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Patrick Butcher
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Dear Patrick

Network Rail's unit cost framework

Background

1. We have been extensively discussing with your team how Network Rail's unit cost framework can be improved so that the unit costs it produces are more robust, which they need to be both for your own asset management purposes and our regulatory purposes as we discuss below. Although we acknowledge that Network Rail has made some improvements to its unit cost framework over time.

2. Arup's[1] report on the robustness of Network Rail's unit cost framework highlighted there are still problems with Network Rail's unit cost framework. This was confirmed by Arup's report on the accuracy of Network Rail's 2009-10 maintenance and renewals unit costs.[2]

3. Network Rail developed an action plan to implement Arup's recommendations or take equivalent actions and has recently put a substantial amount of work into improving its unit cost framework. So far there has been encouraging progress.

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[1] Arup are one of our reporters. Arup's report on the robustness of Network Rail's unit cost framework is available at: http://www.rail-reg.gov.uk/upload/pdf/nr_unit_cost_audit.pdf.

[2] Arup's report on Network Rail's 2009-10 maintenance and renewals unit costs is available at: http://www.rail-reg.gov.uk/upload/pdf/nr_annreturn_audit_09-10.pdf.

Doc # 410112.06

4.   It is important that Network Rail's unit cost framework is robust in order to:

    a. provide robust evidence for Network Rail's renewals and maintenance cost forecasts in its Periodic Review 2013 (PR13) Strategic Business Plan (SBP);

    b. allow Network Rail's maintenance and renewals unit costs to be benchmarked against other companies maintenance and renewals unit costs to both inform PR13 and improve Network Rail's asset management;

    c. support the robustness of Network Rail's regulatory accounts by providing more robust support to Network Rail's calculation of the efficiencies it has achieved;[3]

    d. inform Network Rail's development of asset policies that minimise the whole-life cost of managing Network Rail's assets; and

    e. good management and probity. It is a fundamental requirement of a best practice infrastructure manager that it understands its cost base.

PR13 requirements

5.   It is important that the information Network Rail provides in support of the PR13 SBP[4] is of a high-quality and supported by high quality maintenance and renewals unit costs. It is therefore important that we have a common understanding of how Network Rail's unit cost framework can continue to develop. This letter sets out our expectations of Network Rail's unit cost framework and in particular our expectations for system reliability, accuracy and coverage.

6.   We expect Network Rail will make further improvements to its unit cost framework after 2012-13, so we will update our views on Network Rail's unit cost framework in 2013.

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[3] This letter does not discuss how we calculate Network Rail's efficiency.

[4] Network Rail's SBP is required to be published in January 2013.

Table 1: PR13 SBP unit cost framework requirements

Type of unit cost	System reliability and accuracy	Coverable expenditure	Unit cost framework coverage	Covered expenditure
		A	**B**	**C (A x B)**
Maintenance	A2	80%	90%	72%
Renewals	A2	60%	90%	54%

Notes:

1. The expenditure included in the unit costs covered by Network Rail's unit cost framework does not include all maintenance and renewals expenditure (see paragraphs 7 to 10 below for details).

2. Coverage refers to the value of expenditure not the number of transactions.

3. Coverable expenditure means the total value of expenditure that could be covered by the unit cost framework.

4. Unit cost framework coverage means the total value of expenditure that could be covered by the unit cost framework that is covered by the unit cost framework.

5. Covered expenditure means the total value of expenditure that is covered by the unit cost framework.

7. A confidence grade of A2 for both maintenance and renewals unit costs means that system reliability is at a high level and the data is accurate to within +/-5%. Covered expenditure of 72% for maintenance and 54% for renewals means that 72% of maintenance transactions by value and 54% of renewals transactions by value are included in Network Rail's unit cost framework.

8. Network Rail's unit cost framework does not cover all maintenance and renewal expenditure. Maintenance and renewals expenditure excluded from Network Rail's unit cost framework can only be excluded for the following reasons:

    a. the expenditure is for a feasibility, design or pilot project;

    b. the expenditure has no related reportable volume/quantity, i.e. projects for which there is no measurable volume (quantity) of physical works; and

    c. the expenditure relates to work that has no appropriate repeatable work items.

9. In addition, renewals projects that are below the reporting threshold (i.e. projects with an expected final cost below the relevant de-minimis threshold) are excluded from the renewals unit cost framework.[5] The reporting thresholds are:[6]

   a. buildings - £50k;

   b. civils - £50k;

   c. signalling - £100k;

   d. electrification - £100k;

   e. plant and machinery - £100k; and

   f. telecommunications - £100k.

10. In a normal year[7] this would mean that approximately 72% of maintenance expenditure and 54% of renewals expenditure would be covered by Network Rail's unit cost framework. In order to achieve this level of coverage Network Rail will have to extend its unit cost framework, so that new appropriate unit cost measures are calculated for more maintenance and renewals activities.

11. In particular, Network Rail will need to develop unit costs for its renewals expenditure on telecommunications, electrification, plant and machinery and operational property. Given that Network Rail's renewals unit cost framework does not currently produce unit costs for these types of expenditure it is not certain which additional unit costs will be included in the renewals unit cost framework in the future and some of these additional unit costs may be difficult to develop, especially for operational property. Therefore, Network Rail should provide us with a fully

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[5] The reporting threshold for track is zero, i.e. no track expenditure other than non-volume related expenditure is excluded from the renewals unit cost framework.

[6] Network Rail also excludes some de-minimis maintenance expenditure from its unit cost framework.

[7] In estimating the coverage in a normal year we have assumed a weighting for Network Rail's activities based on a normal year. The weighting of the different types of expenditure can change from year to year as the requirements to do work on the network vary from year to year, so the actual coverage can also change from year to year. In particular, signalling projects can cover a long period of time.

worked up plan by July 2011, which will show how it intends to deliver the improvements to its unit cost framework.

12. As part of our review of Network Rail's unit cost framework we have also been discussing with your team how to define the measures that Network Rail uses to measure the reliability of its unit cost systems and the accuracy of the data. Our updated definitions of system reliability and accuracy are included in annex A.

Next steps

13. We will update Network Rail's Regulatory Accounting Guidelines (RAGs) by December 2011. This will include a review of progress with the further disaggregation of Network Rail's regulatory accounts. As part of the updated RAGs we will identify what our requirements will be for disaggregating unit cost reporting by operating route, Merseyrail and Wales.

14. Arup will report on Network Rail's progress with its unit cost framework in June 2011.[8]

15. I am placing a copy of this letter on our website and copying it to Nick Bisson at DfT and Frances Duffy at Transport Scotland.

Yours sincerely

Paul McMahon

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[8] There is a yearly review of the reliability and accuracy of Network Rail's unit cost framework carried out as part of our annual assessment of Network Rail.

System reliability grading system

System Reliability Band	Description
A	Appropriate, auditable, properly documented, well-defined and written records, reporting arrangements, procedures, investigations and analysis shall be maintained, and consistently applied across Network Rail. Where appropriate the systems used to collect and analyse the data will be automated. The system is regularly reviewed and updated by Network Rail's senior management so that it remains fit for purpose. This includes identifying potential risks that could materially affect the reliability of the system or the accuracy of the data and identifying ways that these risks can be mitigated.
	The system that is used is recognised as representing best practice and is an effective method of collecting the data and calculating unit costs and preparing analysis. It also uses appropriate algorithms.
	The system is resourced by appropriate numbers of effective people who have been appropriately trained. Appropriate contingency plans will also be in place to ensure that if the system fails there is an alternative way of sourcing and processing data to produce appropriate unit costs.
	Appropriate internal verification of the data and the data processing system is carried out and appropriate control systems and governance arrangements are in place.
	The unit costs and any analysis produced by the system are subject to management analysis and challenge. This includes being able to adequately explain variances from Network Rail's budget and prior-year results through the provision of appropriate evidence including qualitative reasons for the variance.
	There may be some negligible shortcomings in the system that would only have a negligible affect on the reliability of the system.
B	As A, but with minor shortcomings in the system.
	The minor shortcomings would only have a minor effect on the reliability of the system.
C	As A, but with some significant shortcomings in the system.
	The significant shortcomings would have a significant effect on the reliability of the system.
D	As A, but with some highly significant shortcomings in the system.
	The highly significant shortcomings would have a highly significant effect on the reliability of the system.

Notes:

1. System reliability is a measure of the overall reliability, quality, robustness and integrity of the system that produces the data.

2. Some examples of the potential shortcomings include old assessment, missing documentation, insufficient internal verification and undocumented reliance on third-party data.

3. Network Rail's regulatory accounts licence condition also requires Network Rail's directors to regularly review its regulatory accounts control and governance arrangements so that they remain effective for the purpose of the regulatory accounts licence condition, which includes the provision of unit cost information.

Examples of potential shortcomings in the system reliability grading system

System reliability	Internal review/analysis	Documentation
B	Unit costs are only compared to budgets and in-year trends are analysed, i.e. there is little comparison to prior-year unit costs.	No formal handbook.
C	The variance analysis is inadequate, e.g. limited/inadequate comparisons are made but there is management challenge.	Poor record keeping.
D	Inadequate variance analysis and management challenge of unit costs.	Limited retention of records.

Note:

This table only considers two examples of the possible shortcomings in the system reliability grading system and it is not an exhaustive list.

Accuracy grading system

Accuracy Band	Description
1*	Data used to calculate a unit cost is accurate to within 0.1%
1	Data used to calculate a unit cost is accurate to within 1%
2	Data used to calculate a unit cost is accurate to within 5%
3	Data used to calculate a unit cost is accurate to within 10%
4	Data used to calculate a unit cost is accurate to within 25%
5	Data used to calculate a unit cost is accurate to within 50%
6	Data used to calculate a unit cost is inaccurate by more than 50%
X	Data accuracy cannot be measured

Notes:

1. Accuracy is a measure of the closeness of the data used in the system to the true values.

2. Accuracy is defined at the 95% confidence level - i.e. the true value of 95% of the data points will be in the accuracy bands defined above.