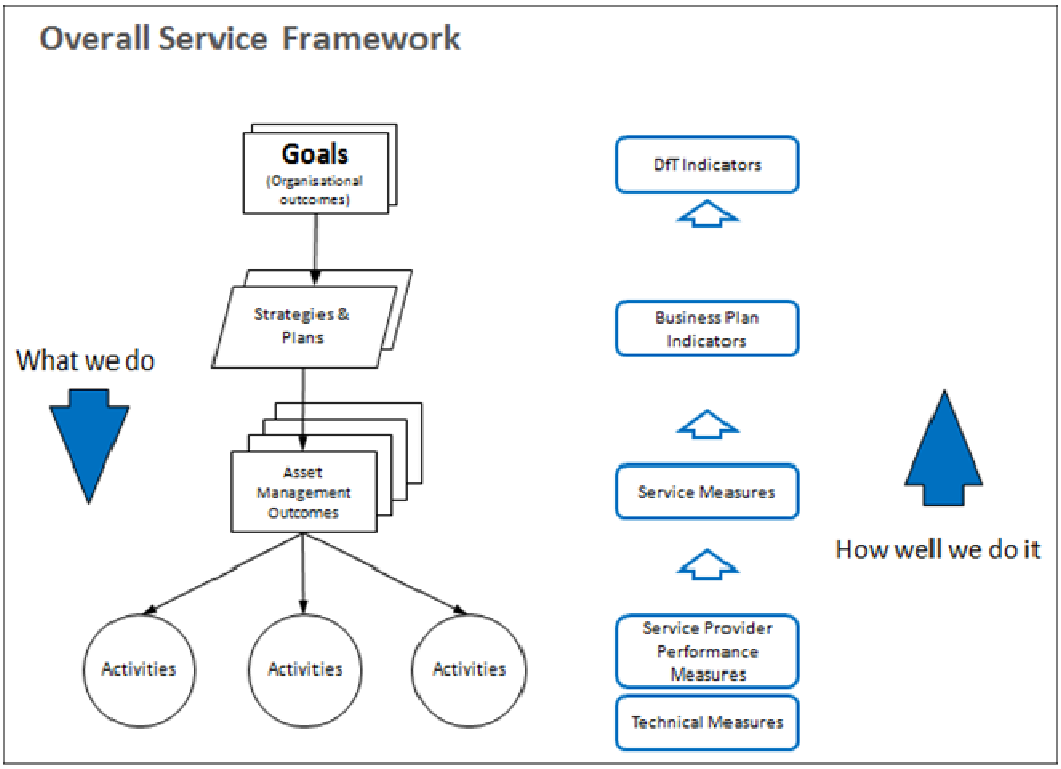

Figure 3.1: Schematic Representation of Goals and Indicators

[3] In particular 'Leading Performance Indicators, Guidance for Effective Use', by Step Change in Safety

3.1.4 Ideal characteristics of outputs include:

- Being objective, easy to measure (this is important for considering alternative measures for CP5);
- Relevant to the organisation being measured (it is helpful if the Regulated Output aligns to what the organisation is managing);
- Immediate and reliable indications of performance;
- Cost efficient to collate the information;
- Understood and owned by the group being measured (both NR and operators);
- For leading performance indicators[4], there must be a connection to the desired lagging outputs - so that there is reasonable belief that the actions taken to improve the leading performance indicator will be followed by an improvement in the associated lagging output indicators[5];
- Reasons for measurement understood, with a clear link back to HLOS, the Strategic Business Plan and eventually the CP5 Determination and Delivery Plan; and
- Provide information to guide future actions.

[4] Indicators provide information about the current situation that may affect future performance. are referred to as 'leading' indicators as they measure the inputs to the process that will affect future outcomes.

[5] Indicators that provide information on the outcomes of our actions are referred to as 'lagging' indicators because they measure the outcomes that have resulted from past actions / inactions.

4 Framework of CP4 Outputs and Measures

4.1.1 In this section we provide an overview to the regulated outputs and accompanying measures specified for NR in CP4. We also describe the incentives and sanctions that are in place.

4.2 Types of output

4.2.1 In October 2008, the ORR set out in the CP4 Determination the minimum outputs that are required from NR. These output obligations are in two parts:

- top-level regulated outputs set by ORR, and
- disaggregated outputs defined in Network Rail's CP4 delivery plan.

4.2.2 NR set out its commitments on the disaggregated outputs for its train operator customers in the appendices to its 2009 Delivery Plan, in some cases later refined in the 2010 Delivery Plan.

4.2.3 Some of these disaggregated commitments have the status of customer reasonable requirements. For all intents and purposes, they are treated in the same way as the top-level regulated outputs in terms of the process of sanctions and penalties for under-performance.

4.2.4 Additional to the two part output obligations, NR have a responsibility to meet their network licence obligations. These are monitored through a number of measures notably in the area of asset management. Any breaches of the licence follow the same process of sanctions and penalties.

4.2.5 Finally, NR has legal obligations to meet, in particular in the area of safety, and ORR expects specified progress to be made on two key enablers - excellence in health & safety risk control, and in asset management.

4.3 Incentives and Sanctions

NR Management Incentive Plan[6]

4.3.1 The Management Incentive Plan (MIP) applies to NR Executive Directors, Senior Executives, Other Senior Executives and Route Based Executives with a significant level of responsibility as selected by the NR Remuneration Committee. The principal terms and underlying principles of the MIP have been developed having regard to the terms of Condition 16 of NR's network licence.

4.3.2 The MIP contains both an annual and a long-term incentive element and is dependent on participants achieving business performance measures aligned with the CP4 Delivery Plan goals. NR views it as providing a strong incentive for the participants.

[6] NR Management Incentive Plan Statement 2009-10 (Effective from 1 April 2009)

4.3.3 Specifically the MIP includes four 'mechanistic measures' (PPM, ASI, Cost Efficiency Measure , and Passenger Satisfaction) plus two 'judgemental measures' (Customer Satisfaction and Progress on Enhancement / Renewal Schemes).

4.3.4 The performance measures applicable to Senior Executives are the same six measures (Performance, Asset Stewardship, Cost Efficiency, Passenger Satisfaction, Customer Satisfaction, and Progress on delivering major enhancement and renewal schemes) used for Executive Directors, as well as other measures which reflect their own area of responsibility. In the case of Route based Executives, the Plan uses the performance measures on a network-wide basis and also expressed on a local basis (the Public Performance (Route), a specific Financial Measure (Route), the Asset Stewardship Indicator (Route) and the Passenger Satisfaction (Route)). For other Senior Executives, the Plan uses the six performance measures as set out above plus one specific financial measure.

4.3.5 It is interesting to review how closely these measures align to NR's regulated outputs. Apart from Network Availability (PDI-P and PDI-F outputs), all regulated outputs are included in the MIP measures, some more transparently than others.

ORR letter to NR Remuneration Committee

4.3.6 Annually the ORR Board writes to NR Remuneration Committee to set out their view of NR's performance in the previous year (for example ORR letter dated 2 May 2012[7]). This includes topic such as Safety, Asset Management, Train Service Performance, Disruption, Delivery of Enhancements, Expenditure & Efficiency, Customer Satisfaction, Stations and depots condition, Environmental sustainability and the NR Change Programme.

4.3.7 The letter has the aim of helping the chairman and colleagues on the NR remuneration committee reach decisions on senior management bonuses under the NR management incentive plan (the MIP). This is seen by ORR as a strong sanction.

4.3.8 No corporate views were expressed by NR on this, but some respondents in NR expressed the view that the Management Incentive Plan (MIP) was not felt to be 'driving' good asset performance (see section 11).

ORR Monitor

4.3.9 Quarterly ORR publishes the 'Network Rail Monitor'. ORR consider this to be an important tool that they use to hold NR to account[8]. It sets out how ORR think NR is doing in delivering its obligations to its customers and funders and highlights any areas of concern. Specifically ORR provide a draft of the proposed text to NR ahead of publication, and state that the potential reputational impact from ORR

[7] Network Rail's Performance in 2011-12: year 3 of CP4 dated 2 May 2012
[8] http://www.rail-reg.gov.uk/server/show/nav.293

negative comment leads NR to act quickly to resolve any highlighted issues.

Regulatory Escalator

4.3.10 The ORR manages concerns with delivery of regulatory obligations through a 'regulatory escalator' process. If NR start to fall below the target trajectory for a particular output or, more usually, there is the potential for this to happen (given many of the outputs are year averages, end year targets or targets for further in the future), ORR consider putting the regulated output on its Escalator. In making their decision, they will take into account the impact of missing the target and, in the case of customer reasonable requirements, will ask the customer for their views. The Escalator has the following steps:

8. Enforcement action.
7. "Case to answer" letter.
6. Consideration of possible breach – ORR Director RPP to alert NR Group Strategy Director.
5. "Special scrutiny" (intensive investigation and enhanced monitoring with director level involvement).
4. Public expression of concern.
3. On record discussion / exchange of correspondence.
2. Informal discussion with Network Rail or others.
1. Issue identified.

4.3.11 ORR's Industry Delivery Review Group (formally called Network Rail Delivery Group) makes the decisions about moves up or down the steps.

5 Network Capability

5.1 CP4 Regulated Outputs

5.1.1 Apart from specific enhancements, Network Rail is required to maintain network capability as at 1st April 2009 as described in its sectional appendices, GEOGIS database and national gauging database. Capability is specified in terms of:

- track mileage and layout
- line speed
- gauge
- route availability
- electrification type/miles

5.1.2 Changes can be made through the industry Network Change procedure.

5.1.3 A specific programme, the Infrastructure Capability Programme, was introduced to address discrepancies between actual and published capability. This involved consultation with stakeholders and, if appropriate, identifying any remediation activity to enable baseline capability to be restored.

5.2 Review of CP4

Impact on Behaviours

5.2.1 The aspired behaviour is for NR to maintain the capability of the network as it was at 1st April 2009.

5.2.2 Views were expressed on two levels: firstly on the physical aspects of the network, and secondly on the planning process that makes use of the network capability.

5.2.3 On the first level, there is a general perception among TOCs and FOCs that network capability is being eroded. For example, the FOCs representative estimates that 95% of freight trains operate under special speed restrictions to permit running over particular structures of infrastructure.

5.2.4 On the second level, the view was expressed that the requirement to deliver performance outputs (and associated financial incentives) has seriously distorted NR's delivery of rail services. It has led to extensions in journey time by the insertion of additional pathing and performance times. In turn this has reduced capacity at some critical locations such as Edinburgh Waverley. As a result, whilst the theoretical capability of the network might be unchanged, the practical capability has deteriorated. It was pointed out that extended journey times are not monitored as a Regulated Output.

5.2.5 In addition, it was stated that opportunities are being missed to exploit new capabilities. For example, a recent Network Change at Hurlford, where a change introduced for other reasons resulted in higher permissible speeds, has not been taken forward into the train planning process to reduce journey times.

Strengths

5.2.6 Not letting the network capability degrade is seen as an important issue.

Weaknesses

5.2.7 The current outputs do not measure the outcome of network capability as seen by the passenger, in particular journey times. The view was also expressed that the outputs do not include NR's Timetable Planning Rules which can change and have a significant impact on train operations and capacity. However it should be pointed out that the Timetable Planning Rules are subject to formal consultation with train operators via part D of the Network Code which limits scope for unilateral change.

5.2.8 The location of network capability is seen as important to know, not just simple counts. Any improvements will only be useful if they can be used and there is demand to use them. This geographical dimension is missing from the outputs.

5.2.9 The outputs do not track Network Capability with sufficient transparency and detail. They are based upon the network as defined in the Sectional Appendix, the accuracy of which is sometimes questionable. For example, re-introducing Class 180s on the Great Western Main Line required gauging checks for any movements of the railway and the consequent impact on stepping distances, even though they were listed as cleared in the Sectional Appendix.

5.2.10 The outputs do not include the following aspects:

- The impact of Temporary Speed Restrictions (TSRs)
- Future aspirations of TOCs and FOCs

5.2.11 The general view of operators was that the current measures did not cover all aspects of network capability and that a clearer definition is required.

5.3 Alternatives for CP5

Respondents' views

5.3.1 There was a consensus of opinion from the TOCs, FOCs and Transport Scotland that the CP4 Regulated Outputs of network capability do not measure the practical outcomes for the train service. Because of focus on the train performance outputs, journey times can be extended which in turn can reduce capacity. The view was expressed that journey times should be included as an output in CP5, as should timetable planning rules.

5.3.2 It is worth raising here the view expressed by some in NR that it is important to understand the performance – capacity – capability trade-offs when defining Regulated Outputs and setting targets. Without this, and setting too many targets on a wide variety of outputs in isolation could reduce NR's options and ability to meet those targets. They would want some flexibility and a recognition of the trade-offs.

5.3.3 Questions were raised on the accuracy of the Sectional Appendix resulting in the need to undertake gauging checks when re-introducing rolling stock. Also, for electrified routes, the capacity of the power supply to operate trains might be a useful measure.

5.3.4 The view was expressed that the current regulation did not encourage NR to exploit improvements in capability. Also the current target to maintain capability, whilst important, did not encourage NR to work with TOCs and FOCs to improve capability, nor indeed to agree where some redundant capability could be removed.

Options

5.3.5 Two additional measures have been suggested for CP5, namely:

- Capacity of electrical power supply
- The number of TSRs

5.3.6 A more fundamental suggestion is to measure the outcome of the network capability in terms of

- journey time
- the ability of TOCs/FOCs to exploit their track access rights
- NR's timetable planning rules

5.3.7 Such outcome measures could be in addition to the CP4 outputs or possibly to replace them. However, they should not be treated in isolation from performance and capacity measures.

5.3.8 As well as maintaining the current capability, measures to encourage the aspirations of the TOCs and FOCs should be considered.

5.3.9 Finally, a more detailed measure of gauge capability could be considered, to verify the Sectional Appendix.

Readiness

5.3.10 It would be reasonable to expect that the capacity of electrical power supply and number of TSRs should be possible to produce.

5.3.11 More thought would need to be given to producing outcome measures. Monitoring journey time against a target can be calculated from the timetable but would need to be carefully specified (stopping pattern, rolling stock type, all day average or fastest, etc). Alternatively, the amount of recovery time inserted into the timetable might be more practical.

5.3.12 These measures of journey time do not address whether the Sectional Running Times fully exploit the network linespeeds. These instances could perhaps be addressed jointly with TOCs and FOCs along with aspirations for improvements.

5.3.13 Verifying the gauge capability of the network is potentially a large amount of work. Specifying what this would entail and the detail of any concerns would need to be considered first.

5.4 Reporter Views and Next Steps

5.4.1 During CP4, NR have successfully completed the Infrastructure Capability Programme whereby they have investigated discrepancies between published and actual network capability and agreed any remediation works. The outputs of track mileage and layout, linespeed, gauge, route availability and electrified track capability have not changed much but are, nevertheless, useful measures to ensure capability does not deteriorate.

5.4.2 At the physical level, therefore, the CP4 measures have had some success in maintaining network capability. However, questions have been raised on the accuracy of the published gauge capability, and that it might need to be checked for physical movements of the railway over time. This could be explored during the consultation.

5.4.3 It has been suggested that location/route based information would be useful additional measures in understanding the network capability and how it might be better exploited. Whilst useful, some thought would need to be given as to how best to present this in an informative way. Providing the measures by operating route would be a starting point and these could form route based KPIs for external monitoring.

5.4.4 Measuring the outcomes of the capability in terms of train service provided (journey time and capacity) is worthy of consideration. This does, though, need careful thought and definition and must be balanced against the requirements of train performance. Exploring the appetite for measuring these outcomes should be explored in the consultation.

5.4.5 An alternative way to measure the effectiveness of NR's planning process might be to introduce a 'System Operator' enabler measure which would monitor NR's organisational capabilities in timetable development and operational planning. This might include monitoring a sample of journey times (suitably defined) and results of interviews with operators. Our view is that such an approach might be a useful monitor of capability to highlight strengths and weakness, but should not have a target 'score' in its own right. In addition, its role and function should be kept separate from that of the Network Code which places change control on Timetable Planning Rules.

5.4.6 Providing incentives to fully exploit the capability and work with TOCs and FOCs to meet their aspirations could be addressed in Joint Network Capability Plans or similar. Doing so at a route level might fit well in NR's devolved re-organisation.

6 Network Capacity

6.1 CP4 Regulated Outputs

6.1.1 The HLOS for England & Wales defines a number of specific schemes to increase capacity on key parts of the network. These include Thameslink, Reading, Birmingham New Street and outstanding parts of the West Coast programme at Stafford and Bletchley. The PR08 Determination stipulates delivering these as reasonable requirements.

6.1.2 The HLOS also sets out capacity measures (essentially extra demand to be accommodated at specific load factors) which are to be met for a wider range of specific cities and routes. There are two metrics:

- Additional passenger arrivals at London termini and regional centres in the AM high peak hour and AM peak 3-hour; and
- Additional passenger kilometres by route.

6.1.3 The status of these metrics and the obligation on NR to meet them is unclear. Instead ORR and NR are clear that the regulation is of the resulting enhancement project milestones.

6.1.4 NR defined clear deliverables and milestones for its programme of works in its CP4 delivery plan, and, except where clearly identified as being 'aspirational', these have the status of reasonable requirements under the network licence. The change control of the various projects is regulated.

6.1.5 The Determination also provides funding to begin to implement the strategic freight network (SFN) as required by the England & Wales HLOS. The SFN has been defined by NR as a network of core trunk routes with sufficient capacity and appropriate gauge to carry expected freight flows. NR must define clear deliverables and milestones for its programme of works in its CP4 Delivery Plan. These too have the status of reasonable requirements and there must be a change control process to allow NR to continue to refine the plans in agreement with relevant parties.

6.1.6 A number of other funds were also provided to support the capacity and other outputs. They are reviewed by the Independent Reporters and include:

- NR Discretionary Fund
- CP5 Development Fund
- CP4 Performance Fund
- 7-Day Railway Fund
- Scottish Small Projects (Tier 3) Fund

6.1.7 In Scotland, Network Rail is required to deliver the Airdrie-Bathgate and Glasgow Airport Rail Link projects, and to undertake a specific

role in the Borders project as set out in the Scotland HLOS. Again, the Delivery Plan has set out milestones for these projects.

6.2 Review of CP4

Impact on Behaviours

6.2.1 The aspired behaviour is to deliver enhancement schemes that meet the capacity metrics by the end of CP4 in an efficient manner.

6.2.2 The capacity metrics seem to have worked well. There was some confusion early on that they represented actual passenger numbers rather than what was stated as modelled forecast passenger numbers. There may also have been some 'gaming' as to which train services should be included in the capacity count – but this does not appear to be a major concern.

6.2.3 The change control process is reported to have worked well and instilled discipline within the NR project teams.

6.2.4 That said, TOC feedback suggested there was a lack of engagement with TOCs especially during the specification process. The most successful schemes were seen by them as those where they had been consulted early on. NR stated they too welcome early involvement of the TOCs, and it is worth noting that the TOCs expressed the view that the early stage involvement was already better for CP5 than it was at a comparable stage in the last periodic review process.

6.2.5 The feedback on the SFN from FOCs has been very positive. They welcomed the delegation of responsibility for spending decision to a cross-industry group and believe this has resulted in good value for money. There has, though, been less transparency and involvement by FOCs in route-based freight enhancement schemes.

6.2.6 One question from the ORR was whether the schemes delivered minimum Whole Life Costs for new assets, and cited the track specification as an example where the optimum choice might not always be made.

Strengths

6.2.7 The outcome for capacity enhancements has been defined clearly and simply. Basing this on a fixed forecast value has provided a stable target. The most useful capacity metric is seen as additional passenger arrivals at London termini and regional centres in the AM high peak hour and AM peak 3-hour.

6.2.8 Change control has worked well. It has provided NR with the flexibility to re-plan sensibly to changes in circumstance, in particular when the expected number of additional vehicles did not materialise.

6.2.9 The non project specific funds have given NR the freedom to be innovative. An example quoted was the development of a tool to identify worthwhile linespeed improvements on the network which could then be developed into enhancement schemes.

Weaknesses

6.2.10 The second capacity measure, additional passenger kilometres by route, is seen as almost redundant. It will usually be met if the first metric is met.

6.2.11 The forecast growth in passenger numbers was under-estimated in CP4.

6.2.12 Some of the outputs of HLOS schemes could have been more clearly specified, for example whether a journey time improvement was aspirational or a requirement. This was raised by one respondent who was disappointed when some journey time improvements could not be delivered in CP4.

6.2.13 Views were given that there has been less transparency on the use and output of funds. For some of the funds, there was a reported low spend rate early on in CP4.

6.3 Alternatives for CP5

Respondents' views

6.3.1 The change control process for enhancement projects should continue. However, as noted above and supported by NR, the TOCs felt it would be improved if they were involved in the early stages of scheme development. Also, given it is now successfully in place, NR raised the question as to whether the process needs to be regulated in CP5.

6.3.2 NR believe that the change control process should be broadened to include trade-offs with performance and cost. So if a target in one of these areas was to change, then this would be a mechanism for recognising the relationship to capacity and adjusting its target accordingly. It would also work the other way.

6.3.3 The capacity metrics should continue, albeit that the passenger arrivals one is seen as the most useful. Other outputs of schemes should be clearer such as journey time improvements.

6.3.4 Developing an operational plan for a scheme is not easy with several stakeholders involved. It was noted that there can be a disconnect with the franchising process, whereby the scheme is effectively re-worked. Ensuring consistency between the HLOS and franchising process as far as possible is seen as being beneficial.

6.3.5 Funds are seen as beneficial, providing the opportunity to innovate. The success of the SFN, according to the FOCs, is the cross-industry involvement in developing the schemes. That said, the ORR have questions over the transparency of the use of the funds and are considering specifying clearer delivery and efficiency outputs. Parallels were drawn with funds provided by TfL to London Boroughs for the provision of schemes such as cycle facilities.

Options

6.3.6 Mechanisms and/or incentives to encourage closer involvement of the TOCs and FOCs on specific schemes could be considered.

6.3.7 Specifying outputs for funds whilst giving NR and the industry the freedom to innovate and prioritise should also be investigated during consultation in August.

Readiness

6.3.8 It will be important that the capacity metrics are based on up-to-date forecasts of passenger numbers.

6.4 Reporter Views and Next Steps

6.4.1 CP5 should build on the successes of CP4. It therefore seems sensible to continue the same approach with transparent passenger number metrics, and the successful change control process reporting progress in the Delivery Plans. We would, though, suggest that the obligation on NR to meet the capacity metrics should be clarified.

6.4.2 Broadening the change control to include trade off with performance and cost is a sensible concept, but only if reliable relationships between them can be established.

6.4.3 It is interesting to see the contrasting reactions from the operators between the use of the Strategic Freight Network Fund (exemplary) and the general capacity enhancement schemes (more patchy). Why the difference? The cross industry involvement in the former would appear to be the reason and it would be worth considering how this might be replicated in all schemes, albeit with Network Rail leading. This could perhaps be explored in the consultation.

6.4.4 Funds appear to have been successful at least in part. High level outputs might be beneficial whilst preserving the freedom for NR to prioritise and innovate.

6.4.5 A comment made by NR is worth recording here. Schemes not known about before the HLOS will not be well developed by the time of the Strategic Business Plan. The cost estimates will therefore only be approximate. It might be worth considering if there is an alternative method of procuring such schemes outside of the Determination.

7 Network Availability

7.1 CP4 Regulated Outputs

7.1.1 The objective of the Network Availability measure is to support the initiative to reduce the levels of disruption to operators known as the 7 Day Railway. There are two separate regulated outputs; Possession Disruption Index- Passenger (PDI-P) and Possession Disruption - Freight (PDI-F). Both measures rely on complex algorithms that bring together various factors such as passenger weightings to calculate the severity of the disruption caused. A base year, 2007-08, is used as the comparator and NR are targeted to reduce PDI-P by 37% over the control period whilst maintaining PDI-F at the same level.

7.2 Review of CP4

Impact on Behaviours

7.2.1 The aspired behaviour is to reduce the levels of disruption to passengers, particularly at weekends, caused by engineering work. The intention is to deliver engineering work either by more innovative possession planning or by delivering the work in ways which require the railway to be closed less frequently or allow trains to operate at the same time. This improvement in passenger disruption levels should not be achieved by creating more disruption to freight (e.g. by moving weekend work to midweek nights).

7.2.2 The objectives of the 7 Day Railway project are widely understood and the need to reduce disruption to passengers has gained wide acceptance. The target of a 37% reduction in PDI-P is driving behaviours in both the provision of more possession friendly infrastructure and in planning work in less disruptive ways. However, it is difficult to prove that this has been driven by the PDI-P measure itself. The linkages between actions and impact on the measure can appear obscure and in reality the lower level measure NR have developed within the 7 day railway report, such as WTT compliance and bus hours appear to have produced a more readily accessible measure for planners.

Strengths

7.2.3 PDI-P and PDI-F are the only measures that have been developed that take into account the impact of possessions on passenger / freight demand. The ORR view them as being successful in focussing the industry on reducing the disruption caused by possessions NR have also, to date, achieved the target levels although it is difficult to say whether this is directly because of PDI-P and PDI-F (see below).

Weaknesses

7.2.4 The measures are both very complex and require the use of models to produce the indices. There is little understanding of how the measure

is created and even less on how differing approaches to possession planning will affect them. The views within NR are that improvements delivered in planning are because of the well understood aims of the 7 Day Railway programme and not the measures. The TOCs do not believe that PDI-P measures disruption to passengers in any meaningful way. Freight companies appear to regard PDI-F as an irrelevance.

7.3 Alternatives for CP5

Respondents' views

7.3.1 The need to continue with the on-going delivery of reduced disruption to passengers is universally endorsed. The current measure is not seen as appropriate by everyone. Any metric for measuring the disruption impact of possessions will need to measure in a more transparent way the levels of change to the service plan. This must make it easier for those responsible for planning engineering work to understand the impact of work on passenger services and how to reduce that impact.

7.3.2 TOCs also expressed a view that there is no measure of how effectively NR makes use of the possessions. In other words could the number of possessions be reduced by making better use of them. This is seen as an area of efficiency with little visibility.

7.3.3 FOCs take little or no notice of PDI-F. They are far more interested in the ability to run trains over the network and are particularly keen to ensure that cross route flows are maintained.

7.3.4 Behaviours that the TOCs and FOCs would like to encourage are efficiency, innovation and use of new technology in engineering work.

Options

7.3.5 NR, along with other industry members, is developing a revised measure based on its current WTT compliance measure. This will measure compliance with the timetable as planned as a simple percentage compliance. The intention is that the measure can be disaggregated at various levels including NR Route and by TOC. It is important this measure captures the TOCs' unfettered requirements at weekends rather than the published timetable brought about by the long term planning process. This latter point is a major issue for TOCs such as Cross Country who never operate a timetable on Sundays unaffected by engineering work.

7.3.6 PDI–F could be replaced by a series of measures focussed on specific flows. This would match the requirements of the freight operators more closely. Targets could then be set across each of the agreed flows which if indexed could enable the objective of maintaining freight access to be measured.

7.3.7 An alternative to producing new measures, at least in the short term, is to continue with PDI-P and PDI-F and to communicate more clearly how they have been calculated and how they can be influenced.

7.3.8 A measure of the efficient use of possessions could be developed looking at how much working time was delivered during the planned blockage. In reality this could prove to be very difficult given there is a wide variation in work types.

Readiness

7.3.9 NR have already made considerable progress on the passenger measure and implementing a revised measure should be achievable prior to the start of CP5.

7.3.10 Similarly developing a revised freight measure should be achievable given the support of the freight operators and availability of data.

7.3.11 The development of an effective possession efficiency measure is unlikely to be achievable for the start of CP5, though would be a good development objective for CP5.

7.4 Reporter Views and Next Steps

7.4.1 The objectives of 7 Day Railway are well understood and the measures have helped to raise the profile of network availability during CP4. However, the measures themselves are too difficult to understand and very few people can articulate the calculation process. More importantly, few people understand how their actions impact on the results, or indeed if it is driving the right behaviours.

7.4.2 The efforts to implement a revised set of measures is supported and the aim of having a simple metric is sound. The key will be if planners can easily translate the quality of their plans to the impact on passengers.

7.4.3 The development of Alliances between NR and TOCs in response to the McNulty Report may lead to agreed local possession strategies which may lead to an increase in disruption to passengers on a local basis. For example, an Alliance may conclude on a commuter railway that a complete blockade in August may be more cost effective than a succession of weekend possessions. ORR should consult on how such initiatives should be facilitated against any national proposal for continued reduction in disruption.

7.4.4 The TOC desire to see a measure of the efficiency of NR's use of possessions is also sensible but likely to prove difficult to collate during CP5. ORR should work with the industry to deliver a measure in this important area and seek views as to its value.

8 Performance

8.1 CP4 Regulated Outputs

8.1.1 There are three distinct Regulated Outputs for performance. Firstly there is the Public Performance Measure (PPM). This measures the percentage of trains that hit the specified measure within the appropriate service group (10 minutes for long distance services, five minutes for all others). Whilst NR is required to agree PPM trajectories with individual operators, the Regulated Output is set at sector level. The targets are that by the end of CP4 in England and Wales long distance services should be at 92% PPM Moving Annual Average, regional services at 93% and London and south east at 93%. A separate HLOS target of 92% applies in Scotland. There is no national target in England and Wales.

8.1.2 Cancellations and Significant Lateness (CaSL) was a new measure introduced at the beginning of CP4. It is a combined measure of the percentage of trains cancelled and the percentage of trains delayed by more than 30 minutes. As with PPM the measure is disaggregated by sector in England and Wales with a separate measure for Scotland.

8.1.3 In addition NR have been set maximum levels of delay minutes for both passenger and freight operators for which it is responsible (NR is also responsible for TOC on TOC delay minutes but these are excluded from this measure). The passenger measure is a national total for England and Wales with a separate measure for Scotland (actually just First Scotrail). This is simply the total number of delay minutes. The separate freight measure is GB wide and is normalised by per 100 train KM. Improvement trajectories for both measures were set for the control period.

8.2 Review of CP4

Impact on Behaviours

8.2.1 The aspired behaviour is to deliver continuous improvement in the delivery of industry performance. By setting PPM and CaSL as regulated targets, NR is required to work closely with TOCs to deliver overall improvements to passengers. The use of sector targets was designed to ensure that improvements are spread across all types of services. The specific delay minute targets require NR to ensure that improvements in PPM and CaSL are underpinned by ongoing reductions in delay minutes caused by NR, not by just TOC improvements.

8.2.2 NR has focussed on delivering improvements in performance. They have concentrated on national targets for PPM and at an individual TOC level. They have not routinely focussed on sector level performance until the recent threat of licence breach from ORR on the likely failure to deliver the long distance sector target.

8.2.3 NR still have a greater focus on delay minutes than cancellations when setting targets and reviewing the outcome of significant incidents. TOCs have very stringent Schedule 7 regimes with DfT covering cancellations which they manage closely but as yet it is not clear that CaSL has led NR to have a similar focus.

Strengths

8.2.4 PPM is a well understood measure that has been used for several years. It is simple in concept and managers and staff understand clearly how actions can impact on the outcomes. CaSL is again relatively simple and its relationship to actual events easy to understand. The delay minute measure for passengers is very clear and is used as the general currency when targeting improvement schemes.

Weaknesses

8.2.5 CaSL is less well understood and a more explicit target on cancellations may drive NR to be more focussed on reducing them. However the significant lateness measure will become more important to TOCs as more move on to the much more financially punitive 'delay repay' regimes increasingly mandated by DfT. Delay minute targets as a regulated output may drive NR to focus more on delay attribution than on the root causes of delay, a view held by some TOCs, and its impact on the user experience.

The Freight delay measure is seen by freight operators and NR as a poor measure of delivery. Some freight operators would prefer to see performance measured against key flows rather than the current normalised KPI which is difficult to correlate back to specific actions, a key factor underpinning the TOC JPIPs and as a result it is unclear how to influence it.

8.3 Alternatives for CP5

Respondents' views

8.3.1 PPM is seen universally as a vital measure which ensures that NR is firmly tied in to the requirement to deliver improved performance to passengers. NR expressed a view that the sector targets were of less value and that a national target combined with the setting of individual TOC targets was sufficient since they are treated as customer reasonable requirements. TOCs also felt the sector targets were of less relevance.

8.3.2 NR does not believe that delay minutes for passenger operators should be a regulated output as it should be focussed on overall deliverability not just on delivering its own numbers. This view was supported by the TOCs at the workshop who felt that too strong a focus on delay minutes could lead NR to concentrate on managing the delay attribution process and not on PPM. Both NR and TOCs did believe that delay minutes are an important underlying measure and must continue to be monitored.

8.3.3 NR and TOCs see CaSL as an important measure and would want to see maintained going forward.

8.3.4 The freight delay minute measure is not seen as an adequate measure of performance. NR is currently in consultation with FOCs on what the measure should be going forward. Reaching a consensus, however appears to be difficult. The current measure does not necessarily measure the impact NR has on freight and a PPM or CaSL based measure on key flows is being considered.

Options

8.3.5 PPM and CaSL should both be rolled forward as measures as they reflect the user experience. Consideration needs to be given to relegating delay minutes to an underlying measure rather than a Regulated Output.

8.3.6 A new freight measure should be developed to more accurately reflects the impact of NR on freight flows which replicates the easily absorbed simplicity of PPM as an indicator.

Readiness

8.3.7 Any changes to the freight measure will require industry buy-in to deliver it. This has so far proved difficult and will probably form the biggest barrier to any proposed change.

8.4 Reporter Views and Next Steps

8.4.1 The focus on PPM means that NR is incentivised to deliver good performance for TOCs and ultimately passengers. NR would like to see the sector target removed and just have the national target as the regulated output with separate TOC targets as customer reasonable requirements. However, we believe that the recent focus on long distance operations would not have happened without the sector targets. We would therefore suggest that the pros and cons of dropping the sector targets should be considered during the consultation. In addition, without sector targets the relative difference between the national and TOC targets will need to be considered so that they are set neither too high (and costly) nor too low (and lack 'bite').

8.4.2 The retention of delay minutes as a regulatory target is questionable in our view. It is important that NR agrees individual targets with TOCs but the value at national level as a regulatory target is less clear. The converse argument of this is that NR has direct control over delay minutes and should therefore be regulated against a target. ORR should seek views on this in the consultation (including any incentives that might arise as a result).

8.4.3 CaSL as a measure was slow to catch on and currently it is only an NR measure, not a TOC measure. NR does not focus on cancellations as clearly as it does delay minutes and so cancellations could become a separate measure. However, the increasing importance of the 30

minute threshold to TOCs due to 'delay repay' should mean the CaSL measure will take on greater significance going forward.

8.4.4 The need to conclude whether an alternative freight measure is necessary is becoming urgent if it can be used in CP5. Reaching a consensus appears difficult and ORR should seek views as part of the consultation, including the availability of data to support any new measure. It is our view that the output should measure what is within NR's control (so, for example, not to include late train starts arising from freight customer requirements) and relate to key freight flows.

9 Safety

9.1 CP4 Regulated Outputs

9.1.1 The HLOS requirement for safety covers two key areas. The Government requires a 3% reduction in the risk of death or injury from accidents to both passengers and rail workers across the British mainline network. This is an industry target with NR responsible for delivering their element of the measure. NR measures their contribution through two measures. Passenger Safety Index – PSI (Fatalities and weighted injuries per billion passenger KM) is a composite measure combining the risk to passengers travelling on trains and on NR major stations. The Employee Health and Safety Index (Fatalities and Weighted Injuries per Million hours worked) measures the risks to all NR employees. It is usually referred to as the FWI measure. As the reduction is an industry target neither of these measures is a Regulated Output.

9.1.2 As well as the measures referred to, the ORR has been working with NR to develop an approach to excellence in health and safety. The aim is to put in place key enablers to achieve this. This is based on the ORR's Management Maturity Model (or RM3 for short). This measures progress against a key set of areas such as leadership and risk management in putting the key underpinning processes and cultures in place to deliver good health and safety practice. This is not a Regulated Output.

9.2 Review of CP4

Impact on Behaviours

9.2.1 The aspired behaviour is to drive improvement in the levels of risk to passengers and rail workers by ensuring that appropriate safety processes, procedures and cultures are in place. This includes NR working closely with TOCs, FOCs, contractors and other stakeholders such as the British Transport Police.

9.2.2 NR measure a large number of precursor events which contribute to the overall HLOS requirement. One well documented consequence of target setting was an underreporting of some staff accidents highlighted in recent reports. This has been rectified but does bring in to question the value of including specific safety reduction targets. NR has now removed all internal targets as part of a wide review carried out. As a result of the subsequent increase in reported staff accidents, NR is unlikely to meet its rail worker reduction target although the industry overall HLOS target is still being achieved.

Strengths

9.2.3 FWI is a relatively easy measure to understand and normalised in a sensible way.

9.2.4 The Management Maturity Model is an attempt to measure the key underpinning processes to enable safety management.

Weaknesses

9.2.5 PSI is a complex composite measure using actual accident records on stations whilst using the RSSB train accident precursor indicator model to measure risk to passengers on train. The latter changes infrequently, even following major events, whilst the former varies by period. In reality NR manage risk by concentrating on the core underlying data such as SPADs.

9.2.6 The Management Maturity Model has not progressed far and the audits have been undertaken by ORR not internally. The targets set out within 'Success in control period 4' letter from the ORR have not been measured and NR do not have any way of demonstrating where they are on the improvement profile described in the letter. It is questionable if this should form any part of a regulated output.

9.3 Alternatives for CP5

Respondents' views

9.3.1 The need for KPIs managing the risk to both passengers and staff is seen as important but in themselves do not drive behaviours. Some TOCs did not regard the NR targets as important as they had their own clear focus.

9.3.2 The use of specific targets within NR has been dropped to prevent any future risk of under reporting. NR is now much more focussed on the underlying event data such as SPADs or irregular working and sees the HLOS targets as an overview rather than something to target management action.

9.3.3 The use of the Rail Management Maturity Model is not something that is seen as forming part of the Regulated Outputs. It is currently only in limited use and is not owned within NR. NR recognises the requirement for such a model but feels this should underpin its legal requirements and not be subject to potential separate enforcement action.

Options

9.3.4 The requirement to focus on risk to workers and passengers should continue going forward. The FWI measure for staff is now well understood in the industry. The PSI measure is less clear and currently gives greater value to accidents on NR managed stations than it does to passengers on trains. A revised high level measure could be developed which measures both factors in similar ways to give a truer reflection of risk.

9.3.5 ORR has access to, and monitors the underlying data that NR produces for precursor events and this should be ongoing. Within this there are a whole series of measures that NR use including SPADS, irregular working and infrastructure wrongside failures. Other

measures such as red zone/green zone work ratios are being developed to measure risk management. Some of these measures could form regulated targets but as NR use many of these to assist them in managing overall delivery, a focus on any individual area could imbalance the overall focus.

9.3.6 NR and ORR should agree the scope and purpose of a model to measure safety management. Whilst ORR are clear on its use during CP4, in our meeting with them NR were unclear on the results of the model and where they were on the scale.

9.3.7 There should be a very clear distinction between the legal enforcement of health and safety law by ORR and the management of licence breach. It is important that in any future regime this is clear.

Readiness

9.3.8 Any changes to PSI have not yet being considered and development of a revised risk model would necessarily take time to produce. However, NR has a lot of safety data with which to underpin any changes.

9.4 Reporter Views and Next Steps

9.4.1 The status of any KPIs should be made very clear given the dual role of ORR as monitoring legal compliance as well as licence obligations. Any blurring of these two roles is unhelpful for both ORR and NR. The setting of specific targets is also questionable given that it may lead to underreporting.

9.4.2 ORR should review the appropriateness of PSI with NR. The measure is a mixture of actual data on stations and a risk model for trains. The current indicator would therefore show a greater increase for an accident on stations than on trains. A more consistent approach should be adopted.

9.4.3 The status of RM3 should be clarified and the regulatory interest in such a process. At present it is not clear whether regulation is focussed on outputs or the underlying processes. There is unease within NR over this area and ORR should consider asking what the role of such a system should play in its regulation of NR.

10 Environmental Sustainability

10.1 CP4 Regulated Outputs

10.1.1 The Environmental Sustainability outputs are not formally regulated by ORR. However, NR made a commitment in the 2009 Delivery Plan to report performance against targets set out in the Environmental Sustainability Outputs listed in Table 10.1. The trajectories were subsequently revised in the 2010 Delivery Plan. These Outputs now form part of performance reporting targets and deliverables over CP4 although they do not constitute customer reasonable requirements.

Environmental sustainability outputs					
	2009-10	2010-11	2011-12	2012-13	2013-14
Operational recycling - *stations, office & depot waste mass recycled or re-used*	30%	40%	50%	55%	60%
Network Rail CO_2 emissions - *managed stations, offices & depots*	-5%	-10%	-15%	-17%	-20%
Infrastructure recycling - *renewals & enhancements waste mass recycled or reused*	95%	95%	95%	95%	97%
Environmental incidents - *leading to serious damage*	6	6	6	6	6
Network Rail owned SSSIs rated favourable or recovering status - *for 21 priority sites*	75%	95%	95%	95%	95%
Water recovery - *volume of ground / spring water recovered etc as % of total removed from tunnels*	14%	14%	14%	14%	85%
Environmental sustainability index	6	7	8	9	9

Table 10.1: Environmental Sustainability Outputs (figures from 2009 Delivery Plan)

10.1.2 The 'Goals' stipulated in NR's Sustainability Policy are the overarching goals for the Outputs for CP4. Specifically, the Environmental Sustainability Goals include:

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

10.1.3 The selection of Outputs was based upon various review processes, including benchmarking with industry, environmental sustainability impacts of the business, feasibility, measurability, and a review of the

Global Reporting Initiative[9]. The review resulted in the development of the Environmental Sustainability Outputs in the CP4 Delivery Plan 2009.

10.2 Review of CP4

Impact on Behaviours

10.2.1 In monitoring the Environment Sustainability Outputs and setting targets against them, NR wanted to demonstrate their commitment to sustainability. It was also NR's intention that the production of the Outputs would improve data collection processes, stimulate employees to do the 'right thing' and meet stakeholders' expectations.

10.2.2 NR believes the overarching behavioural change observed from CP4 Outputs was centred on data collation and an improved understanding of operational performance and limitations.

10.2.3 Specifically, Operational Recycling Output has stimulated the most notable behavioural change. Output performance reporting has initiated waste contracts to be re-tendered and requested the Facilities Management companies to increase recycling rates. Recycling bins have been provided in offices to permit waste segregation and arrangements were made with TOCs at NR managed stations to recycle waste removed from trains. Office based employees now segregate waste as a matter of course.

10.2.4 The other outputs have had less impact on behaviours. For example,

- Infrastructure recycling – NR believe this has had limited behavioural change due to changes in waste management contractors being implemented prior to the output development.
- NR owned Sites of Special Scientific Interest (SSSIs) rated favourable or recovering status – this was developed from a specific project agreed with the Environment Agency and subsequently developed into an Output. NR believes there has been limited behavioural change due to the limited nature of the Output relating to a particular project.

10.2.5 Also, the Environmental Incidents output might have introduced a perverse incentive to minimise the number of incidents classified as 'environmental'. The suggested reason for this is that having targets related to minimising 'bad things' like environmental incidents can prove a perverse incentive to reporting or classifying (where details are uncertain) such incidents. Interestingly, this is similar to what NR found when reporting some of the safety outputs.

10.2.6 In this case it is suggested that instead of setting output targets it is probably better to put in place objectives, strategies and plans to

[9] The Global Reporting Initiative (GRI) is a non-profit organisation that promotes economic, environmental and social sustainability. GRI provides all companies and organisations with a comprehensive sustainability reporting framework that is widely used around the world.

improve reporting (likely to increase the number of incidents), improve the way that incidents are addressed when they do occur (with no effect on the number of incidents), and reducing the likelihood of incidents (likely to decrease the number of incidents). Monitoring the number of incidents is still seen as important.

Strengths

10.2.7 NR believe that the level of information required for the majority of Outputs is relatively easy to obtain. With the exception of CO2, this is dependent on third party data, such as utility bills.

10.2.8 In terms of usefulness, NR believes that the Network Rail CO2 emissions Output is useful for those within NR interested in emissions/energy efficiency, such as the energy team. Operational Recycling Output is believed by NR to be the most useful output given its impact on behaviour.

10.2.9 NR believed the Environmental incidents Output has improved data collection processes as a result of the output being in place.

10.2.10 The Infrastructure recycling output recorded the benefits resulting from major efforts to increase the recycling of materials prior to CP4, including the construction of NR's own construction materials recycling centre. These changes were largely driven by the potential for cost savings, implemented prior to the Output development.

Weaknesses

10.2.11 NR believes the existing Goals, listed in the current Sustainability Policy, are not appropriate for several reasons. The terminology in the language used in the Sustainability Policy does not fit with the existing business and structure, or to the devolution to Routes. It was also commented that the priorities have changed for the business and the Goals do not align with current priorities.

10.2.12 NR also commented that there is a lack of a centralised system for data collation, making it difficult to monitor performance. A related point was raised by Transport Scotland who believe that the evidence base for measures has not really improved since the start of CP4.

10.2.13 NR do not believe that the current outputs are particularly useful, other than operational Recycling, due to a combination of factors around appropriateness to the current business model and the current scope of particular outputs. This may also be caused by the lack of performance reporting into the overarching Sustainability Policy and Goals.

10.2.14 NR felt that the Water Recovery output was not useful to monitor because it was found that the roll-out of two existing water recovery schemes to other tunnels on the network would not be feasible or economically viable. In particular, "there is no local water requirement near the Severn and the carbon cost to treat and transport the water to where it may be used cannot be justified" (2011 Annual Return). Consequently, NR are no longer reporting against a 'water recovered' metric.

10.2.15 To summarise the relative strengths of the different outputs, NR were asked to judge on a scale of 1-10 (with 1 = no use / difficult to collate, 10 = very useful / easy to collate) both the usefulness and ease of collation of each one. The results are presented below in Table 10.2.

Environment Sustainability	Usefulness	Ease of Collection
Operational recycling	9	8
Network Rail CO2 emissions	5	4
Infrastructure Recycling	5	6
Environmental incidents	3	7
Network Rail owned SSSIs rated favourable or recovering status	5	9
Water recovery	1	8

Table 10.2: Review of Environmental Sustainability Outputs

10.3 Alternatives for CP5

Respondents' views

10.3.1 NR is formulating an updated sustainability policy and strategy that will better align with NR's new devolved route structure as well as the new responsibilities of the HQ Sustainability Team (created by merging Corporate Social Responsibility and Environment Policy). This means that the non-regulated environmental sustainability outputs will be changed for CP5.

10.3.2 NR's renewed sustainability policy and strategy will have the aim of:

- Driving efficiency and controlling costs in infrastructure investment through the use of long-term planning that accounts for whole-life-cycle costs; and
- Building operational capacity in Routes/Business Units to achieve sustainability improvements.

10.3.3 This overlaps with the operators' interest in environmental initiatives of their potential to reduce industry costs. They also feel that the ORR will need to be very clear on the outputs that they are seeking in this area and any costs associated with that.

10.3.4 Transport Scotland are supportive of the approach set out in the Initial Industry Plan although pointed out the need to balance any initiatives with affordability. Specifically, they would like to see improved waste management and the possible use of more environmentally friendly materials in renewals work. They did point out that the capability of the industry to measure the impact of initiatives remains an issue.

Options

10.3.5 NR commented the new sustainability policy and strategy will be focused on ensuring that the devolved routes and NR's other Business Units have the

capacity and resources to achieve 'Strategic Priorities', configured under 'Infrastructure' and 'Operation'. NR provided further descriptions for each strategic priority having 2-6 key areas for performance monitoring, approximately 30 in total. These included the following:

Infrastructure

- Climate change adaptation
- Buildings
- Resource

Operation

- Water and emissions
- Land
- Communities

10.3.6 It is generally felt the key areas for improvement, cover topics that are sensible for the business to consider. However, the determination of the key areas for performance monitoring is dependent on stakeholder engagement and the identification of material and therefore relevant issues for the business. In the Co-operative Group Sustainability Report[10], they illustrate their sustainability management approach to materiality and factors that influence consideration of materiality. This may be a useful resource for NR in determining material issues for the business.

10.3.7 It is suggested, that the scope of 'Resource' is extended to 'Resources and Waste'. Furthermore, a general environmental impact measure could be considered.

10.3.8 Consideration should also be given to the two strategic priorities; for example managing buildings efficiently, including energy, resource and waste could also be material to the business, and likely to have financial implications on operation costs. Equally, emissions and water consumption could also be significant during development of infrastructure.

10.3.9 At this stage, it is unclear what will progress into CP5 Outputs, although it is believed the Strategic Priorities will form the basis of CP5 Outputs.

Readiness

10.3.10 NR commented there is some existing data available for CP5 Outputs, based on the 'Strategic Priorities', however some data paths will need to be developed.

[10] The Cooperative Group Sustainability Report 2010

Strategic Priority	Key Area
Infrastructure	
Climate Adaptation	Required data mostly exists (especially in the engineering function), however, a process would be needed to bring together into a useful form in a centralised system. Uncertainty surrounds the choice of climate change scenario that would be most appropriate.
Buildings	An appropriate certification scheme for new buildings will need to be selected (e.g. BREEAM). Treatment of renovation/refurbishment of existing buildings still to be examined.
Resources	Utility information exists and will need to be examined to achieve efficiencies; this will be led by the energy team. Recycling and procurement of materials data are available.
Operation	
Water and Emissions	A better understanding of NR's emissions portfolio is required. NR's management of water use also needs to be developed.
Land/Community	The focus will be on managing NR-owned land sustainably, for example, green corridors for ecology/biodiversity, actively managing contaminated land and a strategy for line-side communities and those living near stations. However, there is relatively limited information and data and it is currently hard to say what appropriate CP5 outputs might look like (or if outputs are the right way of tracking performance in this area). More work is required to develop more formal strategies and plans in this area.

Table 10.3: Readiness of Key Areas for monitoring

10.4 Reporter Views and Next Steps

10.4.1 Out of the six Environmental Sustainability outputs, NR felt that only one output was particularly useful and that five outputs were not useful to the business. Based on this assessment, it is therefore suggested that new outputs are developed for CP5, retaining the most useful output, if appropriate. Whether they should have the status of Regulated Output is questionable given they are likely to still be relatively immature measures.

10.4.2 New outputs developed would need to be useful and identified as material to the business, determined through stakeholder engagement, that stimulates and achieves improved environmental and sustainability performance.

10.4.3 New CP5 outputs will need to be embedded and integrated into the business, aligned with the new overarching sustainability policy and strategy and into Corporate Responsibility reporting.

10.4.4 The outputs will require the necessary plans, processes and procedures to be put in place to ensure implementation. For example, specific

action plans describing how the strategic priorities and key areas will be met and who is responsible for delivering the action.

10.4.5 A centralised data collation system would further assist in monitoring and performance to be measured.

10.4.6 It would also be worth developing an action plan of initiatives and communications plan to encourage and stimulate green behavioural change once the new sustainability policy and strategy and CP5 outputs are developed, which will improve overall environmental and sustainability performance. This is likely to result in the outputs being more useful to the business and stakeholders.

10.4.7 Questions to explore during the consultation are:

- What environmental sustainability initiatives would have the most benefit to the rail industry as a whole?
- Climate change – what level of asset/infrastructure resilience should NR aim to provide and over what period?

11 Asset Serviceability & Sustainability

11.1 Licence Conditions

11.1.1 In respect to overall Asset Management, NR have the following general obligations under Licence Conditions 1.1, and 1.19 to 1.22

1 Network management

Purpose

1.1 The purpose is to secure:

(a) the operation and maintenance of the network;

(b) the renewal and replacement of the network; and

(c) the improvement, enhancement and development of the network,

in each case in accordance with best practice and in a timely, efficient and economical manner so as to satisfy the reasonable requirements of persons providing services relating to railways and funders, including potential providers or potential funders, in respect of:

(i) the quality and capability of the network; and

(ii) the facilitation of railway service performance in respect of services for the carriage of passengers and goods by railway operating on the network.

General duty

1.2 The licence holder shall achieve the purpose in condition 1.1 to the greatest extent reasonably practicable having regard to all relevant circumstances including the ability of the licence holder to finance its licensed activities.

Asset management

1.19 In complying with the general duty in condition 1.2, the licence holder shall:

(a) develop the policies and criteria it will apply in respect of the maintenance, renewal, replacement, improvement, enhancement and development of the relevant assets, which shall demonstrate how the licence holder will comply with the general duty in condition 1.2;

(b) apply those policies and criteria; and

(c) make appropriate information about those policies and criteria readily accessible to persons providing services relating to railways and funders, including potential providers and potential funders.

1.20 The licence holder shall maintain appropriate, accurate and readily accessible information about the relevant assets, including their condition, capability and capacity.

1.21 ORR may permit the licence holder to exclude from the definition of "relevant assets" assets of such description or classes as shall be provided to and approved by ORR.

1.22 The licence holder shall from time to time and when so directed by ORR review and, if necessary, revise the policies and criteria provided for in condition 1.19 to ensure that they remain sufficient to comply with the general duty in condition 1.2.

Figure 11.1: NR Licence Conditions 1.1 & 1.19 – 1.22 (from NR Licence Agreement[11])

[11] http://www.rail-reg.gov.uk/upload/pdf/netwrk_licence.pdf

11.2 CP4 Measures

11.2.1 The PR08 Determination[12] sets out the overall framework of outputs, enablers and monitoring KPI's for Stations, Depots and Asset Serviceability and Sustainability.

Stations

11.2.2 Stations are the most passenger-facing of Network Rail's assets and attracted additional funding from the Secretary of State in the PR08 HLOS[13]. Accordingly ORR set a top level regulated output for the average condition for different types of station.

11.2.3 The Station Stewardship Measure is the only top level regulated output in relation to assets in CP4.

Table 4.6: Station stewardship targets

Station Category All network	Station stewardship measure minimum average score at end of CP4
A	2.48
B	2.60
C	2.65
D	2.69
E	2.74
F	2.71
Scotland	
All stations	2.39

Figure 11.2: Station Stewardship Targets (from PR08 Determination p57)

Depots

11.2.4 Current average depot condition is a Monitoring KPI and has the status of a customer reasonable requirement with targets set out in the NR Delivery Plan[14] for CP4 (See Figure 11.3a). The figures included in the Delivery Plan 2010 for England & Wales and Scotland were incorrect and were subsequently corrected in the Delivery Plan 2011[15] – see Figure 11.3b.

[12] Periodic review 2008 Determination of Network Rail's outputs and funding for 2009-14 October 2008
[13] ORR Update on the framework for setting outputs and access charges and strategic business plan assessment February 2008 Page 27
[14] Network Rail Control Period 4 Delivery Plan update 2010
[15] Network Rail Control Period 4 Delivery Plan update 2011

\

Appendix 2 Depot condition

Light maintenance depots (LMDs)	LMD stewardship measure minimum average score at end of CP4
England and Wales	2.22
Scotland	2.73
All LMDs	2.52

Figure 11.3a: Depot Condition score at end of CP4 (from NR Delivery Plan 2010 p20)

Appendix 9 Depot condition

Light maintenance depots (LMDs)	LMD stewardship measure minimum average score at end of CP4
England and Wales	2.52
Scotland	2.56
All LMDs	2.52

Figure 11.3b: Depot Condition score at end of CP4 (from NR Delivery Plan 2011 p17)

Other Assets

11.2.5 Asset Serviceability and Sustainability is measured against a dashboard of indicators. Some targets were left to be specified by NR in their CP4 delivery plan. Any material departure from the projections in the NR Delivery Plan during CP4 requires an explanation from NR and for NR to demonstrate that they are complying with their asset management licence obligations.

Table 4.7: Principal asset condition monitoring measures (total network)

	Measure	2009-10	2010-11	2011-12	2012-13	2013-14
Good track geometry	See note 1	135.2%	135.3%	135.4%	135.5%	135.6%
Poor track geometry	See note 2	2.30%	2.27%	2.25%	2.22%	2.20%
Geometry faults per 100 track km (primary and secondary)	New measure	4.4% reduction per annum				
Immediate action geometry faults per 100km (network)	New measure	4.4% reduction per annum				
Immediate action rail defects per 100km (primary and secondary)	New measure	0.9% reduction per annum				
Rail breaks per 100km (network)	M1 modified	0.78	0.78	0.78	0.78	0.78
Civils assets subject to (special) examination (number)	New measure	1,458	1,444	1,429	1,415	1,401
TSRs imposed (severity index)	M4	113	112	111	110	108
Station stewardship measure - station categories A-F	Modified M17	Set as top level regulated targets				
Light maintenance depot stewardship measure	Modified M19	Network Rail to define in CP4 delivery plan				
Sub station and contact systems condition	M13-M16	1% per annum improvement in condition measure				
Traction power incidents causing train delays of more than 500 minutes	M11,M12	71	67	64	61	58
Signalling failures causing delays of more than 10 minutes	M9	18,126	17,587	17,035	16,500	16,205
Points and track circuit failures	KPI NR 6,9	12,471	12,008	11,382	10,764	10,496
No. of TSRs applied to structures in poor condition	M4	Network Rail to define in CP4 delivery plan				
Asset volume renewal measures	M20-M29	Network Rail to define in CP4 delivery plan				

Notes: 1. Based on an index measure of track quality in the 'good' or 'satisfactory' geometry bands. 2. Based on an index measure of track quality in the 'poor' or 'worse' geometry band.Network Rail has provided trajectories for these in its SBP update. We consider that these are reasonable and we will assess Network Rail's stewardship of its infrastructure by monitoring its performance in relation to these forecasts (supplemented by consideration of a further range of diagnostic KPIs).

Figure 11.4: Principal Asset Condition monitoring measures (from PR08 Determination p60)

11.2.6 The target values for the Monitoring KPI's set out in the Determination were amended by ORR in agreement with NR to reflect values in the NR Delivery Plan 2010 as set out in Figure 11.5 below.

11.2.7 ORR (2008)[16] explains that a combination of measures that reflect asset condition, asset age and/or activity levels were selected in CP4 monitor the long-term sustainability of Network Rail's infrastructure. The PR08 Determination also notes that the ORR will keep under review the progress NR makes in delivering its proposed activity volumes as an important leading indicator of future network serviceability (PR08 Determination p61).

11.2.8 Specifically asset volume renewal measures *'M20-M29'* are cited in Table 4.7 of the PR08 Determination (See Figure 11.4 above). We have not found these explicitly listed as *'M20-M29'* in the NR Delivery Plans 2009 /2010 but the NR Annual Return 2010 (and the NR Asset Reporting Manual) does set out their definitions – see below (see Figure 2.6).

11.2.9 We have reproduced below typical extracts from the NR Delivery Plan 2010 showing proposed activity volumes (see Figure 11.7)

Appendix 3 Condition and reliability forecasts

	2009/10	2010/11	2011/12	2012/13	2013/14
Track					
Good track geometry	137.3%	137.3%	137.4%	137.5%	137.6%
Poor track geometry	2.40%	2.40%	2.38%	2.36%	2.34%
Intervention/immediate action geometry faults per 100km	40.0	39.0	38.0	37.0	35.9
Rail breaks and immediate action defects per 100km	6.0	5.9	5.8	5.7	5.6
Civils					
Assets subject to additional inspections (no.)	850	840	840	820	809
Operational property					
Station stewardship measure	2.48	2.48	2.48	2.48	2.48
LMD stewardship measure	2.52	2.52	2.52	2.52	2.52
Signalling					
Signalling condition	2.39	2.39	2.39	2.39	2.39
Electrification					
AC traction feeder station track sectioning point condition	2.78	2.78	2.78	2.78	2.78
DC traction substation condition	2.53	2.53	2.53	2.53	2.53
AC traction contact system condition	1.6	1.6	1.6	1.6	1.6
DC traction contact system condition	1.9	1.9	1.9	1.9	1.9
Telecoms					
Telecoms condition	0.89	0.89	0.89	0.89	0.89
Reliability forecasts					
Signalling failures causing train delays of more than 10 minutes	18,440	17,058	16,168	14,608	13,614
Points failures	7,691	5,570	4,420	3,388	2,871
Track circuit failures	6,291	5,570	4,973	4,180	3,857
Track failures	6,798	6,656	6,504	6,353	6,238
Power incidents causing train delays of more than 300 minutes	79	87	87	78	77
Telecom failures causing train delays of more than 10 minutes	774	742	721	656	644

Figure 11.5: Condition and Reliability forecasts (from NR Delivery Plan 2010 p20)

[16] Update on the framework for setting outputs and access charges and strategic business plan assessment February 2008 – page 26

Section 4 – Activity volumes

Introduction
Track Renewals
Rail renewed (M20)
Sleepers renewed (M21)
Ballast renewed (M22)
Switches and crossings renewed (M25)
Signalling renewed (M24)
Level crossing renewals
Telecom renewals
Civils Activity Volumes
Bridge renewals and remediation (M23)
Culverts renewals and remediation (M26)
Retaining walls remediation (M27)
Earthwork remediation (M28)
Tunnel remediation (M29)

Figure 11.6: Extract from contents page of NR Annual Return 2010 (July 2010) listing asset volume renewal measures M20-M29

Appendix 10 CP4 track renewal volumes

£m (2010/11 prices)	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 total
Rail (km)	755	777	716	756	764	3,767
Sleeper (km)	496	499	600	535	540	2,670
Ballast (km)	553	607	642	604	611	3,018
S&C (equivalent units)	326	343	359	378	376	1,781

Appendix 12 CP4 signalling renewal volumes

	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 total
Conventional (SEU)	792	802	1,225	1,081	1,428	5,328
ERTMS (SEU)	0	88	0	0	779	867
Level crossings (no.)	20	30	78	59	47	234

Appendix 17 CP4 telecoms renewal volumes

	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 total
Station Information and Surveillance Systems						
CIS (systems)	7	14	6	7	1	35
Public address (systems)	6	8	9	2	3	28
CCTV (systems)	0	2	2	0	1	5
Clocks (no.)	193	356	119	98	35	801
Operational telecoms						
Large concentrators (no.)	5	5	8	2	0	20
Small concentrators (no.)	36	50	53	25	27	191
DOO CCTV (systems)	248	69	59	115	6	497
PETS (no.)	18	47	14	26	65	170
Voice recorders (no.)	0	6	0	42	8	56

Appendix 19 CP4 electrification renewal volumes

	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 total
Overhead line						
Campaign changes (wire runs)	1,013	1,020	1,761	582	1,321	**5,697**
Re-wiring (wire runs)	71	68	82	87	57	**365**
Structure painting (no.)	0	100	111	18	183	**412**
Conductor rail (km)	3	31	56	20	14	**124**
AC distribution						
HV switchgear (no.)	101	43	57	45	74	**320**
GSP transformer (no.)	0	0	2	0	0	**2**
GSP cable (km)	0	0	3	0	1	**4**
Booster transformers (no.)	72	43	48	34	29	**226**
DC distribution						
HV switchgear (no.)	189	86	26	164	282	**747**
HV cabling (km)	45	62	39	132	68	**346**
LV switchgear (no.)	27	95	142	122	207	**593**
LV cabling (km)	0	4	31	144	179	**358**
Transformer rectifiers (no.)	32	44	63	27	42	**208**

Figure 11.7: Forecast Activity Volumes (from NR Delivery Plan 2010 p23 -27)

11.3 Interviews

11.3.1 Arup have specifically met with several Network Rail and ORR staff to elicit opinions on the success of the CP4 output measures for Stations & other Assets and changes that should be considered for CP5. Asset Stewardship was also discussed as part of wider conversation with Transport Scotland, ORR and representative train operators. A list of the meetings is found in Appendix B.

11.3.2 Key points from the interviews are set out in the following sections. It should be noted that the views stated below are based on the individual representatives and are not necessarily the views of their respective organisations.

11.4 Success of CP4 Measures

General

11.4.1 The following general points were made by the interviewees in respect of the existing CP4 Measures for Asset Serviceability and Sustainability.

Degree of 'Oversight'

11.4.2 The degree of 'oversight' that has been applied to NR by ORR and the Reporter in CP4 on asset management is seen by NR as being unduly restrictive, time consuming and inefficient.

Application of Licence Conditions

11.4.3 Some interviewees from ORR held the opinion that the Licence Conditions have provided an effective sanction for non compliance

with the CP4 Monitoring KPIs and that specific Regulated Outputs for Asset Serviceability and Sustainability are not needed.

Effectiveness of Financial Sanctions

11.4.4 The effectiveness of current financial sanctions on NR's asset performance was questioned by individuals in ORR. The position of NR as a government funded monopoly provider makes the concept of financial penalties a 'perverse' incentive as it potentially reduces the funding available to NR to improve the network.

11.4.5 This echoes the statement made in the House of Commons Committee of Public Accounts Report[17] which states at page 5: *'The sanctions and incentives on Network Rail, in particular penalties and bonuses, have not been effective in driving the company's efficiency. …. are concerned that the main sanction of fines is just taking money away from investment in the railways.*'

Infrastructure Condition Report and Finance Pack

11.4.6 NR use the Infrastructure Condition Report (ICR) as a key source of internal management information. The ICR[18] is produced by NR on a Period basis and encompasses infrastructure condition, performance and renewals including regulatory infrastructure measures and NR Corporate KPIs. The ICR forms the basis of regular reviews by ORR.

11.4.7 The NR Finance Pack[19] - again produced by NR as a source of internal management information and also provided to ORR. As its name implies, the majority of information in the pack is purely financial but it does provide some details of the progress with delivering asset renewals volumes for some asset categories. This is again seen as a useful source of information for regular reviews by ORR.

Asset Management Enablers

11.4.8 NR see the AMCL 'Asset Management Excellence Model' (AMEM) as a useful measure at a network level. NR do not intend to disaggregate it to a Route level for their internal management purposes.

11.4.9 Concern was expressed by NR at the monitoring of exact %'s rather than the use of the AMEM model for more qualitative 'gap analysis'. They also questioned the applicability of using 'enabler' measures as part of the regulated measures as this starts to regulate 'how they do things' not just 'what they do' and removes flexibility.

[17] House of Commons Committee of Public Accounts Office of Rail Regulation: Regulating Network Rail's efficiency Forty-first Report of Session 2010–12 Report, together with formal minutes, oral and written evidence Ordered by the House of Commons to be printed 4 July 2011
[18] e.g. NR Infrastructure Condition Report Period 13, 2011 - 2012, 4-Mar-2012 to 31-Mar-2012
[19] e.g. NR Financial Report Period 13 2011/12

Specific Points

11.4.10 The following specific points were made by the interviewees in respect of the existing CP4 Measures for Asset Serviceability and Sustainability.

Asset Stewardship Index (ASI)

11.4.11 Although not included as a Principal Asset Condition monitoring measure for CP4, NR have continued to use Asset Stewardship Index (ASI) and see it as a useful high-level management measure. The 'components' that are measured, with the exception of the Structures sub-measure of *'Civils assets subject to additional examinations'*, are seen by NR as being relevant, able to be forecast and able to be linked to management actions.

11.4.12 ORR see ASI as an 'aggregated' measure with little connection to asset stewardship.

11.4.13 As noted above, ASI is included as one of the four mechanistic measures in the NR Management Incentive Plan (MIP). The view was stated by NR individuals that when combined with other mechanistic and judgemental measures it becomes 'watered down' so as to become an insignificant part of the overall entitlement. Whilst this is not detrimental to behaviour, the MIP is not seen as being effective at driving better asset stewardship.

11.4.14 It is noted that the primary variable in ASI seems to relate to Track performance which NR consider to be forecastable on a period by period basis – see below.

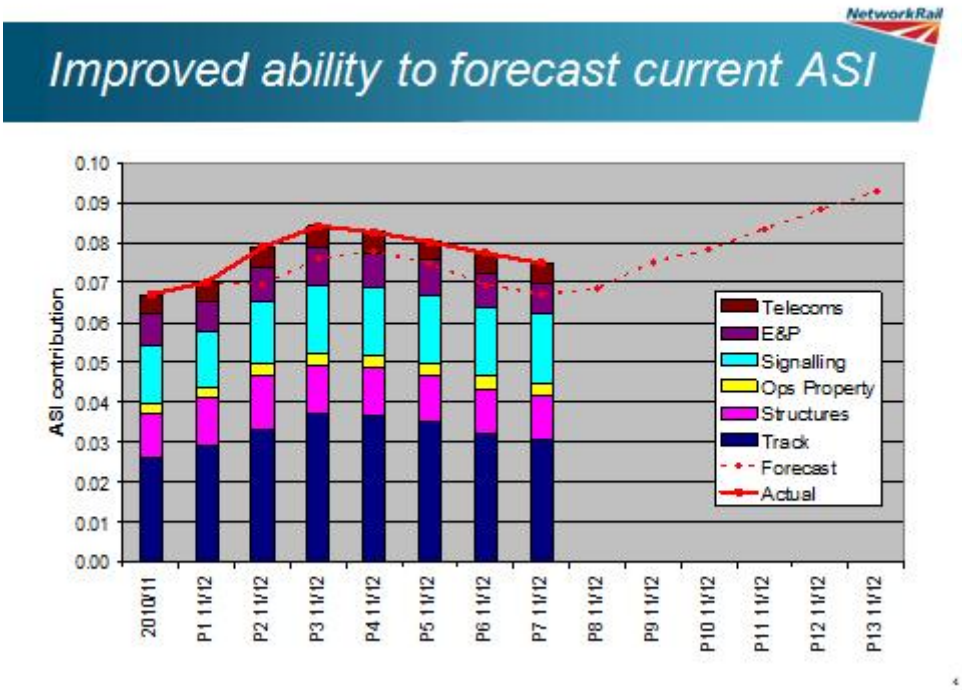

Figure 11.8: Forecast and Actual ASI (from NR presentation)

'Civils assets subject to additional examinations' and M4 *'Temporary Speed Restrictions (TSRs)'*

11.4.15 The Structures sub-measure of *'Civils assets subject to additional examinations'* is seen by NR and ORR as potentially driving 'perverse' behaviour in that additional examinations are a highly legitimate way of managing risk when used appropriately and their use should not be penalised. Both ORR and NR raised a similar issue with the sub-measure of '*Temporary Speed Restrictions'* - TSR's, noting that the measure can lead to incorrect focus in terms of asset management.

11.4.16 The TOC's expressed the opinion that Temporary Speed Restrictions should be a Regulated Output.

Station Stewardship

11.4.17 SSM and LMDC are seen as 'intermediate' measures as opposed to 'output' measures like PPM.

11.4.18 NR do not use SSM as a measure to inform or help to manage risk associated with Station assets – this is because a 'poor' footbridge condition score could be masked by other 'good' asset scores in SSM.

Depots

11.4.19 In the experience of the TOCs consulted, the Light Maintenance Depot Stewardship Measure (LMDSM) has never been used or even considered when managing depots.

Signalling Equivalent Units (SEUs')

11.4.20 The concept of using Signalling Equivalent Units (SEU's) is disliked by some in ORR as a proxy measure, but no better way has been suggested.

Network Capability

11.4.21 The Freight Operating Companies perceive that network capability is being 'eroded' with aspects such as special operational restrictions being applied due to inadequate capability of particular assets and that this should be considered as a CP5 measure.

Other Assets

11.4.22 The TOC's expressed the opinion that there are certain other assets apart from Stations and Depots whose stewardship by NR should be measured such as effectiveness of track drainage and DC electrical supply network.

11.5 Options for CP5 Measures

General

11.5.1 The following general points were made by the interviewees in respect of changes to the existing CP4 measures and alternative measures that could be considered for CP5.

Incentivisation

11.5.2 Financial Incentivisation using appropriate measures is seen by NR as a strong motivator for their staff to deliver improved asset stewardship.

Purpose of Measures

11.5.3 A distinction between measures used for NR internal management purposes and measures used by the Regulator to hold NR to account should be clearly articulated. This reflects the fact that the measures have different purposes and intended audiences.

Output and Intermediate Measures

11.5.4 A mix of measures is required with a clear hierarchy and relationship. For example SSM and LMDC are seen as 'intermediate' measures as opposed to 'output' measures like PPM.

11.5.5 The view was expressed that some 'output measures' may need to be more akin to 'input measures' to act as 'leading indicators' and to give confidence of progress by NR. The potential benefit is that in the case of a potential licence breach ORR would be more aware of the overall situation and be able to take more measured action. It was noted that measures often change with organisational maturity, the example of OFWAT DG1-DG10 measures was cited with some 'input' measures initially being adopted, and then being phased out by the Regulator in subsequent control periods.

11.5.6 It was suggested that the Monitoring KPIs for CP5 should be less technical and more understandable to senior management at ORR. For example a simpler 1-5 condition grading system for assets.

Impact of Devolution

11.5.7 Concern was expressed by a number of parties about the role of measures in the new 'devolved' NR organisation. It was felt by some interviewees that devolution could lead to less rigorous internal challenge of Route performance by NR's central Asset Management team as they move to a more 'service orientated' role. Equally some felt that the new 'asset management service organisation' would be able to challenge and benchmark Route Performance.

Route Based Targets

11.5.8 The selection of different performance targets for different types of Route (though not necessarily regulated by Route) was advocated by some to avoid 'gold plating' of the service delivery.

11.5.9 Overall a diverse range of views were expressed by the interviewees. Key points for debate seemed to be:

- Degree to which high-level KPI's (such as ASI[20]) are meaningful for Asset Management and should be used,
- Level of oversight from ORR and Reporter – *'degree of intrusiveness'*,
- Degree to which the 'overriding' asset management licence conditions should be used as a basis for imposing performance by NR as opposed to specific Regulated Output measures.

Specific Points

11.5.10 The following specific points were made by the interviewees in respect of changes to the existing CP4 measures and alternative measures that could be considered for CP5.

Infrastructure Condition Report and Finance Pack

11.5.11 The Infrastructure Condition Report (ICR) and Finance Pack are seen as a key source of NR internal management information and have good potential basis for the selection of Monitoring KPIs.

Station Stewardship

11.5.12 Disaggregation of the Station Stewardship Measure (SSM) could potentially lead to the analysis of small populations of data and potential volatility.

11.5.13 NR do not consider that SSM and LMDC should be regulated outputs. Passenger satisfaction is seen as potentially a more appropriate output measure.

11.5.14 SSM is not included in Station Franchise agreements at present. Measures for franchised stations also need to be considered for CP5.

11.5.15 Transport Scotland Rail Performance Team adopt the SQUIRE (Service Quality Inspection Regime) to monitor the quality of station[21] and train assets provided through the First ScotRail Franchise. The findings inform the setting of financial rewards or penalties which apply to First ScotRail depending on the performance of each asset. A

[20] Asset Stewardship Index

[21] SQUIRE Station Service Schedules considers 10 facets namely, Station Timetables and Information, Litter and Contamination, Ticket Offices, Public Announcement and Customer Information Systems, Station CCTV and Security, Station Toilets, Station Staff, Station Seats, Station Shelters and Waiting Areas, Ticket Collection at key Stations.

number of interviewees suggested that the application of such a measure should be considered by NR to provide more focus on the passenger experience. But this measure has a high cost of enforcement (auditors etc).

Asset Stewardship Index

11.5.16 NR are already measuring Asset Stewardship Index (ASI) disaggregated to a Route level and are currently reviewing the trends as a prelude to setting Route based targets to be implemented in the remaining years of CP4. This measure is seen by NR as likely to be suitable for their internal management purposes in CP5.

Level Crossings

11.5.17 It was noted that there are currently no KPIs related to Level Crossings. It is suggested that appropriate KPIs should be developed and included in CP5 measures.

Network Capability

11.5.18 Asset capability for example measured by the number of 'discrepancy' structures is seen as potentially a good indicator in that it compares the capability of a bridge with the published requirements of the route, and allows it to be determined whether NR is satisfying its licence obligations.

11.6 Reporter Views and Next Steps

11.6.1 We found it difficult to find a clearly articulated purpose and hierarchy for a number of the CP4 indicators.

11.6.2 There appears to be significant similarity (but not exact duplication) between a number of the measures that NR records for their purposes (for example in the ICR) and the measures required by ORR and other Parties.

11.6.3 Overall there appears to be the opportunity to select a more focussed and transparent set of measures for asset serviceability and sustainability.

11.6.4 In our view it is vital that the purpose of each measure is defined and agreed before specific measures are designed. This recognises that measures have different purposes (e.g. internal management vs regulation) and users (e.g. NR, ORR, RSD etc.) but together should present a coherent set that are appropriate for the overall management of the asset.

11.6.5 The degree of oversight / reporting and regulatory status of the individual measures would then be able to be agreed between parties.

11.6.6 The measures / indicators that are selected would need to take account of factors such as:

- The audience for the indicator (e.g. customer facing, or use for decision making);
- Clarity of purpose (e.g. to inform management action, demonstrate compliance etc.); and
- The responsiveness of the feature being measured (and thus the need for leading indicators as well as lagging).

11.6.7 From our experience and a limited literature review under this Mandate, it seems generally agreed that a mix of leading and lagging indicators should be adopted for asset serviceability & sustainability (e.g. PIARC[22] and NCHRP[23]).

11.6.8 We would suggest that the mix of indicators would consider both performance indicators related to the asset itself (e.g. condition) and indicators related to the performance of the people running the network (e.g. inspections undertaken).

11.6.9 A hierarchy and mix of low-level indicators used to manage a particular asset type, mid-level level indicators used to report performance to the overseeing organisation with high-level indicators to report to customers could be considered.

11.6.10 A number of categories are typically considered when developing asset management indicators. Key categories identified in our work are:

- Asset Serviceability (including condition)[24]
- Asset Performance / Reliability[25]
- Asset Capability / Availability[26]
- Asset Risk / Safety[27]
- Asset Sustainability[28]

[22] Indicators Representative of the Condition of Geotechnical Structures for Road Asset Management PIARC Technical Committee C4.5 Earthworks, drainage, subgrade 2008.
[23] National Cooperative Highway Research Program Report 551 Performance Measures and Targets for Transportation Asset Management (2006).
[24] Asset Serviceability: This typically considers the ability of the asset to deliver its various required service functions. Condition is sometimes used as a measure of the serviceability of an asset.
[25] Asset Performance/Reliability: This typically considers the ability of the asset to enable a reliable journey for customers. It may relate to predictability of a journey time and /or timeliness. Reliability is defined as the ability of an item to perform a required function under given conditions for a required time interval. Asset reliability may also consider metrics such as Mean Time Between Failure (MTBF).
[26] Asset Capability/Availability: This typically considers the ability of an asset to bear load, accommodate traffic etc. that is, to be available for customers to use.
[27] Asset Risk/Safety: This typically considers the ability of the asset to deliver a transport service in terms of incidents or failures, harm to people and service. This may include the number, frequency, likelihood, server and/or cost of incidents. Asset condition is often used as a proxy for likelihood of failure. Compliance with statutory obligations or a risk tolerance may be considered.

- Value for Money / Efficiency[29]

There are not any universally accepted definitions for indicators in these categories, however we have suggested some typical aspects in the footnotes below. An agreement as to exact definitions should be reached at the outset of designing the detailed measures.

11.6.11 In terms of developing appropriate targets for the identified set of measures, a clear understanding of the cost / target level relationship should be obtained. The intended sanctions / penalties for non-achievement need to also be identified and understood as these will influence the 'importance' and amount willing to be spent to achieve each measure. This three-way trade-off between Performance, Cost and Risk and the selection of the most appropriate combination is central to good asset management practice.

11.6.12 We view 'Asset Management Maturity Models' as a useful 'enabler tool'. We see no reason why in principle they could not be adopted at Route Level to drive improvement in asset management should NR consider that it is beneficial from a cost / benefit perspective. We would expect Route level scores to be 'benchmarked' across Routes but not used as part of a Monitoring KPI or similar.

11.6.13 Both ORR and NR state that they want 'Output Based' Regulation. However there seems to be a difference in opinion as to the degree to which 'input' measures also need to be considered to provide re-assurance of good asset stewardship. This primarily relates to the demonstration of asset sustainability in the long-term. Asset sustainability is always a challenge to demonstrate for infrastructure assets that typically deteriorate slowly, fail infrequently yet are critical to overall service delivery.

11.6.14 Based on the fact that there are strongly held diverse views both between ORR and NR and even within ORR as to :

a) the overall approach that should be adopted to regulation of NR's asset management;

b) the nature of specific measures and the degree of detail that should be adopted; and

c) the degree of detail that should be visible to the regulator;

it is our view that additional consultation should be undertaken to better understand the various viewpoints.

Following the additional consultation, a number of explicit 'straw-man' tables of proposed measures (similar to PR08 Table 4.7[30])

---

[28] Asset Sustainability: This typically considers either the long term condition of the asset and the ability to keep it in a good state of repair in perpetuity or the environmental impacts of the asset e.g. maintenance and renewal activities required to keep the asset functioning.

[29] Value for Money/Efficiency: This typically considers aspects such as valuation of the asset/asset remaining life/modern equivalent value etc. as well as the efficiency of the asset management delivery activities such as renewal and maintenance.

[30] Table 4.7 - Principal Asset Condition monitoring measures (PR08 Determination p60)

should be developed to clearly set out the key alternative options. These tables would form part of the documentation pack sent out by ORR for consultation in August 2012.

Appendix A

Mandate of Review

Independent Reporter (Part A) Mandate

Review of CP4 regulated outputs

Version 1, Issued on 26/03/12
Ref AO/XXX

---

1. Purpose of Mandate

This work is intended to inform ORR's consultation on the output framework for CP5 (ORR will set out the options for the output framework in August 2012).

The Reporter is required to review CP4 regulated outputs, such as network availability, to inform ORR's August consultation on PR13 outputs. The review should identify:

1. How the CP4 output obligations & targets have changed the behaviour of Network Rail and operators. i.e. what has happened that wouldn't have happened without the obligation in place?
2. How that behaviour compares with the intended outcome of the obligation (e.g. as stated in ORR's determinations or in Network Rail's delivery plan).
3. What are the strengths and weaknesses of the CP4 output measures/metrics?
4. Are there alternative measures or metrics that might align better with the intended outcome than the CP4 obligations? How certain is it that these could be ready (in terms of data collection, verification, forecasting) in time to be used as obligations for CP5?
5. What are the options for further disaggregation of measures (so the outputs are apparent at a more local level)?

We anticipate that the questions set out above can be answered through:

1. Review of industry publications (ORR determinations; Network Rail delivery plan; Network Rail reports and business plans; train company annual reports and plans).
2. Interviews with Network Rail, train operator representatives (ATOC, RFOA or example passenger & freight operators) and ORR.
3. The Part A Reporter's experience from reviewing Network Rail's reported performance.

2. Background

ORR will issue guidance to Network Rail on the outputs content of its strategic business plan following a consultation in August (extracts from an ORR note to Network Rail setting out requirements for its CP5 strategic business plan can be found in appendix A).

A summary of the CP4 obligations can be found at this link:

http://www.rail-reg.gov.uk/pr13/PDF/PR13-first-consultation-annexes.pdf

(pages 19-29).

It is important that this work is completed on time as we cannot change the deadlines.

3. Scope

The outputs in scope are: performance (reliability), network capacity, safety, stations, depots, network availability, network capability and environmental impact.

If this scope is unachievable within the resource constraint, we could limit it by removing performance from the scope (and ORR would then conduct this analysis in-house).

We would like the review to be done for Scotland and England & Wales separately (with consideration given to routes in E&W).

4. Deliverables

The deliverables are phased as follows to ensure early input in time for our work on a consultation document. We require separate reports for Scotland and E&W.

- Draft reports – 18 May 2012
- Final reports – by 15 June 2012

ORR and Network Rail will provide comments within 5 working days of the draft reports and the reporter will provide final reports 10 working days later, taking into account the comments.

The reporter will provide one or two page executive summaries, suitable for publication.

5. Resources

The breadth and depth of this review is to be commensurate with a resource cap of 30 days.

6. Response from reporter

The reporter should respond to this mandate within 1 week detailing your approach, staff, proposed fee and milestones.

The response should also confirm whether there are any conflicts of interest and if so how they will be handled.

If the response is accepted the reporter will be expected to start work as soon as possible.

Appendix A: edited extracts from advice to ministers publication and SBP requirements note

Advice to Minsters

8.13 We have discussed the possible contents of the Secretary of State's HLOS with DfT and we are currently working with DfT and Network Rail to clarify certain issues, such as the split between CP4 and CP5 costs for committed enhancement projects. We have also reviewed the experience of working with the funds that were specified in the 2007 HLOS e.g. for the strategic freight network, so that lessons can be learnt in terms of specification and governance (see paragraphs 5.70-5.72).

8.14 DfT has indicated that their HLOS is likely to contain requirements on performance, capacity and make allowances for certain funds and we are in discussion on this.

8.15 We are reviewing whether the further outputs (beyond the HLOS requirements) specified in PR08 should also be specified again and if so whether the measure should be changed in any way. We are also reviewing whether any new outputs should be added or existing outputs dropped and the cost implications of any changes (which must be affordable given the SoFA). In doing this we are drawing on the helpful material in the Initial Industry Plan.

8.16 In our August 2012 consultation we will set out what the options are – given the content of the HLOS – for the overall framework of outputs, enablers and monitoring KPIs for PR13.

SBP guidance

We expect your plan to be well evidenced and robust. Specifically we expect your SBP to:

- Clearly describe the **outputs** you will deliver in CP5. You will need to explain how these meet customer reasonable requirements and link to the wider **outcomes** you expect them to achieve;
- Clearly set out the **expenditure levels and overall revenue** you believe you need to deliver these outputs;
- Identify the **key enablers**, such as improvements in asset management processes, which your plan relies on to deliver the CP5 settlement and improvements beyond;

Outputs

1.14. At this stage we do not know what outputs the HLOSs will specify. The DfT has indicated that it is likely to continue to specify a PPM requirement. It will specify a set of enhancement schemes many of which are already committed and is likely to specify capacity metrics and wider electrification of the network. The SBP will need to include forecasts of required outputs supported by an analysis of how they will be delivered. Whatever the precise specifications you need to be clear what Network Rail will do in order to deliver the HLOSs and what you are assuming others (e.g. train operators,

funders) will do to deliver those outputs. as it did in the 2007 HLOS. The Scottish Government Infrastructure Investment Plan 2011 sets out plans for rail infrastructure investment over the next 10 to 20 years, including the major projects of EGIP, Borders, Aberdeen-Inverness, Highland main line, Aberdeen to central belt improvements

1.15. You should also set out how you are meeting any reasonable requirements of your customers which go beyond HLOS requirements for which you can secure funding.

1.16. We expect you to demonstrate how the outputs link to outcomes for rail users and the wider economy and environment, where it will be important to distinguish Network Rail's contribution from the wider industry one. The best way of demonstrating this is likely to vary depending on the outcome; we want to agree these with you shortly. In our incentives consultation we suggested that the following outcomes are relevant: passenger satisfaction, freight customer satisfaction, economic growth, connectivity (for example, inter urban journey times) and environmental sustainability.

1.17. You will need to set out how you will monitor and manage delivery – specifically you will need to forecast monitoring KPIs (such as asset condition measures). You will need to set out how you plan to develop the current asset management and safety enablers.

1.18. You should explain how you sought input from train operators, passengers, freight customers, suppliers and other stakeholders in the development of your plan, what input you received, and how you have taken it into account.

Appendix B

List of Meetings