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Background

Network Rail plans and delivers renewals of its various assets based on an annual programme shared with the Office of Rail Regulation (ORR) at the start of each financial year. At the end of the year, in its Annual Return, it reports on the volume of assets renewed during the course of the previous twelve months. The purpose of Mandate AO/046 (see Appendix A) was to undertake a review of the process and accuracy for the reporting of the 2012/13 renewal volumes delivered for track, signalling, civil engineering, telecoms, and electrification and plant. This review was a follow-up to similar reviews, the latest of which took place in 2012.

Approach

The methodology which was adopted to undertake the commission was based on a structured series of meetings with representatives of the respective engineering disciplines. These meetings had three broad aims:

- To understand the processes which were applied to the reporting of volumes from the planning of the works, through their delivery to the final statements made in the Annual Return;
- To review a sample of projects by tracking their progression, and in particular the volumes in the various systems, through the various stages identified in the declared process. This also included reviewing the documentation associated with change control where applicable; and
- To develop a high level view of the variations between the planned and actual delivered volumes for each discipline.

These first two elements provide the basis for an assessment of the reliability and accuracy of the volume reporting.

As a result of the restructuring of Network Rail as part of the devolution process it was necessary to engage with the central engineering teams and with those in the Routes responsible for the reporting of volumes. The need to engage with the Routes represented an addition to previous reviews but was necessary to understand the newly devolved responsibilities and processes. In order to gauge any variations in the impact of devolution the engagement with the Routes was designed to ensure a range of challenges could be explored. This was done through three Route meetings.

Evidence gather directly at the meeting, or from follow-up documentation, formed the basis of the Reporter team's assessment of the robustness in the reporting of each discipline's volumes.

The final element, the high level view of any variations in the volumes between planned and actual was used to indicate the reasons for volume changes and comment on these.

Track

Track renewals were delivered in 2012/13 by both the Infrastructure Projects (IP) and Maintenance Delivery teams. The selection of the delivery organisation was largely dependent on the scale of the works. The two organisations used different systems to manage and track the development of their schemes. IP used Primavera P3e whilst Maintenance used Oracle Projects (OP).

In the relationship between the deliverer and the Route the latter is the client and as such responsible for the reporting of the renewal volumes. The Route does not have direct access to P3e and thus must rely on dialogue and downloads from IP to validate the progression of the works and confirm final delivery.

The capture of information on site regarding the actual volume delivered was made more complicated in the track discipline by the fact that the site input was in imperial measurements which may not represent a continuous length of renewal leading to a requirement to potentially total a number of component lengths and then convert these into metres. In addition, the combining of the various lengths into the standard composite kilometres of track adds another layer of complication. The issue with this was that the calculations were undertaken manually. From this it was clear that there was a risk of error although it was acknowledged that, in the review of the sample projects, this did not appear to be the case.

The impact of devolution reduced the role of the centre, with regard to track volume reporting, to one where it collated the inputs from the various delivery teams via the Routes. This reduced the overall control which could be exerted from the centre since they had limited visibility of the process of capturing the raw data down to site level. It is the Reporter team's view that devolution has compromised the overall integrity of Network Rail's ability to control the reporting of track volumes as a result of the limited visibility from the centre. This is because those responsible for the reporting of the volumes centrally are unable to independently dive into a specific project's detail to assure themselves that from the ground up the process of recording and change has been carried through in a robust fashion. Without a formalised audit or assurance procedure in place to allow the centre to check the data reported from Routes, an alpha confidence rating better than 'B' is unlikely to be achievable.

In terms of the accuracy of the reported volumes the sample of projects reviewed as part of the audit identified that the overall level of error was less than 1% making the confidence grade a '1'.

Signalling

The baseline signal renewal volumes to be delivered during 2012/13 were set during Period 8 of the previous financial year. These renewals were all programmed to be delivered by Infrastructure Projects.

The 'unit of measure' for volume in this discipline reporting was the Signalling Equivalent Unit (SEU) and Level Crossing Equivalent Unit (LXEU). Depending on the type of activity being undertaken during the renewal percentages are applied to the volumes to reflect the different complexity of the planned works – for example, re-locking is counted as 45% of the SEU total, and re-control is counted as 5%.

The renewal volumes undertaken on site were reported back using the Form 'E' which was signed off by the project manager to confirm the volume of work which had been commissioned. This information was then uploaded into P3e. As with track the Route had no direct access to the P3e system and was reliant on the reporting of volumes from the IP project manager and an extract from the system. This made the Route reliant on the information it was fed without the ability to directly interrogate the systems.

The central role of consolidating the data from the Routes remained during this year, as did their position acting as challenger of the emerging figures. This was despite the diminished level of visibility which had then been created as a result of devolution. It was also noted that change control took place, and was wholly managed, at Route level during this time.

The role of the centre in providing an overseeing and co-ordination role was somewhat hampered by their reliance on the good offices of the Routes to provide background information to support the planned or delivered works. It would appear that if there is a role for the centre going forward providing some form of management overview then it should have direct access to the necessary supporting documentary evidence right back to site level (Form 'E').

Without a formalised audit or assurance procedure in place to allow the centre to check the data reported from Routes, an alpha confidence rating better than B is unlikely to be achievable.

A sample of the renewals undertaken during the course of 2012/13 was reviewed by examining the development and reporting trail from the baseline through to the reported delivered volume. During the course of this review it was found that an error rate of 4.5% existed leading to a confidence grading of '2'.

Telecoms

The bulk of the programme of Telecoms renewals in 2012/13 was delivered by the Infrastructure Projects (IP) team. As with other projects delivered by IP the telecoms team used P3e as its project planning system.

As with the other disciplines the two delivery organisations use different systems to manage their projects (IP using P3e, and Maintenance using OP).

The report on the review of the Telecoms renewal reporting in 2012 noted that there were a number of issues associated with the processes in place at that time. By their own admission Network Rail is of the view that the actions to address the shortcomings in the reporting processes which had been previously identified were not fully in place during 2012/13. As such it must be concluded that there remained some gaps in the overall control of the reporting of volumes during this time. (This is evident by the further work which has continued to take place during 2013/14.) Nevertheless it was clear that the deficiencies were well on their way to being tackled and this was very evident from the account of the arrangements being implemented during the year and by the review of the individual projects.

It was stated by Network Rail that the impact of devolution with regards to telecoms has been minimal. This is because the telecoms organisation has not devolved in the same way as the other disciplines.

The Reporter team are of the view that the evolving nature of the processes to report project volumes in place in 2012/13 meant that it is appropriate to award a confidence grade of 'B'. The non-devolved nature of the telecoms function with respect to the volume reporting meant that if the described processes had been in place and demonstrably delivering the grading would have been an 'A'.

Electrification and Plant

As with the other disciplines E&P renewal work were delivered through either the Infrastructure Projects (IP) or the Works Delivery arm of the maintenance organisation. This led to the use of the two systems P3e and OP.

The Network Rail central team for E&P stated that they have now set up a consistent process to ensure that the data is captured in a more robust way. However, it acknowledged that these improvements to the data systems were not in place for 2012/13 volume reporting.

There are three types of work undertaken by E&P. These are summarised in the Table 1.

Table 1: Breakdown of E&P Work Activities

Work Activity	Included in ORR Targets	Classified as Renewals
Maintenance	No	No
Refurbishment	Some	No
Renewal	Some	Yes

The E&P function covers a variety of asset types only some of which are required to be reported to the ORR. For each category of asset a consistent means of measuring renewal volumes was developed and applied by Network Rail.

When a job is completed on site the responsible party prepared and signed a Form 'E'. (This was a similar system to that employed by the Signalling function.) This was the confirmation of the delivery of the item of work.

In terms of when a volume can be claimed, the rules for determining when a volume should be declared are documented in NR/ARM/M36DF.

The E&P change control process used the same templated change documentation as adopted by the telecoms and signalling disciplines. Changes were required to be signed off by the Project Manager, the Route Asset Manager, the Finance Manager, and the Senior Enhancement Renewals Engineer.

It was stated by Network Rail that in the 2012/3 reporting year there were no changes to processes associated with the recording or reporting of E&P volumes as a consequence of devolution to Routes

The E&P volume data was relatively poorly graded in the previous assessment – the first time the discipline had been included in the review. The current review has shown that there had been some significant changes made to the processes involved in the tracking and reporting of E&P volumes. This had begun to tighten up the governance and accuracy of the reporting in this discipline during 2012/13. However, there would appear to be some further areas of development which were not concluded during that year or only had an impact late in the year to bring the reporting here into line with the other engineering disciplines.

The Reporter team are thus minded to award a 'B' grading for process for this discipline in recognition of the evolution of the processes taking place during 2012/13.

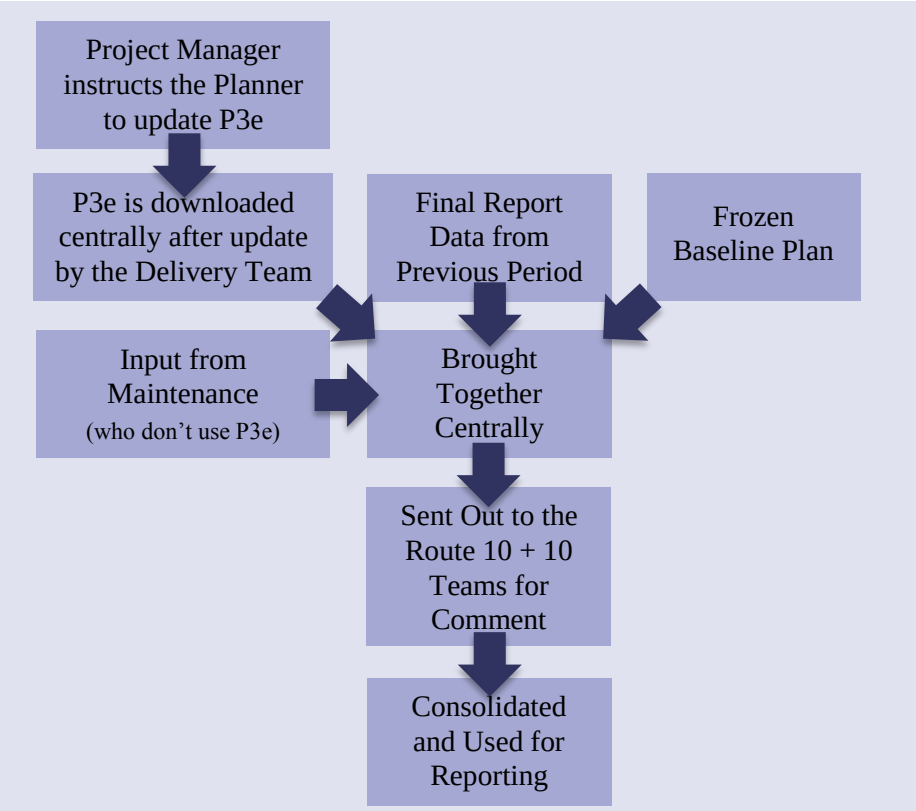
Based on the review of the sample projects during the engagement with the E&P team the level of error identified in the reporting was confirmed as 0% leading to the award of a confidence grade of '1'.

Civil Engineering

As with the other disciplines the civil engineering renewal work was delivered through either the Infrastructure Projects (IP) or the Works Delivery arm of the maintenance organisation. The workbank was split between the two organisations depending on the scale of the renewal.

The reporting of civil engineering renewals was undertaken as illustrated in Figure 1.

Figure 1: Civil Engineering Volume Reporting Process



Network Rail stated that the current organisation for reporting has been implemented and continuously improved since April 2012 to take account of the devolution to the Routes. In the early part of 2012/13 it was accepted that there had been problems with the reporting processes which were largely down to issues relating to devolution and DIME reorganisations, and the shortage of staff in certain key role.

The previous assessment of the reliability and accuracy of reporting of Civil Engineering renewals was generally good. In the structure and processes which were employed for 2012/13 this quality of the reporting had been maintained despite the difficulties which had been accepted were present. The Reporter team believe that this has largely been due to the continuity of personnel in roles at the centre. Despite this there was a problem in that the roles and responsibilities

within the new structure appeared not to be fully aligned. In addition there were some indications that the dilution of the central role may have led to data integrity issues.

Based on the foregoing assessment of the structure of the reporting regime in 2012/13 the Reporter team believe that a confidence grade of 'B' for process is appropriate.

As a result of the review of a sample of the projects delivered during the course of the year the Reporter team has identified an error of 1.5%. This equates to a confidence grade of '2'.

Confidence Grading Summary

Table 2 provides a summary of the confidence grading awarded as a result of this review compared to the previous grading and the ORR benchmark confidence level.

Table 2: Summary of Confidence Levels

Asset Category	Previous Confidence Grading	Proposed Confidence Grading	ORR Benchmark Confidence Grading
Track	B1	B1	A1
Signalling	B1	B2	A1
Telecoms	C5	B1	A1
Electrification and Plant	C4	B1	A1
Civil Engineering	B1	B2	A1

Volume Variations

The following tables provide a high level view of the variations between the planned and actual delivered volumes for each discipline. These show the reason for the variations by asset type. During the course of the review with each discipline a check was made of the Change Control processes associated with the individual asset portfolio variations. No attempt was made to validate the reasons for the variations during the course of the year.

Table 3: High Level View of Track Renewal Volume Variations (kms)

Track	Planned	Variations	Actual
Plan	1168		
Carried forward from previous years		+123	
Brought forward from future years		+1	
Deferred to future years		-16	
Haulage issues		-102	
Bad weather		-39	
Access issues		-47	
Plant issues		-36	
Re-profiling in the year		+8	
All other delivery issues and cost changes		-98	
Variation Total		**-206**	
Actual			962

Table 4: High Level View of High Output Track Renewal Volume Variations (kms)

Track	Planned	Variations	Actual
Plan	734		
Carried forward from previous years		+10	
Haulage issues		-15	
Bad weather		-17	
Access issues		-17	
Plant issues		-36	
Re-profiling in the year		+4	
All other delivery issues and cost changes		-114	
Variation Total		**-185**	
Actual			549

Table 5: High Level View of Switch and Crossing Renewal Volume Variations (nr)

Track	Planned	Variations	Actual
Plan	307		
Carried forward from previous years		+22	
Brought forward from future years		+1	
Haulage issues		-9	
Access issues		-5	
Plant issues		-26	
Re-profiling in the year		+4	
All other delivery issues and cost changes		-35	
Variation Total		**-49**	
Actual			258

Table 6: High Level View of Signal Renewal Volume Variations (SEUs)

Signalling	Planned	Variations	Actual
Signalling Plan	1141		
Brought forward from future years		+102	
Deferred to future years		-266	
Change in scope		+21	
Baseline error		+5	
Reported delivery error		-20	
Unknown		-4	
Variations Total		**-163**	
Signalling Actual			978

Table 7: High Level View of Level Crossing Renewal Volume Variations (LXEUs)

Signalling	Planned	Variations	Actual
Signalling Plan	79		
Deferred to future years		-28	
Variations Total		**-28**	
Signalling Actual			51

Table 8: Detail of Renewal Variations by Telecom Asset Type

Asset Type	Plan	Actual	Variation	Breakdown
CIS Monitors	57	123	+66	Scope change -39 Carried forward from 11/12 +105
PA Speakers	3926	4491	+565	Carried forward from 11/12 +1386 Scope increase +190 Scope decrease -450 Brought forward from 13/14 +241 Deferred to 13/14 -802
CCTV Cameras	396	472	+76	Carried forward from 11/12 +76
Clocks	0	38	+38	Carried forward from 11/12 +38
Small Concentrators	38	23	-15	Scope change -8 Deferred to 13/14 -7
Large Concentrators	7	3	-4	Scope change -2 Deferred to 13/14 -2
DOO Systems	60	53	-7	Baseline change -27 Brought forward from 13/14 +20
PET Systems	45	47	+2	Scope increase +2
Voice Recorders	64	36	-28	Baseline change -45 Scope decrease -4 Brought forward from 13/14 +41 Deferred to 13/14 -20

Table 9: Detail of Renewal Variations by E&P Asset Type

Asset Type	Plan	Actual	Variation	Breakdown
OLE Campaign	577	654	+77	Carried forward from 11/12 +16 Deferred to 13/14 -65 Policy change +119 Scope change +12
OLE Rewiring	97	40	-57	Baseline error -60 Carry forward from 11/12 +3 Deferred to 13/14 -5 Brought forward from 13/14 +7
Contact Rail	35	2	-33	De-scoped from project -31 Deferred to 13/14 -6 Change of scope +2
HV Switchgear	35	35	0	No change

Booster Transformers	5	11	+6	Brought forward from 13/14 +4 Carried forward from 11/12 +4 Deferred to 13/14 -2
HV Switchgear DC	55	30	-25	Deferred to 13/14 -25
LV Switchgear DC	85	17	-68	Possession issues -80 Brought forward from 13/14 +12
HV Cabling	38	30	-8	Deferred to 13/14 -15 Carried forward from 11/12 +11
LV Cabling	103	6	-97	Policy change -88 Change of scope +1 Deferred to 13/14 -5
Transformer Rectifiers	7	5	-2	Possession issues -2

Note: minor variations not in breakdown but included in overall variation figure

Table 10: Detail of Renewal Variations by Civil Engineering Asset Type (,000m^2)

Asset Type	Plan	Actual	Variation	Breakdown
Overbridges	5.1	6.6	1.6	Carried forward from 11/12 +4.4 Other deferrals -2.9
Underbridges	103.3	78.8	-24.5	Deferred to 13/14 -9.2 Not fully converted -13.8 Re-scoping of work -1.5
Bridgeguard 3	1.9	0.8	-1.1	Deferred to 13/14 -1.1 Cancelation of renewal -0.1
Footbridges	3.0	1.1	-1.9	Deferred to 13/14 -0.2 Cancellation of renewal -0.5 Environmental issues -0.1 Possession issues -0.3 Renewal move into project -0.7
Tunnels	6.0	5.4	-0.6	Deferred top 13/14 -2.0 Addition to baseline +2.0 Other deferrals -0.6
Culverts	0.5	0.7	+0.2	Additional to baseline +0.2
Retaining walls	1.3	0.9	-0.4	Deferral to 13/14 -1.1 Addition to baseline +0.5
Earthworks	604.9	477.6	-127.3	Deferral to 13/14 -48.4 Not fully converted -74.5 Environmental issues -10.6 Other changes +6.2
Coastal / estuary defence	0.8	0.0	-0.7	Deferred to 13/14 -0.6 Cancellation of renewal -0.1
Major structures	25.5	22.8	-2.6	Deferred to 13/14 -2.3 Re-profiling of work -5.6 Additional to baseline +5.2

Recommendations

As a result of this review a number of new recommendations have been identified by the Reporter Team. These are shown in Table 11 below.

Table 11: New Recommendations

Reference	Recommendation
2013REN01	Track: The AMP12 and AMP14 forms together provide confirmation that the agreed job has been delivered. It is recommended that because there is no obvious cross reference to project numbers in the planning system, or linkage between the recording, sign off and reporting of the delivered volume and the initially agreed works, it may be beneficial to include details of the AMP12 project on the AMP14 document, or include the AMP14 signature at the bottom of the AMP12 form.
2013REN02	Telecoms: It is recommended that an electronic link be created between the reporting from the regions and the summary sheet which is used for reporting purposes since this is currently compiled manually by the Business Planning Specialist from the received reports.
2013REN03	All (except Telecoms); it is recommended that Head of Asset Management Services considers the requirement for enhanced levels of data assurance and check in Renewals Volumes reporting, in the view of the now fragmented reporting arrangements as a result of devolution creating a large number of accountable management units, and the risks which this entails to the integrity of accurate, reliable, and consistent reporting
2013REN04	All: It is recommended that a review should be undertaken of the arrangements whereby the manual input of data is undertaken to determine if this can be automated
2013REN05	All: Where parallel reporting arrangements exist which are driven by the delivery agent's systems consideration should be given to the elimination of one of these parallel systems
2013REN06	Signalling: it was not possible to track when updates where made in SSADS to check that updates had taken place to correctly reflect the removal of assets. It was considered that it may be beneficial to have such a facility
2013REN07	All: It is recommended that the variations which occur to the volumes for the individual asset groups be formally recorded such that an audit of the reasons for the changes can be made at year-end

1 Introduction

1.1 Background

Network Rail plans its renewals on an annual basis within the framework of a rolling plan and with overall target volumes agreed with the Office of Rail Regulation (ORR) in the five-yearly determinations. It publishes a Delivery Plan each year and reports delivery against this annual plan in its Annual Return. As part of the on-going review of delivery, Network Rail is also required to provide the ORR with a four-weekly update of the renewal volumes it has delivered.

In 2011, the Independent Reporter carried out an initial audit of the reliability and accuracy of the reported renewal volumes[1]. The scope of that study was limited to relatively small samples with electrification renewals excluded from the review. At that time a number of issues were identified in the reporting of the volumes. As a result, an audit with greater scope was undertaken under Mandate AO/025 in 2012[2]. This covered the five key disciplines of track, signalling, telecoms, civil engineering, and electrification. It also included a larger sample size for each discipline. This second audit confirmed the findings of the initial work by identifying a number of shortcomings in the reporting processes. This led to the identification of a number of recommendations designed to make the process more robust.

1.2 Purpose and Scope of Review

The purpose of this commission was to provide an updated view of the reliability and accuracy of reporting renewal volumes. This would include the checking of progress in the delivery of the recommendations from the Mandate AO/025 report.

This audit was specifically aimed at a review of the renewal volumes reported for the financial year 2012/13 and within that how any changes compared to the initial plan were managed over the course of the year. Whilst this was the prime focus of the study the opportunity was also taken to gather information regarding any procedural changes which had taken place during 2013/14.

The Mandate describing the scope of works to be delivered for this audit is included in Appendix A to this report.

1.3 Report Structure

Following this introduction the report is structured as follows:

[1] Reported in Audit of Renewals Volume Data, July 2011
[2] Reported in AO/025 Audit of Renewal Volumes Data, July 2012

- Section 2 describes the general approach taken in the audit;
- Sections 3 through 7 present the findings of the audit describing the outcome for each of the five disciplines in turn;
- Section 8 presents the findings from three Route reviews which were undertaken covering each of the disciplines;
- Section 9 contains our assessment of the Confidence Grades awarded for each asset; and
- Section 10 reviews the recommendations from the previous study and tabulates the new recommendations which have been developed based on the outcome of this audit.

2 Approach

2.1 Introduction

This Section of the report provides a summary of the methodology which was used in the delivery of the Mandate.

2.2 General Approach

The methodology which has been adopted in previous reviews, and was again used in the delivery of this commission, was based on a structured series of meetings with representatives of the engineering disciplines. At these sessions there were three broad aims:

- To understand the processes which were applied to the reporting of volumes from the planning of the works, through their delivery to the final statements made in the Annual Return;
- To review a sample of projects by tracking their progression, and in particular the volumes in the various systems, through the various stages identified in the declared process. This also included reviewing the documentation associated with the change control process; and
- To understand the reasons for the variations in the volumes which were delivered in 2012/13.

The first two of these elements provide the basis for an assessment of the reliability and accuracy of the volume reporting.

In previous reviews these meetings had focused on the individual disciplines within Network Rail's central team. For the current review a similar round of meetings were held but it became apparent early in the review that the devolution of responsibilities to the Routes would make it necessary to meet with a number of those teams to understand the new 'front-end' processes.

The final element provides a commentary on the reason for the overall variation in the delivery between planned and actual.

2.3 Disciplines at the Centre

In previous reviews it was apparent that Network Rail centrally had been responsible for the collection, collation, validation, and reporting of the delivered renewal volumes on a periodic and annual basis. With the advent of devolution there has been a change of ownership and accountability in the reporting process. Nevertheless it was considered essential to understand the changes which had taken place within each of the disciplines, and indeed to identify any variations between the engineering teams. To this end it was necessary to meet with the central teams from each of the disciplines to establish what had changed

structurally in the organisation and its processes from the previous review. In some instances this involved attendance at our meetings by individuals who had been involved in the previous reviews. This provided a degree of continuity which was welcomed. At all of the meetings those responsible for assembling the corporate reporting figures were present.

The schedule of meetings which were undertaken is shown in Table 2-1. All of the central meetings took place at the Network Rail offices at Milton Keynes with the exception of the Track Maintenance discussion which took place at Euston Station.

Table 2-1: Schedule of Central Team Meetings

Asset Category		Meeting Date
Track[3]	Maintenance	15th November 2013
	Infrastructure Projects	19th November 2013
Civil Engineering		28th November 2013
Telecoms		29th November 2013
Electrification and Plant		29th November 2013
Signalling		20th December 2013

In each case notes were made of the individual meetings which were then shared with the Network Rail representatives to ensure accuracy. Any comments which were returned were considered in the final note drafts.

A copy of the notes of these six meetings is included in Appendix B1

2.4 Disciplines at the Routes

Within the proposal it was recognised that the review should include meetings with key personnel at Route level in order to fully understand the impact devolution had had on the reporting of volumes. This also provided the opportunity to appreciate the activities at the front-end of the process where the work was taking place and how on-site delivery was being captured. It was

[3] A significant volume of track renewal work is undertaken by the in-house maintenance teams thus separate meetings were held with both the Maintenance and Infrastructure Projects delivery team representatives.

considered that being aware of this was crucial to an understanding of the reliability and accuracy of the reporting.

In order to gauge any variations in the impact of devolution, and to ensure as wide a range of views as possible could be gathered, the review sought to meet with Routes with differing challenges. Thus the specification for the sample Routes included:

- A 'long distance' Route;
- A London and the south east Route; and
- A regional Route.

For each of these categories the sample Routes were respectively:

- London North Western;
- Wessex; and
- Wales.

The schedule for the Route meetings is shown in Table 2-2.

Table 2-2: Schedule of Route Meetings

Route		Meeting Date
Wessex[4]	Electrification and Plant	13th December 2013
	General	17th January 2014
LNW		30th January 2014
Wales		11th February 2014

The protocol of sharing the meeting notes, used for the central team meetings, was also applied to the Route meetings. Copies of the notes of the Route meetings are also contained in Appendix B2.

2.5 Sample Sizes

As part of the review a sample number of projects were identified for each of the disciplines. In all cases the review looked at the development, delivery and the reporting of the volumes associated with the individual projects. This provided a means of validating the processes as well as tracing the accuracy of the reporting of the associated volumes.

[4] Two visits were made to Wessex. The first visit was primarily to review Third Rail renewals. This was undertaken before Wessex was selected as the L&SE Route sample.

2.6 Recommendations

As part of the review of the processes within each of the disciplines the opportunity was also taken to confirm progress against the various recommendations identified in the 2012 report. The outcome of this review is described in Section 10 of this report.

3 Track

3.1 Introduction

Sections 3 through to 7 of this report provide a detailed account of the findings with respect to the individual engineering disciplines.

Section 3 provides a description of the process and findings with regard to the reporting of Track volumes in 2012/13. The section is split to reflect the two track delivery organisations: Maintenance (Works Delivery); and Infrastructure Projects (IP). Separate meetings were held with each of these organisations as part of this review.

3.2 Maintenance Reporting Process

This Section focuses on the track renewals which were delivered by the Maintenance function. The renewals undertaken by the Maintenance Delivery Units are generally smaller and less complicated than those delivered by IP and this was the case in 2012/13.

3.2.1 Systems

The prime Network Rail system used by the Maintenance Planning Team was Oracle Projects (OP). This was used as their workbank planning and recording system. It was noted that this was different to IP's arrangements which were based on Primavera P3e. OP was used to manage projects and included the workflow approval process and was the means of capturing both project finances and volumes.

The Asset Management Process (AMP) system was used to trace the progression of a project from initial sponsor identification through to final sign-off. This process had been in place for some years. There were two key pro-forma used as part of this process:

- AMP12: this defined the initial requirements for a scheme; and
- AMP14: this was the final sign-off that the works had been completed.

The AMP 12 and AMP 14 forms recorded the geographic position, in miles and chains (or in some cases miles and yards), between which the renewal had been undertaken. To calculate the recordable volume, these imperial distances required to be converted into metres. This volume was then factored up or down depending on the content of the work. For example, different factors were applied for re-railing one or two rails, re-ballasting, sleeper renewal, or for a composite volume where all the components of the track system were renewed. The

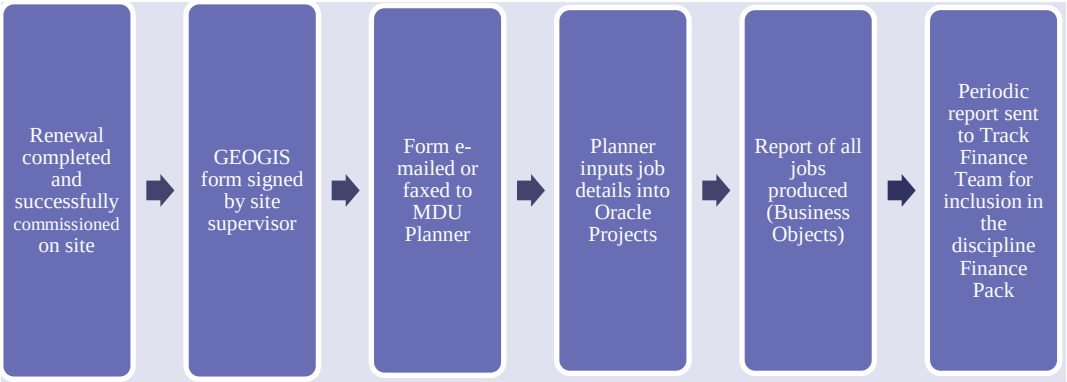
conversion rules are contained in the Network Rail standard NR/L3/INI/TK0040. This factored volume was then entered into the systems. A copy of this Standard was supplied by Network Rail. During the course of the review a number of sample AMP12 and AMP14 forms were provided to the Reporter team. This allowed a check to be made on the progression of the volumes associated with the delivery of a series of individual renewals from the baseline figure to final delivery sign-off. It was noted in the AMP documentation that there was a potential disconnect between associated AMP12 and AMP14 forms which did not appear to cross-reference. This has been picked up as a recommendation in Table 10-2.

3.2.2 Recording

The convention used for recording "planned" volumes was confirmed by Network Rail. This was that 'planned' figures were the volumes shown in the Annual Plan at the beginning of each financial year. These numbers would then carry through each reporting cycle for the whole year. Any adjustment or revision to the 'planned' volumes would be reflected as a 'forecast' or 'outturn'.

Figure 3-1 summarises the reporting process which applied following the completion of a renewal on site. This was as described and illustrated at the meeting.

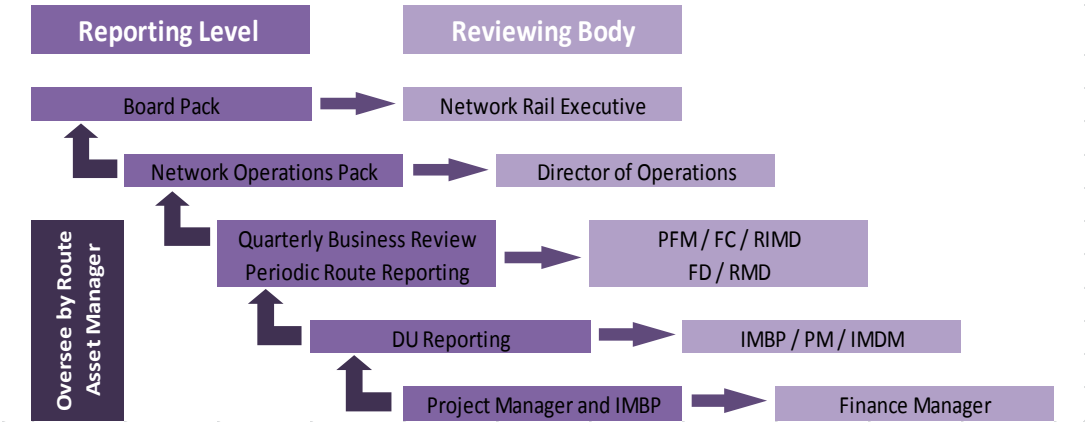
Figure 3-1: Maintenance Team Renewal Recording Process



3.2.3 Reporting

Reporting took place at various levels within the organisation depending on need. As such the level of detail which was reported also varied depending on the audience. Figure 3-2 illustrates the various levels of reporting which were described by Network Rail.

Figure 3-2: Reporting Levels



In the discussion regarding the reporting of variations it was noted that if it was necessary to substitute a job, as a result of not receiving access permission for example, then Network Rail would substitute the next job in the priority list if it was deliverable. The overall reporting at a high level would not necessarily show the non-delivery because the figures were consolidated without the necessary detail to highlight the change. Consequently, even if planned and actual figures were the same in a reporting period, this would not necessarily mean that these represented the same jobs. As a result, the reporting of the planned volumes did not necessarily mean that the same jobs which made up the workbank at the start of the year had been delivered – merely that the same volume of renewal had taken place.

In the financial monitoring of the delivery of the workbank Network Rail used forms which highlight potential and actual overspend. 'F4 Red' denoted overspend against authority and 'F4 Amber' denoted forecast overspend. These forms were used to focus reviews to address any emerging financial issues.

Copies of the 'F4 Red' and 'F4 Amber' pro-forma were reviewed as part of the study.

3.2.4 Devolution

It is known that the process of devolution was on-going during 2012/13. However it was stated by Network Rail that so far as the Maintenance function was concerned this process is now complete and that the organisation could now be considered as having bedded down in its new form. With regard to the reporting of renewal volumes in 2012/13 this was considered by Network Rail to be robust based on the fact that the Network Rail maintenance team centrally considered that little had changed in terms of the central processes for reporting as a result of devolution. At this time there was still a requirement to report to the centre from the individual maintenance units. This was similar to what had occurred before

devolution. It was however accepted that the processes within the Routes, at the front-end of delivery, may have changed but this was not apparent to the central team.

3.3 Infrastructure Projects Reporting Process

This Section focuses on the track renewals which were delivered by the Infrastructure Projects (IP) teams.

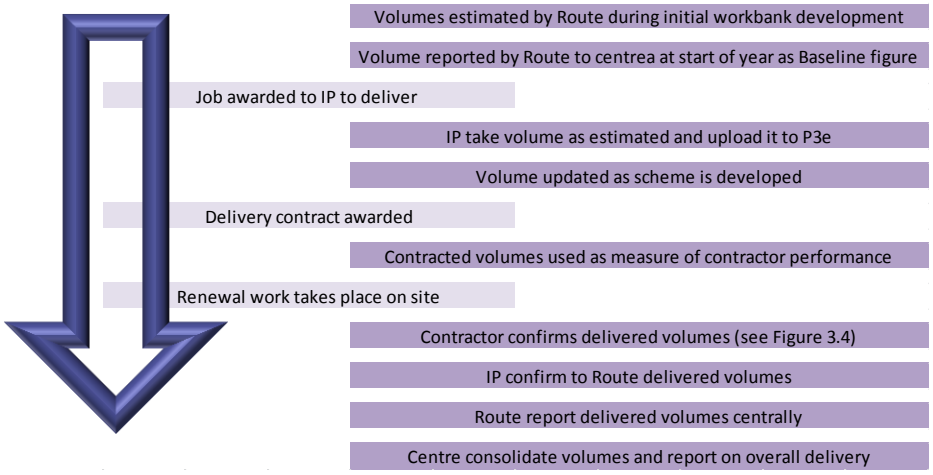
3.3.1 Systems

The management of track renewal schemes by IP relied on the use of Primavera P3e to plan, monitor and capture delivery data. The P3e system was managed within IP with no direct access afforded to Route Asset Managers.

3.3.2 Recording

Before the start of the delivery year the decision was taken within the Asset Management teams to determine which organisation would deliver which projects. For those renewals which were allocated to IP to deliver, an early task was to set the items up in their P3e system. The volumes associated with the individual schemes would change during the course of the development and planning of the associated activities. These changes would then be recorded as part of a formal change control process where agreement to changes was signed-off by the responsible manager. Nevertheless once the contract for the works was awarded by IP the costs and volumes for those renewals were locked-down. The performance of the contractor was then measured against these numbers.

Figure 3-3: IP Volume Recording and Reporting Process



To record the delivery of the renewal Interim GEOGIS forms were completed which provided the view of the volumes from site. The renewal volume was then validated through the passage of the Track Recording Unit (TRU). Following this the Final GEOGIS form was completed – this represented the final sign-off of the

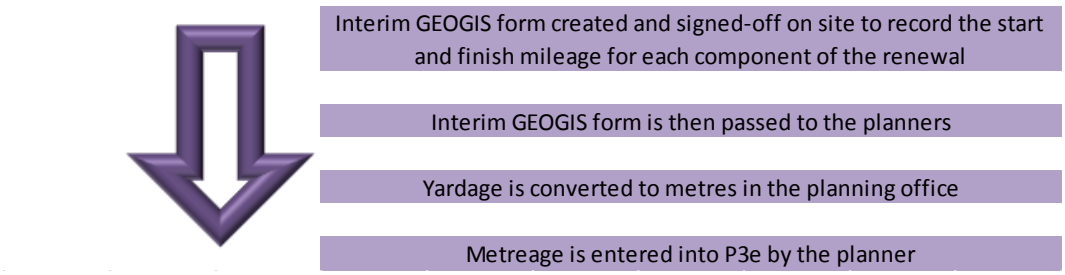
works. It was noted that the confirmation of the volume (by the TRU) could be several months after the renewal had been completed but was necessary to provide an independent check on the location of the renewal and its length.

At both Interim and Final GEOGIS form stages the volumes were entered into P3 for the project. The system automatically took account of any conversion factors based on the Activity Code which had been applied to the project.

The Reporter review of data concentrated on base level recording, reporting and collation of volume data since this was where it was understood that the greatest level of manual input and data manipulation was to be found. This was because it was believed that manual intervention increased the potential for errors in reporting. It was noted that once data was logged into the systems the aggregation and onward reporting was generally wholly electronic and relied on no further manual intervention.

At the base level of data collection and recording the following process was described by Network Rail as shown in Figure 3-4.

Figure 3-4: Reporting Levels



The Reporter team noted a number of points in the recording and reporting process where the risk of error appeared to be high, even when the data on the GEOGIS form appeared to be correct. These risks included:

- When multiple locations of work were reported on a single interim GEOGIS form – there was the potential for confusion between the entries;
- When the work reported on the interim GEOGIS form was not continuous – this means that it was necessary to undertake a manual calculation in miles and yards to derive the total length of renewal;
- When the work undertaken was materially different from that planned (either through unplanned curtailment or substantial work planned but not undertaken) – depending on the variation this could involve different start and finish mileages which may not be easily located without the presence of a point of reference;
- When the delivered length of the separate components of the renewal – rail, sleeper and ballast – where not clearly and separately identified on the form – there may be a significant difference between the lengths of renewal of individual components which may not be captured in the way in which the

form was completed or there was an assumption that things were the same length; and

- When manual amendments had been made to the interim GEOGIS form – potentially when an error had been made on site which was later corrected.

We believe that the manual arithmetic calculation of the yardage / chainage of the works from the respective forms and the conversion of these into metric lengths represent the biggest single risk of error with regard to the reporting of track volume data, although it was noted that this error factor will diminish as these calculations are automated within the future workbank planning and recording systems.

3.3.3 Reporting

During the course of the study examples of volume reporting documentation produced for various levels of Network Rail's organisation were reviewed in order to track the progression of the volumes within the organisation. It was noted that the data was available down to individual item level but for the high level reports developed within the Route this was consolidated into three categories:

- Plain line;
- Switches and crossings; and
- High output.

At the highest level of reporting, for the Network Rail Executive, the IP track renewal volumes were combined with those delivered by the other sources (Maintenance and Enhancements). The data provided for these packs at year-end formed the basis of the Network Rail Annual Return.

The Reporter team reviewed copies of the reports for the various levels which were produced by the team for Period 13 2012/13. This allowed us to trace the progression of the volume data up the organisation.

3.3.4 Data Checking

Within the Network Rail organisation there was a process to review the accuracy of the volume data which was entered into the system, though this was not believed to have yet been formalised as an assurance requirement in 2012/13. It was stated that a typical sample rate of 10% of the portfolio was undertaken. This was audit carried out by the Principal Programme Planner at the centre. A current sample of 94 sites was being audited at the time of the interview and the Reporter team saw documentation to support this. This represents approximately 10% of the current portfolio. On the basis of these spot-checks it was stated that there was a high degree of confidence within Network Rail that their track volume

reporting was accurate. However, it was noted that the team did not undertake checks on the completeness of the change control process as part of their review.

In terms of the chain of responsibility for the accuracy of the data in P3e this began with the Programme Controls Manager in the IP Delivery Unit. It was noted that the Planner and Project Manager also had roles in checking the quality of the data.

3.3.5 Devolution

During discussion on the impact of devolution on the delivery of track renewals by IP it was noted that the changes in responsibilities and accountability for reporting volumes, to reflect the new responsibilities within the Route, were taking effect in 2012/13, although the data and information management arrangements remained largely unchanged. This was largely attributed to the fact that the IP organisation sits outside the Route structure and as such its internal processes had been little changed. Nevertheless the IP teams had representation in the Routes which oversaw the delivery process and it was the Routes that were responsible for reporting the delivered renewal volumes.

3.4 Check of Computational Accuracy of Track Renewal Volumes

In order to come to a view on the accuracy of the reporting of track renewal volumes delivered in 2012/13 a sample of the projects delivered by both the Maintenance and IP organisations was reviewed by the Reporter team. In each case the individual renewal was tracked using contemporary documentation from the baseline figures, through their development and associated change control process, through delivery and the reporting back from site, to the consolidation of the volumes for the overall job. Table 3-1 shows the details of the projects which were the subject of the detailed review.

Table 3-1: Sample Track Renewal Project Reviews

Route / Job Number	Location	Commentary	Project Volumes (Composite Metres)	Identified Error (over + or under -)
WEST 129500	Old Oak Common	The renewal volumes linked to the GEOGIS forms although the Budget Volume had been removed from P3. This is an error but because the job is completed is not material. Also noted that there was a significant volume change (downward) when compared to the Baseline figure. This was stated as being due to the transfer out of	329	0

		volume to the Crossrail project. The relevant Change Control forms were requested by the Reporter.		
WEST 131555	Clinnick	Double re-rail – all volumes checked & reported OK	282	0
WEST 131555	Marazion	Double re-rail – all volumes checked & reported OK	503	0
WEST 131559	Totnes S&C	Re-Timbering/ partial renewal - volume in accord with standard TK0040	0.33	0
LNE	Shaftholm Jn - Askern	In validating the P3 volumes against the GEOGIS forms, an 11 yard error was identified when considering the ballast volumes.	4162	+ 11
LNE 124448	Newcastle	Sunderland Bridge – alleged to be plain line single renewal, not stated on AMP017 form	563	0
LNW	Brogborough Hill	All figures checked and correct	967	0
LNW	Fenny Stratford	All figures checked and correct	80	0
SCOT 131792	Lamington North	Plain Line Double re-rail – very small OP to AMP variance	2,486	-1
SCOT 131792	Bellshill	Plain Line Double re-rail. All figures checked and correct	283	0
SCOT 131792	Calla	Plain Line Double re-rail. All figures checked and correct	366	0
SCOT 131795	Law Junction	Partial Renewal – volume in accord with standard TK0040	0.33	0
WALES 131901	Crewe 75 pts.	S&C Renewal - volume in accord with standard TK0040	3	0
WALES 131789	Redbridge	Plain Line Double Renewal. All figures checked and correct	483	0
WALES 131836	Cardiff Papermills	Plain Line Double re-rail. All figures checked and correct	402	0
WESSX 131069	Twickenham	Plain Line Double re-rail. 1227 planned & delivered, 20 composite kilometres underreported	1,207	-20
ANGLIA 131726	Southend East	Plain Line Double re-rail. LH & RH rails completed in separate years. Total vol. 12/13 should be 50% of the total of 302 = 151	200	+49
ANGLIA	Soham	Plain Line Double re-rail, though no spec shown on AMP forms. 3,625	3,641	+16

131861		actually delivered – over-reported by 16.		
SUS – KENT 128548	Lewisham	All figures checked and correct	517	0
KENT 132077	Nunhead	Plain Line Double Renewal. All figures checked and correct	845	0
KENT 132077	Nunhead / Croft	Plain Line Double Renewal. All figures checked and correct	624	0
LNW 23100110	Kempston & Elstow	Plain Line Renewal – all figures checked and correct	4,290	0
LNW 23101111	Castlethorpe Troughs	Plain Line Renewal - the site was originally planned, and some work undertaken, in 2011/12 (The shortfall was picked up in 2012/13 by 'LNW Maintenance').	22	0
LNW 23101699	Ledburn North	High Output - all figures checked and correct	768	0
LNW 23170212	Denbigh hall	High Output - all figures checked and correct	512	0
LNW 24390112	Coventry South	S & C - all figures checked and correct	2	0
LNW 24290610	Bordesley	S & C - all figures checked and correct	1	0

As part of the review, and to ensure that sufficient evidence had been gathered to justify the process commentary the Reporter team requested copies of the various system worksheets and forms associated with a sample of projects covering each of Plain Line, Switch and Crossing and High Output. These were subsequently used to track the development of sample renewal items from their volumes in the baseline through development and finally to a comparison between the reported volume and that signed-off on site.

3.5 Observations

The previous review of the track renewal volume reporting found little of concern with the process which was in place at that time. During the course of this review of the central team, these arrangements have not changed. There is a concern regarding the calculations of the lengths and the need to apply conversion factors to derive volumes in metres. This manual process was potentially a source of error although it was not apparent from the review of the sample projects. We note that this process is intended to be largely automated in future.

Until and unless the central assurance procedures for sampling accuracy of reported volumes are established, the risks to data reliability from fragmented reporting arrangements will remain high.

The two delivery arms used different systems to track their schemes. One common process would seem simpler however there was no evidence of this dual approach causing any reporting problems.

3.6 Delivery Variations

During the course of the review the opportunity was taken to understand the reasons for the variations between the planned and actual volumes. As part of this a check was made of the Change Control processes associated with the individual asset portfolios. No attempt was made to validate the reasons for the variations during the course of the year. The track variations are illustrated in the following 'waterfall' diagrams.

Figure 3-5: Illustration of Variations in Plain Line Renewal Volumes

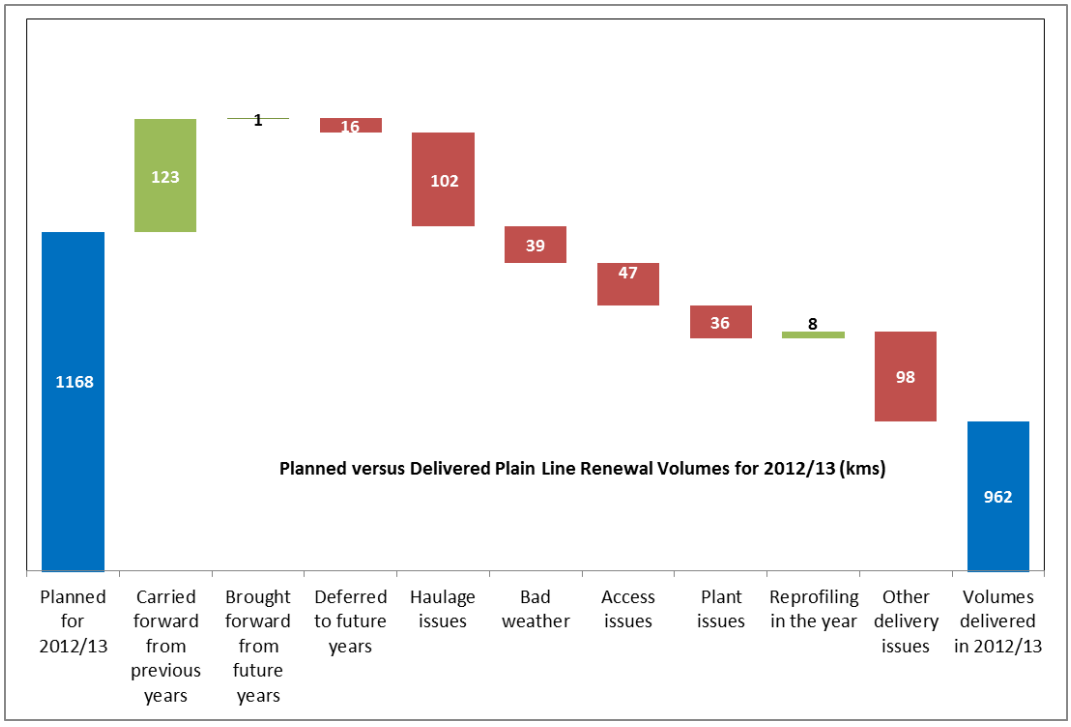


Figure 3-6: Illustration of Variations in High Output Renewal Volumes

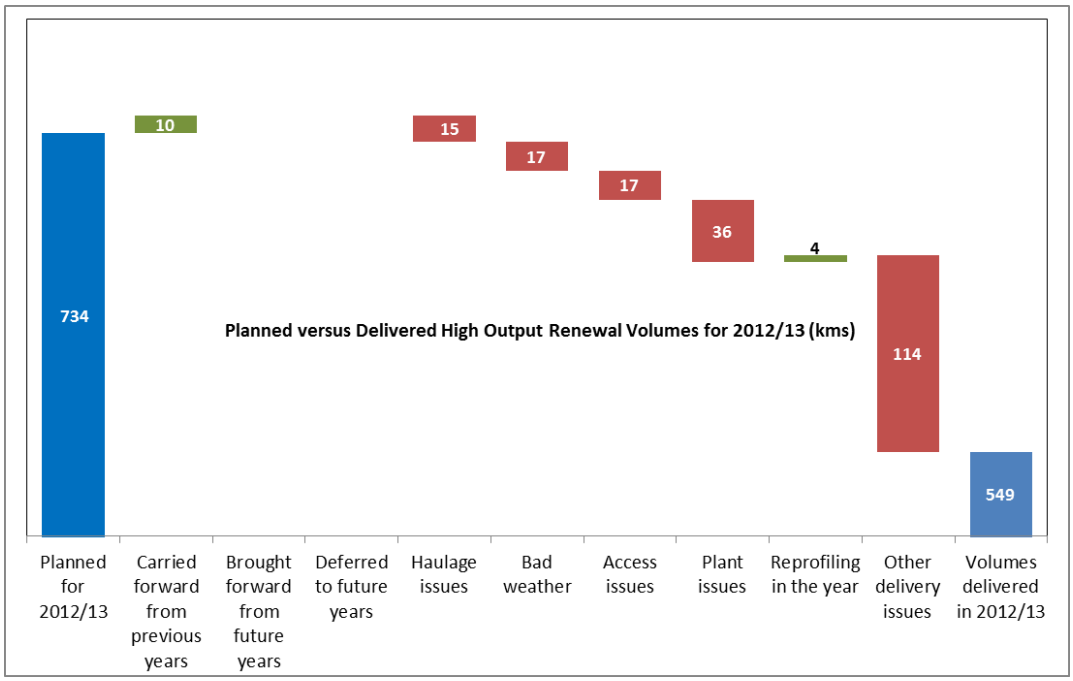
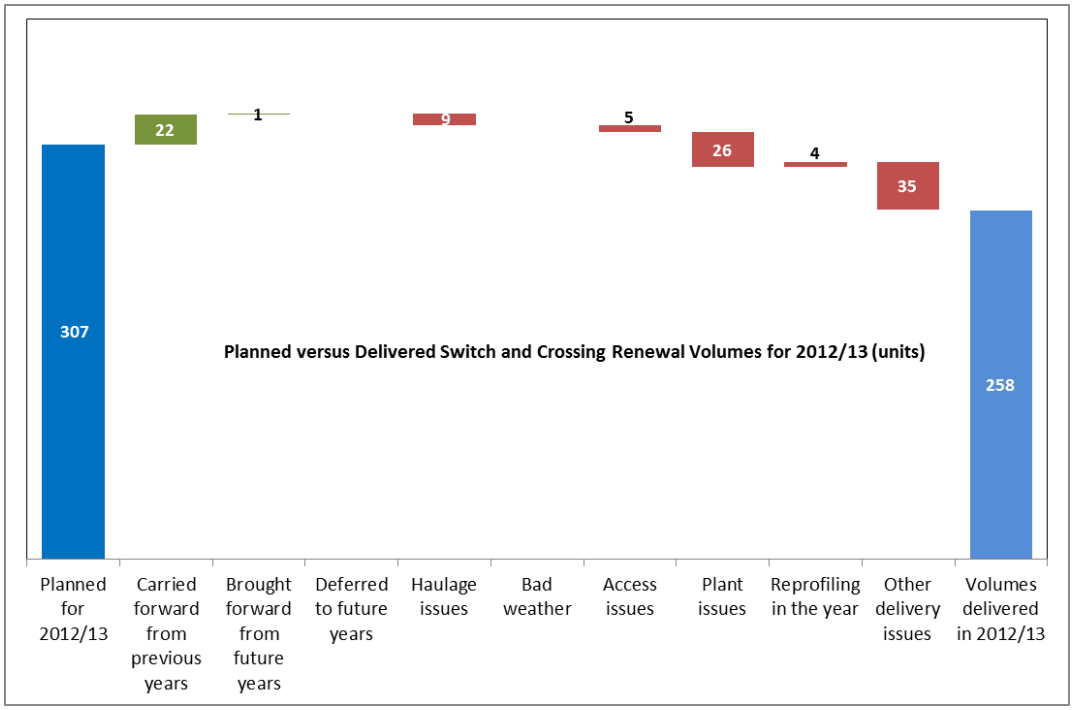


Figure 3-7: Illustration of Variations in Switch and Crossing Renewal Volumes



3.7 P13 – Annual Return Variances

The plan figures in the Period 13 and Annual Return all agree for each category of track renewal. The delivered volumes are all different but by a very small amount in each case – all are less than 0.4% different. It is considered that due to the small level of variation that these are due to the tidying up of late returns after the Period 13 figures were compiled.

3.8 Conclusions

From the evidence presented there would appear to be little in the way of any change, as a result of devolution, which had taken place in the reporting of track volumes. The review identified a number of risk areas mainly associated with the manual calculation and input of data to the systems. Whilst no evidence was found that this had had an impact on the accuracy of the reported result in 2012/13 it was clear to the Reporter team that these were weaknesses in the process.

It is the Reporter's view that without a formalised audit or assurance procedure in place to allow the centre to check the data reported from Routes, an alpha confidence rating better than 'B' is unlikely to be achievable.

4 Signalling

4.1 Introduction

Section 4 provides a description of the process and findings with regard to the reporting of Signalling volumes in 2012/13.

4.2 Review of Arrangements

4.2.1 Systems

It was noted that because of their complexity none of the signalling renewal projects were delivered by the maintenance function. All were delivered by Infrastructure Projects (IP). The project planning tool used by IP was P3e. This was used by the delivery agent but was not directly accessible by the Route Asset Management teams.

The asset database used by the Routes for signalling was SSADS.

4.2.2 Recording

For 2012/13 the baseline volumes to be delivered were set during Period 8 of 2011/12. These baselines were generated by the Routes and verified centrally.

The 'unit of currency' for volume reporting was the Signalling Equivalent Unit (SEU) and Level Crossing Equivalent Unit (LXEU). Percentages of the units were then used depending on the complexity of the planned works – for example, re-locking was counted as 45% of the SEU total, and re-control was counted as 5%. The count methodology and logic is comprehensively described in Network Rail standard BP001.

Work undertaken on site was reported back using the Form 'E' which was signed off by the project manager to confirm the volume of work which had been commissioned. This information was then uploaded into P3e by the Planners. It was stated that signalling renewal volumes were only claimed when the GRIP6 stage gate (commissioning) had been achieved. It was noted that this could lead to complications when the commissioning and costs spanned the financial year end.

4.2.3 Reporting

It was stated by Network Rail during the Reporter team's engagement with them that the current processes for managing and reporting renewal volumes for signalling came into being half way through 2012/13.

Extracts from P3e supplied by IP, based on the input from site (Form 'E'), were used by the Route to update their SSADS database.

4.2.4 Devolution Impact

The Routes, from part of the way through 2012/13 took over responsibility for the management of the assets with a much stronger client / supplier relationship in place between them and IP. The central role of consolidating the data from the Routes remained, as did their position of acting as challenger of the emerging figures, although project and data visibility at the centre was much diminished by devolution. It was accepted by the central team that if the P3e business plan forecast matched the actual reported delivery it was highly unlikely that the project would be checked or verified further by them. It was also noted that change control took place, and was wholly managed, at Route level.

4.3 Review of Renewal Jobs

Network Rail provided a spreadsheet with the programme of renewals undertaken during 2012/13 covering both signalling and level crossing works. Supporting documentation was also made available and used by the Reporter team as part of the review.

A review was undertaken of the signalling projects to determine the robustness of the processes and the accuracy of the reported figures. The findings are summarised in Table 4-1 for Signalling and Table 4-2 for Level Crossings.

Table 4-1: Signalling Renewal Project Reviews

Project Code	Description	Commentary	Project Volumes (SEU/ LXEU)	Identified Error (over + or under -)
111501	Ely – Norwich Resignalling	Change Control documentation was seen for 1 SEU – all in order.	124	0
112275	Bollo Lane and Kew East Junction	This project ran over more than one year. SEU volume documentation checked and correct.	14.75	0
117800	East Suffolk Re-signalling	Project change controlled during its delivery. Documentation reviewed and all in order.	59	0
118827	Leicester PSB Phase 1	Project change controlled during its delivery. Documentation reviewed and all in order.	58.5	0
106675	Harrogate Area Signalling Renewals	Breakdown of the project checked and in order. Noted that evidence was available to authorise delivery of 33 SEUs, but not the 36.75 eventually delivered. However the	36.75	0

		revised figures were covered on the scorecard.		
GGRK00	Immingham East Junction Signal Box	Variation between the authority and the delivery explained by the renewal of 2 SEUs in sidings. All paperwork in order.	27	0
104536	Stalybridge Re-lock and Re-control	Despite complex calculation of the overall volumes (taking account of the percentages) all documentation in order.	68.55	0
107906	Northampton Resignalling	There was no detail of this removal found in SSADS. Difficulty finding the authority letter. No change control documentation found – however this should be held by the Route. This project has potentially been over-reported by three units.	100	+3
EEPB62	Stourbridge Hartlebury Resignalling	This is a multi-year project. Considerable confusion in the supporting documentation with a discrepancy over the number of units delivered. Route confirms re-control not relocking, despite latest authority paper which states otherwise. 68 fully renewed and 188 re-controlled (9.4 SEUs + 68 SEUs = 77.4). Potentially under reported by 1.4 SEUs	75.95	-1.4
104533	Madely Junction SB Re-Control	All figures checked and correct. 127 SEUs x 5% = 6.35	6.35	0
EEPW12	Water Orton Corridor Resignalling	This is a multi-year project. Some discrepancy between the authority paper (336) and the scorecard (303), and detail of delivery volumes in each year. No change control documentation found. Route explanation; Total 373 -70 Layout Rationalisation, Split 105 (11/12) 198 (12/13). Kingsbury, Whitacre and Coleshill for 11/12 (102 SEU's) but increased for first stage. 33 Additional Enhancement SEU's split 21 (11/12) 12 (12/13) So total 126 (11/12) 210 (12/13) = 336. 12/13 total = 198 + 12 = 210	210	0
118960	NASR Phase 2	Documentation checked and found in order.	73	0
DDDB10	Cardiff Area Signalling Renewal	This is a multi-year project. Noted how difficult it is to centrally track a multi-year scheme. It would appear that some of the renewal was delivered by enhancements but no trace of change control paper. Route unable to clarify	53	+4
116372	NOS North	This project had an issue with the	10	-24

	West Phase 1	timing of the delivery compared to when it was declared. P3e has a recorded delivery of zero but Route advised verbally that ten units were delivered. P3e Planner records 34.1 delivered. All of this appears to lead to an under-declaration of twenty-four units.		
124274	North West Re-Control	The paperwork cannot be matched to the declared volumes. The reported volume was 26.92 however there is a change control document to 15 units and P3e records 34. Route documentation appears to confirm 34.	26.92	-7
108736	Stormstown Signalling Renewal	All documentation in order.	10	0

Table 4-2: Level Crossing Renewal Project Reviews

Project Code	Description	Commentary	Project Volumes (SEU/ LXEU)	Identified Error (over + or under -)
111501	Ely – Norwich Resignalling	It was noted that the 11 reported units should have been 8.5 - 2.5 units over-reported. It was found that the P3e reporting from IP at the Route to the Centre was incorrect.	11	+2.5
112275	Bollo Lane and Kew East Junction	Found that there is one LXEU over-reported for this project.	0	+1
106714	Wessex Tranche 6 Level Crossing renewals	All figures checked and correct	4	0
106675	Harrogate Area Signalling Renewals	LXEU documentation all in order.	1	0
112195	LNE Tranche 8 LC Renewals	All figures checked and correct. 4 units planned, but significant work deferred due to Hatfield coal tip slip.	1.6	0
107071	Doncaster North LC Renewals	All figures checked and correct	6	0
101507	Billingham LC Renewal	All figures checked and correct	1	0
100396	Colthrop and Kintbury LX MCBs	Works partially deferred but the paperwork did not take account of one unit.	2	+1

107072	Devon – 5 Level Crossing Renewals	All documentation in order. 3 delivered in 2011/2	2	0
107075	LNE Tranche 3 Level Crossing Renewals	This multi-year project was downturned in 2012/13 due to poor contractor performance. All documentation in order.	3.6	0
107136	LNE Tranche 7 Level Crossing Renewals	This covered four level crossing sites. Under review it was noted that there has been an over-reporting of one LXEU on this project.	3	+1
118283	Low Gates AHB Level Crossing	All documentation in order.	3	0
116104	Ley Level Crossing Re-control	All documentation in order.	1	0

During the course of the review it was agreed by the Reporter team that it would not be useful to review the SSADS database to check that the renewals had been recorded there since these records would merely confirm the current volumes of assets. However, three checks were made of projects where assets had been removed to check that they had been removed from database. Whilst these proved to be in order it was unclear when the records were updated in relation to the project.

4.4 Observations

Signalling renewals use the concept of Equivalent Units to simplify the assessment of volumes and allow a common understanding for the purpose of comparison. The result of the use of these units is that a single SEU can contain a large number of individual activities which could easily sum to £250k or more. This means that whilst individual reporting errors might appear small they may mask a potentially significant sum of money. This issue can be further masked when counting errors 'net-off' to reduce the overall size of any variation.

The role of the centre in providing an overseeing and co-ordination role was somewhat hampered by their reliance on the good offices of the Routes to provide background information to support the planned or delivered works. It would appear that if there was a role for the centre going forward providing some form of management overview then it should have direct access to the necessary supporting documentary evidence.

Finally, it was noted that the fact that the two relevant systems (P3e and SSADS) were not linked electronically, and both were input manually by different individuals, could lead to discrepancies if not carefully managed.

4.5 Delivery Variations

The following 'waterfall' diagrams summarise the variations between the planned and actual signalling and level crossing renewal programme delivery. Checks were made during the audit of the project Change Control processes associated with the individual asset portfolio variations.

Figure 4-1: High Level View of Signal Renewal Volume Variations (SEUs)

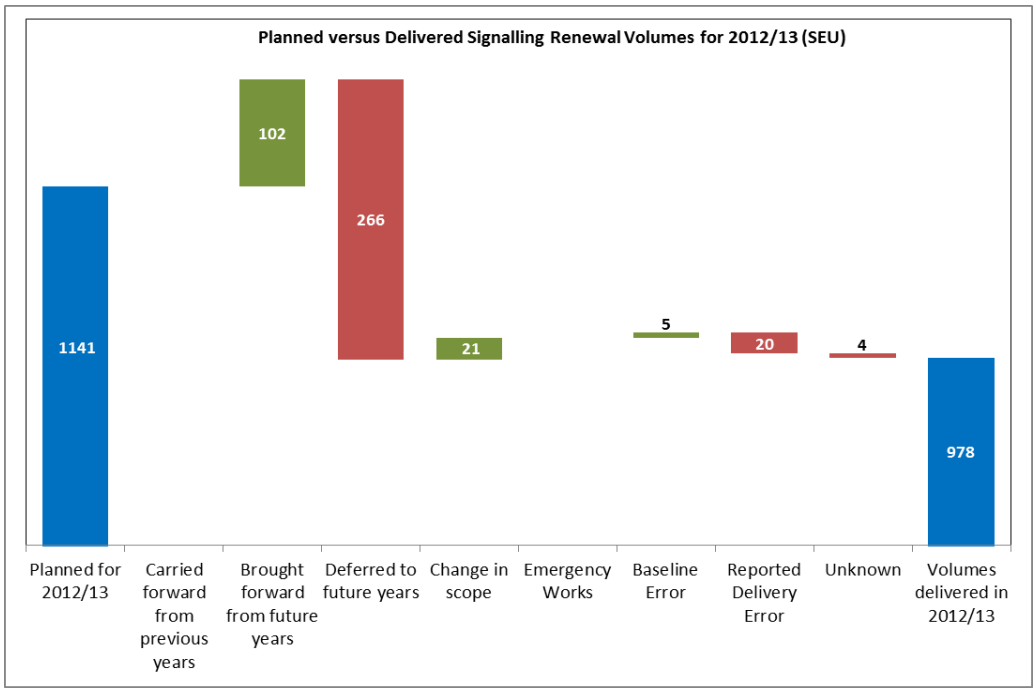
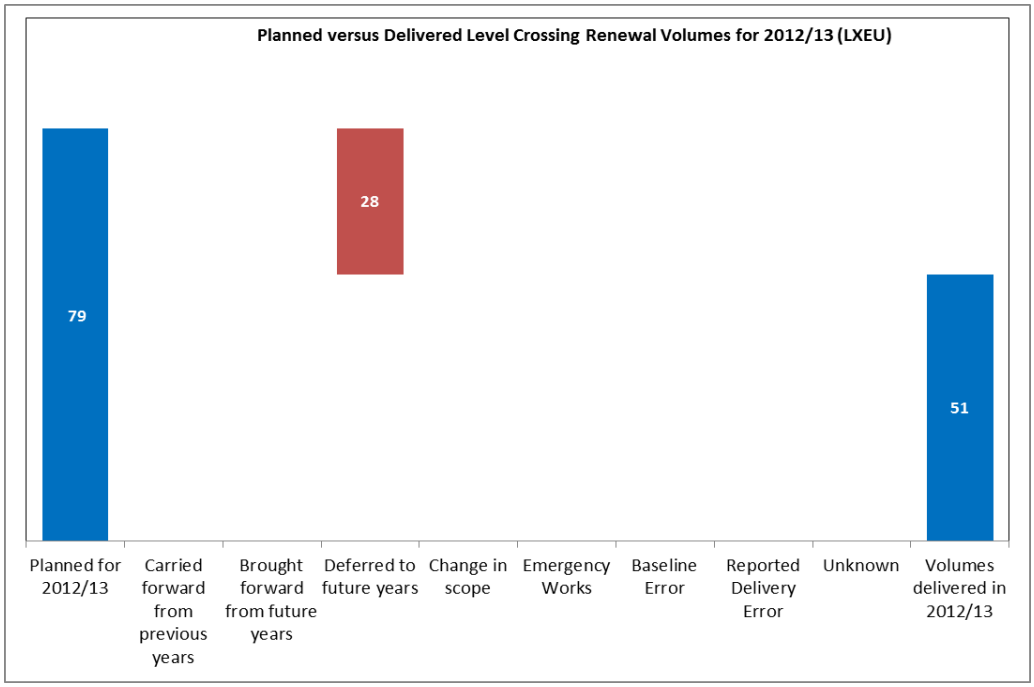


Figure 4-2: High Level View of Level Crossing Renewal Volume Variations (LXEU)



4.6 P13 – Annual Return Variations

There were no variations between the Period 13 and the Annual Return figure for signal volumes.

4.7 Conclusions

The comments in the previous section lead the Reporter team to have some concern regarding, principally, the accuracy of the reporting of volumes. There appeared to be a significant number of projects in the sample with errors in the volumes. The devolution of responsibilities made the tracking of the cause of these variations more difficult.

It is noted that there is a reported delivery error (Figure 4-1) for signalling renewals. This will be considered in terms of the accuracy of the overall reporting. Baseline errors are not considered to be material if they represent a legitimate error between the setting of the plan and the start of the delivery year.

It is the Reporter's view that without a formalised audit or assurance procedure in place to allow the centre to check the data reported from Routes, an alpha confidence rating better than 'B' is unlikely to be achievable.

5 Telecoms

5.1 Introduction

This Section of the document provides a description of the process and findings with regard to the reporting of Telecoms renewal volumes in 2012/13.

5.2 Review of Arrangements

5.2.1 Systems

The bulk of the programme of Telecoms renewals in 2012/13 was delivered by the Infrastructure Projects (IP) team. As with other projects delivered by IP the telecoms team used P3e as its project planning system.

The Maintenance team delivered only a number of small schemes. Maintenance does not use P3e but use instead Oracle Projects (OP) – similar to Track Maintenance. However, it was stated by Network Rail that this could change from the start of CP5 with both delivery teams adopting P3e as their project planning tool.

5.2.2 Recording

The review of the Telecoms renewal reporting in 2012 noted that there were a number of issues associated with the processes in place at that time. It was however acknowledged by Network Rail that plans were in place to tackle these deficiencies.

From the current engagement with Network Rail acknowledged that at the start of 2012/13 there had been a shortage of staff to centrally manage the recording and reporting arrangements. However, this situation was rectified in October 2012 at which time priority was given to:

- A retrospective review of all projects, validation of their delivery plans, and subsequent reporting; and
- Establishing a robust process for change control at the centre. This process was authorised and implemented in June 2013 to tighten up change control arrangements. As a result the Telecoms Business Plan required a significant update based upon eight periods of submitted change requests and generally required to be put onto a firmer footing.

In addition to the above, it was acknowledged by Network Rail that there had been no clear rules in place for when delivered volumes could be claimed. The arrangement at that time had been different for the various telecoms asset types with the onus on the Project Manager to claim the volumes when “it was felt appropriate”.

5.2.3 Current Processes

Given the emerging development of processes for the Telecoms discipline some time was spent during the review considering the current (post 2012/13) process developments.

In the current year (2013/4) the previous arrangements have been substantially strengthened through the revised procedures which have been implemented. These were authorised and implemented formally in February 2013 and have been incorporated as part of Network Rail's Asset Reporting Manual. The procedures are:

- Reporting Definitions (NR/ARM/M32DF);
- Reporting Procedures (NR/ARM/M32PR); and
- Change Control (NRT/ADD/PP/001).

These documents were obtained by the Reporter team for review.

Baseline

The Baseline Plan was fixed as the start of the year position. This Plan was based upon the output from the Route Decision Support Tool (DST) analysis.

The units of measurement for the items in the Plan were based on standard units as laid down in the procedures. There is no equivalent 'telecoms standard unit' instead each item type has an agreed and different means of measurement linked to it.

It was noted that whilst there is a small fund of money which is used for Minor Emerging Works, all other line entries are for identified works items.

Delivery

The Project Manager for the scheme meets with the sponsor to agree the progress on the project. This is then reported to the central team as the period forecast. This can be changed from period to period as the scheme develops. The report also contains actuals which are the year to date outputs. These returns cover only the volumes planned and delivered. Financial reporting is undertaken elsewhere.

Change Control

In respect of change control, a dialogue takes place between the deliverers and the central team on a period by period basis. This typically covers increased or decreased volumes or price and milestone changes. Any Change Control forms must be signed off by the Project Manager (for delivery), the Finance Manager (for price) and the Senior Renewals and Enhancement Engineer (for volume).

Network Rail is currently in discussion with ORR regarding their requirements for telecom reporting going forward. There is currently a greater level of detail around the in-year and final year forecast changes to the Plan. It is believed by Network Rail that the improved reporting of the cause of changes to the programme has substantially enhanced the granularity of change detail.

The processes of reporting volumes upwards have been improved with a greater level of automation of data collation.

Finally, the appointment of two Business Planning Specialists to the central team has had the most significant impact on recording and reporting of Telecoms renewal works. The two Specialists have concentrated heavily on improving their processes and procedures, and putting in place a robust means of tracking delivery.

5.2.4 Devolution Impact

It was stated by Network Rail that the impact of devolution with regards to telecoms had been minimal. This was because the telecoms organisation had not devolved in the same way as the other disciplines. Whilst it was acknowledged

that there were telecoms staffs in the Routes, for example the Route Communication Engineer, these were out-based members of the central team. The only telecoms staffs who were wholly Route managed were maintenance staff based in respective Maintenance Delivery Units.

5.3 Review of Renewal Jobs

In order to assess the accuracy of the telecoms reporting in 2012/13 a number of sample projects were tracked by the Reporter team from the baseline figures to the finally reported volumes. In all cases this was done through a review of the relevant documentation – for example the site sign-off sheets. The outcome of the review is contained in Table 5-1.

Table 5-1: Sample Telecoms Renewal Project Reviews

Description	Commentary	Project Volumes	Identified Error
LNW West Midlands Concentrators	This project was slipped for 11/12 into 12/13. The reporting figures appeared to be robust but the change control documentation from 11/12 was not available.	0	0
LNE Concentrator Renewals 09/10	Noted that there were different line entries for the differently reported elements of the renewal. All figures appear consistent with supporting change control documentation.	6	0
LNE Concentrator Renewals 12/13	Volumes dropped against plan. Explanation provided through change control linked to the sourcing of long-lead items.	5	0
Large Concentrators (LNE)	Baseline number of 2 units traced in documentation to reported figure	0	0
Large Concentrators (Scotland)	Baseline number of 1 unit traced in documentation to reported figure	0	0
Large Concentrators (SE)	Baseline number of 3 units traced in documentation to reported figure	2	0
Large Concentrators (Wales and Western)	Baseline number of 0 units traced in documentation to reported figure	0	0
Small Concentrators (LNE)	Baseline number of 21 units traced in documentation to reported figure*	13	0
Small Concentrators (LNW)	Baseline number of 5 units traced in documentation to	5	0

	reported figure		
Small Concentrators (Scotland)	Baseline number of 3 units traced in documentation to reported figure	0	0
Small Concentrators (SE)	Baseline number of 10 units traced in documentation to reported figure	4	0
Small Concentrators (Wales and Western)	Baseline number of 0 units traced in documentation to reported figure	1	0
Voice Recorders (LNE)	Baseline number of 48 units traced in documentation to reported figure	21	+ 1
Voice Recorders (LNW)	Baseline number of 8 units traced in documentation to reported figure	8	0
Voice Recorders (Scotland)	Baseline number of 1 unit traced in documentation to reported figure	0	0
Voice Recorders (SE)	Baseline number of 0 units traced in documentation to reported figure	0	0
Voice Recorders (Wales and Western)	Baseline number of 7 units traced in documentation to reported figure	7	0

* The reported baseline figure for LNE Small Concentrators was 20 and not 21as was truly the case. However, the file reviewed during the course of the study related to LNE source data and did not form part of the main report where the telecoms baseline, actuals and forecast data is managed and reported. It was acknowledged by Network Rail that this discrepancy should have been identified and corrected previously. However, this did not have a bearing on the validity or accuracy of the numbers being reported in the Annual Return.

When reviewing the reporting processes it was considered that where there was a linkage between telecom renewal and an enhancement project there was the potential for the double counting of the renewal volumes. In mitigation of this risk it was noted by Network Rail however that the Network Telecom Planning Manager had been tasked with acting as the liaison with the enhancement team. This move was specifically designed to eliminate such a risk.

5.4 Observations

The previous Reporter reviews of the telecoms reporting had found serious deficiencies in the way this discipline reported. It was acknowledged by Network Rail that the early part of 2012/13 was a period of transition when new arrangements were being put in place to address the key deficiencies. It was also clear that the processes have been further developed during 2013/14 (recognising that this is beyond the scope of this review).

The move to the devolution of responsibility for the management of assets to the Routes had not had a major impact on the discipline with the central team remaining in control of the work in the Routes through out-based staff rather than a truly devolved telecoms function in the Routes.

5.5 Delivery Variations

The following 'waterfall' diagrams summarise the variations between the planned and actual telecoms renewals programme delivery by asset type. Again, the review considered the operation of the Change Control process leading to the individual asset portfolio variations.

Figure 5-1: Detail of CIS Monitor Renewal Variations

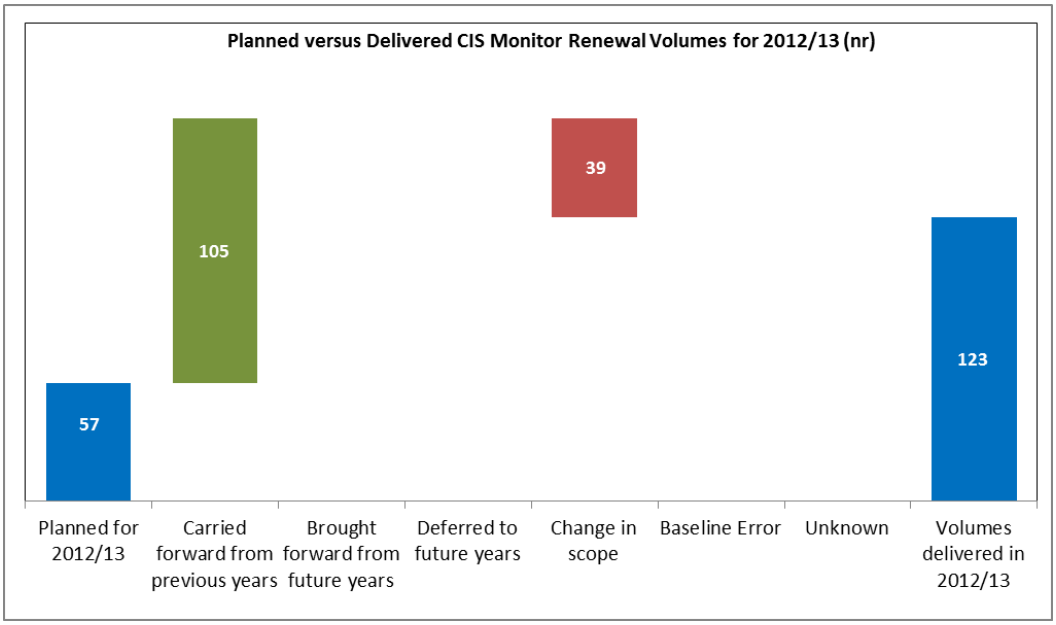


Figure 5-2: Detail of PA Speaker Renewal Variations

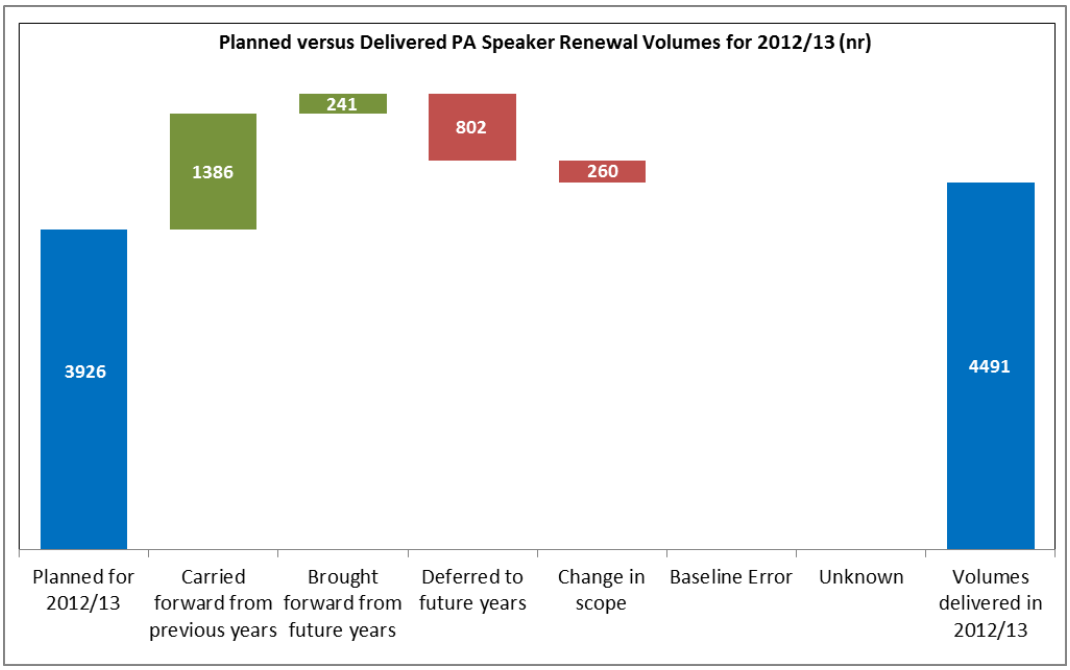


Figure 5-3: Detail of CCTV Renewal Variations

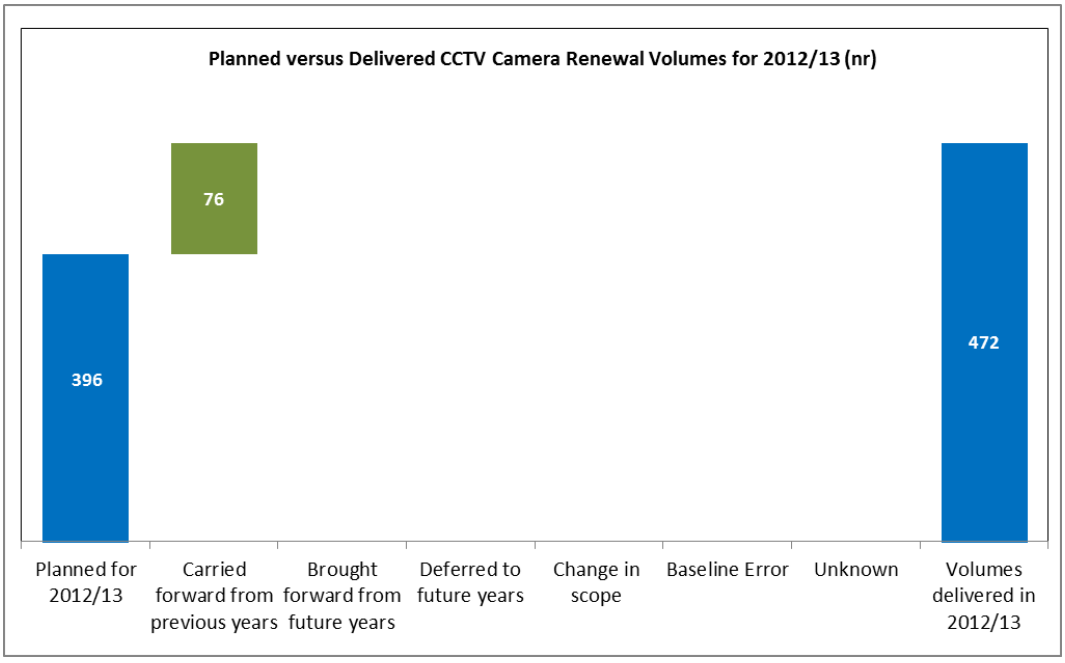


Figure 5-4: Detail of Clock Renewal Variations

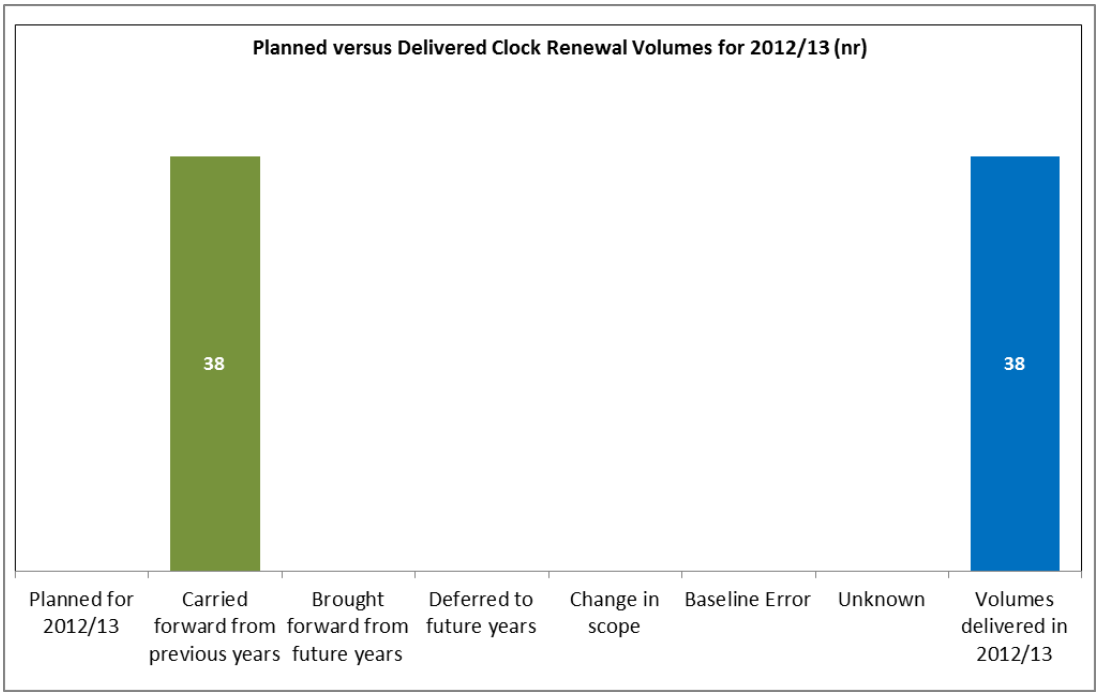


Figure 5-5: Detail of Small Concentrator Renewal Variations

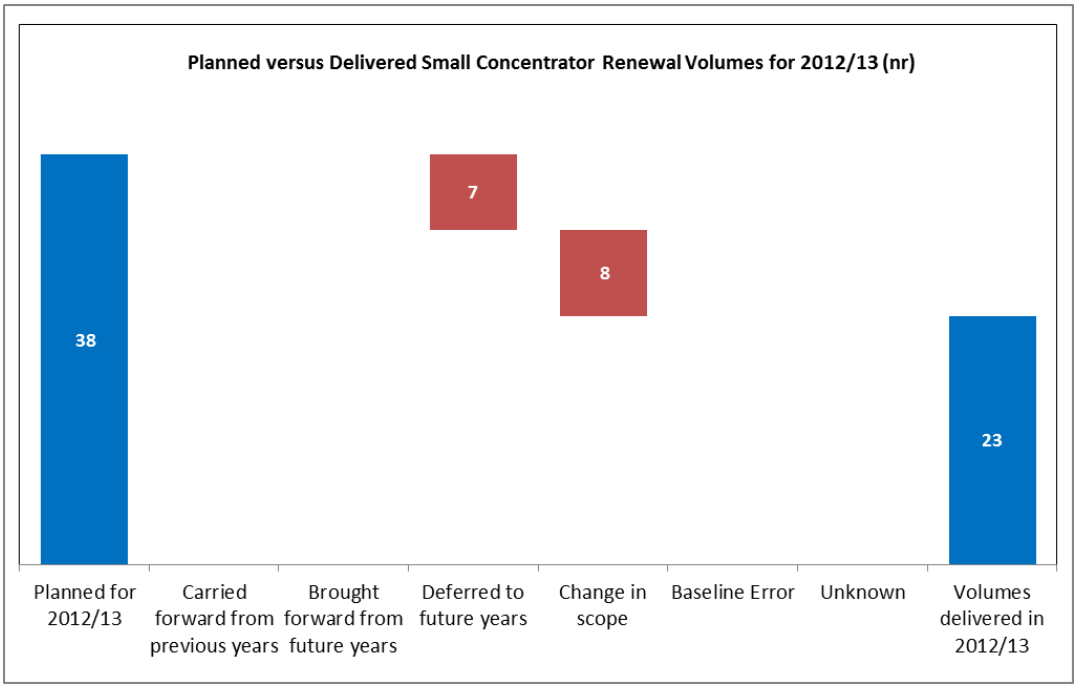


Figure 5-6: Detail of Large Concentrator Renewal Variations

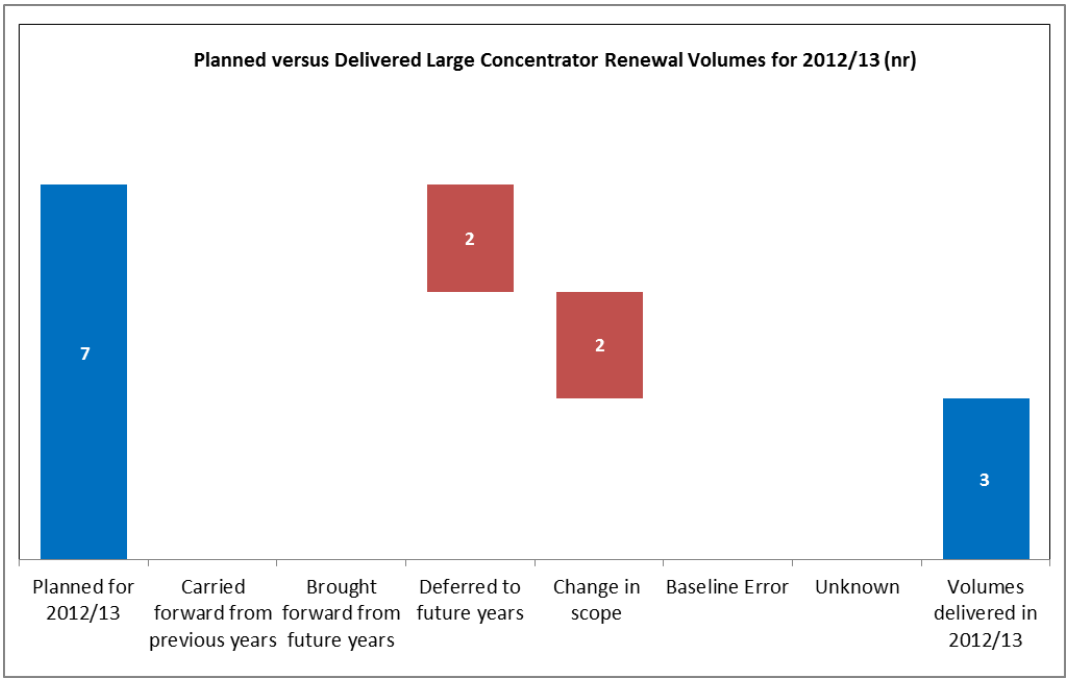


Figure 5-7: Detail of DOO System Renewal Variations

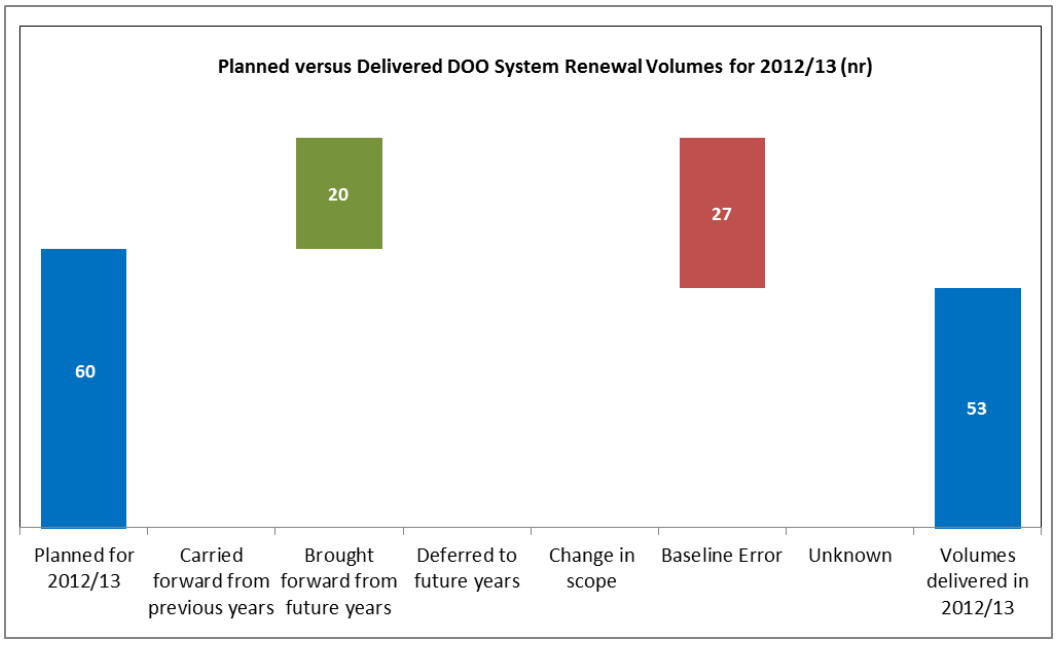


Figure 5-8: Detail of PET System Renewal Variations

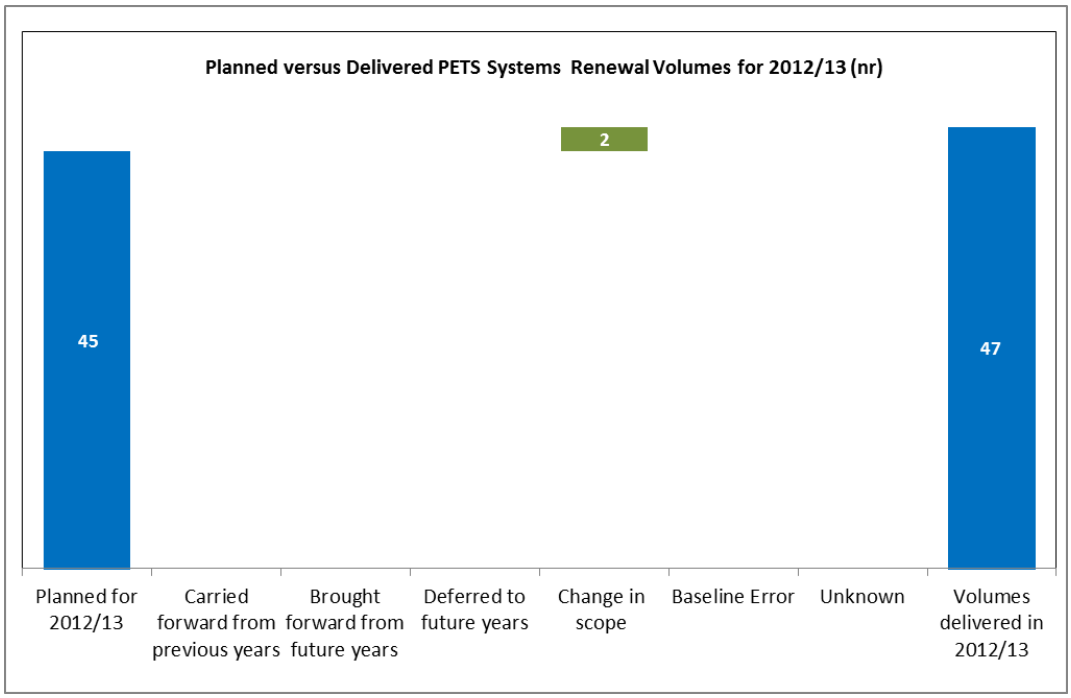
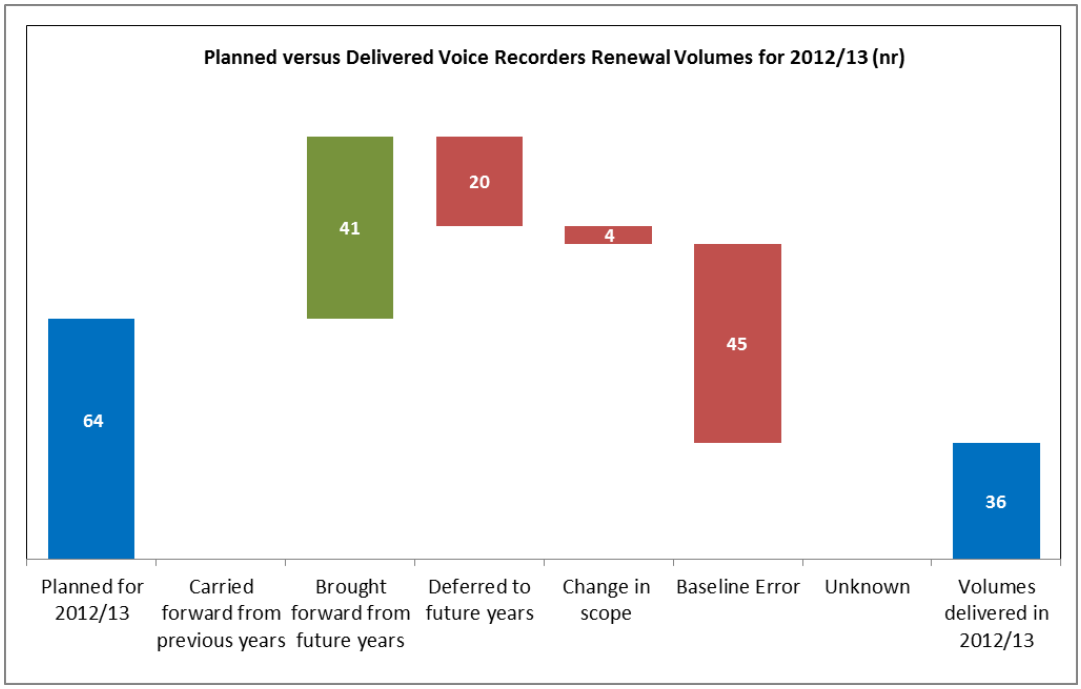


Figure 5-9: Detail of Voice Recorders Renewal Variations



5.6 P13 – Annual Return Variations

With the exception of CIS Monitors the reported renewal volumes for the various telecom assets in the Period 13 and the Annual Return figures are the same. The reported delivery figure for CIS Monitors was 128 in the Annual Return and 123 in the P13 figures. The variation is due to the late entry of five units delivered on project Yoker CIS.

5.7 Conclusions

By their own admission Network Rail was of the view that the actions to address the shortcomings in the reporting processes which had been previously identified were not fully in place during 2012/13. As such it must be concluded that there remained some gaps in the overall control of the reporting of volumes during this time. This was evident by the further work which has continued to take place during 2013/14. Nevertheless it was clear that the deficiencies were being tackled and this was very evident from the account of the arrangements being implemented during the year and by the review of the individual projects.

The significant baseline errors for DOO Systems and Voice Recorders are taken as corrections to the annual plan before the plan starts and have been considered as variations which do not constitute errors leading to a lack of accuracy.

6 Electrification and Plant

6.1 Introduction

This Section provides a description of the process and findings with regard to the reporting of electrification and plant (E&P) renewal volumes in 2012/13.

6.2 Review Arrangements

6.2.1 Systems

It was noted that Network Rail, as with other disciplines, had the option to deliver E&P renewal work through either their Infrastructure Projects (IP) or the Works Delivery arm of the maintenance organisation.

IP uses P3e as its primary project and workbank planning system. This was consistent with other engineering activities delivered by IP. However, the maintenance teams did not use P3e and thus the planning and monitoring of projects must be manually input into Oracle Project – again in a similar fashion to other disciplines like Track.

The Network Rail's central team for E&P stated that they had now set up a consistent process to ensure that the data is captured in a more robust way. It advised that it was in the process of changing its internal means of gathering the data which will provide it with more information. However, these improvements to the data systems were not in place for 2012/13 volume reporting.

6.2.2 Recording

There are three broad types of work undertaken by E&P only some of which are required to be reported to the ORR. These are summarised in the Table 6-1.

Table 6-1: Breakdown of E&P Work Activities

Work Activity	Included in ORR Targets	Classified as Renewals
Maintenance	No	No
Refurbishment	Some	No
Renewal	Some	Yes

For each category of asset a consistent means of measuring renewal volumes has been developed. These are set out in asset management standard NR/ARM/M36DF and are linked to specific P3e codes (for IP delivered jobs).

This linkage resolves the misunderstanding which had previously existed between ORR and Network Rail regarding the units used in the reporting of, for instance, wire run renewals.

In terms of the process, when a job was completed on site the responsible party prepared and signed-off a Form 'E'. (This was a similar system to that employed by the signalling function.) This was the confirmation of the delivery of the item of work. The form referred back to the job number and listed what had been delivered. However, the Form E did not show the reportable volume associated with the job. It was stated that this was because the form was intended as an asset management tool not a means of reporting. It was stated by Network Rail that these forms were in use in 2012/13 by the engineers but were not used as part of the delivery assurance process at that time.

In terms of when a volume could be claimed, the rules for determining when a volume should be declared are documented in NR/ARM/M36DF.

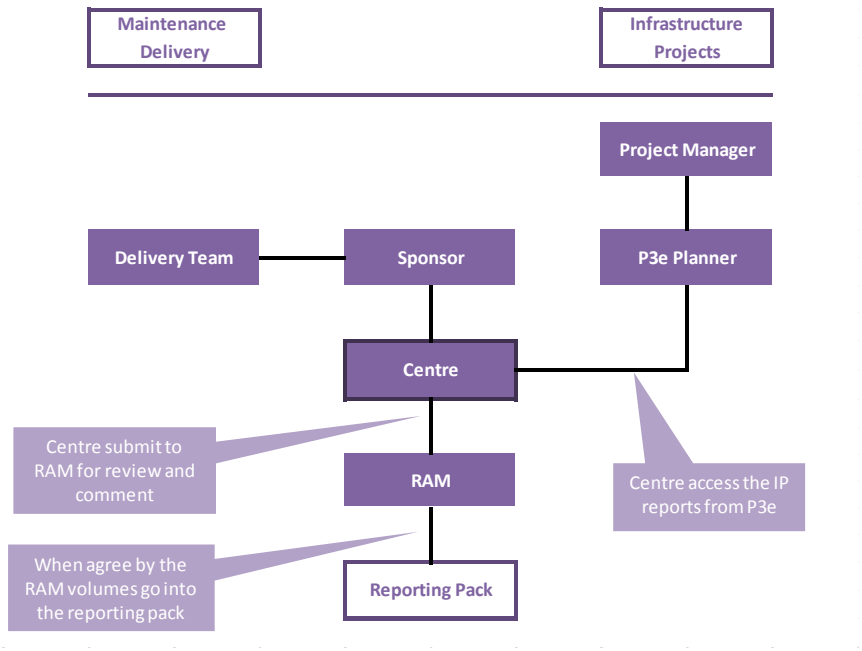
6.2.3 Reporting

The reporting process used in 2012/13 was described by the central E&P team thus:

- To report the volumes the IP Project Managers liaise with their respective Planners to update P3e with the latest business plan forecast or actuals.
- This information was then pulled in from the two national IP groups by the central team. The Maintenance Delivery Unit volumes are provided to the sponsor by the project team. (It is noted that OP does not currently have the facility to hold volumes and costs.) This combined reporting covered all of the renewal items and their associated volumes describing the Baseline, Forecast and Actuals.
- This report was then submitted to the RAMs for comment.
- The combination of these figures and the RAM commentary then formed the period reporting pack which was used centrally.

This process is illustrated in Figure 6-1.

Figure 6-1: E&P Volume Reporting Process



The E&P change control process used the same templated change documentation as adopted by the telecoms and signalling disciplines. Changes were required to be signed off by the Project Manager, the Route Asset Manager, the Finance Manager, and the Senior Enhancement Renewals Engineer.

During the course of 2012/13 there had been a broad accessibility to the system to allow individuals the ability to update the P3e system with revised forecasts for their schemes. This was found to lead to considerable volatility in the reporting figures. Network Rail accepted that this was not a sufficiently robust change control process and was in the process of revising it.

6.2.4 Data Checking

For the 2012/13 programme the change logs were manually entered into the Business Plan. Whilst this was seen by management as an opportunity to undertake a sense check on the changes it also introduced the risk of error. However, Network Rail advised that it had put in place consistency checks to counter this risk. Effectively this is a reconciliation between reports, Business Plan and DPu12 to identify any anomalies. For the future it is planned to automate this process including the more widespread use of electronic signatures from the authorising individuals.

6.2.5 Devolution

It was stated by Network Rail that in the 2012/3 reporting year there had been no changes to processes associated with the recording or reporting of E&P volumes as a consequence of devolution to Routes.

6.3 Review of Renewal Jobs

A number of projects were selected with the aim of reviewing their associated documentation to track the volumes in the system from baseline to Annual Return reporting. Table 6-2 shows the results of the review of the sample schemes.

Table 6-2: Sample E&P Renewal Project Reviews

Project Code	Description	Commentary	Project Volumes	Identified Error (over + or under -)
106331	Booster Transformers Scotland	Project tracked and linked to Form 'E' – all in order	2	0
121761	Conductor Rail Renewal Sussex	Project tracked and linked to Form 'E' – all in order. Comment made by Network Rail that there is a lot of work going on with regard to conductor rails which is not required to be reported.	0	0
122521	DC HV and DC LV Switchgear Renewal Wessex	The volumes for this item were transferred from another job. Whilst the Form E does not specifically identify the volumes which have been delivered it was subsequently confirmed by an e-mail (seen) from the RAM confirming the delivery volumes.	DC HV 11 DC LV 12	0 0
122523	DC Cable Renewal Wessex	Part of this job was slipped from 12/13 to 13/14 due to industrial action by DBS. The reporting of the volumes delivered was based on project manager reports for P11. P3e was not updated by the PM and planner to reflect the delivery. However P3e was updated retrospectively in P12.	7.98	0
100646	LNW 11kv ring main & transformer regulators 06/07	Data checked and verified OK	0	0
116702	LNW Campaign Changes; OTBC fitment at A-frames, Bourne End – Crewe	The forecast and actual volumes in P13 for 2012/13 was 0.62. The OVD was not in place in time for P13 and was issued later. A	1.56	0

		formal signed letter was therefore requested from the Programme Manager declaring volumes, in the knowledge that the Route would be under-reporting the actual volumes. This letter declared 0.62 volumes. When the OVD was subsequently updated with the correct volumes, change log 116702-002 was submitted to correct the business plan to align with the OVD of 1.56 volumes.		
119682	LNW Campaign Changes; Re-location of Splices adjacent to Registration Arms	The forecast for 12/13 was 6 volumes, however the actual reported volumes for 12/13 was 9.33, which included volumes not reported in 11/12 (when a robust process was not in place). Total volumes for the whole project were 13. Noted that the Form E does not specifically state volume delivered - it is "implied" in delivery of the planned project.	9.33	0

6.4 Observations

There were a couple of issues which emerged during the review. Firstly, as in the case of track there were two delivery agents involved who used different planning systems and thus the process operated with two parallel arrangements. This seems wasteful and a potential source of error. However, it was noted that the reporting comes together with the Senior R&E Engineer.

In addition, it emerged during the audit that the basis of the measures for the E&P function was a source of controversy between Network Rail and ORR. This related to units of measurement – see Appendix B E&P Meeting Notes Para 1.2. From Network Rail's account of this it would appear that the issue had now been resolved.

Finally, from the description of the arrangements, the process of making the governance of the volume reporting more robust was still in progress during 2012/13 and thus there must be some associated risk with the reporting during this transitional period. This comes from risks associated with organisation, process, procedures, systems and personnel changes. The combination of some or all of which may impact on the reliability of reporting.

6.5 Delivery Variations

The following 'Waterfall' diagrams summarise the variations between the planned and actual electrification and plant renewals programme delivery.

During the course of the review with each discipline a check was made of the Change Control processes associated with the individual asset portfolio variations. No attempt was made to validate the reasons for the variations during the course of the year.

Figure 6-2: Detail of OLE Campaign Renewal Variations

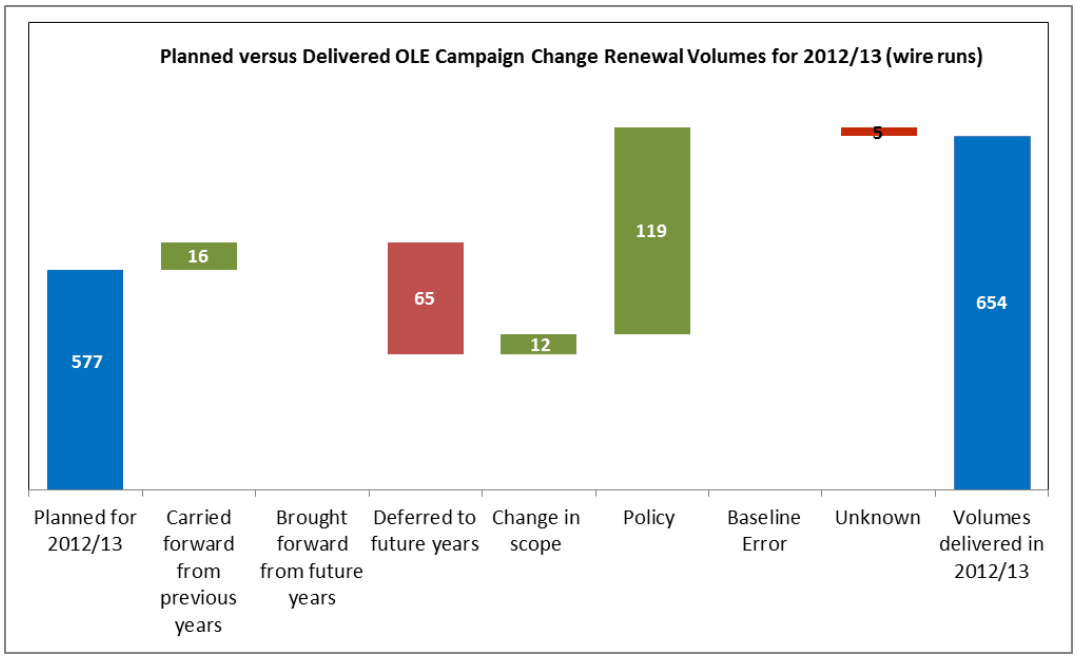


Figure 6-3: Detail of OLE Rewiring Renewal Variations

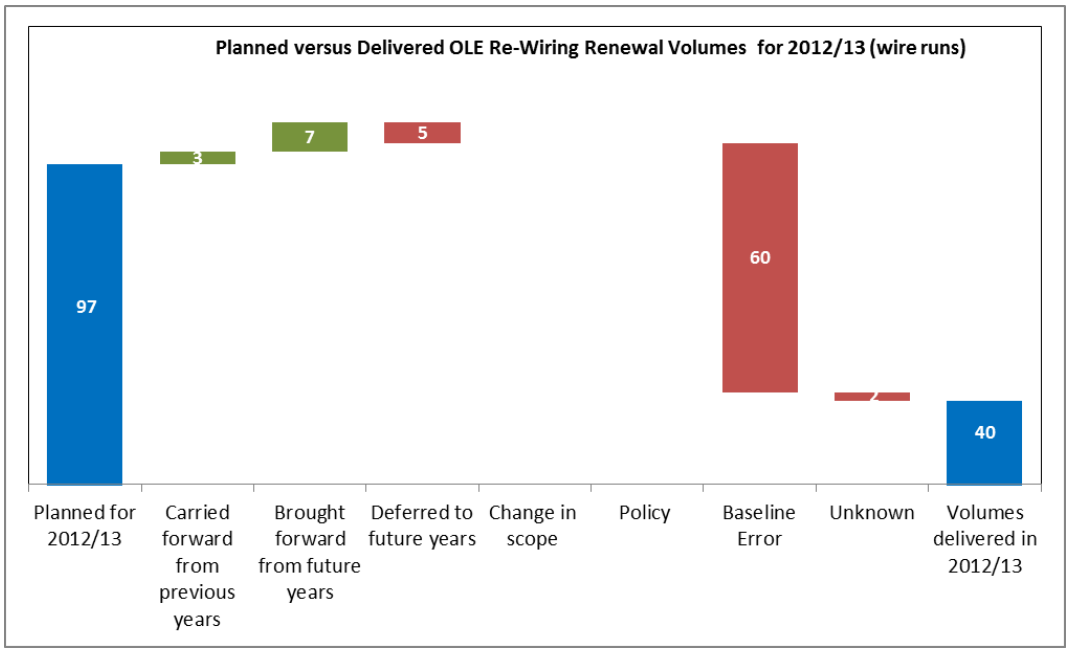


Figure 6-4: Detail of Conductor Rail Renewal Variations

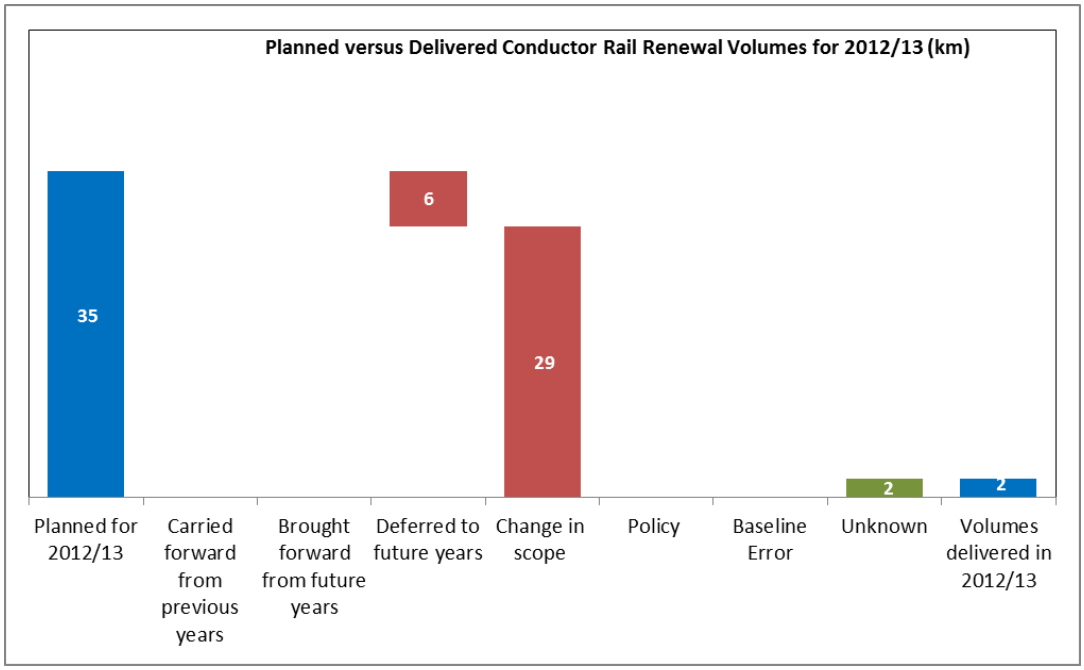


Figure 6-5: Detail of High Voltage AC Switchgear Renewal Variations

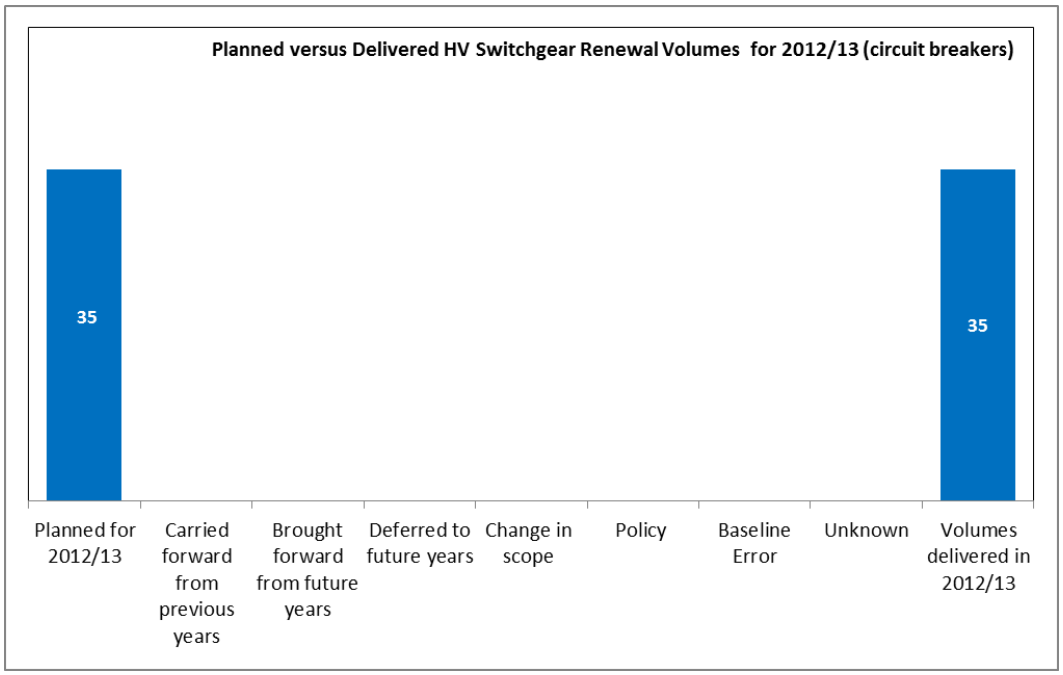


Figure 6-6: Detail of Booster Transformer Renewal Variations

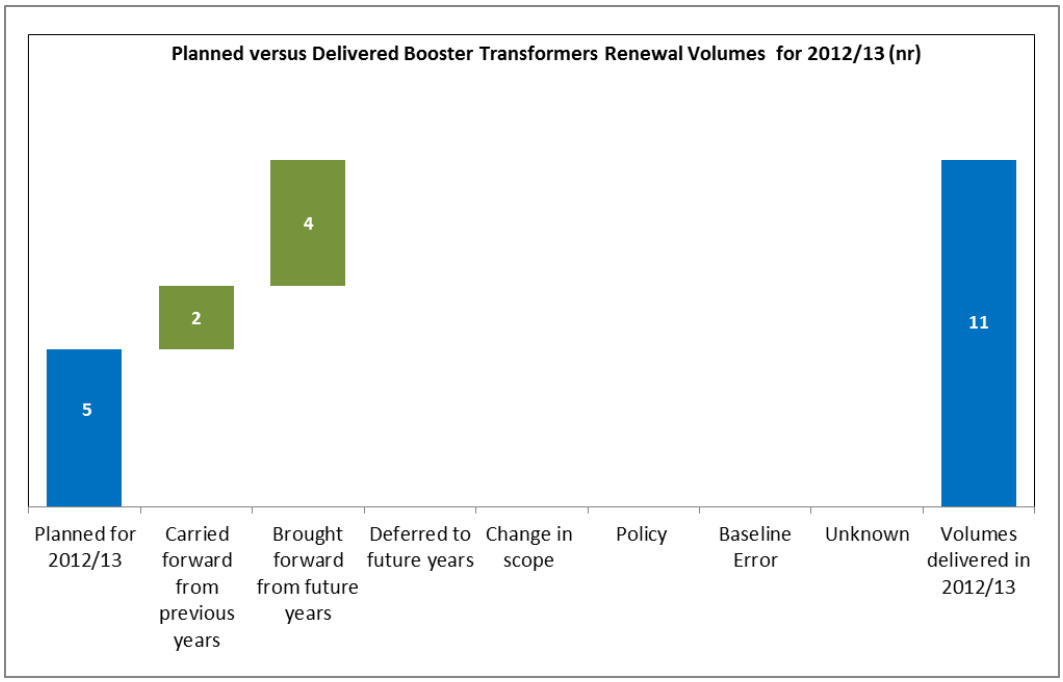


Figure 6-7: Detail of High Voltage DC Switchgear Renewal Variations

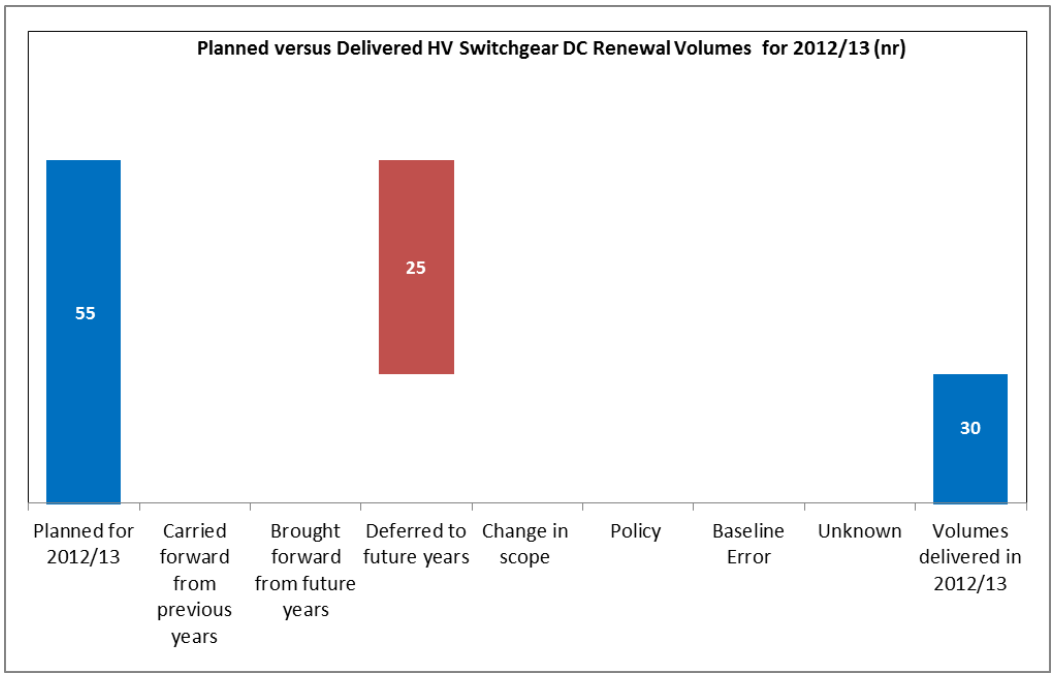


Figure 6-8: Detail of Low Voltage DC Switchgear Renewal Variations

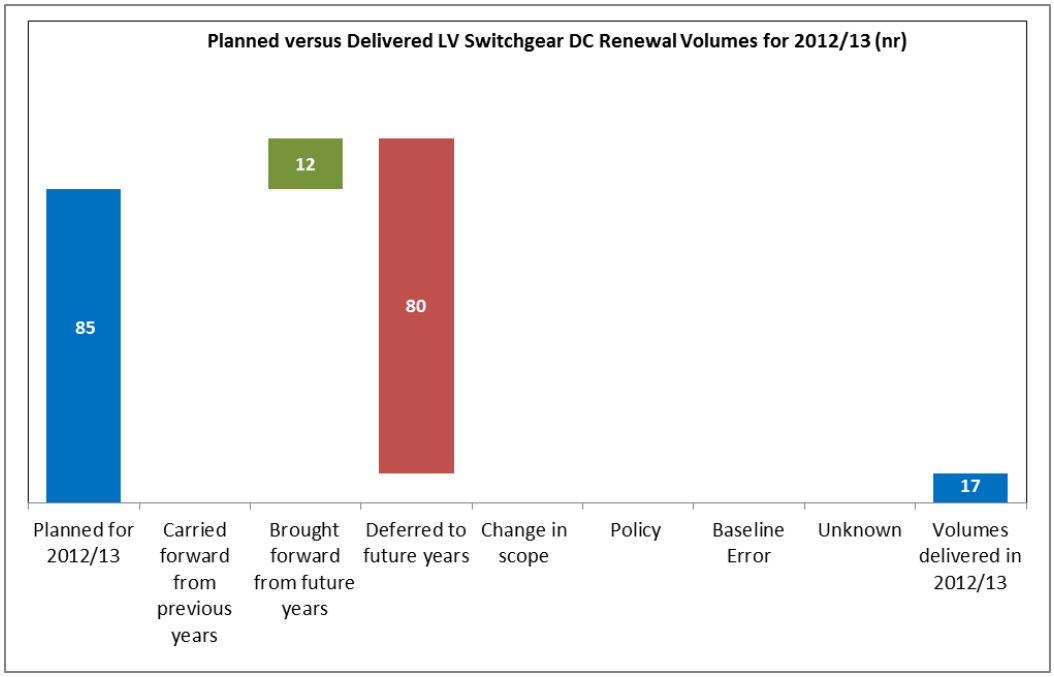


Figure 6-9: Detail of High Voltage Cabling Renewal Variations

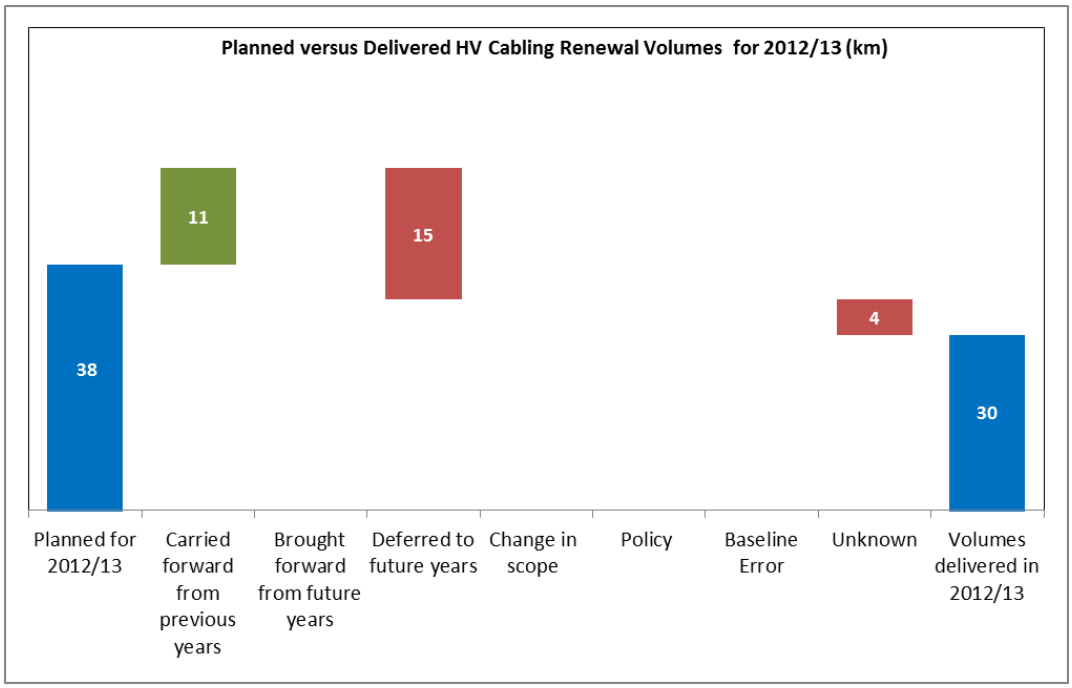


Figure 6-10: Detail of Low Voltage Cabling Renewal Variations

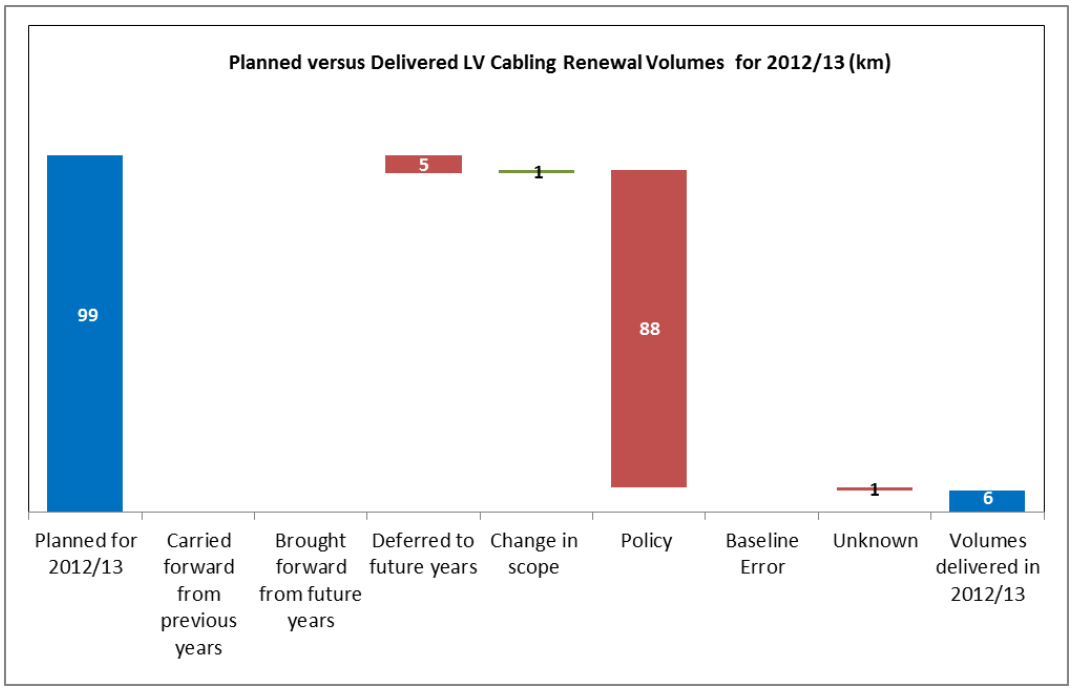
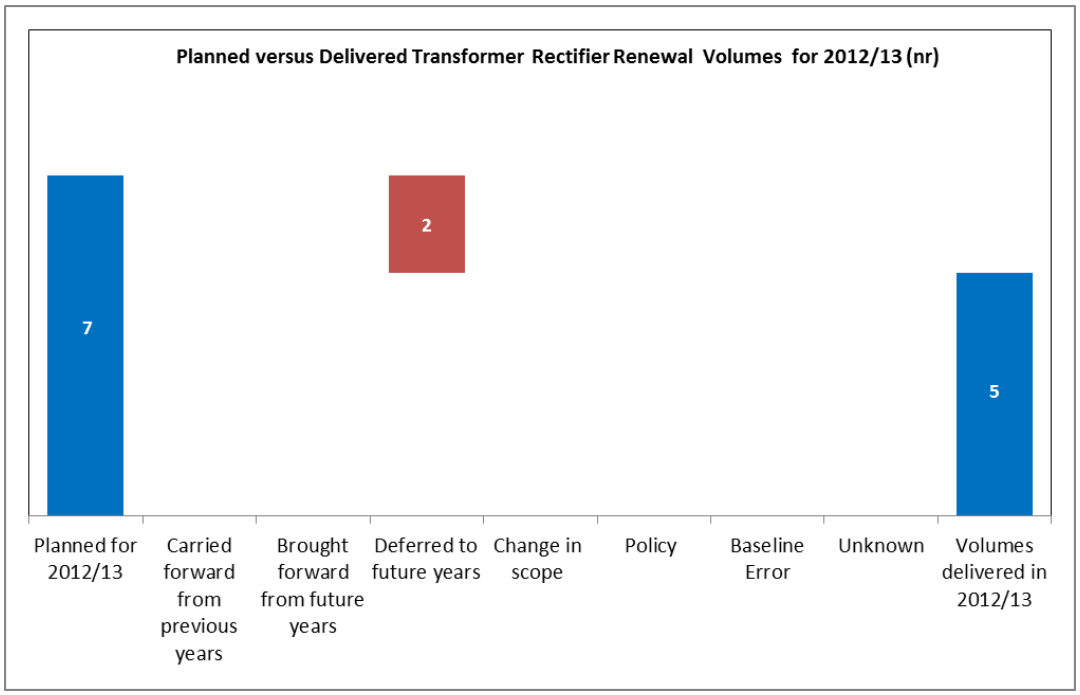


Figure 6-11: Detail of Transformer Rectifier Renewal Variations



6.6 P13 – Annual Return Variations

With the exception of LV Cabling all of other reported figures in the Period 13 and Annual Return were the same. The LV Cabling figures contain a variation of four units which were deferred from 2011/12 but not included in DPu12.

6.7 Conclusions

The E&P volume data was relatively poorly graded in the previous assessment; the first time the discipline had been included in the review. The current review has shown that there had been some significant changes made to the processes involved in the tracking and reporting of E&P volumes. This had begun to tighten up the governance and accuracy of the reporting in this discipline during 2012/13. However, there would appear to be some further areas of development which were not concluded during that year, or had only an impact late in the year, to bring the reporting into line with the other engineering disciplines. We would suggest that any future audit of volumes reporting will validate the full range of measures now implemented within the functions.

The significant baseline errors for OLE rewiring has been taken as corrections to the annual plan before the plan starts and as such are considered as variations which do not constitute errors leading to a lack of accuracy.

The ‘policy’ variations illustrated in Figure 6-9 refer to the deferral of reactive volumes into 2013/14 due to the Routes being unable to deliver the volumes under minor works.

7 Civil Engineering

7.1 Introduction

This Section provides a description of the process and findings with regard to the reporting of Civil Engineering renewal volumes in 2012/13.

7.2 Review of Arrangements

7.2.1 Systems

P3e was the common database used to plan and manage the delivery of the Civil Engineering Infrastructure Projects (IP) workbank. Prior to devolution and the DIME programme* the P3e system was structured by asset. Post devolution the tool was structured by Region or Route which meant that initially access and batch assessments for volumes reporting purposes was restricted. This issue was subsequently resolved and thus the P3e tool was maintained as an integral part of the reporting process.

It was stated that the business plan figures in P3e were maintained as current during the year unless change control had been effected or was pending.

For those renewals which were to be delivered by the Maintenance organisation P3e was not used but rather the project was managed in Oracle Projects (OP). This was similar to other disciplines.

* The DIME Programme was commenced in 2011 with its prime objective being to demonstrate and deliver Value for Money across the rail capital programme, seeking operational cost reductions within the delivery organisations to support the efficient delivery within CP5.

7.2.2 Recording

The Civil Engineering workbank was split by the two means of delivery, namely:

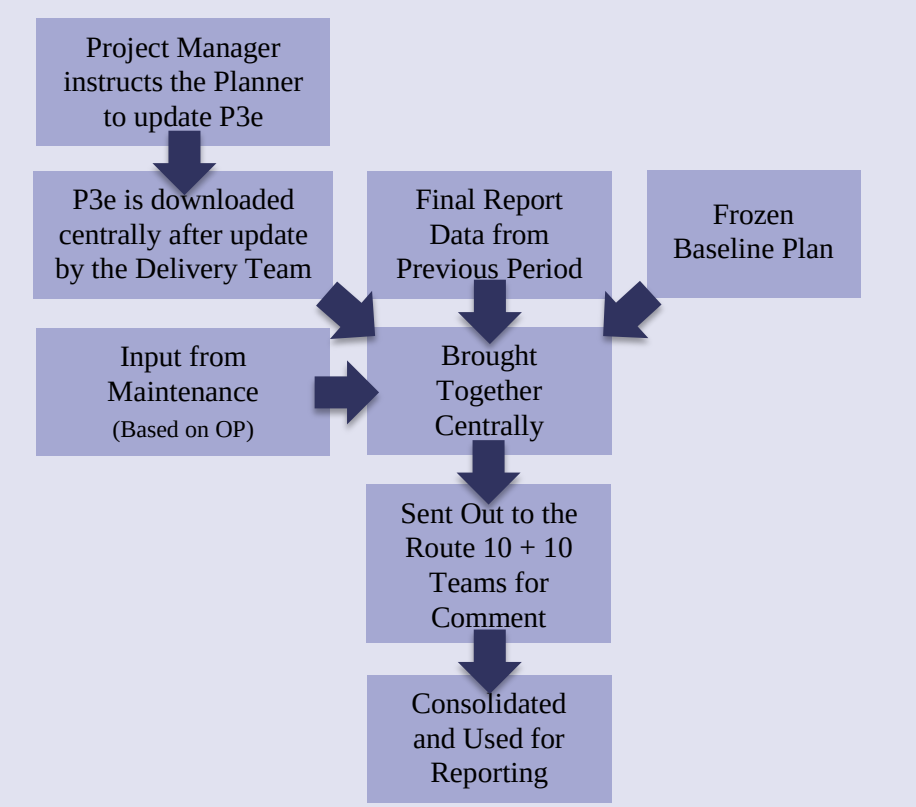
- IP – delivered the large scale projects; and
- Works Delivery (Maintenance) – these delivered predominantly smaller scale projects with a guidance limit of £250k for which the organisation has appropriate skills. Some of this work would be contracted out but for items under £50k (minor works) this would invariably be done by the in-house teams.

In putting together the baseline plan a number of ‘holding lines’ were inserted by Network Rail as markers for works which were not yet well developed or where there was a need for a contingency for emerging works. These were split to asset type; e.g. underbridges, tunnels, embankments etc. As jobs were subsequently identified these lines were down-turned. It was noted that by Period 4 of 2012/13 all of these holding lines had been closed and the workbank fully populated by specific schemes with associated volumes.

7.2.3 Reporting

As described by Network Rail the flow of data for the reporting of volumes was based on the following:

Figure 7-1: Civil Engineering Volume Reporting Process



7.2.4 Devolution

Network Rail stated that the current organisation for reporting had been implemented and continuously improved since April 2012 to take account of the devolution to the Routes. The following points were noted:

- The Routes now 'own' the volume data but there remained a role for the centre in the consolidation of the results for reporting purposes;
- At the start of the year the RAM was given a cost and volume target to meet; and
- In the early part of 2012/13 it was accepted by Network Rail that there were problems with the reporting processes which were largely down to issues relating to devolution and DIME reorganisations compounded by the shortage of staff in certain key roles.

In terms of the relationship between the Routes and the IP organisation the mapping between the organisations post devolution was as shown in Table 7-1.

Table 7-1: IP Unit Mapping to Routes

IP Unit	Route
Central	East Midlands LNW
SNE	LNE Scotland
Wales and West	Wales Western
Southern	East Anglia Kent Sussex Wessex

7.3 Review of Civil Engineering Renewal Jobs

A number of projects were selected with the aim of reviewing their associated documentation to track the volumes in the system from baseline to reporting. Table 7-2 shows the results of the review of the sample schemes.

Table 7-2: Sample Civil Engineering Renewal Project Reviews

Project Code	Description	Commentary	Project Volumes (P3e P.13)	Identified Error (over + or under -)
LNE000304	GRS2 South Forty Foot Drain – Embankment Protection Works 12/13	Project involved a reduction in volume which was tracked in the system – there was a minor variation in the volumes which was traced back to CAF.	39,709	0
LNE001344	DNS2/42 Omesby Beck, Middlesbrough – Deck Removal	Figures were tracked through project but there was an error in the full year forecast figure which showed the original volumes which should have been zeroed. This did not affect the reporting of volumes.	225	0
LNE001399	Dow 9.0353 – 9.0524 Down Hatfield Chase – Preventative	There were changes to the project due to resources being removed. All reporting figures were correct.	1,420	0
LNE001532	PED5/75 Greenfield Lane (BG3) Strengthening	This project was delayed until 2013/14 and correctly change controlled out of 2012/13. Project now being delivered by another organisation as part of Bridgeguard 3. Correctly closed out by IP in Feb 2013.	205	0
LNE001728	ECM1/137 Great Paxton, Huntington – Sheet piling to	All figure checked out – no variations to project.	12	0

	revetment wall			
LNE001735	SPC1/159 Flitwick Near Luton – Stitch and grout arch barrel	All figures checked and correct.	378	0
LNW001375	CNH1 Wharton S Lock 169m 25ch to 169m 56Ch	This project was change controlled out of the budget at the last minute because it was realised that it couldn't be delivered in the year. Year-end figure corrected in Annual Return 'wash up'	2,500	0
LNW001990	CMP1 Bridge 28a M6 motorway at Sandbach – Holmes Chapel	The job was deferred from 11/12 to 12/13 but the volume had not been picked up and it is thought that the project fell between LNWN and LWNS. This is an error.	500	-500
LNW2033	MVN2 Br96 Calder Brook	All figures checked and correct.	105	0
LNW002108	COL Underbridge 61 Viaduct Tenanted Arch	The completion of the project happened early in 13/14 however the volumes were claimed in 12/13 before it was entirely complete. This is not consistent with practice elsewhere. No errors were found in the documentation associated with the development of the volumes.	115	+115
LNW002133	CGJ6 Gubberford Lane – Down	All figures checked out	2,040	0
LNW002134	CGJ6 Hollins Lane Drainage	All figures checked out	5,025	0
LNW002204	CBC2 Siddick Sea Wall	This job moved out of 12/13 into 14/15 – change control fine, all figures correct. Year-end figure corrected in Annual Return 'wash up'	110	0
LNW002215	BBB 36 Sough Tunnel	All figures checked out	200	0
LNW002388	CWJ Stonebridge park	This is a scheme based on monitoring the condition of an asset. Reported volumes all OK.	500	0
LNW004214	MAJ Glazebrook Embankment Emergency	This project had original volumes included in the system which were then increased during the course of the year. They delivered the initial volume and have carried the remainder over. Figures correctly report the volume but there is an inconsistency in terms of the way the carry over element has been	900	0

		treated.		
SC001370	T132/005 Kippenross Tunnel Overburden Washout Repairs	This was a new item in P8 delivered by the maintenance team. Because it is a maintenance delivered item it was not reported in P3. The full business plan volume was not delivered but there was no explanation regarding why.	200	0
SC001291	Footbridge 145/072 Robroyston Contribution to Enhancement Scheme	This project was a contribution to a principle project where the funding was given to the main project as a renewal contribution. All figures shown correctly. Noted that there is no risk of double counting since the enhancement project does not report volumes.	42	0
SC001126	Underbridge 011/007 A6095 Newcraighall Steelwork Repairs	A single project which is recorded on two lines because it is reported to ORR separately in the annual return. Volumes are all correct although there was an error in the baseline figure.	135	0
SE000403	Kingsfold	This item was change controlled out – reporting correct.	0	0
SE001313	Windmill Hill VTB2 – 93	This was a maintenance delivered item but has been updated in the FYF and YTD volumes at Period 13. There is a comment however which justifies the increase of 200 units on the project. This is a reporting error.	257	+200
SE001956	Bo Peep Tunnel 139 TTH, shaft 3 grouting	This is a new item which was slipped from 11/12. All documentation correct.	190	0

7.4 Observations

In reviewing the above sample projects the following observations were made:

- It was clearly easier to control the consistency of the reporting when it was managed centrally. It was noticeable that there were variations in approach creeping into the reporting of data. However, these did not appear to affect the accuracy of the reporting on the sample of projects reviewed. Nevertheless the Reporter team had some concern that the situation would deteriorate once devolution matures.
- Associated with the above, the individuals who were responsible for the data in the Routes were relatively new to the process.
- In order to provide continuity, Network Rail operated a parallel system of reporting based on the centre still collecting and reporting the data in 2012/13. It was stated by Network Rail that from the end of the 2013/14 the Routes

would be directly responsible for the reporting with a potential reduction in the role of the centre.

7.5 Delivery Variations

The following 'Waterfall' diagram summarises the variations between the planned and actual civil engineering renewal programme delivery. The associated Change Control processes were reviewed during the audit however no attempt was made to track back to the original cause of any change to the delivery programme contents.

Figure 7-2: Detail of Overbridge Renewal Variations (,000m^2)

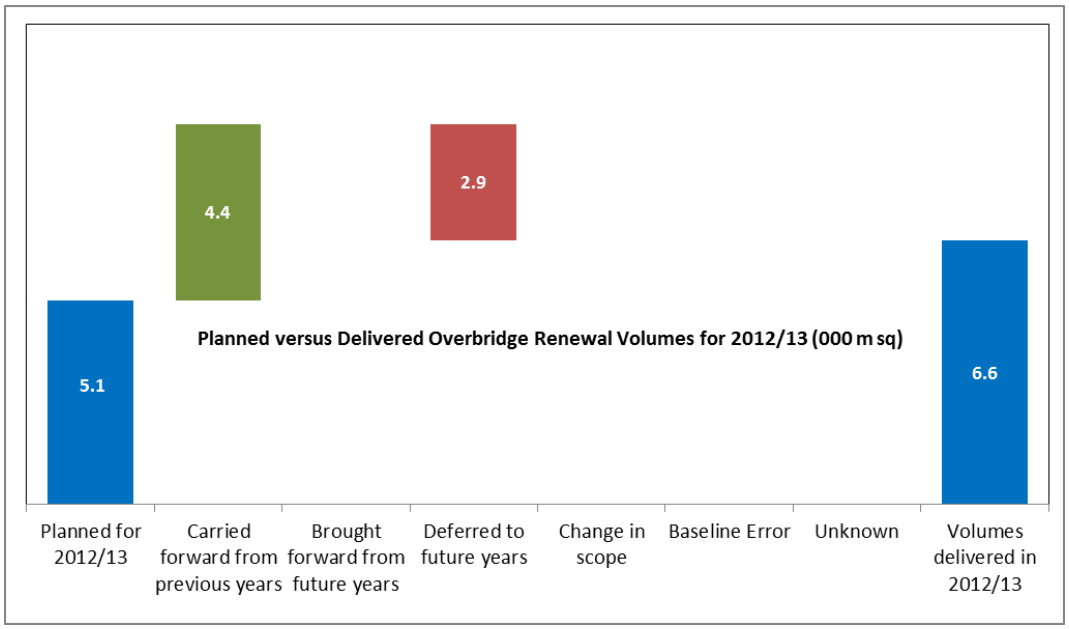


Figure 7-3: Detail of Underbridge Renewal Variations (,000m^2)

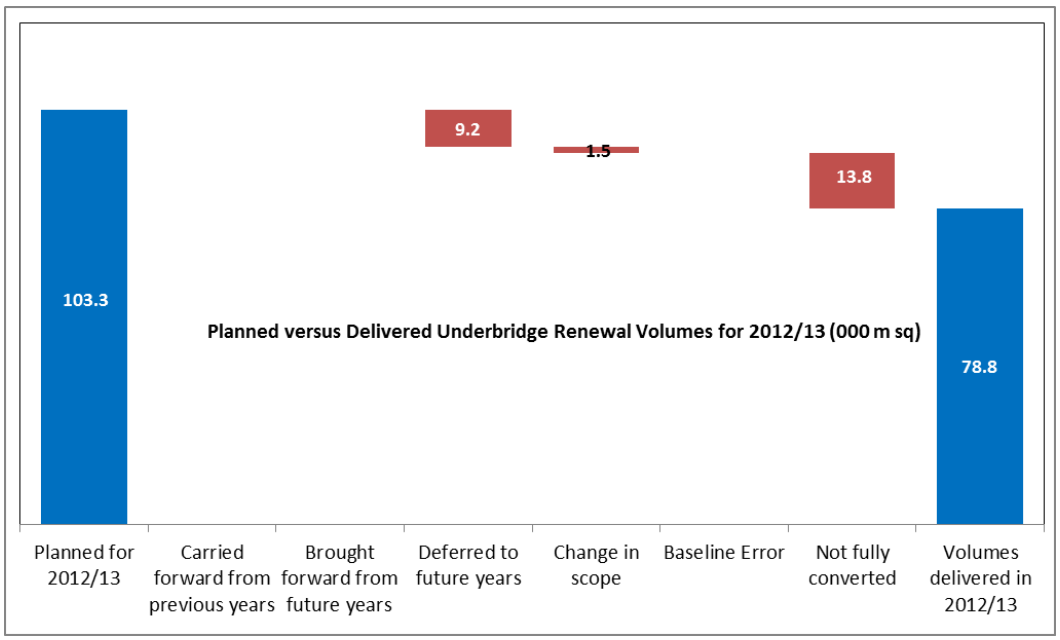


Figure 7-4: Detail of Bridgeguard 3 Renewal Variations (,000m^2)

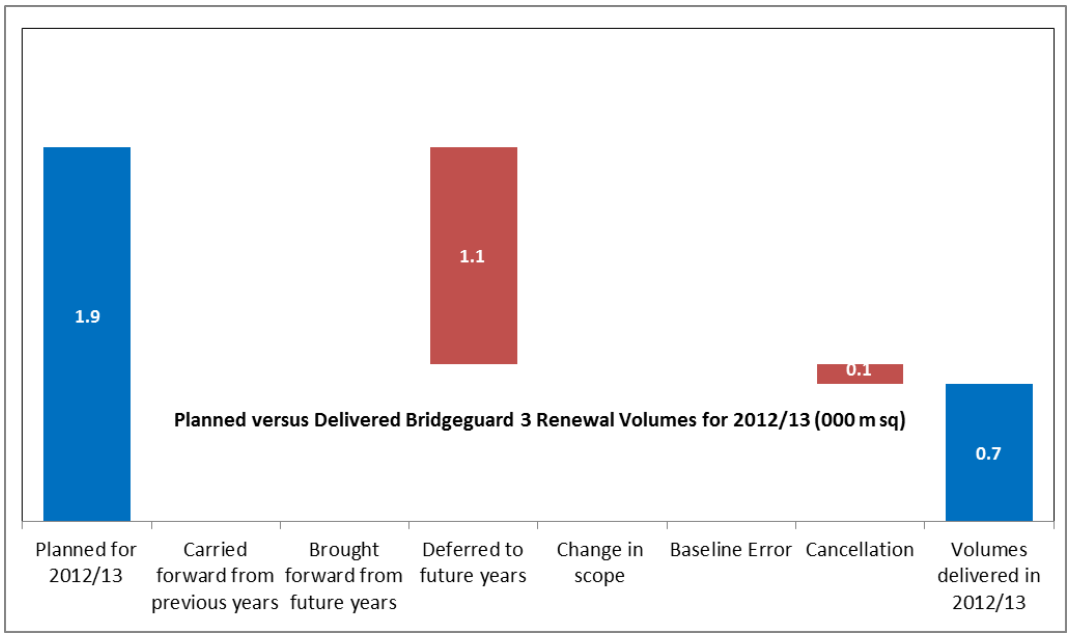


Figure 7-5: Detail of Footbridge Renewal Variations (,000m^2)

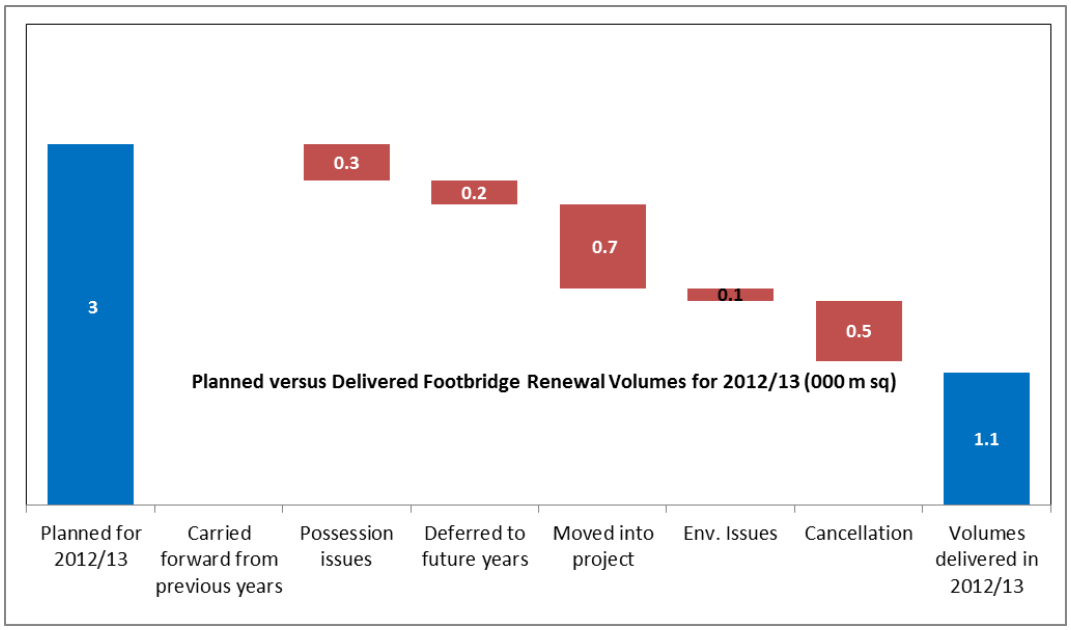


Figure 7-6: Detail of Tunnel Renewal Variations (,000m^2)

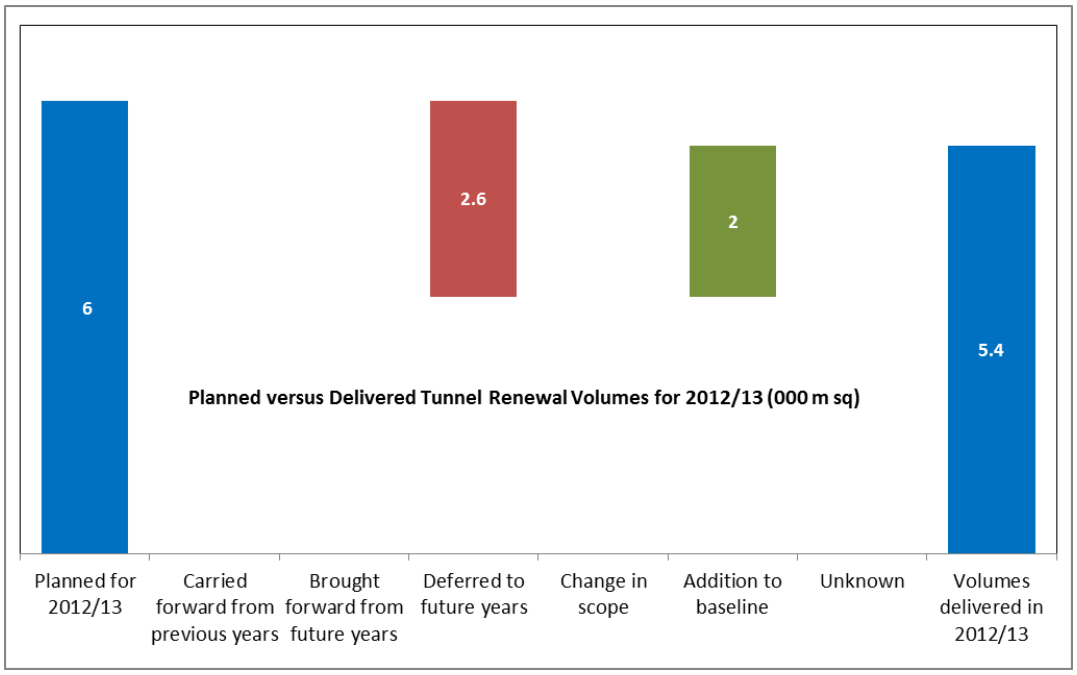


Figure 7-7: Detail of Culvert Renewal Variations (,000m^2)

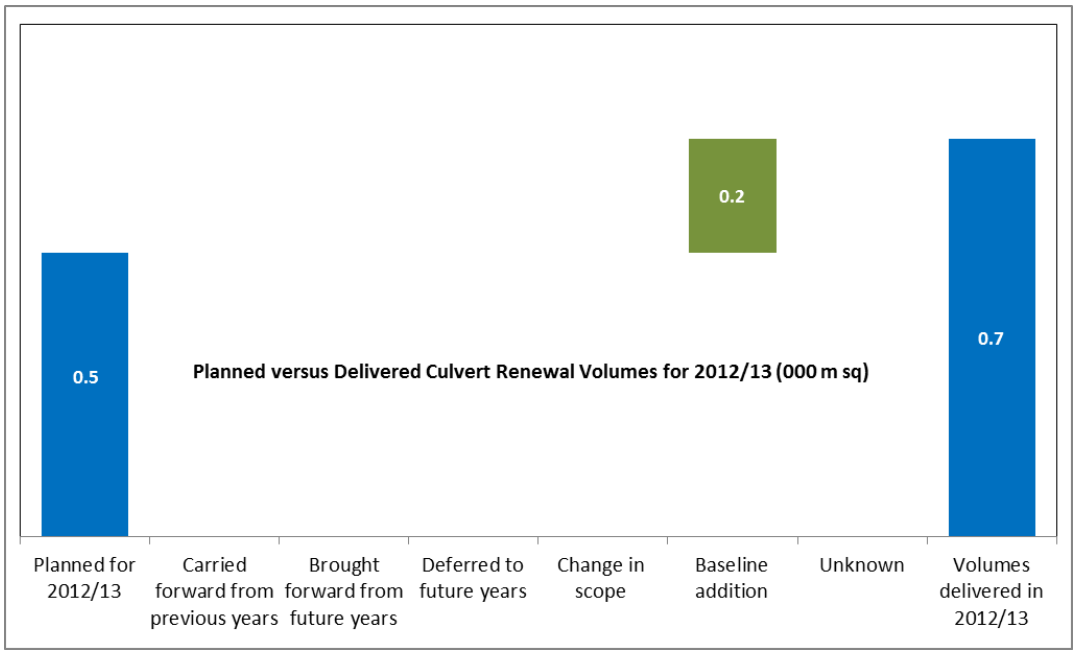


Figure 7-8: Detail of Retaining Wall Renewal Variations (,000m^2)

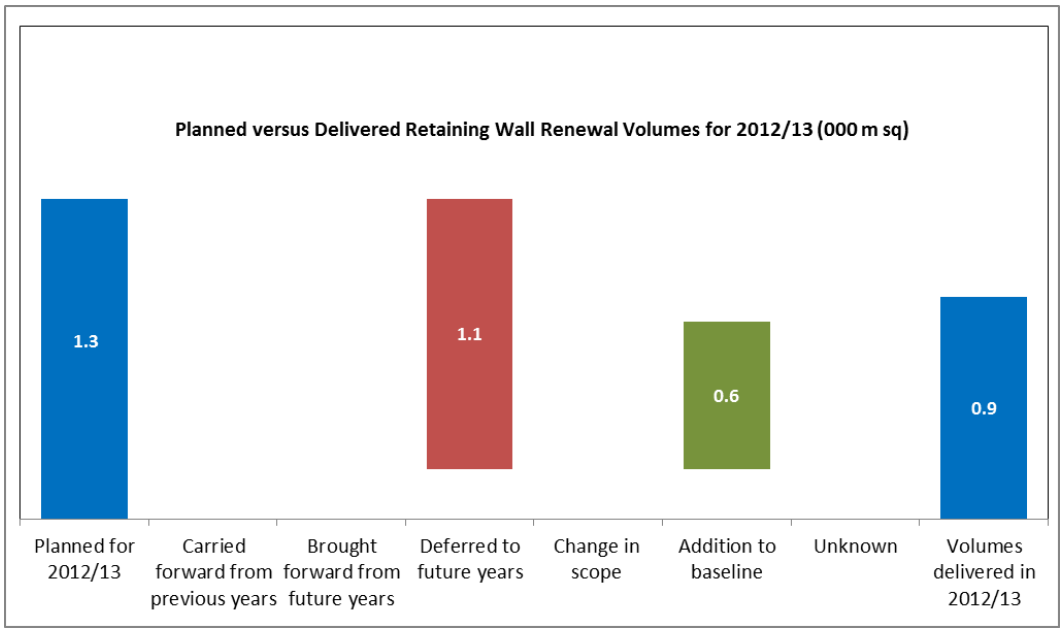


Figure 7-9: Detail of Earthworks Renewal Variations (,000m^2)

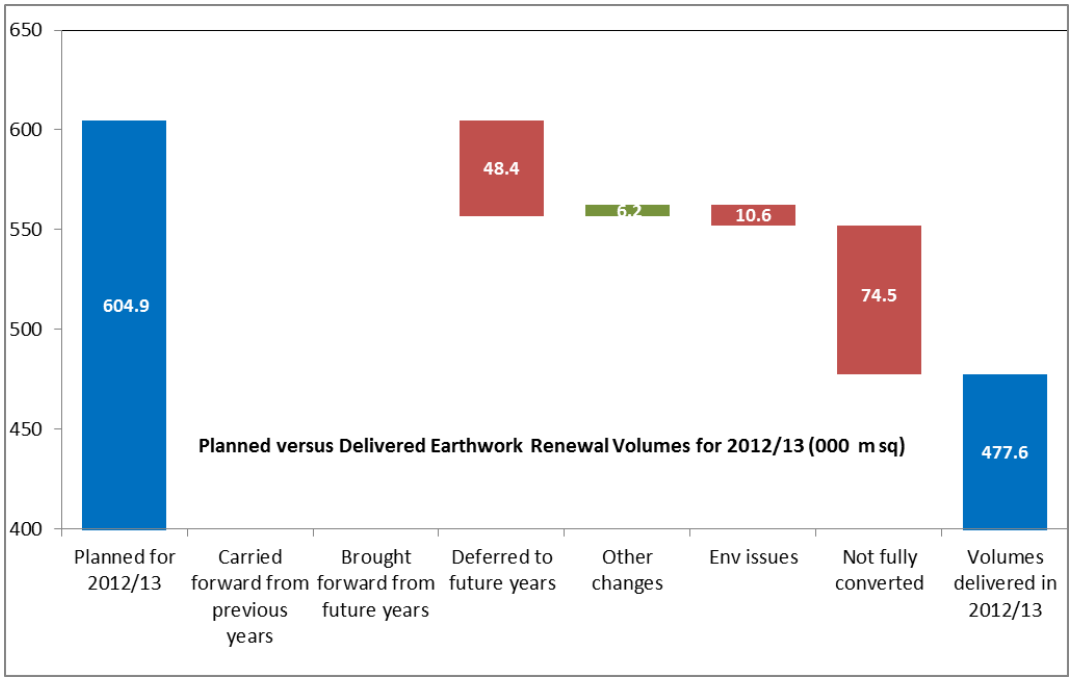


Figure 7-10: Detail of Coastal / Estuary Defences Renewal Variations (,000m^2)

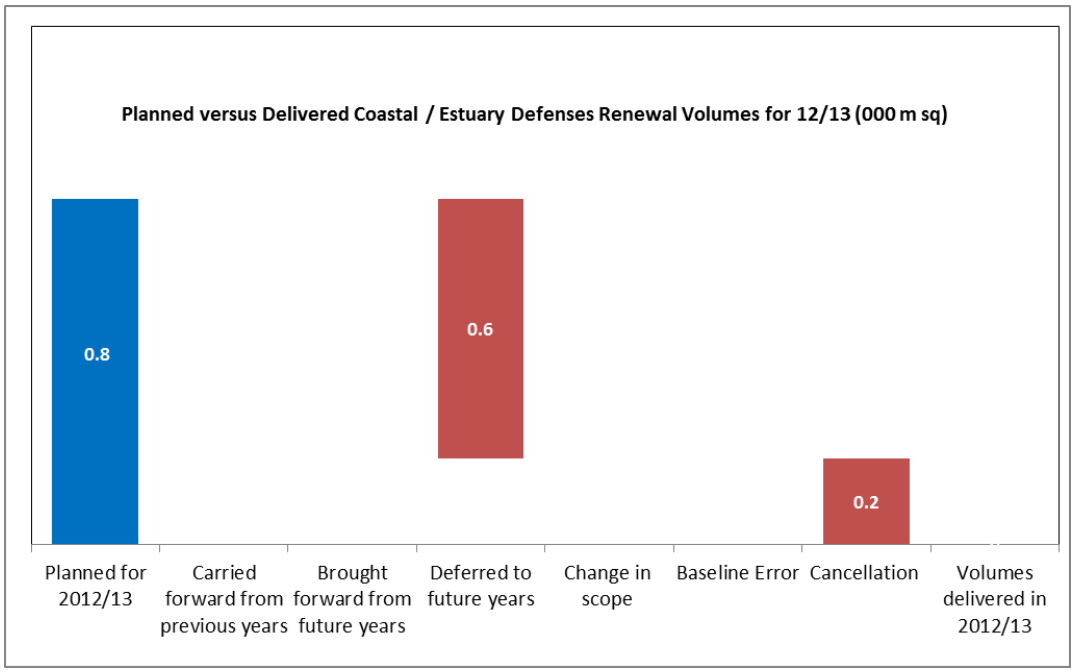
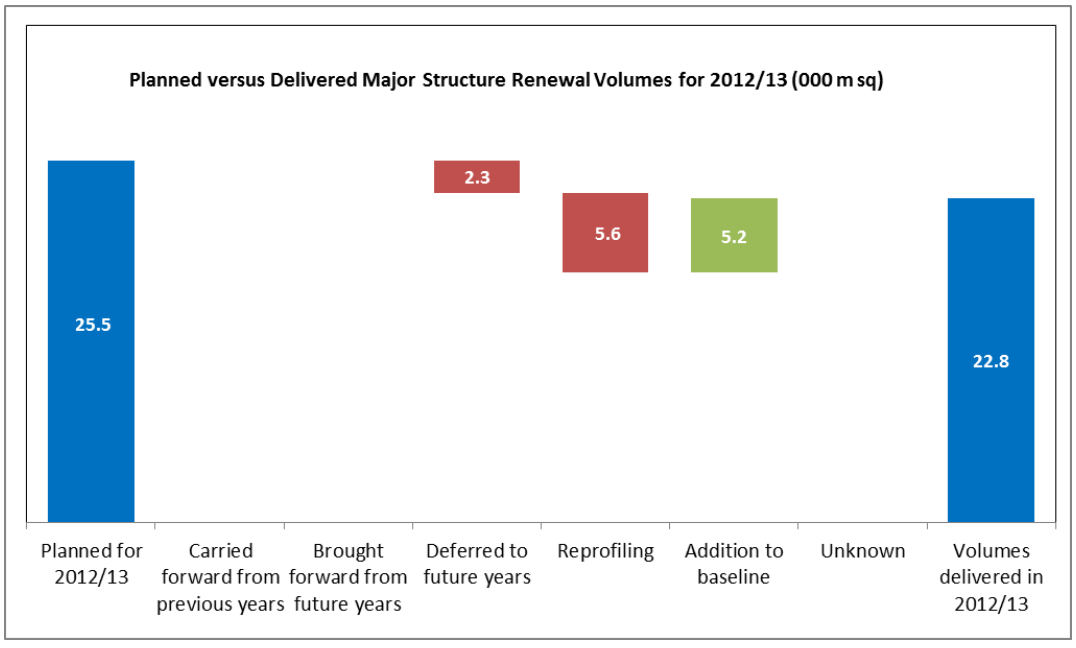


Figure 7-11: Detail of Major Structure Renewal Variations (,000m^2)



7.6 P13 – Annual Return Variations

The Period 13 and Annual Return reported volumes are consistent with the exception of the delivered volumes for Earthworks and Major Structures. The variation in the figure for Earthworks (showing an increased delivery in the

Annual Return was due to reactive works completing at the year-end which were subsequently included. The variation of a less than +1% delivered volume for Major Structures is considered as being due to the finalisation of year-end figures and is not considered to be significant.

7.7 Conclusions

The previous assessment of the reliability and accuracy of reporting of Civil Engineering renewals was relatively good. In the structure and processes which have been described for 2012/13 this quality of the reporting had been maintained. However, the Reporter team believes that this was largely been due to the continuity of personnel in key roles at the centre. As noted above however there were some indications of the dilution of the central role which may lead to data integrity issues in the future, but there was no direct evidence of this in the review of the 2012/13 reporting.

8 Route Reviews

8.1 Introduction

This Section of the report provides a review of the information which was gathered from the individual meetings with the Route teams.

8.2 Background

As noted earlier in this report, since the 2012 Reporter audit of renewal volume reporting Network Rail has devolved responsibility for asset management to the Routes. At the time of the 2012 review the Reporter highlighted the potential risk to accuracy and reliability from this restructuring.

This current review has therefore examined the arrangements which were being established at Route level and how these changed the nature and structure of Network Rail's reporting of volumes data. It should be noted, however, that because the primary focus of the review related to the 2012/3 financial year, there would appear to have been only a limited change to the reporting arrangements. Based on the evidence provided by Network Rail during the course of the review meetings it was clear that the impact of devolution has, generally, only gathered pace during 2013/4 in anticipation of full implementation of any new arrangements in the first year of CP5 (2014/5).

The review within each of the three sample Routes covered all of the relevant disciplines. It was noted from the central Telecoms review that there had been no devolution of responsibility in that discipline to the Routes. As a result none of the Route reviews considered Telecom renewals.

The following sub-sections consider each of the Route engagements in turn.

8.3 Route Review – London North Western (LNW)

8.3.1 Introduction

The opportunity to undertake the review by discipline in LNW provided the Reporter Team with the opportunity to carry out an assessment of the individual engineering fields in some depth including gaining an understanding of the processes as well as looking at a sample of their individual schemes. The LNW visit was of greater depth and duration that the other Route reviews as a result of the team of individuals fielded during the day.

8.3.2 Route Organisation

A brief resume of the LNW Route asset management organisation was provided by Network Rail. This organisation structure is unique in Network Rail in that it

has been split into north and south sub-routes. This is a reflection of the size of the LNW asset portfolio. There are two posts with the title of Senior Route Asset Manager (SRAM) – one covering track and civil engineering, with the Route Asset Managers for track and civil engineering reporting to this post. A second SRAM covers signalling, power and buildings.

8.3.3 Track

8.3.3.1 Devolution – Impact on Reporting

It was confirmed that the management processes for reporting volumes had not changed in 2012/3 with the collation of volume data by discipline being undertaken at the centre.

For 2012/13, the track workbank was authorised centrally within Network Rail in February 2012 based on three investment papers covering: conventional plain line; switch and crossing; and high output. The vast majority of the renewal work was to be undertaken by Investment Projects (IP). These authorisations established the baseline, and were input to P3e, or in respect of any maintenance delivered capital volumes into Oracle Projects.

The change control process for track had been Route-based in LNW for a number of years. All material changes to an authorised project – cost, volume or timeframe for delivery – were required to be approved by the RAM applying the change control methodology. Cost variations of less than £0.5m could be signed off under the change control regime. Changes above £0.5m needed to be the subject of a revised investment paper. It was stated by Network Rail that track had traditionally made a lot of changes to its programme and as such needed a robust, but not necessarily time consuming process in place.

8.3.3.2 Asset Management Systems and Work Verification

For 2012/13 plain line volumes were entered into the Track Renewals System (TRS); this mirrors P3e. Renewal details were entered into the GEOGIS asset management system. Both of these were legacy systems and take manual entry reports in miles and yards. (The conversion to metric measures for all subsequent reporting is now carried out automatically in the system.) These could then be compared with the planned volumes in P3e, and any variation would then be explained. Only limited checks were carried out by the Route of this process, although there was an element of formal assurance done on a sample of jobs by the central team.

P3e reports were sent to the RAMs on a four-weekly basis for sense checking. The RAM received a daily report on project work delivered so it was considered

by Network Rail that the team had a good feel for current reporting and its accuracy.

A further in-built check came when the contractor completed hand-over certification. This was used to update GEOGIS when the asset was taken into maintenance by the MDU. The MDU would then undertake its own checks on the renewals undertaken. This would be used to update the Ellipse asset maintenance database. The RAM team observed that contractors have no incentive to 'cheat' on reported work volumes since they get paid by project irrespective of the volume they deliver.

The Route believed that any inconsistencies between GEOGIS and P3e would be picked up since if the volume was reported to be different to what was expected this would be noticed in checks. There was also a periodic totals check comparing TRS to P3e, and between P3e and GEOGIS. However it was noted that there was always a lag entering data into GEOGIS which could complicate the comparison.

For those renewals which were delivered by IP the inputting to P3e was undertaken by a single individual and it was therefore considered by Network Rail to be consistent and generally reliable.

The RAM representatives both agreed that the extent of manual handling of data at source, and the lack of automated linkages between systems (all of which will ultimately be addressed by IT developments underway currently within Network Rail), mean that there was a risk of inaccuracy. The function was very reliant on a small number of people, mainly in IP, to spot any errors through their own project management processes.

With regard to the maintenance delivered renewals, the only significant difference in the volumes reporting arrangements was the input to Oracle Projects rather than P3e. Renewals data was still entered into TRS and the same authorisation and investment process was used.

It was stated by Network Rail that reporting from the works Delivery unit had initially been problematic. This was put down to theme undertaking some 'challenging' renewal jobs. However this was now improving although it was accepted that it was not yet at the standard being achieved by IP.

8.3.4 Structures and Geotechnical

8.3.4.1 Devolution – Impact on Reporting

At the meeting the RAMs confirmed that the significant change brought about by devolution was Route ownership and accountability for projects delivery and reporting. It was stated that this had not taken effect until mid-year in 2012/3.

This change was felt to introduce a greater rigor into the iterative checking between the central team and the Route.

The baseline plan was held in P3e for the renewal programme with the RAMs acting as 'gatekeepers' of the plan. The programme had been a rolling plan which was signed off two to three years beforehand for structures, and two years previously for earthworks. The forward plan (baseline) accounted for approximately 75-80% of the workbank with the remainder made up of reactive works. For geotechnical renewals it was stated that it was customary to over-plan by 10-15% above the normal contingency level. This was done to provide a degree of flexibility in any given delivery year and to cope with any time delays which could come from planning consents, land access difficulties, possession plans etc. It was stated that the geotechnical renewal delivery was more volatile and less homogenous than track because of the influence of the weather.

For the 2012/13 programme the assurance of reporting accuracy was achieved via sponsor meetings. Both RAMs asserted that as a result of devolution they had their "*fingers on the pulse*" and as a result most project and plan adjustments which were fed through change control were relatively minor.

8.3.4.2 Change Control

It was confirmed that structures volumes were relatively stable in the plan as the assets were discrete and the treatment clearly defined. However, it was acknowledged that this was more difficult for geotechnical works. With embankments, for instance, there had always been a tendency to assume the worst case at the proposal stage.

In a description of the project tracking process it was noted that:

- Project authority was iterated via GRIP stages with every line item going through the GRIP process;
- In the Business Plan there was a line of entry for each of the approximately two hundred project items for structures;
- In any given period between twenty and thirty structures schemes required a change to be approved under the change control process, and this was usually budget rather than volume related; or it related to plan slippage or rescheduling to a future year;
- For earthworks the number of changes were between thirty and thirty-five in a year.

To manage the process a Change Control Log had been maintained in a spreadsheet format with a statement of justification for each change included. Change control authorities filtered down to the OP and P3e inputters. It was the Business Plan which then fed the Finance Pack periodic updates. These processes

were largely manual and there had been a lag between change control authority and any changes to P3e or OP.

8.3.5 Signalling

8.3.5.1 Devolution – Impact on Reporting

The present RAM had been in post since November 2012 and that there had been no changes in the methodology for volume reporting during that time. It was noted that it was probable that change control, which has been centrally managed, would be devolved to Route level in CP5.

In terms of the reporting of volumes this took place directly between IP and the centre but the RAM saw reported volumes as a copy addressee to IP's project delivery reports. As an assurance exercise the Route Senior Asset Engineer checked the reported SEU count delivered for each project using the renewal scheme plan to physically validate the count of the units delivered.

8.3.5.2 Change Control

As with other disciplines, change control was invoked for any material change of volume, cost or timescales within an authorised project. The Route took no part in the central panel; however, the LNW Signalling RAM teams held a Route Pre-investment Panel review every four weeks to discuss all the change control items. The details of this meeting were then fed to the centre. In this way management of change control was shared with the centre. It was noted that Business Plan changes were submitted to the central change control panel for approval.

Each year, LNW (North) has between thirty and forty signalling renewals schemes in total. These include level crossings, and some minor schemes. It was noted that there was some interplay with enhancement schemes where there was a renewals element. In these cases the RAM would agree the renewals element and associated cost and volume. This element would then be reported separately for renewals. If the reverse applied, where a renewal scheme had an enhancement contribution, then the RAM reported all signalling volumes since the enhancement element was normally not signalling related – for example a platform extension.

It was stated that most small renewals jobs which emerged reactively, and had safety implications, tended to be delivered as maintenance jobs with no associated reportable volumes.

8.3.6 Electrification and Plant

8.3.6.1 Devolution – Impact on Reporting

Network Rail confirmed that the reporting in 2012/13 had been unchanged on previous arrangements since there had been no impact from devolution at that time.

The Business Plan detail had been wholly controlled by the Route although the centre held the overall plan and was responsible for managing and updating it throughout CP4. The CP4 renewal programme was a three year rolling plan. This had changed for CP5 which will have the five year programme locked down at the beginning of the Control Period.

During 2012/13 there had been a process for reporting delivery via the OVD or Form 'E' to certify the volumes delivered on site. This was then collated and reported to the centre. The OVD form was used for like-for-like renewals where there were no design changes. It was stated that because the RAM was diligent about not reporting volumes until in receipt of the OVD or Form 'E', and because there was always a time lag between works completion and documentation completion, it could appear that delivery of the Business Plan was falling behind. The view was shared that the documentation requirements undoubtedly elongated the reporting process.

The Route-focused management of E&P renewal reporting on LNW was unique and had been running with the approval of the centre for some time. The reporting process required that each period IP advised the RAM of the volumes delivered. With the addition of a commentary prepared by the Route this was then passed to the centre. It was noted that the centre no longer received confirmation of renewal volumes directly via P3e updates from IP. As such no assurance checking was undertaken by the centre.

It was noted that this process was significantly different to that described by the E&P central team (described in Section 6.2.3). This variation was previously known about and was the subject of a recommendation from previous reviews (2012REN11).

In respect of the interface with enhancements work, Network Rail confirmed that power supply upgrade works renewed some E&P assets and decommissioning others. None of this was in the RAM's asset renewal business plan and it was not reported for volume. However, this was not a material issue in assessing the accuracy or reliability of renewals volumes reporting.

8.3.6.2 Change Control

The change control log had a line of entry for each change. This had been driven by variations to the scheme money, scope, volumes or timeframe. It was noted that there had been no change control panel as such at the time, however the process was overseen by the RAM team and then sent to the centre to update the overall Business Plan. The revised Business Plan was then reissued on a periodic basis by the centre.

8.4 Route Review – Wessex

8.4.1 Introduction

The engagement with the Wessex Route took place in two parts. A meeting was held early in the review process to particularly consider the reporting of volumes with respect to third rail electrification. Subsequently, a wider review of all of the other Route disciplines in Wessex was held. This focused on the processes in place in 2012/13 with follow up documentation supplied on specific projects.

8.4.2 Route Organisation

The Route recognised that it would require to develop new roles to address the challenges of devolution. As such the role of the Programme Finance Manager (PFM) was created in recognition of the fact that the RAMs would require some "finance business partner" support. The role had been identified as a direct result of the new budgetary responsibilities which the post-devolution RAMs found themselves facing. The PFMs were there to report performance but also challenge the delivery efficiencies. The focus in the early days of this new relationship had been on the reporting of project finance. However, there was a developing acceptance that more attention was required on volume reporting.

The delivery mechanism (IP or Maintenance) had been decided as part of a deliverability review where cost, resource and competence were considered when identifying the most suitable deliverer. However, in general, the maintenance team would be considered to deliver those renewal items with low complexity and where standard design detail could be employed.

8.4.3 Reporting

At the start of 2012/13 the baseline plan had been prepared by the centre and then given to the RAMs to manage and deliver. This baseline was the volumes and costs which were signed off by the ORR.

Following the hand-over of the plan to the Routes there was no active involvement by the centre in the management of the plan, save where there was a

requirement to seek authority or re-authority centrally because of the sums involved. Other schemes were authorised within the Route.

During this time the Route monitored performance against their plan and reported periodically back to the centre. It was noted that the centre could, and did, challenge the Route on variations to its plan.

IP Delivery

Where a renewal is delivered by IP the site teams completed documentation to verify that the work had been carried out and then submitted this to the Project Manager. The PM was then responsible for updating P3e to confirm the work done. The Route was then advised of delivery at the four-weekly progress meetings. They were also provided with signed Form 'E' submissions to validate the volume delivered.

Maintenance Delivery

Where a renewal was delivered by Maintenance the site teams completed documentation to verify that the work had been carried out and this was then submitted to the Project Manager. The PM was then responsible for updating the maintenance tracker to confirm the work done. The Route was advised of delivery at the periodic progress meetings. However, because of the nature of the monitoring arrangements little or no evidence of the delivered volumes was provided to the Reporter team at the meeting but was subsequently supplied.

General

Regardless of the means of delivery the process for the progression of renewal schemes in the 2012/13 year was as follows:

- Scheme identified in line with requirements of the policy and agreed centrally to be included in the plan;
- Plan devolved to the Route and given to the RAM to progress;
- Decision taken regarding the means of delivery (IP / maintenance);
- Delivery team progress the development of the scheme and lodge it in P3e or OP as appropriate;
- Delivery agent prepares an authority paper to secure funding;
- Scheme authorised (in the Route or centrally depending on scale);
- P3e or OP updated;
- Project programmed for delivery;
- Scheme delivered on site;
- Delivery confirmed by sign-off of Form 'E' (or other discipline equivalent) by RAM;
- P3e updated;
- Asset database (GEOGIS / SSADS / CARRS etc.) updated; and

- Central team download delivered volume from P3e and, combined with other schemes, report centrally.

8.4.4 Change Control

The Route is responsible for monitoring changes to the business plan throughout the year. In 2012/13 this tended to be a retrospective regularisation of the changes which were managed by the centre. During this time the change control was managed at Route level for all disciplines (save telecoms).

8.4.5 Verification

It was confirmed that there was no formal requirement for post-project verification of delivered volumes. Some sample checking was generally undertaken at that time although the Route may formalise a more structured arrangement in due course. However, it was noted that the new Reporting Procedure (NR/ARM/M36PR) describing Route responsibilities appears to allow freedom for the Routes to devise their own assurance and verification processes.

8.5 Route Review – Wales

8.5.1 Introduction

The meeting with the Route team in Wales was used to verify that the findings from the other two Routes applied equally in Wales. It was also important to meet with the D-RAM to obtain an overview of the way in which the Route developed in 2012/13 shortly after it had been formed.

8.5.2 Route Organisation

During our review the D-RAM set the context for the programme of renewals which were delivered in 2012/13; the following points were noted:

- The Route only came into existence in November 2011 – this coincided with the time when the following year's activities and budgets were being assembled;
- Across the disciplines the 2012/3 Wales Route renewals workbank was inherited as a programme and budget from both Western and LNW Routes; and
- The process for the management and delivery of renewals across the disciplines was largely the same in the Route. The exception to this was track renewals for which a significant volume of renewals were delivered by the in-house Works Delivery (maintenance) team whilst for other disciplines the works had largely been delivered by IP.

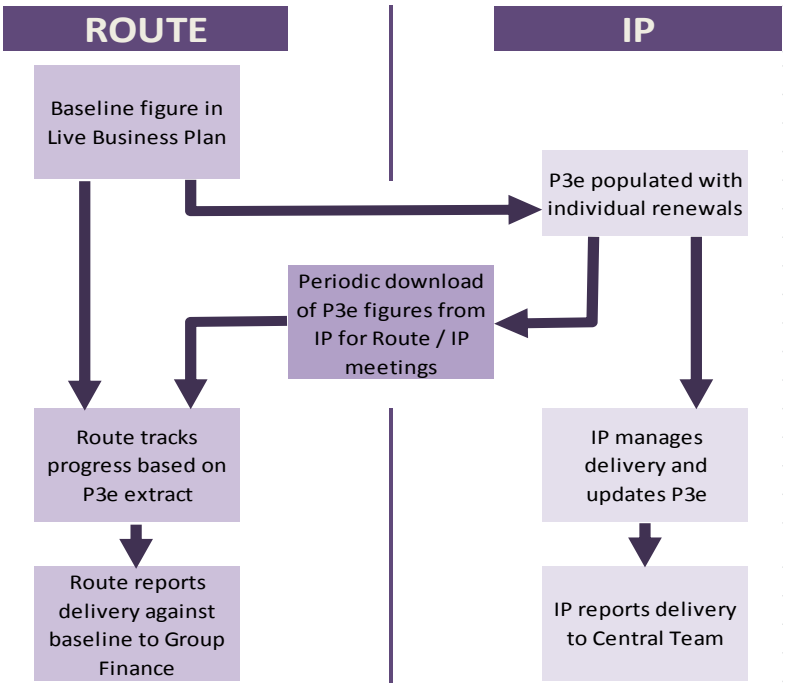
In terms of the IP organisation which supports the Route the following points were noted:

- The regional team (Wales and Western) is managed from Swindon and covers enhancements, civil engineering and building works;
- Track and signalling IP is part of a national team but with representation in the Wales Route. This group covers the 'domestic' renewal programmes for these disciplines. For track this only covers plain line renewals. S&C and High Output are managed by specialist national teams which were set up in September 2013.

8.5.3 Reporting

The flow diagram in Figure 8-1 shows the flow of renewals data and information as described by the Route:

Figure 8-1: Reporting Process in Wales Route



It was noted that the live business plan held the baseline figures at the start of the year for the renewals to be delivered. This remained constant throughout the year.

For renewals which were delivered by the maintenance teams the management and review of progress and volume count was managed within the Route in an Excel spreadsheet based model.

In terms of the reporting of renewals the role of the central team was considered by the Route to be that of a co-ordinating function to pull together the national results and to act as broker when considering moving funds between Routes.

8.5.4 Other Items

It was noted that for the signalling and E&P functions, as well as a change control process within the Routes, these were also subject to a centrally managed change control regimes.

8.6 Observations

There was a notable difference in the developmental level of arrangements between those in LNW and in Wales. The former had identified the requirements for such processes for some time whilst in Wales the recent creation of the Route had not allowed this. In all cases however there would appear to have been a step change in the processes during the course of 2012/13. One such change was that the responsibility for delivery of renewals rested firmly in the Route.

Despite this, it was interesting to note a RAM making a comment to the effect that they believed that they were accountable for the reporting of volumes although this had not been documented or briefed.

We also noted that there remained a manual intervention in certain processes where the Route Business Plan had been updated from the information provided by IP or Maintenance. This remained a potential source of error but it might have had a limited impact if it was supported by the periodic reviews with the delivery teams.

Within the E&P discipline there was a suggestion that the Network Rail Standards covering reporting did not yet reflect the changes which had now taken effect.

8.7 Conclusions

The view from the Routes was that there had been little significant change in reporting year 2012/3 with the changes which had taken place subsequently being of an evolutionary nature. It was however noted that the speed and intensity of these changes vary across the disciplines. For CP5, Network Rail is developing a process where the Routes are responsible for reporting and validating the volumes directly from the deliverer. This will drive faster reporting of volumes and greater incentive for Route teams to challenge or understand the deliverer's reporting. Asset Management Services (central team) will still provide assurance on the volumes through validation and audit of these, but this will be concentrated on reviewing and assuring volumes data before publishing externally.

The processes in the Route with regards to the reporting of renewal volumes continue to mature. There was a general acceptance of responsibility to drive the process of reporting at Route level with the centre acting in the role of consolidating the returns from the Routes. The diminished ability of the centre to 'drill-down' to the detail of individual schemes would seem to mean that there

will be less of a central overseeing capability other than to monitor delivery at a high level. The risk with this rests with the potential for the devolved management to embrace varying approaches to the process which could lead to a loss of integrity in the reporting.

There was no evidence of this yet being an issue however it was clear that variations in approach have begun to emerge.

9 Confidence Grades

9.1 Introduction

This Section provides an account of the Confidence Grades which the Reporter team believe are appropriate to the individual disciplines based on the evidence gathered during the study as documented in this report.

The following sub-sections consider the grading awarded to each discipline in turn. The reason for the individual grading for reliability and accuracy are described and a table produced which provides a comparator with the review undertaken for Mandate AO/025 in 2012, and the benchmark set by the ORR.

A description of the grades is provided in Annex A to Appendix A.

9.2 Track

Twenty-one projects were reviewed, of which five had volumes reporting inaccuracies. The three switch and crossing jobs reviewed were all found to be reporting accurate volumes. The error level, at 97 metres within a sampled total of 17,940 metres, represents an inaccuracy level of 0.54% and as such is awarded a numeric confidence grade of '1'.

Without a formalised audit or assurance procedure in place to allow the centre to check the data reported from Routes back to site level there would appear to some shortcomings to the process. On this basis, an alpha confidence grade of 'B' is awarded.

Table 9-1: Track Confidence Grading

Asset Category	Previous Grading	New Grading	Benchmark Grading
Track	B1	B1	A1

9.3 Signalling

Twenty-eight projects were reviewed, of which nine were found to have volumes reporting inaccuracies. The error level, at 44.9 SEUs within a sampled total of 992.97 SEUs, represents an inaccuracy level of 4.52%. As such the reporting of signalling volumes is awarded a numeric confidence grade of '2'

As with track the inability of the centre to drill-down to fully validate the reported volumes from the Routes leads us to believe that there are some shortcomings in the process. On this basis, an alpha confidence grade of 'B' is awarded.

Table 9-2: Signalling Confidence Grading

Asset Category	Previous Grading	New Grading	Benchmark Grading
Signalling	B1	B2	A1

9.4 Telecoms

Seventeen projects were reviewed, of which none were found to have volumes reporting inaccuracies. A nil error level merits the award of a numeric confidence grade of '1*'.

Network Rail is of the view that the actions to address shortcomings in the reporting processes which had been previously identified were not fully in place during 2012/13. As such it must be concluded that there remained some gaps in the overall control of the reporting of volumes during this time. This is evident by the further work which has continued to take place during 2013/14. Nevertheless there had been significant progress in addressing the issues which we have concluded meant that there were only minor shortcomings in the process as it was operating in 2012/13. On this basis a 'B' grading is awarded for reliability. However, on completion and implementation of the planned revisions to process it is anticipated that Telecoms will be able to achieve an 'A' confidence grade for reliability.

Since a '1*' accuracy rating is incompatible with a 'B' reliability grading, an overall rating of 'B1' is awarded.

Table 9-3: Telecoms Confidence Grading

Asset Category	Previous Grading	New Grading	Benchmark Grading
Telecoms	C5	B1	A1

9.5 Electrification & Plant

Seven projects were reviewed, of which none were found to have volumes reporting inaccuracies. No errors were found in the reporting of the volumes with respect to E&P, as such this results in a numeric confidence grade of '1*'.

The current review has shown that there have been some significant changes made to the processes involved in the tracking and reporting of E&P volumes. This had begun to tighten up the governance and accuracy of the reporting in this discipline during 2012/13. However, there would appear to be some further areas of development which were not concluded during that year or only had an impact late in the year to bring the reporting here into line with the other engineering

disciplines. On the basis that there remained minor shortcomings within the process during this period a reliance confidence grade of 'B' is awarded.

Since a '1*' accuracy rating is incompatible with a 'B' reliability grading, an overall rating of 'B1' is awarded.

Table 9-4: Electrification and Plant Confidence Grading

Asset Category	Previous Grading	New Grading	Benchmark Grading
Electrification & Plant	C4	B1	A1

9.6 Civil Engineering

Twenty-two projects were reviewed, of which three had volumes reporting inaccuracies. The error level, at 815 sq. metres within a sampled total of 54,768 sq. metres, represents an inaccuracy level of 1.48% and is awarded an accuracy confidence grade of '2'.

The issue of the lack of visibility at the centre of the complete reporting chain leads the Reporter to retain the view that there remained some short-comings in the process as it operated in 2012/13. On this basis, an alpha confidence grade of 'B' is awarded.

Table 9-5: Civil Engineering Confidence Grade

Asset Category	Previous Grading	New Grading	Benchmark Grading
Civil Engineering	B1	B2	A1

9.7 Confidence Grade Summary

Table 9-6 provides a summary of the Confidence Grades awarded as a result of this review compared to the previous award and the ORR benchmark.

Table 9-6: Summary of Awarded Confidence Grades

Asset Category	Previous Confidence Grading	New Confidence Grading	ORR Benchmark Confidence Grading
Track	B1	B1	A1
Signalling	B1	B2	A1
Telecoms	C5	B1	A1
Electrification and Plant	C4	B1	A1
Civil Engineering	B1	B2	A1

10 Recommendations

10.1 Introduction

This Section of the report is in two parts. The first provides an account of Network Rail's delivery against the recommendations previously made in this area. The second part identifies further recommendations which had been drafted based on the findings of this review.

10.2 Progress Against Recommendations

The review of the reporting of Renewal Volumes was last undertaken in 2012 under mandate AO/025. The report of that review contained a number of recommendations designed to improve the deficiencies identified in that audit. Table 10-1 summarises the study's view of the progress Network Rail has made against the individual recommendations contained in that report.

Table 10-1: Progress against Individual Recommendations

Number	Recommendation	Data Champion	Due Date	Progress	Status
2012REN01	Track – consider a year-end review of reported jobs to correct minor errors.	Paul Greene	Feb '13	A fledgling check regime has been implemented but this has not yet been formalised as a company authorised procedure	Open
2012REN02	Signalling – consider a simplified description of project history in investment documentation to improve audit trail on volumes and efficiencies.	Andy Smith	Jul '12	Formal feedback on this recommendation is awaited	Open
2012REN03	Telecoms - Update and issue the procedure for reporting renewal volumes.	Richard Lawes	Jul '12	Both Definitions and Reporting Procedures documents (NR/ARM/M32DF & NR/ARM/M32PR) reissued January 2013	Closed
2012REN04	Telecoms - Appoint a new reporting specialist and ensure deputies are in place	Richard Lawes	Jul '12	2 Specialists appointed in October 2012.	Closed
2012REN05	Telecoms – Use P3e as the source information for renewal volumes delivered	Richard Lawes	Jul '12	P3e is in use for the reporting of volumes delivered by IP. It is not currently in place for use by the maintenance teams. This is forecast to change at the beginning of CP5	Closed
2012REN06	All – standardise the setting of the baseline for all assets (consider if this should be the Delivery Plan)	Bill Davidson	Feb '13	Formal feedback on this recommendation is awaited	Open
2012REN07	E&P – fully implement new	Peter	Oct '12	Copies of the new signed-	Closed

	procedures	Krawczyk		off procedures were received and explained. These are now in operation	
2012REN08	E&P – clarify when to report volumes (staged or final commission)	Peter Krawczyk	Jul '12	Rules for determining when a volume should be declared are documented in NR/ARM/M36/DF Section 4.6.2.	Closed
2012REN09	E&P – update full year forecasts of renewal volumes every period	Peter Krawczyk	May '12	P3e conventions for periodic updating of forecasts now fully implemented	Closed
2012REN10	E&P – improve reporting of volumes delivered by Maintenance	Peter Krawczyk	Oct '12	The new procedures hold the same personnel accountable for both IP and Works Delivery reporting, and provides both assurance & consistency, and the necessary level of check	Closed
2012REN11	E&P – seriously consider imposing central reporting on LNW route	Peter Krawczyk	Jul '12	LNW were used as the pilot for the development of the new procedures and have been successfully running under the new regime for some time. Reporting consistency has now been achieved as a result	Closed
2012REN12	E&P – review the reporting of pilot DC HV cables	Peter Krawczyk	Jul '12	This was traced to an error in the coding of the renewals in P3e. This error has been corrected.	Closed
2012REN13	Civils – the arrangements followed by LNE for independent post-project validation and verification of volumes reported should be reviewed for wider adoption (to be read alongside recommendation 04 in the Phase 1 report)	Dan Athol	Jul '12	A review has been undertaken by Network Rail of the impact the use of the CAF process has had on the reported volumes. As a result it has been found that this is minor. As the benefits of using the CAF7 process are not considered to be material to overall reporting accuracy, it has been decided not to adopt the LNE arrangements across the network.	Closed
2012REN14	All – ensure there is a robust process for collating renewal volumes after devolution	Bill Davidson	Dec '12	The creation of the first 2 devolved Routes (Wessex and Scotland) took place in May 2011 with devolution to the other 8 taking place in November 2011. Since then the new central Asset Management Services function has been created. One of the roles of Asset	Open

				Management Services is to provide assurance to the NR Board that the devolved Routes are delivering a sustainable network; this includes monitoring the delivery of renewal volumes. Each asset owner in the central team provides an overview and sense check on the volumes being reported in each Route (including the volumes delivered by renewal contractors and by the in-house maintenance team). Finally volumes are then collated by the asset management finance team for reporting in the period pack or Annual Return.	

10.3 Further Recommendations

Based on the outcome of this study the Reporter team has identified a number of recommendations which have been drafted with a view to addressing some of the issues identified with the current processes. Table 10-2 contains these new recommendations.

Table 10-2: Recommendations Identified for this Review

Reference	Recommendation	Report Ref.	Data Champion	Due Date
2013REN01	Track: The AMP12 and AMP14 forms together provide confirmation that the agreed job has been delivered. It is recommended that because there is no obvious cross reference to project numbers in the planning system, or linkage between the recording, sign off and reporting of the delivered volume and the initially agreed works, it may be beneficial to include details of the AMP12 project on the AMP14 document, or include the AMP14 signature at the bottom of the AMP12 form.	3.2.1	tba	Oct '14
2013REN02	Telecoms: It is recommended that an electronic link be created between the reporting from the Routes to the summary sheet which is used for reporting purposes since this is currently compiled manually by the Business Planning Specialist from the received reports.	5.2.3	tba	Jan'15
2013REN03	All (except Telecoms); it is recommended that Head of Asset Management Services considers the requirement for enhanced levels of data assurance and check in Renewals Volumes reporting, in the view of the now fragmented reporting arrangements as a result of devolution creating a large number of accountable management units, and the risks which this entails to the integrity of accurate, reliable, and	various	tba	Oct '14

	consistent reporting			
2013REN04	All: It is recommended that a review should be undertaken of the arrangements whereby the manual input of data is undertaken to determine if this can be automated	various	tba	Oct '14
2013REN05	All: Where parallel reporting arrangements exist which are driven by the delivery agent's systems consideration should be given to the elimination of one of these parallel systems	various	tba	Mar '15
2013REN06	Signalling: it was not possible to track when updates where made in SSADS to check that updates had taken place to correctly reflect the removal of assets. It was considered that it may be beneficial to have such a facility	4.3	tba	Dec '14
2013REN07	All: It is recommended that the variations which occur to the volumes for the individual asset groups be formally recorded such that an audit of the reasons for the changes can be made at year-end	various	tba	Dec'14

Appendix A

Commission Mandate

A1 Mandate AO/046

Mandate for Independent Reporter Part A – Review of Network Rail's Annual Return and renewal volumes

Audit Title:	Review of Network Rail's annual return and renewals volumes
Mandate Ref:	AO/046
Document version:	Draft
Date:	19/7/2013
Draft prepared by:	name redacted
Remit prepared by:	name redacted
Network Rail reviewer:	tbc

Authorisation to proceed

ORR	Name redacted	
Network Rail	tbc	

1 Purpose

This mandate sets out the scope of work for the Part A Independent Reporter (Arup) to review Network Rail's 2013 Annual Return. The Annual Return outlines Network Rail's performance against the final determination and delivery plan, and it is therefore essential that ORR has assurance that the data is accurate and reliable. This independent assessment gives ORR the confidence to determine the progress Network Rail is making towards its regulatory targets.

In particular, ORR requires that the reporter assess the reliability and accuracy of Network Rail's renewals data, and the processes underlying its production.

2 Background

The Annual Return is the formal statement from Network Rail on its performance against its regulated outputs at the end of each year (31st March). It is provided by Network Rail as part of the information reporting requirement (licence condition 10). Under the terms of the licence, Network Rail provides outputs that can be measured against the regulatory targets that are defined for the control period, and agreed with in advance by ORR in a formal specification.

Network Rail published the CP4 **Delivery Plan update 2010** (DPu10) on 31st March that year, using revised asset policies to determine the renewal volumes and associated expenditure included in the document. It publishes a report of delivery against delivery plan updates annually, in the **Annual Return**. We monitor delivery of the renewal volumes against delivery plans, as part of our assurance that the policies are being implemented in CP4. The renewals data reported in the Annual Return also contributes to our annual assessment of Network Rail's efficiency.

Network Rail also reports renewal volumes delivery every four week period in the **Finance Pack**. We use this to check progress against plan within the year, to give us early indication of any risk to year end delivery and brief internally on progress.

3 Scope

The review should consider the process used by Network Rail to compile the 2013 Annual Return, including reference to previous processes. The review should focus on examining the robustness of the processes that NR used in assembling the data for the annual return, not necessarily the underlying data and processes. The exception to this will be for renewals volume data, for which we require assurance that the underlying data is correct and is supported by robust collection, collation and production processes.

In looking at the renewals data, we will use the independent reporter to undertake two principal elements:

- complete an audit of renewals data reported in the **2013 Annual Return** and in the most recent finance pack to provide an indication of confidence in Network Rail's renewals reporting accuracy.
- The objective of this review is to determine the reliability and accuracy of the renewals volume date reported in the:
    - **Annual Return** (informing our assessments of policy delivery and efficiency); and,
    - **Finance Pack** (informing our in-year monitoring).

    To achieve this purpose we expect the independent reporter to state separate reliability and accuracy scores by each asset group, reflecting the confidence scores for data in the both the annual return and finance packs.
- Undertake an analysis of volume changes for key asset areas to demonstrate how and why these changes have occurred.

The audits of renewal data noted above should be based on an agreed statistically significant sample.

To summarise, the scope of this mandate is to undertake three elements:

- An audit of data in the 2012 Annual Return, for each regulated output The review should report an alpha-numeric confidence grade for each data item specified in Annex B
- An audit of renewals volume data in the annual return and period 13 finance packs

- A review of the recommendations in the previous assessment of the annual return, to confirm that these have been successfully completed

4 Methodology

The Reporter should meet with Network Rail to understand the processes used in the production of the Annual Return. This should include interviewing both those coordinating and contributing towards the development of the Annual Return. The Reporter should also review all Annual Return documentation and systems, and comment upon their quality and fitness for purpose.

The Reporter should review all quantitative outputs within the Annual Return, and comment upon their consistency against the source data. This will involve liaising with data champions to identify and collate the data, along with a comparison of the source data and reported figures.

The reporter should critically review/audit the renewals data in the 2013 Annual Return and Period 13 Finance Pack. This review includes any related systems, processes, methodologies and procedures, to ensure that the data provided is comprehensive, accurate and consistent.

The review of periodic, finance pack reporting should consider any differences in accuracy of these renewal figures compared to end of year reporting.

The audit for reliability and accuracy of all data mandated should be assessed using the confidence grading system employed for the quarterly programme of Network Rail data assurance.

- Undertake a detailed analysis and audit of the volumetric changes for the key assets identified in Annex B from the:
    - DPu12 forecast
    - 2012 Annual Return actual adjustment for the preceding year
    - Final volumes as reported in the Period 13 Financial Pack.

Analysis should consider grouping the causes into at least the following categories:

- Roll Over - from prior years (variance of DPu12 forecasts to actual returns from prior year)
- Deferral – Items planned for delivery in current year but deferred for valid technical or efficiency reasons
- Acceleration – Items planned for delivery in later years but accelerated for valid technical or efficiency reasons
- Scope Reduction – Items removed from plan where requirements will be addressed though other activities (e.g. enhancements) or where asset condition/data indicates renewal is not required within 5 years from its intended renewal date)
- Policy Change – Increase or Decrease in activity as a result of an agreed policy change

5 Deliverables

The Reporter should provide a publishable report, including findings, conclusions and recommendations. The report should be prepared in draft form and sent electronically to Network Rail and ORR, at the same time. The Reporter should facilitate feedback (via a tripartite feedback session if appropriate) and provide a revised report with track changes. This should be followed by a final report for publication on ORR's website.

The report shall contain sufficient information to as necessary to address the requirements of this mandate and must include:

- A data assurance assessment including confidence grades.
    - Results should also be contrasted with assessments from prior years
- Review progress of implementing recommendations from previous reports on this aspect
- Make recommendations on potential improvements, sufficiently described to outline tasks and benefits (SMART).
- Appendices listing reference documentation and the people interviewed together with the paper supporting the sampling recommendation

It should be noted that the report should be concise, written in plain English with any detailed information contained in appendices and that the final version of the report must be up to a suitable standard for external publication as it will be made available on the ORR public website.

6 Timescales and budget

A fully costed proposal for this work is required by 29 July 2013. Work is expected to commence early August 2013, following approval by NR and ORR. A draft report is required by 1 September 2013 and a final report is required by 31 September 2012.

7 Independent Reporter remit proposal

The Independent Reporter shall prepare a fully costed proposal for review and approval by NR and ORR on the basis of this mandate. The approved remit will form part of the mandate and shall be attached to this document.

The proposal will detail methodology, tasks, programme, deliverables, resources and costs.

8 Confidence grades

The Independent Reporter shall provide confidence grades for each regulated output in the annual return. The confidence grading system in Annex A should be used.

9 Conflict of interest

The Reporter should explicitly highlight any conflicts of interest.

10 ARUP quality assurance

The Reporter should describe the internal processes in place to quality assure the work delivered under this mandate.

11 Annex A: Confidence grading system

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 data collation and analysis. If necessary, 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 outputs. 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 outputs and any analysis produced by the system are subject to management analysis and challenge. This includes being able to adequately explain variances between expected and actual results, time-series data, targets etc. 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.

Accuracy grading system

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure 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.

Annex B: Assets for detailed analysis

Asset Group	Element	Detailed Analysis
Track *(Delivery Plan 2012 update – appendix 13)*	Rail	x
	Sleeper	x
	Ballast	x
	S&C	x
Signalling *(Delivery Plan 2012 update – appendix 15)*	Conventional SEU	x
	ERTMS SEU	x
	Level crossings	x
Civils *(Delivery Plan 2012 update – appendix 17)*	Overbridges	x
	Underbridges	x
	Earthworks	x
	Coastal/Estuary Defences	x
Telecoms *(Delivery Plan 2012 update – appendix 21)*	Large concentrators	x
	Small concentrators	x
Electrification *(Delivery Plan 2012 update – appendix 23)*	Re-wiring	x
	Conductor Rail	x
	HV switchgear	x
	HV switchgear	x
	HV cabling	x
	LV switchgear	x

Introduction

The 2013 Annual Return specification is presented as follows:

1. Measures unchanged from the 2012 specification - shaded table and text.

2. Measures from the 2012 specification that have been elaborated for clarification, and to remove any ambiguities – italics text.

3. Completely new measures for 2013 specification – no shading.

We expect a definition for each measure and commentary on each measure.

General

We expect Network Rail to provide an executive summary that includes commentary on the key regulatory issues during the year.
We expect commentary on governance issues such as changes during the year to the member's arrangements, transparency and any relevant licence obligations.

Safety and health

Network Rail should provide commentaries that provide insight and depth on their overall health and safety performance. The commentaries should cover how far it

is controlling risks. Where measures or indicators are getting worse, NR should explain why and make clear what they are doing to improve it.

Specified target/output	*Measure*	*Disaggregation*
Safety improvement	Commentary on measures taken to improve safety. Include commentary on measures taken to improve the Safety Management System as a whole and provide an overview of system safety performance with any improvements made	Network-wide: Scotland; England & Wales
	Commentary on management of occupational health including corporate initiatives in place to improve management of health.	Network-wide
Workforce safety	Risk expressed as fatalities and weighted injuries (FWI) normalised per million employee hours	Network-wide: Scotland; England & Wales
Passenger safety	Risk expressed as fatalities and weighted injuries (FWI) normalised per billion passenger kilometres	Network-wide
Noise	% of at risk employees that have been screened for Noise Induced Hearing Loss (NIHL)	1.% with acceptable hearing ability (HSE Category 1) 2.% with mild impairment (HSE Category 2) 3.% with poor hearing (HSE Category 3) 4. Rapid Hearing Loss (HSE Category 4) *5. Number of new cases of noise induced hearing loss diagnosed at all levels of severity (this will be any individual not previously diagnosed in the screening process)*
HAVS	No of at risk employees screened for HAVS	1. % fit to work 2. % diagnosed with early stages of HAVS 3. % diagnosed with late stages of HAVS (late stage 2 SN/V and above) *4. Number of new cases of HAVS diagnosed at all levels of severity (this will be any individual not previously diagnosed in the screening process)*

Exposure to lead	No of people who have been picked up for lead health surveillance screening post accidental exposure to lead	1. All 2. No of employees who require ongoing monitoring as a result of exposure or those employees exposed to lead above the action level of 30 ug/m(3) TWA for more than 30 days each year
Exposure to asbestos	No of employees who have been picked up through BUPA for post exposure asbestos medical	Post exposure medical of own employees picked up through BUPA referral
MSD	No of referrals to OH providers due to musculoskeletal condition	1. Upper limb (to include neck, shoulder and arms) 2. Lower Limb (to include ankles, knees, hips and feet) 3. Back (to include lumbago/ sciatica/ scoliosis of spine) 4. Other
Stress related absence	No of referrals to OH providers due to stress related absence	1. Occupational 2. Occupational element 3. Non occupational
Employers Liability	1. Provide data to 31st March covering the number of claims open, closed, total 2. Network Rail to provide data to 31st March covering the number of claims closed [includes those not pursued, those rejected] in the last year *3. Number of new claims submitted in the year (2013)*	Network-wide

Train performance

ORR expects commentaries to include key issues affecting performance attributes.

Specified target/output	*Measure*	*Disaggregation*
Passenger train punctuality	Public Performance Measure (PPM) - % of trains arriving on time, i.e. within five/ten minute time-bands and having called at all advertised stations	Network-wide; Scotland; England & Wales; by sector
Passenger train punctuality	Trains arriving early or within one minute of scheduled arrival time	National, Sectors (London and South East, Long Distance, Regional (including Scotland)), Operators
Delays to all passenger train operators attributable to Network Rail	Delay minutes	Network-wide; Scotland; England & Wales

Delays to freight services attributable to Network Rail	Delay minutes per 100 train kilometres	By Major Freight operators; Minor operators to be grouped into Minor Freight
Freight delivery metric	Scores for the new freight delivery metric	National
Cancellations and significant lateness	Number and percentage of passenger trains (franchised and open access operators) arriving at final destination 30 or more minutes later than the time shown in the public timetable. Partial and full cancellations to be regarded as 'significantly late'	England & Wales; by sector; Scotland *Additional disaggregation by operators if that is possible*

Environmental performance

Specified target/output	*Measure*	*Disaggregation*
Carbon dioxide emissions	CO_2 emissions relating to Network Rail's managed stations offices and depots*	Network-wide
Non-track waste (Operational recycling)	Stations, office and depot waste mass recycled or re-used expressed as a percentage*	Network-wide
Waste (Infrastructure recycling)	Renewals and enhancement activity waste mass recycled or re-used expressed as a percentage*	Network-wide
SSSIs (Land management)	The number of Network Rail SSSIs classified as favourable or recovering status expressed as a percentage*	Network-wide
Environmental incidents – leading to serious damage	The number of environmental incidents leading to serious damage*	Network-wide
Environmental sustainability index	The environmental sustainability index* (where available)	Network-wide

* report against delivery plan target

Network Capability

ORR requires commentary similar to that in the final 2012 Annual Return.
With reference to the 'discrepancies between actual and published measure', Network Rail must ensure that the published information accurately reflects what is available to operators.
Network Rail must confirm the accuracy of published information in its commentary and provide enough detail that explains all differences as opposed to some differences. Where rounding is applied, it should be sensible, rounding up or down to the nearest ten as appropriate, for example, 24km should be rounded down to 20km (and not 25) but 26 can be rounded up to 30km.
With reference to platform length measure, the commentary must explain any changes to platform length.
Regarding network change, the data must start from the current year (2012-13). Network Rail to supply commentary which explains significant changes in the year.

Specified target/output	*Measure*	*Disaggregation*
Linespeed	Length of running track (km) by speed band; changes to the network	Network-wide; England & Wales; Scotland
Gauge	Length of route (km) capable of accepting different freight vehicle, by six gauge bands	
	Length of track (km) capable of accepting loaded vehicle types, by RA and gauge value, by direction and by route (in much the same way that linespeed is reported such that their totals are comparable).	
Route availability	Length of track (km) capable of accepting loaded vehicle types, by RA value	
Electrified track capability	Length of electrified track (km) by type	
Discrepancies between actual and published capability	Number of outstanding discrepancies, by type and proposed resolution	Network-wide; England & Wales; Scotland
Ongoing short-term network change proposals	Number of ongoing proposals by type of discrepancy, and time remaining before review	Network-wide; England & Wales; Scotland
Platform lengths	*The total operational length (metres) for all platforms, as reported at 31 March for stations that have been lengthened or reduced. This should reflect original length, final length, change*	Network-wide, England & Wales; Scotland
Permanent network changes	1) Total annual Network Changes (network) 2) Total cancelled (network) 3) Total 'Non-Material Effects' (network)	Network-wide, *England & Wales; Scotland*

Network availability

Specified target/output	*Measure*	*Disaggregation*
Disruption to passengers as a result of planned engineering possessions	Possession disruption index (passenger) - economic value of the excess journey time passengers experience, normalised by total train-km	Network-wide
Disruption to freight as a result of planned engineering possessions	Possession disruption index (freight) - 'unavailability' of track for freight use, weighted by the level of freight traffic operated over each section of track	Network-wide

Asset condition and serviceability

We require reports to be provided in a consistent way to the delivery plan, where all delivery plan measures are reported against. We require a summary table, with actual against target.

We require detailed reporting for any delivery plan measure not reported in last year's Annual Return.

We require an update on excellence in asset management (which is part of the Network Rail success in CP4 measures).

Network Rail must provide historical data from the start of CP3 where available and if not available, then from the start of CP4. The data must be disaggregated at Network-wide, England and Wales, Scotland.
We expect all measures to have M numbers except those being reported for the first time this year.
We expect data to be provided on the amount of backlog for the year (start of year, end of year, difference) for Bridge condition, bridge examination, bridge strength. We expect definition of what a backlog is and commentary on what is being done to address backlog. Additionally for bridge condition, we expect data on how many bridges have been inspected in the year, and from the number inspected how many are waiting for their data to be uploaded.
For structures, we expect a better explanation of changes to asset count (see work carried out by Richard Frost).

Specified target/output	*Measure*	*Disaggregation*
Broken Rails	Number of broken rails per 100 km	Network-wide: Scotland; England & Wales
Rails defects	Immediate action rail defects per 100 km (primary and secondary)	Network-wide; Scotland; England & Wales
	Length of continuous rail defects	
Track Geometry	Good track geometry, based on index measure of track quality (%)	Network-wide; Scotland; England & Wales
	Poor track geometry based on index measure of track quality (%)	
	Geometry faults per 100 track km	Additional disaggregation by primary and secondary
	Immediate/intervention action geometry faults per 100 track km (if available. Please include a table showing 'under development' if not available)	
Track buckles per 100km	As defined in the delivery plan	Network-wide; Scotland; England & Wales
Condition of Asset TSRs	*Number of TSRs by type (planned, unplanned) and by cause (track; rolling contact fatigue, structures; earthworks, safety)*	Network-wide; Scotland; England & Wales *Additional disaggregation by primary and secondary*
Bridge condition (Bridge Condition Marking Index which replaced SCMI)	*1) Total number of bridges examined and their assessed condition grade* *2) How many bridges have BCMI score* *3) How many bridges have not been assessed (difference between 1 and 2 above). An explanation of why every bridge is not assessed.* *4) Year target for SCMI (all bridges)* *5) Variance. If there is a backlog, provide the plans for catching up*	Network-wide; Scotland; England & Wales
Bridge Examination	1) Number of detailed examinations (target, actual, variance) 2) Number of visual examinations (target, actual, variance) 3) Commentary on variance	Network-wide; Scotland; England & Wales
Bridge Strength	Route availability (RA) for all levels of	Network-wide; Scotland;

	assessment reflecting: 1) Number for target, actual, variance 2) Commentary on progress with bridge assessments and how variance is being addressed	England & Wales
Tunnels condition	Tunnel condition examined and assessed condition (TCMI)	Network-wide; Scotland; England & Wales
Earthwork failure	Number of embankment or cutting sites which have become unstable; assessed risk (hazard rating assessment)	Network-wide; Scotland; England & Wales
	Slope stability index	
	Rock hazard index	
Signalling failures	Number of signalling failures causing delay of more than 10 minutes per incident	Network-wide; Scotland; England & Wales
Signalling asset condition	Number of assets assessed and assessed condition grade	Network-wide; Scotland; England & Wales
	Level crossing condition index	
	Condition asset grades for each asset group	
AC traction power incidents	Number of OLE failures resulting in train delays of more than 500 minutes	Network-wide; Scotland; England & Wales
DC traction power incidents	Number of conductor rail failures resulting in train delays of more than 500 minutes	Network-wide; Scotland; England & Wales
AC electrification condition	Assessed condition grade of AC traction feeder stations and track sectioning points	Network-wide; Scotland; England & Wales
DC electrification condition	Assessed condition grade of DC traction substations	Network-wide; Scotland; England & Wales
AC contact system condition	Assessed condition grade of AC contact systems	Network-wide; Scotland; England & Wales
DC contact system condition	Assessed condition grade of DC contact systems	Network-wide; Scotland; England & Wales
Signalling (for at least interlocking)	Remaining life	Network-wide; Scotland; England & Wales
Electrification	Condition grades	Network-wide; Scotland; England & Wales
Reliability forecasts	Track failures	Network-wide; Scotland; England & Wales
Power incidents	Power incidents causing train delays of more than 300 minutes (as defined in the delivery plan)	Network-wide; Scotland; England & Wales
Telecoms condition	Telecoms condition (as defined in the delivery plan)	Network-wide; Scotland; England & Wales
Telecom failures causing train delays of more than 10 minutes	Telecom failures causing train delays of more than 10 minutes (as defined in delivery plan)	Network-wide; Scotland; England & Wales
Points failures	Points failures (as defined in the delivery plan)	Network-wide; Scotland; England & Wales
Track circuit failures	Track circuit failures (as defined in the delivery plan)	Network-wide; Scotland; England & Wales
Rail	Average age/condition (in terms of EMGT) of rails (1 to 5) split for Plain line, Switches & Crossings	By Primary, Secondary, Rural and Freight

	Tonnes per km (or average tonnage) for Plain line and Switches & Crossings	
Civils	Capability (no. of structures split by RA Bands)	Network-wide; Scotland; England & Wales
Rail type installed	Material type or rail type for Plain line and Switches & Crossings for: 1) 60kg rail 2) 56 kg rail (113 flat bottom) 3) Bull head 4) Other	Network-wide; Scotland; England & Wales Additional disaggregation by primary, secondary and rural

Delivery plan measures – Condition and reliability forecasts

For assets subjected to additional inspections, we expect this to cover details on additional examination throughout the year.

Specified target/output	*Measure*	*Disaggregation*
Condition and reliability forecasts:	*Reporting of condition and reliability forecasts which are consistent with delivery plan 2012. We require a summary table with actual against target and the variance for the measures listed.*	*Network-wide, England and Wales, Scotland for plan, actual and variance*
Track	*For Track, volume of work (plan), actual, for tamping, stone-blowing, track alignment, grinding, pad-replacement*	
Good track geometry	*Plan (DPu12), Actual, Variance*	
Poor track geometry	*Plan (DPu12), Actual, Variance*	
Intervention/immediate action geometry faults per 100km	*Plan (DPu12), Actual, Variance*	
Rail breaks and immediate action defects per 100km	*Plan (DPu12), Actual, Variance*	
Civils		
Assets subject to additional inspections (no.)	*Plan (DPu12), Actual, Variance*	
Operational property		
Station stewardship measure	*Plan (DPu12), Actual, Variance*	
LMD stewardship measure	*Plan (DPu12), Actual, Variance*	
Signalling		
Signalling condition	*Plan (DPu12), Actual, Variance*	
Electrification	*Plan (DPu12), Actual, Variance*	
AC traction feeder station track sectioning point condition	*Plan (DPu12), Actual, Variance*	
DC traction substation condition	*Plan (DPu12), Actual, Variance*	
AC traction contact system condition	*Plan (DPu12), Actual, Variance*	
DC traction contact system condition	*Plan (DPu12), Actual, Variance*	
Telecoms	*Plan (DPu12), Actual, Variance*	
Telecoms condition		
Reliability forecasts	*Plan (DPu12), Actual, Variance*	
Signalling failures causing	*Plan (DPu12), Actual, Variance*	

train delays of more than 10 minutes		
Points failures	*Plan (DPu12), Actual, Variance*	
Track circuit failures	*Plan (DPu12), Actual, Variance*	
Track failures	*Plan (DPu12), Actual, Variance*	
Power incidents causing train delays of more than 300 minutes	*Plan (DPu12), Actual, Variance*	
Telecom failures causing train delays of more than 10 minutes	*Plan (DPu12), Actual, Variance*	

Activity levels

We require reports to be provided in a consistent way to the delivery plan, where all delivery plan measures are reported against. We require a summary table, with actual against target.

We require an update on excellence in asset management (which is part of the Network Rail success in CP4 measures).

We require detailed reporting for any delivery plan measure not reported in last year's Annual Return.

Network Rail must provide historical data from the start of CP3 where available and if not available, then from the start of CP4. The data must be disaggregated at Network-wide, England and Wales, Scotland.

With reference to 'civils' measure, we expect 'other' to be clearly defined or specified.

With reference to 'signalling renewals', we expect the number LXEUs commissioned and minor works to be reported.

Specified target/output	*Measure*	*Disaggregation*
Volume renewals	Volume achieved and % of activity compared with plan	Network-wide; Scotland; England & Wales
Rail renewals	Length of track (km) where re-railing has been carried out	Network-wide; Scotland; England & Wales
Sleeper renewals	Length of track (km) where re-sleepering has been carried out, by type	Network-wide; Scotland; England & Wales
Ballast renewals	Length of track (km) where re-ballasting has been carried out, by type	Network-wide; Scotland; England & Wales
Bridge renewals and remediation	Number and area of bridge decks subject to renewal or remediation	Network-wide; Scotland; England & Wales
Signalling renewals	1) Number of SEUs commissioned 2) Number of SEUS reaching GRIP stage 4 3) Number of LXEUs commissioned 4) Number of minor works standard items completed (signals, points, location cases, track circuits, cable and route work)	Network-wide; Scotland; England & Wales
Level crossing renewals	Number of LXEUs renewed	Network-wide; Scotland; England & Wales
Telecom renewals	Number on renewal of telecom equipment, to include concentrators, PETS, DOO CCTV systems	Network-wide; Scotland; England & Wales
S&C renewals	Number of S & C units renewed, including partial renewal	Network-wide; Scotland; England & Wales

Culvert renewals and remediation	Number of culverts renewed or where major components replaced	Network-wide; Scotland; England & Wales
Drainage renewals	Expenditure on drainage scheme renewals and volume	Network-wide; Scotland; England & Wales
Retaining wall renewals	Number and area of retaining walls subject to renewal	Network-wide; Scotland; England & Wales
Earthworks remediation	Number of earthwork schemes subject to remediation	Network-wide; Scotland; England & Wales
Tunnel renewals	Number of remediation schemes on tunnels	Network-wide; Scotland; England & Wales
Drainage	1) Volume of drainage renewals undertaken 2) Volume of drainage pipes cleaned out 3) Volume of catchpits cleaned out	Network-wide; Scotland; England & Wales
Drainage renewals	Drainage renewal volumes	Network-wide; Scotland; England & Wales

Delivery plan measures – Volume renewals

We require commentary on 'Other variance' - if for example, there is a change of policy and you are carrying out more maintenance, - as it avoids any ambiguity on efficiency and sustainability. A commentary should be provided to cover precisely what the change is.

Activity levels		
Specified target/output	*Measure*	*Disaggregation*
Volume renewals	Reporting of measures Condition and reliability forecasts which are consistent with delivery plan 2012. We would like a summary table with actual against target and the variance for the measures listed. Additionally, for each measure listed below, we require volume renewals work information for the current year covering: *Work deferred from last year, Work deferred to next year, Acceleration from future years, Scope change against the plan (this should add to the variance (the variance should incorporate the breakdown and be a net of all figures). If the Scope change does not equal the variance, then include Other variance*:	Network-wide, England and Wales, Scotland for plan, actual and variance
Track		
Rail (km)	Plan (DPu12), Actual, Variance	
Sleeper (km)	Plan (DPu12), Actual, Variance	
Ballast (km)	Plan (DPu12), Actual, Variance	
Composite / Plain line km	Plan (DPu12), Actual, Variance	
S&C (equivalent units)	Plan (DPu12), Actual, Variance	
Signalling		
Conventional SEU	Plan (DPu12), Actual, Variance	
ERTMS SEU	Plan (DPu12), Actual, Variance	
Crossrail accelerated (SEU)	Plan (DPu12), Actual, Variance	
Total SEUs	Plan (DPu12), Actual, Variance	
Level crossings (no.)	Plan (DPu12), Actual, Variance	
Telecoms		

Station information and surveillance systems		
CIS (monitors)	Plan (DPu12), Actual, Variance	
Public address (speakers)	Plan (DPu12), Actual, Variance	
CCTV (cameras)	Plan (DPu12), Actual, Variance	
Clocks (no.)	Plan (DPu12), Actual, Variance	
CIS (monitors)	Plan (DPu12), Actual, Variance	
Public address (speakers)	Plan (DPu12), Actual, Variance	
CCTV (cameras)	Plan (DPu12), Actual, Variance	
Operational telecoms		
Large concentrators (no.)	Plan (DPu12), Actual, Variance	
Small concentrators (no.)	Plan (DPu12), Actual, Variance	
DOO CCTV (systems)	Plan (DPu12), Actual, Variance	
PETS (no.)	Plan (DPu12), Actual, Variance	
Voice recorders (no.)	Plan (DPu12), Actual, Variance	
Electrification	Plan (DPu12), Actual, Variance	
Overhead Line	Plan (DPu12), Actual, Variance	
Campaign changes (wire runs)	Plan (DPu12), Actual, Variance	
Re-wiring (wire runs)	Plan (DPu12), Actual, Variance	
Structure painting (no.)	Plan (DPu12), Actual, Variance	
Conductor rail (km)	Plan (DPu12), Actual, Variance	
AC distribution		
HV switchgear (no.)	Plan (DPu12), Actual, Variance	
GSP transformer (no.)	Plan (DPu12), Actual, Variance	
GSP cable (km)	Plan (DPu12), Actual, Variance	
Booster transformers (no.)	Plan (DPu12), Actual, Variance	
DC distribution	Plan (DPu12), Actual, Variance	
HV switchgear (no.)	Plan (DPu12), Actual, Variance	
HV cabling (km)	Plan (DPu12), Actual, Variance	
LV switchgear (no.)	Plan (DPu12), Actual, Variance	
LV cabling (km)	Plan (DPu12), Actual, Variance	
Transformer rectifiers (no.)	Plan (DPu12), Actual, Variance	
Civils		
Overbridges (sq ms)	Plan (DPu12), Actual, Variance	
Underbridges (sq ms)	Plan (DPu12), Actual, Variance	
Bridgeguard 3 (sq ms)	Plan (DPu12), Actual, Variance	
Footbridges (sq ms)	Plan (DPu12), Actual, Variance	
Tunnels (sq ms)	Plan (DPu12), Actual, Variance	
Culverts (sq ms)	Plan (DPu12), Actual, Variance	
Retaining walls (sq ms)	Plan (DPu12), Actual, Variance	
Earthworks (sq ms)	Plan (DPu12), Actual, Variance	
Coastal/estuary defence (ms)	Plan (DPu12), Actual, Variance	
Other (including major structures) (sq ms)	Plan (DPu12), Actual, Variance	

Operational property

We require Network Rail to include detailed information on stations where the ownership has passed to relevant operators.

We require commentary about the discrepancy on expenditures in relation to operational property volumes and a key to explain the variance against target.
We require improved commentary on maintenance delivery units and the linkage to the long term charge for their customers, for example operators.

Specified target/output	*Measure*	*Disaggregation*
Station condition	Station stewardship measure - Assessed average condition grade of stations where trains make timetabled stops	Average station condition score for:
		(a) Each category of station (A-F) across GB network;
		(b) All stations (A-F) in Scotland; and
		(c) Each category of station (A-F), and disaggregation by:
		(i) excluding stations benefiting from NSIP funding; and
		(ii) only those stations benefiting from NSIP funding
Light maintenance depot condition	Light maintenance depot stewardship measure - Assessed average condition grade of LMDs	Network-wide

Specified target/output	*Measure*	*Disaggregation*
Operational property volumes	Operational property expenditure (£s) as defined in the latest delivery plan	By repeatable work items (RWI)

Enhancement schemes

We expect all enhancement schemes to be presented in a standard or consistent format, and to be comparable to enhancement scheme information published in other Network Rail outputs.
We expect the milestones to be presented in a consistent format.
Network Rail should ensure the 2013 Annual Return aligns with the latest quarterly update of the Enhancements Delivery Plan.
An example of a template to follow is the final 2010 Annual Return.

Specified target/output	*Measure*	*Disaggregation*
Project / Fund / Programme	Progress against milestones and expenditure	As per table delivery plan

Passenger and Customer satisfaction

The customer satisfaction section is unchanged from the 2012 Annual Return.
Network Rail should publish the results of passenger and freight operator survey and ensure that their commentary summarises the results of the survey.
Network Rail to ensure that the latest passenger satisfaction survey (spring) results (as defined by Passenger Focus's National Passenger Survey) are used. ORR would like commentary to focus on those measures where Network Rail directly manage or influence/impact passengers' satisfaction, for example, punctuality and Network Rail managed stations.

Appendix B

Meeting Notes

B1 Notes of meetings with Engineering Disciplines at the Centre

The following meeting notes are attached:

Discipline	Meeting Date
Track (Maintenance)	15th November 2013
Track (IP)	19th November 2013
Civil Engineering	28th November 2013
Electrification and Plant	29th November 2013
Telecoms	29th November 2013
Signalling	20th December 2013

Minutes

ARUP

Project title		**Job number**	
Meeting name and number	Track Maintenance Renewals 1	**File reference**	
Location	Network Rail Offices, Euston Station	**Time and date**	10:00 18 July 2014
Purpose of meeting			
Present	Dr Fazilat Dar: ORR Rebecca Williams: Network Rail Khamal Shah: Network Rail Keith Winder: Arup	James Wood: Network Rail Douglas Leeming: Arup	
Apologies	none		
Circulation	Those present Gavin Street, Angelique Tjen		

Action

1.1 Introductions

Those present described their roles:

Dr. Fazilat Dar: ORR manager responsible for the renewals review

Rebecca Williams: Financial Controller for Network Operations – oversees the financial control and reporting process with regard to renewal delivery by the DUs

James Wood: Senior Management Accountant Capex – responsible for consolidating the national results

Khamal Shah: Programme Controller – was previously responsible for the reporting of the maintenance renewal volumes results

Keith Winder: Arup lead for the review

Douglas Leeming: Arup project manager for the review

1.2 Asset Management Plan (AMP)

The AMP system is used to trace the progression of a project from initial sponsor identification through to final sign-off. The process has been in place for three years. There are two key forms which are used in the

Prepared by	Douglas Leeming
Date of circulation	30 Dec 2013
Date of next meeting	n/a

Action

process – AMP12 which defines the initial requirements for a scheme and the AMP14 which is the final sign-off that the works have been completed.

The AMP12 and AMP14 forms provide confirmation that the agreed job has been delivered. It was suggested by the Reporter that because there is no obvious cross reference to project numbers in the planning system, or linkage between the recording, sign off and reporting of the delivered volume and the initially agreed works, it may be beneficial to include details of the AMP12 project on the AMP14 document or include the AMP14 signature at the bottom of the AMP12 form.

Copies of sample AMP12 and AMP14 forms were provided to the Reporter team.

1.3 Systems

It was noted that the Maintenance Planning team use Oracle Projects (OP) as their workbank planning and recording system, rather than Primavera (P3e, used by IP and other asset disciplines in NR) to plan the works.

ORACLE is used to manage projects, includes the workflow approval process and is the means of capturing project finances.

1.4 Conversion Factors

The AMP 12 and AMP 14 forms record the geographic position, in miles and chains, between which the renewals have been undertaken. To calculate the recordable volume, the miles/chains figure is converted to metres. The volume is factored up or down for re-railing one, or re-railing two rails, ballast, sleepers, or a composite volume where all are renewed. The volume is then entered into the systems using the agreed/ approved conversion factor to allow standardisation of measurement. The conversion rules are contained in a Network Rail standard.

RW

Network Rail to supply a copy of the conversion factor standard to Arup.

1.5 Taxonomy

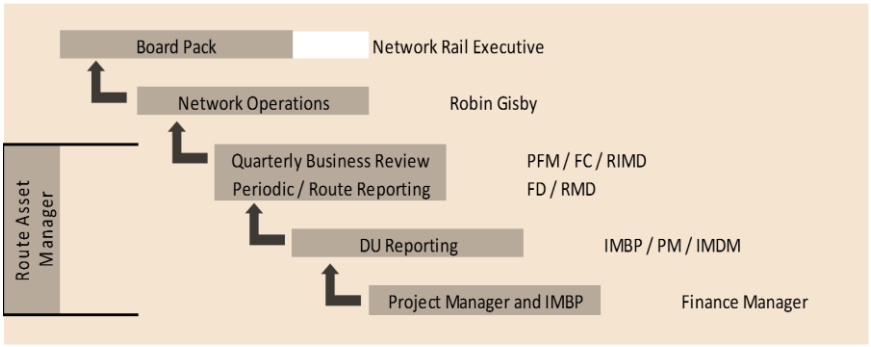
Within the system are Job Numbers. These will be unique to each Route and be separate for each of plain line and S&C renewals. Within the job number there may be a portfolio of jobs covering different locations. Within each job there may be a variety of activities – for example re-ballast, re-sleeper, and re-rail.

1.6 Reporting

Reporting takes place at various levels to varying degrees of detail. The following diagram illustrates the various levels of reporting and who it is

Action

used by.



The Reporter team requested a copy of the 2012/13 Period 13 reports for the various levels of reporting as shown above. RW

1.7 Planned Volumes

The Reporter team queried the conventions in use for recording "planned" volumes. RW confirmed that 'planned' meant the volume shown in the annual plan at the beginning of each financial year, and these numbers should carry through each reporting cycle for the whole year. Any adjustment or revision to the 'planned' volumes will be reflected as a 'forecast' or outturn.

1.8 Reporting Variations

In a discussion regarding the reporting of variations it was noted that if it was necessary to substitute a job as a result of, say, no access permitted then Network Rail will substitute another job – the next in the priority list if this is deliverable. The overall reporting would not necessarily show the non-delivery but because the figures are consolidated may show the same or better delivery. Consequently, even if planned and actual figures are the same in a reporting period, this would not necessarily mean that these represented the same jobs – so comparison of planned v. actual volumes cannot be used as a measure of NR's delivery of the planned work. Similarly, it was agreed that the tracking of delivery volumes did not necessarily mean that the most urgent tasks had been completed and that it may be necessary to examine other metrics – condition assessment for instance - to identify this. RW

In the financial monitoring of the delivery of the workbank, Network Rail use forms which highlight potential and actual overspend. F4 reds denote overspend against authority, F4 ambers denote a forecast overspend.

The Reporter team asked for a copy of a sample F4 red and F4 amber report.

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1.9 Devolution Impact

It was agreed that the devolution process was now complete and that the organisation should now be considered as having bedded down in this form.

It was considered that little has changed in terms of the processes as a result of devolution. There is still a requirement to report to the Centre. Processes, however, may have changed internally within the Routes but this is not apparent to the Central team.

Minutes

Project title	Job number	Date of Meeting
		18 July 2014

Project title		Job number	
Meeting name and number	Track IP Renewals 2	**File reference**	
Location	Network Rail Offices, Milton Keynes	**Time and date**	10:00 18 July 2014
Purpose of meeting			
Present	Ram Ramakrishnan: Network Rail Keith Winder: Arup	Paul Greene: Network Rail Douglas Leeming: Arup	
Apologies	Emma Roby – Financial Controller Track IP, Network Rail		
Circulation	Those present Gavin Street, Angelique Tjen		

Action

1.1 Introductions

Those present described their roles:

Ram Ramakrishnan: Senior Management Accountant – responsible for the corporate results for IP Track

Paul Greene: Principal Programme Planner (National Track IP) – responsible for setting up the processes and the templates for reporting

Keith Winder: Arup lead for the review

Douglas Leeming: Arup project manager for the review

1.2 Coverage

The team cover the delivery of track renewals by the IP team nationally covering the three elements of Plain Line, S&C and High Output. The way data is held recognises the Route divisions and the split between these three elements.

It was noted that the delivery of track renewals is split between the IP, maintenance and enhancement teams. The reporting undertaken by this team only covers the IP elements.

Action

1.3 Forecasting

Network Rail plan their renewals on a six year rolling programme of works. This programme is very specific in terms of the type of work and its location in the early years but less so as the plan stretches out into the future. Nevertheless block items are put into the project plan to cover the likely volumes in future years. The rolling programme exists as a standalone Excel spreadsheet.

It was noted that the delivery of track renewals associated with, for example the Northern Hub project, will be reported by the sponsoring department. A new role of Head of Planning Integration (HOPI) is charged with ensuring that Network Rail will deliver the volumes in the most efficient way by co-ordinating access and use of plant.

1.4 Delivery Tracking

The tracking of spend and quantity of delivery starts with the inclusion of costs and volumes in the P3 system. At the start of the financial year these figures will be locked down as Baseline costs and volumes. As the renewal develops, and before it starts, they develop the Budget costs and volumes. These will change during the gestation of the project but freeze once the contract is let for the works. The emerging actuals are then measured against the Budget figures.

In reporting the completion of the works forms are completed (Interim GEOGIS forms) which provide the view of the volumes from site. Once the renewal is validated as a result of the confirmation of the volumes by the passage of the TRU then a Final GEOGIS form is completed. It was noted that the confirmation of the volume (by the TRU) could be several months after the renewal has been completed.

At both of these stages the volumes are entered into P3 for the project. It is necessary to calculate the length of the renewal for each of the components (rail, sleeper, ballast) based on the start and end mileages of the works done during each week. These calculated yardages are then entered into P3 which automatically uses the relevant (for the activity code) conversion factors to determine the delivered volumes.

The foregoing holds true for volume data. Actual costs are captured through different systems and applied to the job.

1.5 Checking

With regard to checking the accuracy of the volume data entered into the system for each job a sample check is carried out. A current sample of 94

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sites is being audited. This represents approximately 10% of the portfolio. This is undertaken by the Principal Programme Planner at the National office.

In terms of the chain of responsibility for the accuracy of the data in the system this begins with the Programme Controls Manager in the Delivery Unit. It was noted that the Planner and Project Manager also have a role in checking the quality of the data.

Given the role of contractors in delivering the renewal volumes there is a strong commercial interest in getting it right in the system.

On the basis of the audit currently being undertaken internally by Network Rail it was noted that there is a significant degree of confidence in the overall accuracy of the volume figures.

It was noted that the team does not undertake checks on the completeness of the Change Control Process as part of their review. This is undertaken elsewhere.

1.6 Systems

The P3 system is used to plan and capture the data associated with the delivery of each renewal. When a report is required Business Objects extracts the relevant information from P3e and formats it in such a way that it is readily understood for a specific purpose.

1.7 Taxonomy

There are a series of rules associated with the setting up of Job Numbers for track renewals. As an example, all renewals of value greater than £1.3m require a unique job number. Within other ranges the requirement to have an individual job number of each site is dictated by a risk assessment with the others covering a portfolio of schemes.

A UID exists for each site despite its value.

1.8 Individual Job Review

A review of a random selection of renewal jobs was undertaken to try to tease out any issues. The following table shows the outcome of the review.

Route	Location	Commentary
WEST	Old Oak Common	The renewal volumes linked to the GEOGIS forms although the Budget Volume had been removed from P3. This is an error but

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		because the job is completed is not material. Also noted that there was a significant volume change (downward) when compared to the Baseline figure. This was stated as being due to the transfer out of volume to the Crossrail project. The relevant Change Control forms were requested by the Reporter. PG
LNW	Brogborough Hill	All figures checked and correct
LNE	Shaftholm Jn - Askern	In validating the P3 volumes against the GEOGIS forms an 11 yard error was identified when considering the ballast volumes.
LNW	Fenny Stratford	All figures checked and correct
SUS - KENT	Lewisham	All figures checked and correct

The Reporter team requested copies of the various system worksheets and forms associated with a sample of projects covering each of Plain Line, S&C and High Output.

1.9 Review of Recording Process

The Reporter review of data has concentrated on base level recording, reporting and collation of volume data since this is where the greatest level of manual input and data manipulation is to be found. Once data is logged into company systems and software the aggregation and onward reporting is generally wholly electronic and relies on no further manual intervention.

At the base level of data collection and reporting on IP Track:

- An interim GEOGIS form is compiled at the site of the works which records the milepost location where the work was undertaken – a 'starting location' in miles and yards, and a 'finish location'. Work volumes are shown for each of sleepers and ballast separately since the volumes of each may not be the same.
- The chainage of renewals is calculated 'manually' in the planning office (by subtracting starting from finishing mileage) and converted to a metric measure to achieve an equivalent metreage.

Action

- This metreage total is then entered into the P3e workbank planning system.

The Reporter team noted a number of points in the recording and reporting process where the risk of error appeared to be high, even when the data on the GEOGIS form appeared to be correct:

- When multiple locations of work were reported on a single interim GEOGIS form;
- When multiple locations of work were reported on a single interim GEOGIS form and the site was not continuous;
- When the work undertaken was materially different from that planned (either through unplanned curtailment or substantial work planned but not undertaken);
- When the components of the work – track, sleeper and ballast – where not clearly and separately identified on the form; and
- When manual amendments had been made to the interim GEOGIS form.

Inevitably, the 'manual' arithmetic calculation of the yardage of the works from the forms and the conversion of these into metric lengths represent the biggest single risk of error with regard to the reporting of track volume data.

1.10 Reporting

Examples of reports produced at various levels were reviewed. It was noted that the data is available down to individual item level but consolidated up to Plain Line / S&C / High Output level for the Routes.

At the highest level of reporting – for the Executive – the track renewal volumes are combined with those delivered by the other sources (Maintenance and Enhancements). These are also shown by each of the three renewal categories.

The Reporter team requested copies of the reports for the various levels which were produced by the team for period 13 2012/13. RR

Minutes

Project title	Job number	Date of Meeting
		18 July 2014

Project title	2012/13 Renewal Volumes Review	**Job number**	232174-00
Meeting name and number	Civils IP Renewals 3	**File reference**	
Location	Network Rail Offices, Milton Keynes	**Time and date**	10:00 28 November 2013
Purpose of meeting	Review		
Present	Chris Sills: Network Rail Sarah Ross: Network Rail Douglas Leeming: Arup		Keith Coles: Network Rail Keith Winder: Arup
Apologies			
Circulation	Those present Gavin Street, Angelique Tjen		

Action

1.1 Introductions

Those present described their roles:

Chris Sills: Principle Programme Control Manager – with regard to this meeting, his responsibility is to provide continuity from previous years with the reporting of the Civils volumes for 2012/13

Keith Coles: Senior Business Performance Specialist – responsible for the business planning and change control processes

Sarah Ross: Senior Financial Analyst – responsible for the consolidation of the cost and volume reporting from the Routes – this is done by asset type and not by Route

Keith Winder: Arup lead for the review

Douglas Leeming: Arup project manager for the review

1.2 Background

CS ran through a short presentation (attached) on the current set up with regard to reporting. This largely related to the current arrangements which have been implemented and continuously improved since April 2012 to take account of the devolution to the Routes. Nevertheless the

Action

following points were identified:

The routes own the volume data but there remains a role for the centre in the consolidation of the results for reporting purposes;

At the start of the year the RAM is given a cost and volume target to meet;

In the early part of 2012/13 it was accepted that there were problems with the reporting processes which were largely down to issues relating to devolution & DIME reorganisations and the shortage of staff in certain key roles;

The post DIME IP regional organisation mapped to the devolved route structure as follows

IP Unit	Route
Central	East Midlands LNW
SNE	LNE Scotland
Wales and West	Wales Western
Southern	East Anglia Kent Sussex Wessex

In putting together the Baseline Plan a number of 'holding lines' were put in as markers for works which were not yet well developed or where there was a need for a contingency for emerging works. These were split to asset type – e.g. underbridges. As jobs were identified these lines were downturned and by Period 4 they were closed and the Routes told to deliver to target;

The Civils workbank is delivered by two means:

IP – which delivers the large scale projects

Works Delivery (Maintenance) – who should be delivering smaller scale projects with a guidance limit of £250k. Some of this will be contracted out but for items under £50k (minor works) this will normally be done by the in-house teams.

P3e is the common database used to plan and manage the delivery of the IP work bank. Prior to devolution / DIME the P3e EPS was structured by

Action

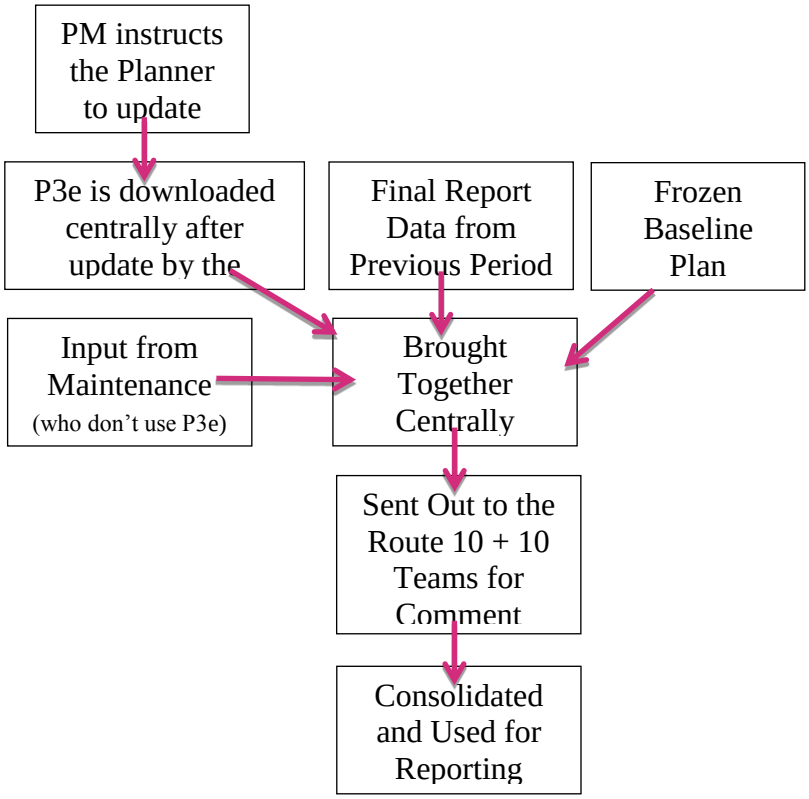
asset. Post devolution / DIME the tool was structured by region / route which meant that initially access and batch reporting for volumes reporting purposes was restricted. This issue was resolved and thus the P3e tool is maintained as an integral part of the reporting process purposes.

Routes whilst owning their budget are instructed to manage within their budgets and to prioritise jobs accordingly.

The £250m injection of capital spend as part of the Enhanced Spend Programme was treated separately and did not form part of the volume reporting. It was also noted that Enhancement spend is dealt with separately.

1.3 Current Process

The flow of data for the current reporting arrangements is based on the following:



The management of the spend comes on the finance side not through the

Action

volume reporting.

The business plan figures in P3e should always be current unless there is a change control pending.

1.4 2012/13 Project Reporting Review

Project Code	Description	Commentary
LNE000304	GRS2 South Forty Foot Drain – Embankment Protection Works 12/13	Project involved a reduction in volume which was tracked in the system – there was a minor variation in the volumes which was traced back to CAF.
LNE001344	DNS2/42 Omesby Beck, Middlesborough – Deck Removal	Figures were tracked through project but there was an error in the full year forecast figure which showed the original volumes which should have been zeroed. This did not affect the reporting of volumes.
LNE001399	Dow 9.0353 – 9.0524 Down Hatfield Chase – Preventative	There were changes to the project due to resources being removed. All reporting figures were correct.
LNE001532	PED5/75 Greenfield Lane (BG3) Strengthening	This project was delayed until 2013/14 and correctly change – controlled out of 2012/13. Project now being delivered by another organisation as part of Bridgegard 3. Correctly closed out by IP in Feb 2013.
LNE001728	ECM1/137 Great Paxton, Huntington – Sheet piling to revetment wall	All figure checked out – no variations to project.
LNE001735	SPC1/159 Flitwick Near Luton – Stitch and grout arch barrel	All figures checked and correct.
LNW001375	CNH1 Wharton S Lock 169m 25ch to 169m 56Ch	This project was change controlled out of the budget at the last minute because it was realised that it couldn't be delivered in the year.
LNW001990	CMP1 Bridge 28a M6 motorway at Sandbach – Holmes	The job was deferred from 11/12 to 12/13 but the volume had not been picked up and it is thought that the

Action

	Chapel	project fell between LNWN and LWNS. This is an error.
LNW002108	COL Underbridge 61 Viaduct Tennanted Arch	The completion of the project happened early in 13/14 however the volumes were claimed in 12/13 before it was entirely complete. This is not consistent with practice elsewhere.
LNW002133	CGJ6 Gubberford Lane – Down	All figures checked out
LNW002204	CBC2 Siddick Sea Wall	This job moved out of 12/13 into 14/15 – change control fine, all figures correct
LNW002215	BBB 36 Sough Tunnel	All figures checked out
SC001370	T132/005 Kippenross Tunnel Overburden Washout Repairs	This was a new item in P8 delivered by the maintenance team. Because it is a maintenance delivered item it was not reported in P3. The full business plan volume was not delivered but there was no explanation regarding why.
SC001291	Footbridge 145/072 Robroyston Contribution to Enhancement Scheme	This project was a contribution to a principle project where the funding was given to the main project as a renewal contribution. All figures shown correctly. Noted that there is no risk of double counting since the enhancement project won't report volumes.
SC001126	Underbridge 011/007 A6095 Newcraighall Steelwork Repairs	A single project which is recorded on two lines because it is reported to ORR separately in the annual return. Volumes are all correct although there was an error in the baseline figure.
SE000403	Kingsfold	This item was change controlled out – reporting correct.
SE001313	Windmill Hill VTB2 – 93	This was a maintenance delivered item but has been updated in the FYF and YTD volumes at Period 13. There is a comment however which justifies the increase of 200

Action

		units on the project. This is a reporting error.
SE001956	Bo Peep Tunnel 139 TTH, shaft 3 grouting	This is a new item which was slipped from 11/12. All documentation correct.
LNW004214	MAJ Glazebrook Embankment Emergency	This project had original volumes included in the system which were then increased during the course of the year. They delivered the initial volume and have carried the remainder over. Figures correctly report the volume but there is an inconsistency in terms of the way the carry over element has been treated.
LNW002388	CWJ Stonebridge park	This is a scheme based on monitoring the condition of an asset. Reported volumes all OK.

1.5 Observations

In reviewing the above twenty projects the following observations were made:

It is clearly easier to control the consistency of the reporting when it is managed centrally. It was noticeable that there are variations in approach creeping into the figures however these do not largely affect the accuracy of the reporting. However there may be some concern that the situation will deteriorate once devolution matures.

Associated with the above the individuals who are responsible for the data in the Routes are relatively new to the process.

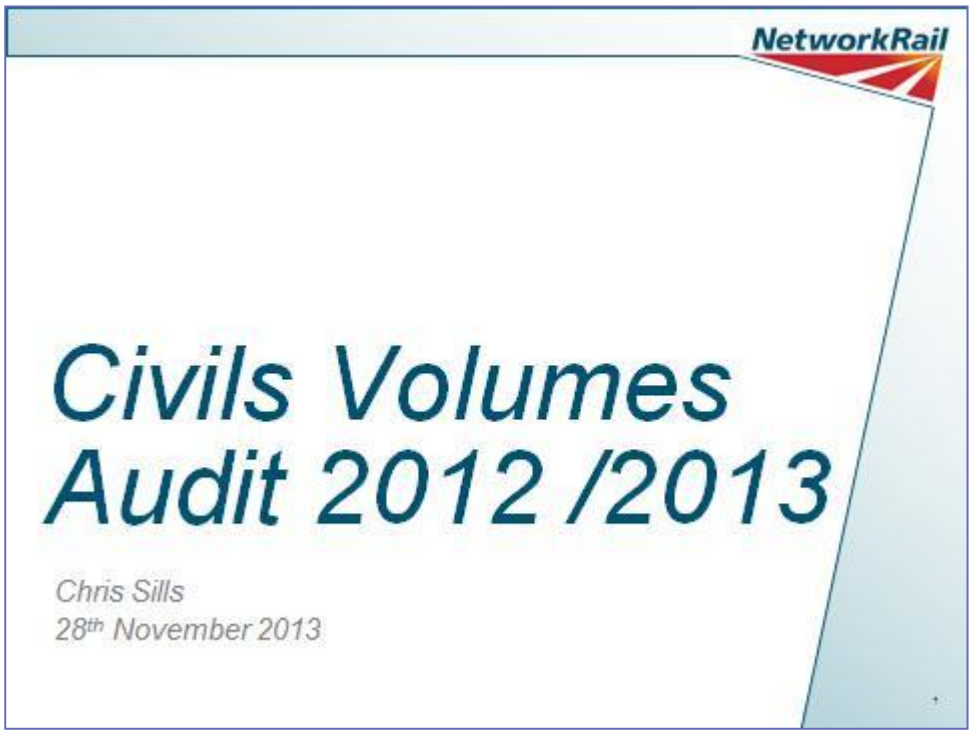
In order to provide continuity Network Rail is currently operating a parallel system of reporting based on the centre still collecting and reporting the data. From the end of the 13/14 the Routes will be directly responsible for the reporting.

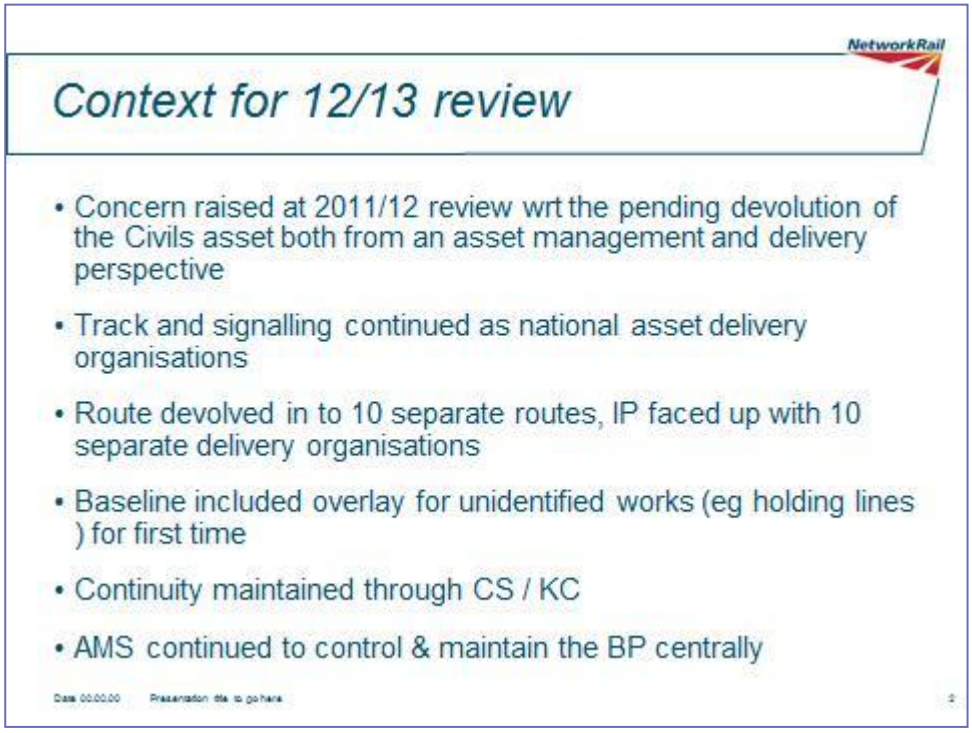
1.6 Recommendations

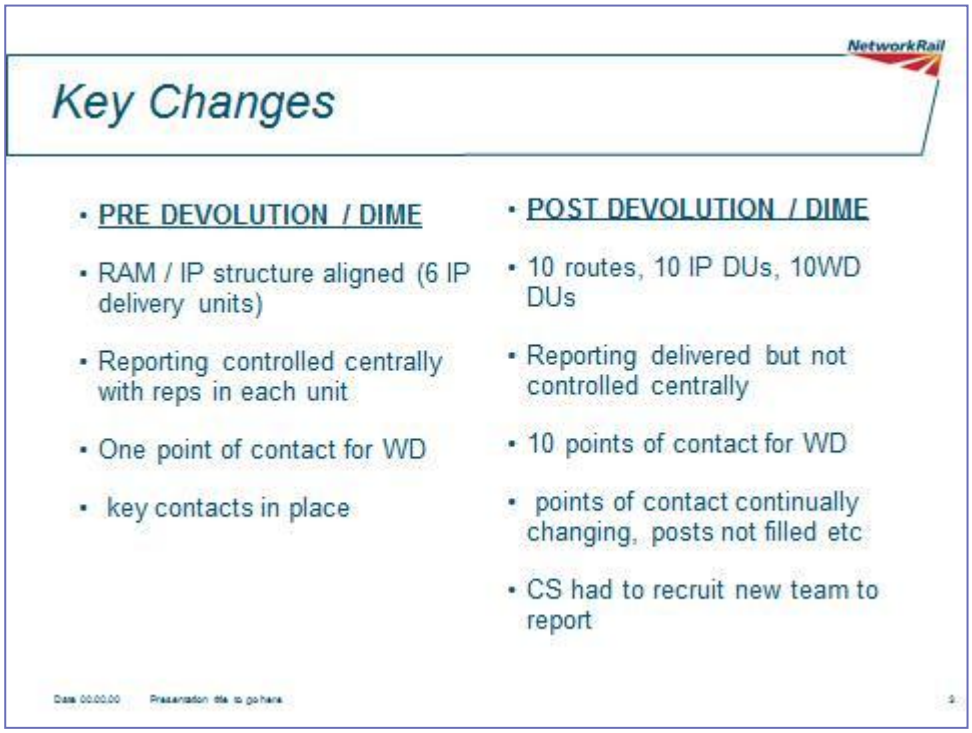
There was one recommendation - 2012REN13. This related to the variations in the approach to the reporting adopted by LNE route. A

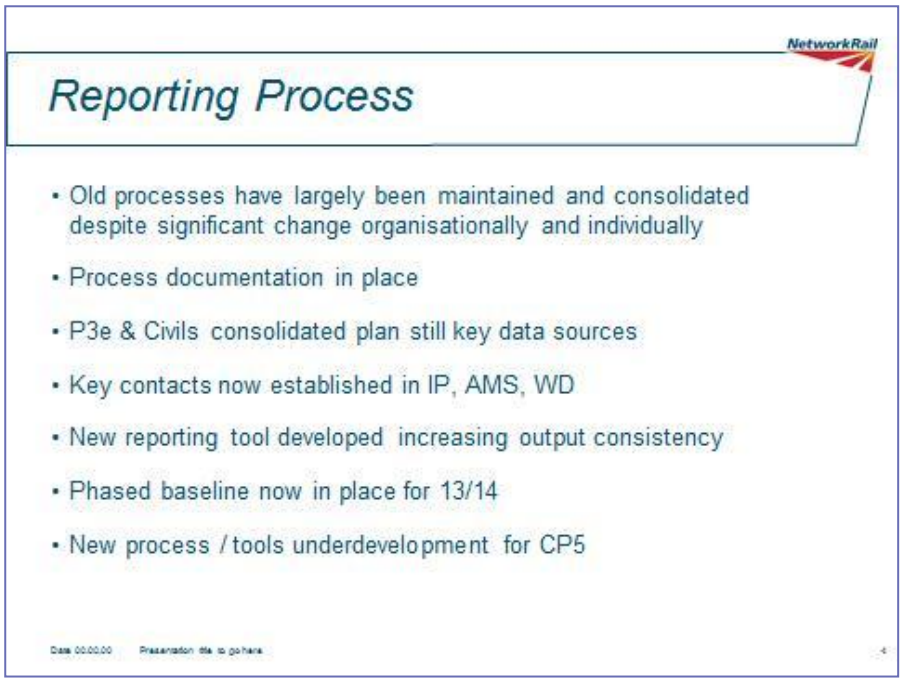
Action

review has been undertaken of the impact the use of the CAF process has had on the reported volumes, and it has been found that this is minor. As the benefits of using the CAF7 process are not considered to be material to overall reporting accuracy, it has been decided not to adopt the LNE arrangements across the network.




NetworkRail
Context for 12/13 review
• Concern raised at 2011/12 review wrt the pending devolution of the Civils asset both from an asset management and delivery perspective
• Track and signalling continued as national asset delivery organisations
• Route devolved in to 10 separate routes, IP faced up with 10 separate delivery organisations
• Baseline included overlay for unidentified works (eg holding lines) for first time
• Continuity maintained through CS / KC
• AMS continued to control & maintain the BP centrally
Date 00.00.00 Presentation title to go here


NetworkRail
Key Changes
• PRE DEVOLUTION / DIME
• RAM / IP structure aligned (6 IP delivery units)
• Reporting controlled centrally with reps in each unit
• One point of contact for WD
• key contacts in place
• POST DEVOLUTION / DIME
• 10 routes, 10 IP DUs, 10WD DUs
• Reporting delivered but not controlled centrally
• 10 points of contact for WD
• points of contact continually changing, posts not filled etc
• CS had to recruit new team to report
Date 00.00.00 Presentation title to go here


NetworkRail
Reporting Process
• Old processes have largely been maintained and consolidated despite significant change organisationally and individually
• Process documentation in place
• P3e & Civils consolidated plan still key data sources
• Key contacts now established in IP, AMS, WD
• New reporting tool developed increasing output consistency
• Phased baseline now in place for 13/14
• New process / tools underdevelopment for CP5

Minutes

Project title	Job number	Date of Meeting
		18 July 2014

Project title		Job number
Meeting name and number	Telecoms IP Renewals 4	**File reference**
Location	Network Rail Offices, Milton Keynes	**Time and date** 09:00 18 July 2014
Purpose of meeting		
Present	Erwin Klumpers: Network Rail Paul Sellar: Network Rail Ashley Pinder: Network Rail Folusho Amusan: Office of Rail Regulation Keith Winder: Arup Douglas Leeming: Arup	
Apologies		
Circulation	Those present Gavin Street, Angelique Tjen	

Action

1.1 Introductions

Those present described their roles:

Erwin Klumpers: Financial Controller Telecoms – has overall responsibility for the reporting of cost and volumes

Paul Sellar: Senior Business Planning Specialist – responsible for the development of the baseline budget and the reporting of renewal volumes throughout the year.

Ashley Pinder: Business Planning Specialist – responsibilities similar to Paul Salter

Folusho Amusan: Overseeing the Reporter delivery of the study

Keith Winder: Arup lead for the review

Douglas Leeming: Arup project manager for the review

1.2 Background

It was noted that the telecoms organisation had not devolved in the way that the other disciplines had. Whilst they have staff in the Routes, for example the Route Communication Engineer, they are part of the central

Action

team.

There is a telecoms maintenance function in the Routes as part of the DU teams.

IP deliver the bulk of the telecoms renewals with the maintenance teams doing some of the smaller items. The maintenance function currently does not use P3e to report their work.

They have worked on improving their processes since the appointment of the two Business Planning Specialists to improve their systems and put in place a robust means of tracking delivery.

1.3 Project Life Cycle

The current arrangements are based on the following.

Baseline

The baseline plan is fixed as the start of the year position. The telecom baseline plan is developed from the output of the Decision Support Tool which drives the actions which form the plan. This is reviewed by the Renewals & Enhancement Engineer. The schemes are supported by investment papers which go to Telecoms Investment Panel – a dedicated and separate Telecoms Investment Panel is a relatively recent innovation, to give greater focus on, and clarity around telecoms investment decisions. Investment papers are drafted by the Sponsor and seek to justify the works. This paper is produced in collaboration with IP.

The units of measurement for the items are based on standard units as laid down in the procedures. There is no standardised 'Telecoms Equivalent Unit', similar to that found in signalling; each item type has an agreed means of measuring volume.

There is a small fund of money which is used for Minor Emerging Works. All other line entries are for identified works items.

Delivery

The Project Manager for the scheme meets with the sponsor to agree the progress on the project. This is then reported to the central team (AP) as the period forecast. This can change from period to period. The report will also contain actuals which are the year to date outputs. There are five route submissions coming into the centre each month. These returns cover only the volumes planned and delivered – the financial reporting is undertaken elsewhere.

Noted that there is no electronic feed link between the reporting from the regions and the summary sheet which is used for reporting purposes – the summary is compiled manually by the Senior Business Planning

Action

Specialist.

Change Control

The Telecoms team now has a formalised Change Control process and procedure, which did not exist the last time the volumes reporting were reviewed by the Reporter team. This new process has been drafted and implemented to tighten up the change control arrangements.

The arrangements are similar to, and consistent with, those in place in other disciplines, and is covered by a single overarching standard.

The Change Control arrangements are managed by PS. A dialogue takes place between the deliverers and the central team on a period by period basis. This will typically cover increased or decreased volumes, increased or decreased price and milestone changes. The change control form must be signed off by the Project Manager (for delivery), the Finance Manager (for price) and the Renewals and Enhancement Engineer (on behalf of the central team)

Noted that change control can take place at any time even up to the end of the financial year.

1.4 2012/13 Reporting Processes

Whilst the processes that are described above are the ones currently in place, when considering the management of the process for the 2012/13 the arrangements were not the same. At the start of 2012/13 there was a shortage of staff to centrally manage the process. However, this was rectified in October 2012 and the process of change control by the centre then started to kick-in. This included retrospectively tracking back the changes, which had been recorded locally, and putting these onto a more sound footing.

In addition, there does not appear to have been clear rules in place for when volumes were claimed. This was stated as being different for the various asset types with the onus on the Project Manager to claim the volumes when he sees fit.

1.5 2012/13 Project Review

The following sample projects were selected to determine if the system reporting of the volumes matched the site sign-off sheets.

Action

Project Code	Description	Commentary
	LNW West Midlands Concentrators	This project was slipped for 11/12 into 12/13. The reporting figures appeared to be robust but the change control documentation from 11/12 was not available.
	LNE Concentrator Renewals 09/10	Noted that there were different line entries for the differently reported elements of the renewal. All figure appear consistent with supporting change control documentation.
	LNE Concentrator Renewals 12/13	Volumes dropped against plan. Explanation provided through change control linked to the sourcing of long-lead items.

1.6 Reporting

Checks were undertaken on the overall volumes reported at the year-end compared to the evidence of delivery in the systems.

Large Concentrators	Baseline 6	Reported 2	System Actuals 2
Small Concentrators	Baseline 39*	Reported 23	System Actual 23
Voice Recorders	Baseline 6	Reported 36	System Actual 36

* The reported baseline figure was 38 – this was an error

1.7 Observations

Where there is a linkage between telecom renewal and an enhancement project there is the potential for the double counting of the renewal volumes. It was noted however that the Network Telecom Planning Manager act as the liaison with the enhancement team. It was also noted that enhancement projects do not report volumes.

1.8 2013/2014

In the current year the processes have been substantially strengthened through the new processes which have been implemented (copies to be provided). PS

It was noted that the number of volume types had increased from nine to twenty. Network Rail is currently in discussion with ORR regarding their

Action

requirements for reporting.

There is also a greater level of detail around the in-year and Final Year Forecast changes to the plan. The granularity of the changes is also better through better reporting of causes.

The processes of reporting volumes upwards have been enhanced with a greater level of automation of the data collation.

1.9 Recommendations

There were two outstanding recommendations regarding telecoms volumes.

2012REN03 this required the updating and re-issuing of the procedures for the reporting of telecoms volumes. – this has been done and copies of the procedures have been requested

2012REN05 this required the use of P3e as the source data for renewal volumes. P3e is in use for the reporting of volumes delivered by IP. It is not currently in place for use by the maintenance teams.

Minutes

Project title	Job number	Date of Meeting
		18 July 2014

Project title		Job number	
Meeting name and number	Electrification and Plant IP Renewals 5	**File reference**	
Location	Network Rail Offices, Milton Keynes	**Time and date**	12:30 18 July 2014
Purpose of meeting			
Present	Phil Collins: Network Rail Martin King: Network Rail Folusho Amusan: Office of Rail Regulation Keith Winder: Arup Douglas Leeming: Arup		
Apologies			
Circulation	Those present Gavin Street, Angelique Tjen		

Action

1.1 Introductions

Those present described their roles:

Phil Collins: Was previously (in 2012/13) the Head of Asset Management E&P. Current role Head of Network Performance E&P

Martin King: Was previously (in 2012/13) the Business Planning Specialist. Current role Performance and Reporting Analyst Building and Civils.

Folusho Amusan: Overseeing the Reporter delivery of the study

Keith Winder: Arup lead for the review

Douglas Leeming: Arup project manager for the review

1.2 Volume Measures

The E&P function covers a variety of asset types only some of which are required to be reported to the ORR. For each category of asset a consistent means of measuring renewal volumes has been developed and applied. These are set out in NR/ARM/M36/DF. The above units are

Action

linked to specific P3e codes. There has been some confusion in the past between ORR and Network Rail regarding the units used in the reporting of, for instance, wire run renewals.

1.3 Delivery

There are three types of work undertaken by E&P. These are summarised in the following tabulation.

Work Activity	Included in Targets	Classified as Renewals
Maintenance	No	No
Refurbishment	Some	No
Renewal	Yes	Yes

It was noted that the means of delivery of E&P renewal work is limited to either IP or the maintenance teams.

Maintenance does not use P3e to capture work so it must be input manually. The team have now set up a consistent process to ensure that the data is captured in a more robust way. PC noted that Network Rail is in the process of changing its internal way of gathering the data which will provide it with more information. However this will not affect the company's external reporting.

Noted that the rules for determining when a volume should be declared are documented in NR/ARM/M36/DF Section 4.6.2.

1.4 Project Sign-Off

When a job is completed on site the responsible party produces and signs a Form E. This is the confirmation of the delivery of the item. It refers back to the job number and lists what has been delivered. The Form E does not show the volume associated with the job which would be used for reporting purposes. This is because the form is intended as an asset management tool not a means of reporting.

These forms were in use in 2012/13 by the engineers but were not used as part of the delivery assurance process at that time.

Minutes

Project title	Job number	Date of Meeting
		18 July 2014

Action

1.5 2012/13 Reporting Processes

The reporting process was described thus:

- To report the volumes the respective Project Manager will liaise with their Planner to update P3e with the latest business plan forecast or actuals.
- This would then be pulled in from the four IP teams and combined with input from AMS and the maintenance returns (not in P3e) and consolidated into a period report covering the all the items and their associated volumes describing the Baseline, Forecast and Actuals.
- This report is then submitted to the RAMs for comment – within one week.
- The combination of the figures and the RAM commentary then forms the period reporting pack.

1.6 Change Control

The E&P change control process uses the same templated change form as adopted by telecoms and signalling. Changes are required to be signed off by the Project Manager, the RAM, the Finance Manager, and the Senior Enhancement Renewals Engineer.

The change logs are manually entering into the Business Plan. Whilst this is seen as an opportunity to undertake a sense check on the changes it also introduces the risk of error. However, there are consistency checks in place to counter the risk of error. The plan going forward is to automate this process including the use of electronic signatures from the authorising individuals.

Whilst the current process is far tighter controlled for the 2012/13 individuals were able to update the forecasts for each item. This led to considerable volatility in the reporting. It was accepted that this was not a proper change control process although there was some attempt to explain the variations as they occurred.

1.7 2012/13 Project Review

The following sample projects were selected to determine if the system reporting of the volumes matched the site sign-off sheets.

Action

Project Code	Description	Commentary
106331	Booster Transformers Scotland	Project tracked and linked to Form 'E' – all in order
121761	Conductor Rail Renewal Sussex	Project tracked and linked to Form 'E' – all in order. Comment made by Network Rail that there is a lot of work going on with regard to conductor rails which is not required to be reported.
122521	DC HV and DC LV Switchgear Renewal Wessex	The volumes for this item were transferred from another job. Whilst the Form E does not specifically identify the volumes which have been delivered it was subsequently confirmed by an e-mail (seen) from the RAM confirming the delivery volumes.
122523	DC Cable Renewal Wessex	Part of this job was slipped from 12/13 to 13/14 due to industrial action by DBS. The reporting of the volumes delivered was based on project manager reports for P11. P3e was not updated by the PM and planner to reflect the delivery. However P3e was updated retrospectively in P12.

1.8 Recommendations

There were four outstanding recommendations regarding E&P volumes.

2012REN07 this required the implementation of new reporting procedures. A copy of the new signed-off procedure was received and explained. This is now in operation.

2012REN10 required an improvement to the reporting of volumes by the maintenance teams. The new procedures holds the same people accountable for the reporting of delivery by either IP or the maintenance team. This was considered as providing the necessary accountability and check.

2012REN11 proposed the central control of reporting from LNW. LNW

	Action
were used as the pilot for the development of the new procedures and have been successfully running under the new regime for some time. Network Rail to provide evidence of the adoption of the new process	MK
2012REN12 this required the sorting out of the reporting of HV cable renewals. This was traced to an error in the coding of the renewals in P3e. This error has been corrected. Arup requested evidence of this correction.	MK

Minutes

Project title	Job number	Date of Meeting
		18 July 2014

Project title		Job number	
Meeting name and number	Signalling Renewals 6	**File reference**	
Location	Network Rail Offices, Milton Keynes	**Time and date**	10:00 18 July 2014
Purpose of meeting			
Present	Simon Cort: Network Rail Keith Winder: Arup		Douglas Leeming: Arup
Apologies			
Circulation	Those present Gavin Street, Angelique Tjen		

Action

1.1 Introductions

Those present described their roles:

Simon Cort: Is the Senior Business Performance Analyst. In this role he co-ordinates the delivered volumes from the Routes and co-ordinates the change control process.

Keith Winder: Arup lead for the review

Douglas Leeming: Arup project manager for the review

1.2 Planning and Delivery Process

The process for managing and reporting renewal volumes came into place half way through 2012/13.

For 2012/13 the baselines were set during period 8 in 2011/12. These baselines were put together by the Routes and verified at the Centre. The national total for signalling in 2012/13 was £1,141m.

Work is described in Signal Equivalent Units (SEUs) and Level Crossing Equivalent Units (LXEU). Percentages of the units are then used depending on the complexity of the planned works – for example 45% of a unit of a re-locking and 5% for a re-control.

Action

The Project team completes P3e updates on delivery which are then accessed by the Centre and compared to baseline. These P3e reports are used by the Route to update their SSADS database. The Centre challenges variances between actual and baseline. However, it was noted that if the planned number agreed with the actual no check was undertaken to ensure the actual planned activities were undertaken or a balancing variance.

Change Control takes place at the Route level.

Renewal volumes are claimed when GRIP6 progress is achieved.

1.3 2012/13 Project Review

SC provided a spreadsheet with the projects undertaken during 2012/13. Supporting documentation was also available for review.

A sample of the projects were selected to determine the robustness of the system in place – see Table 1 at the end of these notes.

It was agreed that it would not be useful to review the SSADS database to check that the activities had taken place since these records merely confirm the current volumes of assets. However, three checks were made of projects where assets had been removed to check that they had been removed from database. These proved correct but it was unclear when the records were updated in relation to the project.

1.4 Emerging Issues

There is a greater propensity for error in the reporting with the devolution of reporting to the Routes. However the netting-off of errors by the Centre may mask individual variations.

There would still appear to be a role for the Centre in consolidating the results from the Routes, verifying that all reported delivered volumes corroborate the planned volumes, and also providing a superimposed check of process. Currently, it is difficult for the Centre to validate Route submissions without the right of access to the supporting documentation – this appeared to be an issue throughout the review.

The fact that the two systems (P3e and SSADS) are not linked electronically, and both are input manually by different individuals, could lead to discrepancies between the two.

It was noted that a system previously initiated as a means of tracking documentation associated with renewals by the Centre was dropped because of the implications on other disciplines because of the use of same documentation.

Table 1: Summary of Projects Reviewed During the Audit

Project Code	Description	Commentary	Project Volumes	Identified Error
111501	Ely – Norwich Resignalling	For the 1 SEU change control documentation was seen – all in order. For the LXEU it was noted that the 11 reported units should have been 8. 2.5 units over-reported. Noted that the P3e reporting from the Route to the Centre was wrong.	124 11	0 +2.5
112275	Bollo lane and Kew East Junction	This project ran over more than one year. SEU volume documentation checked and correct. Noted that there was one LXEU over-reported for this project.	14.75	+1
117800	East Suffolk Re-signalling	Project change controlled during its delivery. All documentation viewed and in order.	59	0
118827	Leicester PSB Phase 1	Project change controlled during its delivery. All documentation viewed and in order.	58.5	0
106675	Harrogate Area Signalling Renewals	Breakdown of the project checked and in order. Noted that no evidence was provided regarding the authority over 33 units however the revised figures were covered on the scorecard. LXEU documentation all in order.	36.75 1	0 0
GGRK00	Immingham East Junction Signal Box	Variation between the authority and the delivery explained by the renewal of 2 SEUs in sidings. All paperwork in order.	27	0
104536	Stalybridge Re-lock and Re-control	Despite complex calculation of the overall volumes (taking account of the percentages) all documentation in order.	68.55	0

107906	Northampton Resignalling	There was no detail of this removal found in SSADS. Difficulty finding the authority letter. No change control documentation found – however this should be held by the Route (question for Route meeting). This project has potentially been over-reported by three units.	100	+3
EEPB62	Stourbridge Hartlebury Resignalling	This is a multi-year project. Some confusion in the supporting documentation with a discrepancy over the number of units delivered. It is possible that a re-locking was undertaken instead of a re-control. (To be raised with the Route.)	75.95	+?
EEPW12	Water Orton Corridor Resignalling	This is a multi-year project. Some discrepancy between the authority paper (336) and the scorecard (303). No change control documentation found. Route issue.	303	0
118960	NASR Phase 2	Documentation checked and accepted.	73	0
DDDB10	Cardiff Area Signalling Renewal	This is a multi-year project. Noted how difficult it is to centrally track a multi-year scheme. It would appear that some of the renewal was delivered by enhancements but no trace of change control paper – Route issue.	53	0
100396	Colthrop & Kintbury LX MCBs	Works partially deferred but the paperwork did not take account of one unit which appeared not to be taken into account.	2	+1
116372	NOS North West Phase 1	This project had an issue with the timing of the delivery compared to when it was declared. P3e has a recorded delivery of zero but Route advised verbally that ten units delivered. The Route says that they don't recognise the P3e figures. All of this leads to a potential under-declaration of twenty-four units.	10	-24 potentially
124274	North West Re-control	The paperwork cannot be matched to the declared volumes. The reported volume was 26.92 however there is a change control document to 15 units and P3e records 34.	26.92	0

		Issue to be raised at the Route meeting.		
108736	Stormstown Signalling Renewal	All documentation in order.	10	0
107075	Tranche 3 Level Crossing Renewals	This multi-year project was downturned in 2012/13 due to poor contractor performance. All documentation in order.	3.6	0
107136	Tranche 7 Level Crossing Renewals	This covered four level crossing sites. Under review it was noted that there has been an over-reporting of one LXEU on this project.	3	+1
118283	Low Gates AHB Level Crossing	All documentation in order.	3	0
116104	Ley level Crossing Re-control	All documentation in order.	1	0

B2 Notes of meetings with Engineering Disciplines at in the Routes

The following meeting notes are attached:

Discipline	Meeting Date
Wessex Route (E&P)	13th December 2013
Wessex Route (general)	17th January 2014
LNW Route	30th January 2014
Wales Route	11th February 2014

Project title		**Job number**	
Meeting name and number	Wessex Route E&P Renewals 7	**File reference**	
Location	Network Rail Offices, Waterloo Station Keynes	**Time and date**	10:00 18 July 2014
Purpose of meeting			
Present	Mike Styles: Network Rail Keith Winder: Arup	Chavda Bhurendra: Network Rail Douglas Leeming: Arup	
Apologies			
Circulation	Those present Gavin Street, Angelique Tjen		

Action

1.1 Introductions

Those present described their roles:

Mike Styles: Senior Renewals Engineer – looking at the processes

Chavda Bhurendra: Senior Renewals Engineer - looking at asset condition and production of asset strategies

Keith Winder: Arup lead for the review

Douglas Leeming: Arup project manager for the review

1.2 Purpose

The purpose of the meeting was outlined by KW. The Reporter team has visited the asset discipline teams at the Centre and have now developed an understanding of the role that the centre plays in reporting delivered volumes. With devolution there is an onus on the Routes to 'own' the data which forms the volume reporting or at least have processes in place to capture and send the data to the centre. The purpose of the meeting was to understand this front-end input to the volume reporting process.

1.3 Workbank

The Route develops its workbank based on the asset requirements driven by the asset policy. The RAM owns the contents of the workbank. This exists as an Excel spreadsheet which is sent to the Centre for consolidation with the programmes from the nine other Routes.

The Centre then monitors performance against the plan during the course of the year. This process was in place for the 2012/13 programme of works and is still in use.

The delivery mechanism (IP or Maintenance) is decided as part of a deliverability review. In general Maintenance would be required to

Action

deliver those renewal items with low complexity – but potentially high volumes (40km of recent conductor rail renewal was quoted). Unlike other disciplines the item cost is not the criteria for selection of the delivery mechanism.

The Route is now accountable for the delivery of its programme. This was not the case for the 2012/13 workbank delivery.

1.4 Reporting

Reporting is undertaken on a four weekly basis. The means of reporting work volumes varies slightly between the two delivery mechanisms.

IP Delivery

Where a renewal is delivered by IP the site teams will complete documentation to verify that the work has been carried out and then submit this to the Project Manager. The PM is then responsible for updating P3e to confirm the work done. The Route then manually update their Business Plan spreadsheet to reflect the delivered actuals. This is used for reporting internally and the basis for review sessions with the PM and RAM teams.

Where a job is commissioned in phases over a period of time, the system will be updated when each phase is completed. The Centre can then upload the renewal volumes directly from P3e to compile their reports.

Maintenance Delivery

Maintenance does not use P3e and thus the reporting of work done from site is fed into Ellipse. Maintenance use Oracle Projects to hold the work volumes. The site work is captured through use of the Form F. The Business Plan spreadsheet is then manually updated in line with these forms.

Copies of the period reports were provided at the meeting.

1.5 Change Control

The Route monitors changes to the business plan throughout the year. In 2012/13 this tended to be a retrospective regularisation of the changes which were managed by the Centre. For the current year, the approach is more proactive and changes to the volumes are made in advance of changes they become known. Agreement to changes in the Business Plan is captured on forms - see attached. This includes sign-off from the 'virtual' review panel of appointed RAM signatories..

It was acknowledged by the Route that their Change Control process was not formalised or documented, but relied on independent review by competent E&P engineering personnel. It was noted that the Reporting Procedure (NR/ARM/M36PR) speaks of an "approved change log" (Section 5) but not of a change control process, and there is no apparent requirement for a review panel structure as found in other disciplines.

The input to the Change Control forms is based on the regular dialogue which takes place between the sponsoring and delivery teams on a periodic basis. A copy of the notes of one of these meetings is attached.

Action

1.6 Verification

It was confirmed that there is no formal requirement for post-project verification of delivered volumes. Some sample checking is undertaken, and the Route may formalise a more structured arrangement in due course. I was noted that the second bullet in Section 4 of the Reporting Procedure (NR/ARM/M36PR) covering Route responsibilities appears to allow freedom for the Routes to devise their own assurance and verification processes

1.7 Observations

The processes in the Route continue to mature. There would appear to have been a step change in the processes since 2012/13. One such changes is that the responsibility for delivery now firmly resting in the Route.

We note that there remains a manual intervention in the process where the Route Business Plan is updated from the information provided by IP or Maintenance. This is a potential source of error but this may have a limited impact if it is supported by the periodic reviews with the delivery teams.

1.8 Recommendations

None of the previous recommendations applied to the Routes, or Route processes.

Project title		**Job number**	
Meeting name and number	Wessex Route Meeting 8	**File reference**	
Location	Network Rail Offices Waterloo Station	**Time and date**	14:30 18 July 2014
Purpose of meeting			
Present	Phil Duffield - Network Rail Keith Winder - Arup	David Simpson - Network Rail Douglas Leeming - Arup	
Apologies			
Circulation	Those present Gavin Street	Angelique Tien	

Action

1. Introduction

Those present described their roles:

Phil Duffield is the Senior Financial Analyst at Network Rail centrally responsible for cost and volume reporting however, he was previously the Programme Finance Manager for Wessex and was in that role during 2012/13.

David Simpson is the current Wessex Programme Finance Manager and as such is responsible for the Route reporting of delivered volumes.

Keith Winder: Arup lead for the review.

Douglas Leeming: Arup project manager for the review.

2. Background

PD provided a background account of the development and management of the 2012/13 delivery plan. The following points were noted:

The role of the Programme Finance Manager was created in the Routes after devolution when it was realised that the RAMs would require some 'finance business partner' support.

The role was required as a direct result of the new budgetary responsibilities which the post-devolution RAMs found themselves with. The PFMs were there to report performance but also challenge the delivery efficiencies.

The focus in the early days of this new relationship was on the reporting of project finances however there was a developing acceptance that more focus was required on volumes.

Action

At the start of 12/13 the baseline plan had been prepared by the Centre and then given to the RAMs to manage and deliver. This baseline was the volumes and costs which were signed off by the ORR.

Following the hand-over of the plan to the Routes there is no active involvement by the Centre in the management of the plan, save where there is a requirement to seek authority centrally because of the sums involved. Smaller schemes are authorised within the Route.

The Centre can challenge the Routes on variations to the plan.

3. Process

The process for the progression of schemes in the 2012/13 year was as follows:

- Scheme identified in line with requirements of the policy and agreed to be included in the plan
- Plan devolved to the Route and given to the RAM to progress
- Decision taken regarding the means of delivery (IP / in-house)
- Delivery team progress the development of the scheme and lodge it in P3e or OP for in-house team
- Delivery agent prepares an authority paper to secure funding
- Scheme authorised (in the Route or Centrally depending on scale)
- P3e or OP updated
- Project programmed for delivery
- Scheme delivery
- Delivery confirmed by sign-off of Form E, or other discipline equivalent by RAM – P3e updated
- Asset database (GEOGIS / SSADS / CARRS etc.) updated
- Central team download delivered volume from P3e and, combined with other schemes, report to Board and ORR

Noted that change control is managed at Route level for all disciplines (save Telecoms), and all material changes to planned volumes will be supported by an authorised and approved paper to Change Control panel. This process is ongoing throughout the development and delivery of each scheme.

4. Sample Review

As part of the review Arup requested detailed information (baseline volumes, authority papers, change control and final sign-off documentation) on the following projects to be supplied:

PD / DS

Signals: 106714 Six Level Crossing Renewals

Civils: 105424 River Avon Bridge E3/41

135438 Crewkerne Cutting Emergency Rebuild

Action

135439 Gillingham Cutting Emergency Rebuild

Track: three random plain line renewals to be selected

three random switch and crossing renewals to be selected

Renewal Volumes Audit

LNW Route – 30th January 2014

Track

Kelly Wilson (Finance)
Carole Bayliss, Senior Route Asset Manager
David Webb, Track RAM (south)
Craig Green (Senior Asset Engineer, Track)

Introductions

IH & KW explained the purpose of the review meeting and the background to the Renewals Volumes data audits during CP4. They confirmed that this current audit was the first to review the Route arrangements, as devolution was anticipated to have affected the way in which volumes data was collated, assured and reported.

Route Organisation

CB gave a brief resume of the LNW Route asset management organisation, which is unique in NR, and reflects the size of the LNW portfolio. CB explained that she held the title of Senior Route Asset Manager, Track & Civils and the Route Asset Managers for Track and Civils reported to her. A second SRAM covered Signalling, Power and Buildings.

CB also drew attention to the unique North and South structure, and the organisation created in LNW for capex delivery within maintenance. Originally, capex work was delivered by the maintenance organisation, deploying normal maintenance staff with the appropriate skills, but the scale of the work and the need for the arrangements to be put on a proper business footing led to LNW creating a "mini-IP" with its own director and staff, and a number of programme managers (track and civils). Works Delivery solely manages the capex works, hived off into a separate organisation from the Maintenance Delivery Units, which allows the MDUs to properly focus on the important task of maintenance.

Devolution – Impact on Reporting

It was confirmed that the management processes for reporting volumes had not changed in 2012/3. Collation of volumes data by discipline was undertaken at the Centre, only now in 2013/4 financial year have the LNW RAM teams become accountable.

Previously, investment papers went to the Centre for authority, and the Route had to justify its submission. The Route Executive is now learning to replicate the management processes from HQ, and recognise the need for a more fundamental appraisal of submissions and options within a finite, albeit large, budget. The Route has the freedom to move money and jobs around to meet emerging priorities up to a limit of £10m per project - additional work, such as that on the

Wigan – Southport route; not in the original budget or baseline plan, but was authorised by Route Investment Panel.

In 2012/13, the Track workbank was authorised at the centre in February 2012 on the back of 3 investment papers covering conventional plain line, high output and S&C. The vast majority of the work was to be undertaken by Investment Projects (IP). These authorities established the baseline, and were input to P3e, or, in respect of any maintenance delivered capital volumes, into Oracle Projects. It was confirmed that these baseline volumes are the numbers shown in the annual Delivery Plan published by NR at the beginning of each financial year.

CG confirmed that the change control process for track had been Route-based in LNW for 3 years (this appears to have not necessarily been the case on smaller Routes – the arrangements in LNW reflect the size and complexity of the Route, and the volume of activity). All material changes to an authorised project – cost, volume or timeframe for delivery – are required to be approved by the RAM applying the Change Control methodology. Cost variations of less than £0.5m can be signed off under the Change Control regime, but above £0.5m needs a revised investment paper. Track has to make lots of changes, so needs a robust, but not necessarily time consuming process.

Asset Management Systems and Work Verification

Plain line volumes are entered into Track Renewals System (TRS) which mirrors P3e. Renewal details are entered into the Geogis asset management system. Both of these are legacy systems and take manual entry/ input reports in miles and yards, though conversion to metric measures for all subsequent reporting is now carried out automatically in the system. These can then be compared with the planned volumes in P3e, and any variation should then be explained.

CG confirmed that limited checks are carried out by the Route. Reporting is generally assumed to be accurate, but the P3e reports are sent to the RAMs on a 4-weekly basis for sense checking (gut feel). CG receives a daily report each morning on project work delivered so he has a good feel for current reporting and its accuracy.

CG also reminded that there is an element of formal assurance done on a sample of jobs by the Centre at Milton Keynes.

A further in-built check comes when the contractor completes hand over certification, updates Geogis, and the asset is taken into maintenance by the MDU. The MDU will undertake its own checks on the renewals undertaken, updates the Ellipse asset maintenance database, and will undertake snagging. CG observed that Contractors have no incentive to ‘cheat’ on reported work volumes, as they get paid by project, irrespective of the volume they deliver.

When asked if inconsistencies between Geogis and P3e would be picked up, CG suggested that he would notice if the volume was reported to be different to what was expected. There is also a periodic totals check of TRS v P3e and P3e v

Geogis, but as there is always a lag entering into Geogis, it can be difficult to do a straight comparison.
IP has a single inputter to P3e, and is therefore consistent and generally reliable.

CG & DW both agreed that the extent of manual handling of data at source, and the lack of automated linkages between systems – all of which will ultimately be addressed by IT developments underway currently within NR – means that there are risks of inaccuracy, and the function is very reliant on a small number of people, mainly in IP, to spot any errors through their project management processes.

In respect of maintenance delivered renewals, the only significant difference in the volumes reporting arrangements is the reporting into Oracle Projects rather than (IP's) P3e. Renewals data is still entered into TRS; the same authorization and investment process is used. Initially reporting was problematic from Works Delivery, partly because they were doing some difficult renewal jobs, but this is now improving, though not yet at the standard being achieved by IP. One issue has been confusion over the definition and the 'counting rules' for composite volumes, (though there are clear standards and definitions for what is 'counted' and what can be reported re ballast, sleepers, rails), as well as the conversion between imperial and metric measures.

Structures and Earthworks

Carole Bayliss
Kelly Wilson
Neil Jones (RAM Structures)
Tony Butler (RAM, Geotech)
Linda Sharp (Business Planner, Geotech)
Steve Pierce (Senior Asset Engineer, Structures)

Devolution – Impact on Reporting

The RAMs confirmed that the significant change brought about by devolution was Route ownership and accountability for projects delivery and reporting, but this did not take effect until mid-year in 2012/3. This change introduced more rigor into iterative checking between the Centre and the Route.

The baseline plan is held in P3e, and the RAMs are 'gatekeepers' of plan. The plan is a rolling plan, signed off 2-3 years beforehand for structures, and 2 years for earthworks. The forward plan (baseline) accounts for about 75-80% of the workbank, and the remainder is reactive works. In Geotech it is customary to over-plan (10-15%), over and above normal contingency, to allow flexibility in any given delivery year (query what numbers actually appear in the annual Delivery Plan, and whether over-planning is highlighted ?) and to cope with the time delays which come from planning consents, land access difficulties, possession plans etc. Geotech delivery is more volatile and less homogenous than track because of weather effects etc.

Ultimately, assurance of reporting accuracy is achieved via sponsor meetings, and both RAMs asserted that, as a result of devolution, they have their 'fingers on the pulse' and most of the project and plan adjustments which are fed through Change Control are not major.

Change control

NJ confirmed Structures volumes are relatively stable in the plan as the assets are normally discrete and the treatment clearly defined, but is more fluid for embankments. With embankments, there is a tendency to assume worst case at the proposal stage.

Project authority is iterated via GRIP stages. Every line item goes through the GRIP process. In the Business Plan, there is a line of entry for each of approximately 200 project items for Structures. In any given period, 20-30 require a change to be approved under change control, and this is usually budget rather than volume related, or relates to plan slippage or rescheduling to a future year. Earthworks = 30-35 in a year, change per period can be 0-20 and include money and volumes.

A Change Control Log is maintained in a spreadsheet format, with a statement of justification for each change included.

Change Control authorities then filter down to the OP and P3e inputters, and it is the Business Plan which then feeds the Finance Pack periodic updates. These processes are largely manual and there is usually a lag between Change Control authority and changes to P3e / OP.

Project Delivery

The RAMs confirmed that the split of work in LNW on Structures and Geotech is approximately 60/40 = IP/ Works Delivery

Sample of Projects

MVN2 Bridge 96 Calder Brook (historic flooding so scheme to improve water flow) – underbridge – repair scheme – delivered by IP – start spend in 9/10, initially plan for delivery 11/12 slipped to 12/13. 105m^2 and has never changed (but money changed).

Neil to provide backup delivery volumes in CARRS, P3e and certification. Also investment paper shows vols (as shown=105m^2).

Hollins Lane drainage – WCML at Scorton, north of Preston – surface and ground water problems for track, main driver is safety then asset quality, IP delivered, put in a robust drainage system, planned 5,018m^2 at about £400k, but delivered for £261k but same volume (£301k AFC). Check investment paper - GRIP 5-8 in 11/12 paper AFC = £348k, volume = 518m^2 (typo missing 0).

Access costs 15-50% for access on earthworks (easier for structures which tend to have roads nearby), also animals, bats etc. can add expense.

Coastal defences – structures – sea defences are varied and probably need more asset policy work. Can't really get robust unit rates because of the variability.

Off track RAM now separate (unique for LNW, in post for 6 months). Culverts covered by structures.

Risk that if plan = deliver then perhaps less assurance of what actually delivered. Think that reporting improving because Neil and Tony more involved. Also there is a sign off process for each job.

Asked for Sandbach M6 bridge & underbridge 61 (Manchester) & Glaisbrook Embankment record details.

Definition of volumes – clear in a document (written 2-3 years ago)

Signalling

Claire Beranek, RAM Signalling (LNW North)

Devolution – Impact on Reporting

CB confirmed that she had been in post since November 2012, and there had been no changes in the methodology for volumes reporting during that time, though it is probable that Change Control (which is currently centrally managed, with a central panel) will change in CP5, with devolution to Route level. CB sees reported volumes as a copy addressee to IP's project delivery report to the Centre, which now asks for Route verification of reported numbers on a periodic basis.

CB believes that she is now accountable for reported volumes though nobody has told her that! Her Senior Asset Engineer checks the reported SEU count delivered for each project, using the scheme plan to physically count the units delivered.

Change Control

As with other disciplines, change Control is invoked for any material change of volume, cost or timescales within an authorised project. CB takes no part in the central panel, however the LNW Signalling RAMs hold a Route "Pre-investment Panel" review every 4 weeks to discuss all the change control items, details of which are then fed to Simon Cort at the Centre. So 'live' change control is shared currently with the Centre (Simon Cort), and Business Plan changes then go to the central Change Control panel for approval – and Arup can test by seeing if there are any errors.

Each year, LNW (North) has 30-40 signalling renewals schemes in total. These include Level Crossings, and includes minor schemes. There is some interplay with enhancements – with enhancement schemes where there is a renewals element, CB will agree with them the renewals element (cost & volume, such as the Northern Hub project), and this element will be reported for renewals cost & volume. If the reverse applies where a renewal scheme has an enhancement contribution, then CB normally reports all signalling volumes since the enhancement element is normally not signalling related (e.g. platform extensions)

Most small renewals jobs which emerge reactively and have safety implications tend to be delivered as maintenance jobs, so no reportable volumes. Most schemes have a longish gestation period and are authorised 2-3 years in advance of delivery.

Sample of Projects

Stalybridge – how do you know the volume is correct since planned years ago? Clare has access to SSADS, and can check the SEUs in the plan. Engineers do a count for change paper. Clare to send these which are papers sent to pre-IRG.

SSADS – Clare's team updates for asset register. Delivery team don't report volumes, Clare's team does the count but nobody checks (ie based on 1 person) - Clare would probably have a second person to check the scheme plan if she owned the numbers.
IP report to their finance manager the volumes delivered and consolidate them by route which then goes to the centre as an aggregate.

Clare to send the spreadsheet from Simon Cort that compares the volume counts and asks for reasons for any differences with the plan from Clare.

Clare unsure if Simon Cort will continue to report volumes.

Clare to provide SSADS counts for all renewal jobs on LNW South and North in 2012/13.

ADIP trying to tie SSADS to Ellipse to match SSADS SEUs to interlockings – found quite a few errors. Andy Rae is leading this work.

No idea how to report ERTMS and there are no standards (no LNW schemes in CP5).

Report SEUs delivered so can be more or less than what is there now.

Planned SEU count = what they plan to deliver (as opposed to what is there now), so in same currency as delivery.

There is no over-delivery in planning. But CB will have to carry over SEU into CP5 not delivered in CP4 so there will actually be under-planning and over-delivery if this work and all the CP5 works are eventually delivered.

E&P

Nick Travis (RAM, LNW South)
Paul Fletcher (Senior Asset Engineer)
Sam Evans (PM for E&P renewals, working in IP)

Devolution – Impact on Reporting

2012/13 reporting was confirmed as unchanged on previous arrangements, no impact from devolution at that time. The RAM Electrification role is split North and South and LNW South has about 20 open projects at any one time.

Business Plan detail is wholly controlled by the Route, although the Centre holds the overall Plan, and has been responsible for managing and updating throughout CP4. The CP4 plan was 3 year rolling plan, but CP5 will have the 5 years locked down at the beginning of the Control Period.

There is a process for reporting delivery via OVD or Form E to certify the volumes delivered, which is then reported to the Centre. The OVD form is used for like-for-like renewals where there are no design changes, and no Form B. Because the RAM is diligent about not confirming/ reporting volumes until in receipt of the OVD or Form E – and because there is always a time lag between works completion and documentation completion, it can appear that delivery of the business plan is falling behind. Documentation requirements undoubtedly elongate the reporting process.

The Route-focused management of renewals reporting on LNW is unique, but has been running with the approval of the Centre for some time. Each period, IP advises the RAM as to the volumes delivered, and any variation commentary is prepared by the Route. The Centre no longer receives confirmation of renewal volumes via P3e updates from IP. No assurance checking is undertaken by the Centre, but quarterly reviews are held.

Standards documentation for reporting does not yet reflect these arrangements.

In respect of the interface with enhancements work, NT confirmed that power supply upgrade works is renewing some E&P assets and decommissioning others. None of this is in the RAM's asset renewal business plan and is not reported for volume.

Most of the E&P work is currently undertaken by IP, with reactive works by Maintenance. In CP5, there is likely to be more undertaken by Works Delivery (e.g. power cables).

Change Control

The Change Control log has a line of entry for each change, which can be due to money, scope, volumes or timeframe. No Change Control panel as such, as all

arrangements – change proposals, justification, review and approval - are overseen by the RAM team, then sent to the Centre to update the overall Business Plan. The up to date Business Plan is reissued monthly by the Centre. There was a lot of change at the start of the CP4 but less so now.

Project title		**Job number**	
Meeting name and number	Wales Route Meeting 10	**File reference**	
Location	Network Rail Offices Cardiff	**Time and date**	09:00 18 July 2014
Purpose of meeting			
Present	Jonathan Pegg (JP) - Network Rail (part time) Neil Edmunds (NE) - Network Rail (part time) Gwynn Rees (GR)- Network Rail (part time) Keith Winder - Arup Douglas Leeming - Arup		
Apologies			
Circulation	Those present Gavin Street Angelique Tien		

Action

1. Background

JP set the context for the programme of renewals which were delivered in 2012/13. The following points were noted:

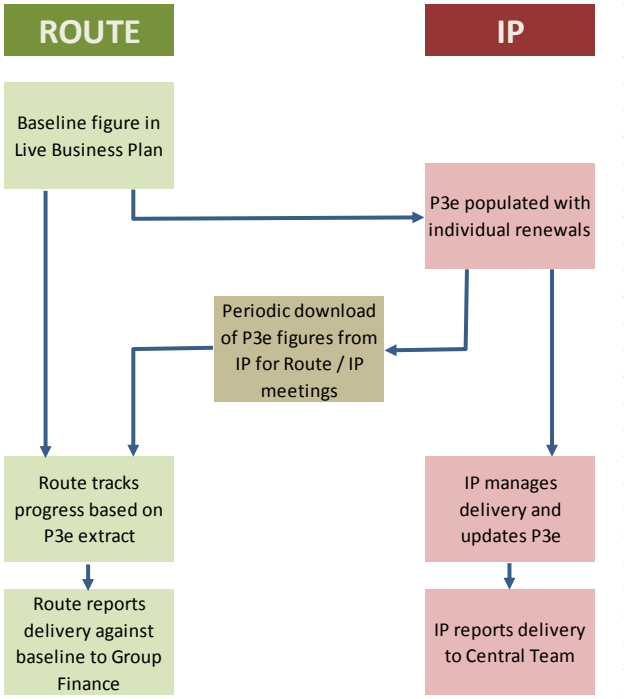
The Route only came into existence in November 2011 – this coincided with the time when the following year's work bank and budgets were being assembled; and for 2012/3, the Wales Route therefore inherited a programme and budget from both Western and LNW Routes.

2. Process

The process for the management and delivery of renewals across the disciplines is largely the same. There is however a variation to this in terms of track renewals where a significant volume of renewals are delivered by the in-house Works Delivery (maintenance) team. Other schemes are delivered by IP.

The following flow diagram shows the flow of renewals data and information;

Action



It was noted that the live business plan holds the Baseline figures at the start of the year for the renewals to be delivered. This remains constant throughout the year.

For renewals which are delivered by the Maintenance teams the management and review of progress and volume count is managed internally on Excel spreadsheet based systems.

3. Sample Review

In order to develop a view of the accuracy of the reported volumes across the disciplines a review was undertaken of a sample of projects.

Track

Information was available on a limited number of track renewal projects which were delivered by Maintenance. The results of this review are highlighted below:

Location	Reported	Actual	Variation
Machynlleth	2359	2321	38
Crewe Junction	3	3	-
Print Works	402	402	-
Redbridge	483	483	-

Civil Engineering

NE

Information on Civil Engineering projects delivered by the Route in 2012/13 was requested to allow a comparison to be undertaken with the centrally reported volumes.

Action

Signalling

During the course of the central review of the signalling discipline it had not been possible to close out some issues linked to the signalling renewals associated with the Cardiff Area Signalling Renewals scheme in the year (noting that it is a multi-year scheme with enhancement involvement).

Location	Reported	Actual
Cardiff Area Signalling Renewals	53	49

NE

KW asked for an explanation of the variance in the figures. NE to provide.

4. IP Organisation

GR provided an account of the way in which the IP organisation was structured to support the Route:

Regional Team (Wales and Western) is managed from Swindon and covers enhancements, civils and building works

Track and Signalling IP are part of a national team but with representation in the Wales Route. These cover the 'domestic' renewal programmes for these disciplines. For track this is only for plain line renewals. For S&C and High Output these are managed by specialist national teams which were set up in September 2013.

5. Other Issues Identified

It was noted that for the signalling and E&P functions, as well as a change control process within the Routes, these are also subject to a change control regime centrally.

It was noted that the use of 'composite kilometres' to measure track renewals has been dropped by Network Rail for CP5.

6. Current Arrangements

The renewal plans across the disciplines have been developed by the Route and are wholly owned by them. It was stated that the plan for 2014/15 is now fixed and ready to be delivered.

The role of the central team was considered to be that of a co-ordinating function to pull together the national results and act as broker when considering moving funds between Routes.

Appendix C

Tabulations of Delivery Variations

C1 Track

The following tables provide a summary of the asset renewal variations for Track.

Table C1-1: High Level View of Track Renewal Volume Variations (kms)

Track	Planned	Variations	Actual
Plan	1168		
Carried forward from previous years		+123	
Brought forward from future years		+1	
Deferred to future years		-16	
Haulage issues		-102	
Bad weather		-39	
Access issues		-47	
Plant issues		-36	
Re-profiling in the year		+8	
All other delivery issues and cost changes		-98	
Variation Total		**-206**	
Actual			962

Table C1-2: High Level View of High Output Track Renewal Volume Variations (kms)

Track	Planned	Variations	Actual
Plan	734		
Carried forward from previous years		+10	
Haulage issues		-15	
Bad weather		-17	
Access issues		-17	
Plant issues		-36	
Re-profiling in the year		+4	
All other delivery issues and cost changes		-114	
Variation Total		**-185**	
Actual			549

Table C1-3: High Level View of Switch and Crossing Renewal Volume Variations (nr)

Track	Planned	Variations	Actual
Plan	307		
Carried forward from previous years		+22	
Brought forward from future years		+1	
Haulage issues		-9	
Access issues		-5	
Plant issues		-26	
Re-profiling in the year		+4	
All other delivery issues and cost changes		-35	
Variation Total		**-49**	
Actual			258

C2 Signalling

The following tables provide a summary of the asset renewal variations for Signalling.

Table C2-1: High Level View of Signal Renewal Volume Variations (SEUs)

Signalling	Planned	Variations	Actual
Signalling Plan	1141		
Brought forward from future years		+102	
Deferred to future years		-266	
Change in scope		+21	
Baseline error		+5	
Reported delivery error		-20	
Unknown		-4	
Variations Total		**-163**	
Signalling Actual			978

Table C2-2: High Level View of Level Crossing Renewal Volume Variations (LXEUs)

Signalling	Planned	Variations	Actual
Signalling Plan	79		
Deferred to future years		-28	
Variations Total		**-28**	
Signalling Actual			51

C3 Telecoms

The following table provides a summary of the asset renewal variations for Telecoms.

Table C3-1: Detail of Renewal Variations by Telecom Asset Type

Asset Type	Plan	Actual	Variation	Breakdown
CIS Monitors	57	123	+66	Scope change -39 Carried forward from 11/12 +105
PA Speakers	3926	4491	+565	Carried forward from 11/12 +1386 Scope increase +190 Scope decrease -450 Brought forward from 13/14 +241 Deferred to 13/14 -802
CCTV Cameras	396	472	+76	Carried forward from 11/12 +76
Clocks	0	38	+38	Carried forward from 11/12 +38
Small Concentrators	38	23	-15	Scope change -8 Deferred to 13/14 -7
Large Concentrators	7	3	-4	Scope change -2 Deferred to 13/14 -2
DOO Systems	60	53	-7	Baseline change -27 Brought forward from 13/14 +20
PET Systems	45	47	+2	Scope increase +2
Voice Recorders	64	36	-28	Baseline change -45 Scope decrease -4 Brought forward from 13/14 +41 Deferred to 13/14 -20

C4 Electrification and Plant

The following table provides a summary of the asset renewal variations for Electrification and Plant.

Table C4-1: Detail of Renewal Variations by E&P Asset Type

Asset Type	Plan	Actual	Variation	Breakdown
OLE Campaign	577	654	+77	Carried forward from 11/12 +16 Deferred to 13/14 -65 Policy change +119 Scope change +12
OLE Rewiring	97	40	-57	Baseline error -60 Carry forward from 11/12 +3 Deferred to 13/14 -5 Brought forward from 13/14 +7
Contact Rail	35	2	-33	De-scoped from project -31 Deferred to 13/14 -6 Change of scope +2
HV Switchgear	35	35	0	No change
Booster Transformers	5	11	+6	Brought forward from 13/14 +4 Carried forward from 11/12 +4 Deferred to 13/14 -2
HV Switchgear DC	55	30	-25	Deferred to 13/14 -25
LV Switchgear DC	85	17	-68	Possession issues -80 Brought forward from 13/14 +12
HV Cabling	38	30	-8	Deferred to 13/14 -15 Carried forward from 11/12 +11
LV Cabling	103	6	-97	Policy change -88 Change of scope +1 Deferred to 13/14 -5
Transformer Rectifiers	7	5	-2	Possession issues -2

Note: minor variations not in breakdown but included in overall variation figure

C5 Civil Engineering

The following table provides a summary of the asset renewal variations for Civil Engineering.

Table C5-1: Detail of Renewal Variations by Civil Engineering Asset Type (,000m^2)

Asset Type	Plan	Actual	Variation	Breakdown
Overbridges	5.1	6.6	1.6	Carried forward from 11/12 +4.4 Other deferrals -2.9
Underbridges	103.3	78.8	-24.5	Deferred to 13/14 -9.2 Not fully converted -13.8 Re-scoping of work -1.5
Bridgeguard 3	1.9	0.8	-1.1	Deferred to 13/14 -1.1 Cancelation of renewal -0.1
Footbridges	3.0	1.1	-1.9	Deferred to 13/14 -0.2 Cancellation of renewal -0.5 Environmental issues -0.1 Possession issues -0.3 Renewal move into project -0.7
Tunnels	6.0	5.4	-0.6	Deferred top 13/14 -2.0 Addition to baseline +2.0 Other deferrals -0.6
Culverts	0.5	0.7	+0.2	Additional to baseline +0.2
Retaining walls	1.3	0.9	-0.4	Deferral to 13/14 -1.1 Addition to baseline +0.5
Earthworks	604.9	477.6	-127.3	Deferral to 13/14 -48.4 Not fully converted -74.5 Environmental issues -10.6 Other changes +6.2
Coastal / estuary defence	0.8	0.0	-0.7	Deferred to 13/14 -0.6 Cancellation of renewal -0.1
Major structures	25.5	22.8	-2.6	Deferred to 13/14 -2.3 Re-profiling of work -5.6 Additional to baseline +5.2