

A Report for
Network Rail and the ORR
from
Asset Management Consulting
Limited (AMCL)

Version 1.0
19th April 2010

**Independent Reporter AIS Audit
ADM and Data Assurance
Processes**

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APPROVAL				
Version	Date	Compiled by	Reviewed by	Authorised by
1.0	19th April 2010	J.Schwarzenbach	D.McLeish	R.J.Edwards
Asset Management Consulting Limited File Ref: 007/212				

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AMENDMENT HISTORY		
Version	Sections	Amendment Details
Draft A	All	Initial Draft issued to Network Rail
Draft B	All	Minor updates following comments from Network Rail
Draft C	All	Updates following comments from ORR
1.0	Version history and date	Update following tripartite review

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Executive Summary

As the Independent Reporter (Asset Management), AMCL conducted an audit of Network Rail's Asset Information Strategy during 2007 and 2008, presenting its findings in March 2008¹. A subsequent review of progress and development was undertaken approximately twelve months later, culminating in a Summary Report published in February 2009².

This report documents the findings of an audit to assess Network Rail's general progress and activities in response to the recommendations specifically pertaining to Asset Data Management and Assurance processes from these two reports. The audit was undertaken between August and October 2009.

This audit has identified that, of the 38 previous recommendations reviewed, assessment of progress or planned activities by Network Rail mean that 6 are rated as Green, 17 are rated as Amber and 15 rated as Red. Low criticality Green recommendations should be continued and monitored internally; all Medium and High criticality recommendations and those assessed as Amber or Red require continued activity and external monitoring.

In general, since the previous audits, Network Rail has continued to improve approaches to the management of asset data and information. The sophistication of data quality reports and the profile of data quality have increased through the use of dashboard reports, resulting in some overall improvements in quality over the last year. Two Data Quality Improvement Programmes are improving the quality of data in a structured way with one project applying standard approaches to asset recording and the other project standardising asset MSTs (Maintenance Scheduled Tasks), initially focussed on signalling assets.

A core element of assessing and improving data quality relates to data accuracy. A number of previous recommendations covered different aspects of assessing and improving the accuracy of asset data, however, no evidence was available that these recommendations, or similar actions, have been followed by Network Rail. This presents a risk through Network Rail's lack of understanding of the accuracy of data against the physical asset this data represents. Without this knowledge, there is a risk that improvement activities may be prioritised incorrectly or may not deliver anticipated benefits.

¹ Summary Report on Network Rail's Asset Information Strategy, AMCL, 31st March 2008

² Independent Reporter – AIS Audit 2008 – Summary Report, AMCL, 9th February 2009

The overall ADM (Asset Data Management) process appears to be operating more effectively than has been observed as part of previous audits; however the process continues to function as a number of discrete processes, mainly based on geographical area, without strong ownership or visibility of the overall process. Non-standard approaches by System Support Managers (SSMs) and duplication of effort to create logging tools and automation activities are reducing process effectiveness. Resourcing issues do not appear to be visible or managed centrally, resulting in the workload on certain staff being significant with the risk of errors and adverse impacts on staff and data.

The management of GEOGIS updates using the Principal Technical Officer (PTO) and Senior Technical Officer (STO) roles in this update process do not appear to be effective. Local staff audited did not appear to see GEOGIS updates as a key part of their role and do not have effective tracking processes to manage data updates. There is also evidence to suggest they lack the competence and motivation to undertake such updates.

Three projects were reviewed in order to assess the effectiveness of the provision of asset data from projects. Whilst there is still room for improvement, the projects reviewed appear to be operating more effectively than had been observed in previous audits, with more awareness of the importance and requirements of this process. It still appears to be difficult for SSM's to obtain awareness of forthcoming projects. However, centrally produced reports, currently being developed, based on new data fields in Primavera (P3e) may partially address this once core data in P3e is suitable for this purpose.

Network Rail's current Transformation Programme should introduce new systems and processes to help improve asset data management practices but the extent of that impact and the potential benefits could not be clarified at the time of the audit. The proposed AM07 (Data Specification and Control) project should provide valuable improvements; however, this should be preceded by a data accuracy assessment to ensure project priorities are correct. The AM07 project also needs to be completed rapidly to improve core processes.

New recommendations arising from assessment of previous recommendations and this audit include the requirement for:

1. Initiating a structured process to assess actual data accuracy to ensure other improvement activities are prioritised correctly;

2. The establishment of clear, visible and active process ownership and governance of the ADM process in order to improve process effectiveness and efficiency and to resolve developing issues;
3. A consistent approach to managing and logging GEOGIS updates is urgently required in order to prevent delayed or lost data updates; and
4. Ensuring that P3e data to support the ADM process is of a suitable quality to support the generation of ADM tracking reports.

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1 Introduction

1.1 Background

Asset Management Consulting Limited (AMCL) was reappointed as the Independent Reporter (Asset Management) to Network Rail and the Office of Rail Regulation (ORR) for Control Period 4 (CP4) in April 2009.

As part of the equivalent role in CP3, AMCL undertook a sequence of audits of Network Rail's six-task Asset Information Strategy (AIS), to support the ORR's decision on technical compliance with Condition 24 of the then Network Licence. In CP4, AMCL has been requested to continue to audit the development, implementation and integration of Network Rail's AIS, in accordance with the new Network Licence.

AMCL originally conducted an assessment of Network Rail's compliance with Licence Condition 24 during 2007 and early 2008, presenting its findings in a final summary report in March 2008³. A subsequent review of progress and development was undertaken approximately twelve months later, culminating in a Summary Report published in February 2009⁴.

This report documents a further audit undertaken by AMCL between August and October 2009 to assess Network Rail's progress in resolving or mitigating the outstanding recommendations related to ADM (Asset Data Management) processes and Data Assurance processes.

1.2 Objectives

The objectives of this audit were two-fold:

- To provide independent assurance to the ORR that Network Rail is considering and actioning the identified recommendations in an appropriate and timely manner, consistent with the conditions of its Network Licence; and
- To provide appropriate good practice guidance and input to Network Rail to support its responses to the recommendations.

³ Summary Report on Network Rail's Asset Information Strategy, AMCL, 31st March 2008

⁴ Independent Reporter – AIS Audit 2008 – Summary Report, AMCL, 9th February 2009

1.3 Scope of Work

The scope of this audit was to assess the appropriateness and timeliness of Network Rail's responses to the relevant recommendations identified in the CP3 final Summary Report⁵ relating to the following:

- Audit of ADM and Data Assurance Processes (36 general recommendations);
- Audit of Rail Defects and Management System (1 recommendation relating to the update of information from re-railing projects); and
- Audit of Signalling Assets in Ellipse (1 recommendation relating to the provision of information from enhancement projects).

1.4 Methodology

The key stages of the methodology for undertaking this project were as shown below:

1. Identify stakeholders and key auditees;
2. Develop, agree and disseminate briefing document;
3. Review and compile evidence of completeness and status of responses;
4. Assess and compile evidence of effectiveness of responses;
5. Assess integration with stakeholders via one-on-one interviews;
6. Draft findings in concise Draft A Report for review of factual correctness; and
7. Collate comments and publish Version 1.0 report.

This audit included interviews with 20 staff in a variety of roles (which included some engineering contractor's staff) and also used three randomly selected sample projects as case studies. The focus of the interviews covered central ADM processes and data assurance functions and a review of previous recommendations.

The recommendations have been assessed for their criticality in terms of their contribution to Network Rail delivering its Asset Management and wider business objectives.

Network Rail's progress in responding to the recommendations was assessed using the following rating system:

⁵ Independent Reporter – AIS Audit 2008 – Summary Report: AMCL, 9th February 2009

Rating	Description
Green	Recommendation completed, or in progress with no areas of major concern due to timescale of delivery or effectiveness of outputs.
Amber	Recommendation in progress either with minor areas of concern relating to the effectiveness of implementation or delays in completion.
Red	Recommendation either not being progressed, no alternate action to achieve this recommendation is evident or the recommendation is being progressed with significant areas of concern over timescale for delivery and effectiveness.

Table 1 - Recommendation Rating System

2 Findings

The findings against each of the specific recommendations within the scope of this audit are detailed in Appendix A. This section provides an overview of the general findings against the following key audit areas:

- ADM Process;
- Data Quality;
- Data Quality Improvement Projects;
- Delivery of Asset Information from Projects; and
- Organisation and Transformation Programme.

2.1 ADM Process

The ADM process details the mechanisms and requirements for the provision of asset data from projects and maintenance activities. The process is supported by a number of standards, which have been incrementally updated a number of times. In the 2a reorganisation of 8th September 2008 a System Support Manager (SSM) role was created and assigned to each delivery unit for managing the overall process and for implementing Ellipse updates. A Principal Technical Officer (PTO) in each delivery unit was given responsibility for implementing GEOGIS updates.

The key findings from the audit of the ADM Process are:

1. Overall awareness, adherence to and understanding of the high level ADM process appears to be better than in the previous audit. The SSMs that were interviewed appear capable and motivated individuals who were demonstrating good ideas for improving these processes.
2. The ADM process does not appear to be operated as a single business process but instead as up to 40 separate processes based upon different interpretations of the same requirements in each of the 40 Delivery Units.
3. There is duplication of effort between SSMs through the creation of different logging systems, reports and processes covering the same, or similar, business needs. There does appear to be some sharing of these tools and techniques between SSMs, generally based upon the old territory structures, but little or no overall coordination of the adoption of standard approaches.

4. The Engineering Business Manager was identified by Network Rail as the ADM process owner, however, this does not appear to be recognised by, or visible to, the staff running the process, nor does it appear to be undertaken as an active monitoring and standardisation role.
5. A User Group exists for Ellipse with a small number of users addressing specific technical issues with the system. This focus on systems may be one of the reasons that other aspects of the SSM and PTO roles are not standardised.
6. The role description for the SSM role was withdrawn some time ago. This was stated by SSMs as creating uncertainty about the extent of their role and may be a contributory factor in the apparent differences in role between individual SSMs.
7. Some SSMs have PTS certificates; however, they are unsure whether going on site to view physical assets was a part of their role.
8. One of the stated reasons for locating an SSM with each Delivery Unit as part of the 2a reorganisation was to improve communication between teams. Where a Delivery Unit is located in a single place with a resident SSM this appeared to be working effectively. However, where a Delivery Unit has multiple depots and/or a remotely located SSM, communication does not appear as effective, or in line with the 2a joint location plans.
9. Development of a single workflow system to support the ADM process is not yet a live project as part of the Transformation Programme (see Finding 46). This was stated as due, in part, to the apparent requirement for a 5 year payback for any projects to be approved.
10. The updating of GEOGIS by PTOs and STOs does not appear to be operating effectively. Such work appears not to be viewed by these staff as a core activity. One stated reason was that they do not feel they add value to the role, others appear to avoid using GEOGIS if they can (based on the number of staff trained and the number of updates they have undertaken) or appear to use system issues as a reason for not using GEOGIS, for example, one Delivery Unit stated that they had not had anyone able to access GEOGIS for the 12 months since the 2a reorganisation due to technical reasons.
11. The logging and tracking of GEOGIS changes appeared to be weak or non-existent for the staff reviewed. One team had mislaid one of the GEOGIS forms for a project being reviewed, which was later located in an "In-Tray" where it had been left for at least two and possibly five months. Another team were unable to answer a simple query about the supply of GEOGIS updates for another project due to not having any logging system.

12. Where errors were identified in supplied GEOGIS data, the PTOs interviewed did not always handle these correctly. One stated that they entered into GEOGIS what they thought the data should be and another had identified a minor location error but had not corrected it in GEOGIS or appear to have discussed this with the project team.
13. Where correlation drawings were used to check GEOGIS data supplied from these projects, the process did appear to be correctly identifying data errors. It was stated that error rates were less than they used to be. However, there appears to be no consistency over who produces the correlation drawings, in some cases it was stated as the contractor, in others the Network Rail project team and in others Delivery Unit staff.
14. Although two official GEOGIS update forms exist (for plain line and S&C changes), at least two other different types of forms are also used to supply data for requested GEOGIS updates. Some of these forms are tests of a new version of the form which apparently have been under test since 2007.
15. Undertaking complex GEOGIS changes was intended, following the 2a reorganisation, to be by the PTOs with central NST (National Specialist Team) support. However, in a number of cases, such updates were stated by auditees as being undertaken by other staff who have historic experience of the system, rather than the intended central support team. This lack of consistency may lead to workload issues in other business processes through staff undertaking these additional tasks and is likely to result in a lack of awareness of the overall size and volume of such tasks.
16. The delivery of training for new SSMs and PTOs now appears to be operating to a regular schedule with new staff stated as being trained soon after starting. Concern was expressed by a number of staff that the GEOGIS training did not provide sufficient skills and confidence to actually undertake the nature of updates required by their role. There is no stated process to check the competency of staff nor is there a formal mentoring process to increase competency of staff.

2.2 Data Quality

Network Rail has a Data Quality NST which provides a consistent process and resource for reporting on data quality, for addressing data quality issues and to provide technical support where it is needed.

The key findings from the audit of Data Quality practices are:

17. The Asset Data Quality Reports (ADQR) are maturing and providing more comprehensive information on the quality of asset data.
18. The volume of information and graphs in the ADQR risks staff being unable to see key messages amongst the large number of measures and graphs. It is recognised that Network Rail's stated intention to develop a higher level Quality Index should reduce this problem.
19. Comparing the ADQR from 2009 with those from 2008 shows how many new measures have been developed and where changes to existing measures have occurred. The underlying data quality figures are variable - some showing improvements, others are little changed or some apparently slightly worse over the 12 month period.
20. The Data Quality dashboards are providing effective information on the quality of asset MST data and maintenance job related data. The comparative reporting of these Dashboards provides a motivation for staff to improve quality in order to avoid being at the bottom of the Dashboard. Due to their high profile, there is a risk that other factors, which do not appear on the dashboard, may not be suitably prioritised in order to focus efforts on measures in the dashboard.
21. The Asset Data Quality Group has recently been formed to oversee and address asset data quality issues. Based on the evidence provided, the Group appears to be discussing the outputs of data quality reporting and is positively attempting to address issues as they arise.
22. All of the above data quality activities are focussed on understanding and improving the validity, consistency, completeness and precision of asset data. However, arguably the most important data quality attribute - accuracy, is not being assessed effectively. The accuracy of data relating to assets delivered by projects is being assessed, however, the accuracy of data relating to existing assets is not known. Anecdotal evidence suggests that there are a number of assets missing from Ellipse, or with incorrect location and attribute details. Until a methodical, quantifiable assessment of accuracy is undertaken, Network Rail risks focussing improvement activities on the wrong areas.
23. Aside from the improvements in management of data validity, completeness and consistency, previous recommendations to instigate data accuracy checks and to identify those processes that could positively contribute to data accuracy are neither being implemented nor are suitable alternative actions being implemented.

2.3 Data Quality Improvement Projects

Two Data Quality Improvement Projects are being undertaken:

- The maintenance based DQIP project is applying consistent 'designs' of MSTs to single groups of assets at a time, for example all types of track circuits were assessed together with related standard MST designs developed. The overall implementation will take another three years to complete, based upon the current work programme; and
- The asset based DQIP programme is reviewing current asset attribute lists and determining standard lists of attributes against asset types.

The key findings from the audit of the Data Quality Improvement Projects are:

24. The DQIP approach appears to be delivering standard approaches to the maintenance of assets but is reliant on local staff activating the design MSTs for these assets. Central data quality dashboards are being used to monitor the effectiveness and timeliness of these changes.
25. Network Rail needs to ensure that the overall duration of DQIP is acceptable and introduce additional resources to shorten timescales, if necessary.
26. Due to the lack of central visibility of the workload of SSMs, the uniform application of DQIP changes is having a significant adverse impact on any SSMs who have resource or workload issues. It is believed that this situation is not sustainable over the long term.
27. The DQIP project is trialling an Asset Confirmation process in two areas that requires local staff to certify that four key aspects of asset and MST data are correct. The proposed process requires physical confirmation of data accuracy, where this is considered necessary, but does not require recording and feedback of data quality metrics from this process. Additionally, this is not part of an ongoing confirmation process so risks unidentified degradation in asset data quality over time. The process that is being trialled will not lead to a mandated and structured approach to quantify and identify data accuracy errors. As this is a trial, there is a risk that the process may not be implemented. Post-audit discussions with Network Rail have emphasised the intention of this process, but we remain unconvinced that it will provide suitable awareness of data accuracy to Network Rail.
28. The asset based DQIP programme is identifying key attributes and attributes which are no longer required for each type of asset reviewed. The number of attributes identified as no longer required, for the limited sample data provided, was greater than 50%.

2.4 Delivery of Asset Information from Projects

There is a clear requirement for projects to supply suitable information on the assets added, removed or changed by projects. Various updated standards, such as DEL08 *Data Management Delivery Manual*, NR/L2/EBM/088 *Arrangements for Maintenance of new and changed assets*, NR/L3/EBM/089 *Asset Management Plan* and the supporting AMP08 form provide clearer information on the responsibilities of project staff for the provision of asset information.

The key findings from the audit of the process for delivery of asset data from projects are:

29. It is still difficult for staff involved in projects to assess the timing and nature of forthcoming projects. One Project Manager interviewed relies on tracking spreadsheets generated by their contractor to assess current and future workloads.
30. The Network Rail Data Quality NST has been developing a capability to extract project data from Primavera P3e. However, there is not yet a working report usable by, and distributed to, all SSMs and other staff interested in project progress from an ADM perspective. Underlying data in P3e is stated as not currently complete or accurate enough for the information to be of use in such a report.
31. P3e is now being used to automatically generate ROW Logs (project work tracking spreadsheets). Initially the data in P3e was stated by a number of respondents as not accurate enough for this purpose. Accuracy of this data was stated as improving, as demonstrated in tracking spreadsheets used by Infrastructure Investment.
32. The above facts, coupled with statements from key staff and the difficulty in selecting suitable projects to review as part of this audit all indicate that there may be data quality issues with some of the data in P3e. The new standard NR/L3/INI/PG115/P/002, which mandates the population of Engineers' Line References, etc. in P3e was issued in October 2009 as a draft standard with compliance mandated from April 2010 and will be key to getting usable and accurate automated ROW logs and forward work plans.
33. Project teams sometimes have difficulties identifying which Delivery Unit covers which area for multi-site projects. One SSM has created a simple spreadsheet tool to provide such guidance to project teams, but this tool has not been circulated more widely.
34. Not all Project Managers interviewed were aware of the existence of the DEL08 *Data Management Delivery Manual*. However, they still appeared to be ensuring that data was being supplied to the correct standards and timescales.

35. The recently released Project Managers Handbook (April 2009) makes no reference to the delivery of asset information from a project. The manual needs to be read in conjunction with the Project Management Framework (PMF) and GRIP to determine asset information deliverables. If read in isolation, there is a risk that a Project Manager may not have suitable awareness of the importance of the provision of asset information from projects. Considering the historic concerns over the provision of asset information from projects and the importance of the ADM process, we believe that omission of these requirements from this handbook was a missed opportunity to ensure Project Managers were more aware of these requirements.
36. For the projects reviewed, the provision of asset information appeared to have progressed effectively, with relatively few issues over the timing or quality of information deliverables.
37. The actual activity of ensuring the provision of asset information is stated as the responsibility of the Project Manager. In reality, the Project Managers interviewed stated that they recognise their accountability in this process, but they delegate the responsibility to members of their team. For the projects reviewed, the Site Manager took on these responsibilities
38. The role of Project Interface Coordinator (PIC) covers a broad set of requirements which should improve the effective delivery of projects into normal maintenance, however, it was stated that it is optional whether a Delivery Unit fills this role. Where a PIC is present, this was stated as improving the effectiveness of data transfer activities.
39. Non-standard approaches to ease the transfer of information were stated in two areas - one through the creation of an unofficial IT training facility; the other through the loan of a Network Rail laptop to allow the MDM (Maintenance Data Management) tool to be used by the contractor.
40. Where data errors are identified in the data provided by a project, different approaches are taken ranging from complete rejection of data with no explanation of why (to encourage contractors to better understand the data and process requirements) through to staff correcting apparent errors in the data supplied with no reference to the supplier of the information.
41. There was stated recognition that for some site activities, provision of data was a low priority for site staff, for example on a cold, wet night with an overrunning possession. One contractor stated that they adopted a different approach by marking the rails where welds were to be made both to ensure the correct location of the weld and to allow pre-completion of some of the data.

42. Infrastructure Investment undertake their own monitoring of the provision of Ellipse and GEOGIS data, however, it is unclear whether this is circulated to staff involved in the ADM process.

2.5 Organisation and Transformation Programme

Network Rail is undertaking a wide scale Transformation Programme to improve the processes, systems and organisation of Network Rail in order to achieve CP4 deliverable targets. The programme comprises a number of constituent projects.

The key findings from the audit of the organisation and Transformation Programme are:

43. The scope of Network Rail's proposed project AM07 (formerly AI03) Data Specification and Control covers information structures and specifications. The scope refers to measurements of data quality, but does not state what these measurements will cover. It is essential that this quality assessment includes data accuracy in order that the scope of AM07 (and other activities) can be revised if necessary.
44. Despite statements that the MDM tool and ADD-Lite will be reviewed and replaced as part of the transformation programme, these changes do not explicitly appear in the scope of AM07. Current usability and performance issues for these two systems, coupled with an NRIM (Network Rail Information Management) stated objective to remove Microsoft Access, indicate that planning to replace these systems should be included in planned improvement activities. However, no evidence was seen that this is the case.
45. The ADM Procedure Review project intends to revise and update all ADM standards, which should provide Network Rail with an opportunity to remove inconsistencies and gaps and to ensure better alignment with current standards and organisational structures. The project scope refers to the risk caused by accuracy problems but does not appear to address such problems directly.
46. The related project to develop an ADM workflow tool to support SSMs running the ADM process and to give central visibility of performance is not approved. There are stated concerns that this project may not meet the current 5 year payback threshold, despite its strategic importance, indicating that justification may need to be based upon the project being a strategic enabler for other activities (see Finding 9).
47. The identification and population of data for recording curves in track, which had not previously been recorded, indicates that the ongoing processes to review information

requirements against available data are identifying needs which have been previously missed.

48. The proposed new organisational structure includes the role of Head of Asset Information which is a welcome indication that Network Rail views the effective management of asset information as an ongoing, strategic activity.

3 Conclusions

The following conclusions can be drawn from the findings of this audit:

Network Rail has continued to make improvements to the overall supply and management of asset data. Awareness of the need to comply with ADM processes is better, among the projects reviewed as part of this audit, compared to previous projects audited. Compliance with ADM processes also appeared to be more consistent for the projects and staff visited. The approach to, and sophistication of, data quality reporting continues to improve, which, coupled with the two Data Quality Improvement Programmes, should help to improve the overall quality and consistency of data. However, there are still a number of areas identified where improvements are essential.

Best practice approaches to data quality management include a requirement to assess data accuracy. Despite the importance of understanding the actual accuracy of asset data (and anecdotal evidence of data accuracy errors), Network Rail is not able to demonstrate any recent studies or ongoing processes to assess the accuracy of data. This risks other improvement activities being incorrectly prioritised or possibly being unable to deliver intended benefits. Previous recommendations to identify processes that could assess and improve data accuracy have not been implemented, nor have alternate actions to achieve these recommendations been instigated.

The SSMs interviewed for this audit appeared capable, motivated and dedicated to the role. Confusion about role responsibilities, perhaps worsened through the removal of the role profile was seen to be leading to extra pressure on staff. Although some SSMs have PTS certification, they are not sure whether visiting assets should be part of their role. Arguably, SSMs will be less effective if they do not have opportunity to visit real assets and talk to staff involved in these assets.

When compared against good practice, ownership and monitoring of the overall ADM process does not appear strong enough or high profile enough in order for the process to be operated and managed as a single business process. The process currently exists as up to 40 separate processes based on the same core requirements. Stronger ownership should help identify developing resource and workload issues prior to them resulting in process problems and should drive improvements in the efficiency and effectiveness of the process.

The adoption of a common system able to aggregate workload data from all Delivery Units would allow the ADM process owner to be aware of developing workload and productivity

issues. Similarly, if there are resource issues among the ADM staff (for example vacancies and sickness) a centralised view would allow such problems to be resolved by transferring work, changing priorities or providing extra resources. This approach should significantly enhance the resilience of the overall process and reduce the risk of adverse workload impacts on affected staff. A pragmatic interim approach of using the same logging tool by all SSMs with the ability to aggregate process data centrally also does not currently appear to be being considered. However, it is believed that this would be relatively easy and cost effective to achieve.

The processes for logging GEOGIS change requests and the resultant updating of GEOGIS by PTOs and STOs appears ineffective. This lack of process control coupled with staff competency and motivation to use and update GEOGIS, creates a risk of a long term decline in GEOGIS data quality.

The quality of data in P3e to support the ADM process, as required to generate forward view reports and the generation of ROW logs, does not appear to be of suitable quality. However, anecdotal evidence coupled with the introduction of a new standard for recording such information indicates that this should be a transient problem.

4 Recommendations

Following the completion of this audit it is recommended that independent monitoring of the recommendations assessed as Amber and Red should continue. For those recommendations assessed as Green, Network Rail should continue to deliver and monitor these actions internally.

During this audit it became apparent that a number of new recommendations are required in order to continue the improvement of asset data management by Network Rail. These new recommendations are:

1. A number of previous recommendations cover various aspects of assessing and improving data accuracy, however, these are not currently being implemented by Network Rail. A study of actual data accuracy should be undertaken in order to ensure that other improvement activities are correctly prioritised and are able to deliver intended benefits. This study should be an analysis of data against the physical assets that the data represents. It should be extensive enough to ensure it is statistically significant. Areas to assess for each main asset type include the presence of an asset, correct location information and correct attribute information. Depending on the outcomes of this study, a suitable level of ongoing assessment and monitoring should be instigated, coupled with identification of ongoing processes which could also improve data accuracy. This is a High criticality recommendation.
2. Strong, high profile, active process ownership and governance of the ADM process is required as a High criticality recommendation to ensure the ADM process is operated as a single process, and not as up to 40 discrete processes. All relevant stakeholders need to be aware of the process governance arrangements and the mechanisms for registering comments and issues for resolution. This would allow early identification and rectification of emerging problems and provide better capability to plan future changes and improvements. Ownership should ensure clarity of role descriptions for relevant staff and the ability to effectively address intruder tasks that do not fit these role descriptions.
3. A consistent approach to managing and logging GEOGIS updates is essential to ensure that updates are not mislaid and that they are processed in a timely manner. A common work logging and tracking tool should be urgently developed and issued to all staff involved in GEOGIS updating. The tool should have the ability to combine data from all users to allow a single, organisation wide overview of GEOGIS update workload and productivity to be achieved. This is a High criticality recommendation.

4. Whilst undertaking this project, it became apparent that the data in Primavera (P3e) that should be, or is planned to be used to support ADM processes either did not exist, or was not of suitable quality for this purpose. Whilst the data quality was stated as improving, and the introduction of the new standard NR/L3/INI/PG115/P/002 should improve data quality, it is recommended that Network Rail reviews the quality of project data in Primavera to ensure that it meets ADM process requirements as a Medium criticality recommendation.
5. An assessment should be made of the competency of staff to undertake GEOGIS updates to ensure that updates are made in a correct and timely manner. This High criticality recommendation may require retraining and mentoring to improve the competency levels and motivation of staff to make such updates.
6. An ongoing overview is required of the overall ADM workload to ensure that productivity and resourcing are appropriate to the current and anticipated workload. This is a Medium criticality recommendation.
7. The Data Quality Improvement programmes should be adapted to reflect likely resource availability as a Medium criticality recommendation. Appropriate changes should be made to ensure that programme activities do not have an adverse impact on staff workloads or other activities. Such changes could include changed targets to complete updates, extra resources to address shortages or transfer of activities to areas where there may be 'spare' resource availability.
8. Role based user groups should be established to ensure that all aspects of the SSM and PTO roles are managed effectively as part of a single ADM process as a High criticality recommendation. This should include the use of core systems, work logging tools, development and sharing of additional tools to support the process and escalation of common issues. Due to the number of staff involved in the overall ADM process, it would be impractical for them all to be involved in the same user group, therefore the current informal regional groups should be more formally recognised and take representation from these groups to the central user group.

Appendix A - Audit Findings by Recommendation

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
4.1	A formal process should be developed to inform MDUs when re-railing has been carried out as several interviewees said that this information was rarely readily available.	High	It is Network Rail's contention that current the ADM process is fit for purpose and that this is demonstrated by its correct functioning in many parts of the country. ADM procedures will, by August 2009, be supported by a process allowing visibility to SSMs of track renewal activities by the Infrastructure Investment teams in their areas - details are being finalised but will utilise data of actual work done recorded in the P3e planning system used by II. The ADQR will provide the mechanism to report data provision against renewal activity - any non-compliance will be fully visible both locally and centrally and will be discussed at the ADQG. By November it is anticipated that a similar process will be implemented for Maintenance- and Enhancements-delivered track renewals.	<p>The current ADM processes should effectively provide data from project activities, however, based upon the projects reviewed it appears that PTOs and STOs are not undertaking GEOGIS updates effectively, leading to delays and quality problems with updates. One example noted was a GEOGIS update form that had been mislaid in an 'In Tray' for between two and five months.</p> <p>The ADM process still appears to be localised with little evidence of central overview and ownership. The ADQR reports show the number of updates undertaken but do not yet show the expected actual updates. Therefore the report is not yet effectively addressing this recommendation.</p> <p>P3e reports to show project activity related to the ADM process are still not developed and concerns over underlying data quality in P3e suggest it may be some time before these reports are reliable and suitable.</p>

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
5.2	<p>Renewals and enhancement projects must be managed such that contractors are reminded of their obligation to provide accurate asset register data and technical drawings at handover. Associated internal audit and assurance processes should also be strengthened to ensure that contractors comply with ADM standards. This will ensure that the system is fully up-to-date as quickly as possible after modifications to the infrastructure, allowing maintenance schedules to commence promptly, without the potential for missed maintenance or out-of-tolerance maintenance intervals.</p>	High	<p>A mechanism for providing visibility of, and the provision of data from, track renewals projects has been summarised in the response the Recommendation 4.1 above. It is planned to implement similar tracking mechanisms, for all other types of asset data by January 2010.</p>	<p>As stated in 4.1, reports to track the provision of information do not yet meet this need. However, for the projects reviewed, the processes for supply of asset information, Health and Safety Files, AMP documents etc. appear to be operating effectively and generally in a timely manner.</p>
10.1	<p>Network Rail should ensure that the remainder of the training programme for SSMs and PTOs is completed rapidly.</p>	Medium	<p>The initial target of having 80% of Phase 2A roles trained has been met. Additional training is undertaken as a steady state activity as people move into roles vacated by others. Full training details and contacts are available on MS&D Online. Courses are scheduled as required, with a percentage of spaces on scheduled courses kept free to accommodate short notice applications. Ad hoc courses can also be arranged to meet BAU requirements as necessary.</p>	<p>Training is being delivered for SSMs and PTOs and appears to operate as an efficient 'steady state' process. However, PTOs and STOs do not appear confident to do basic enquiries and updates in GEOGIS following their training. Indicating either that the training potentially needs amending, and/or that mentoring may be required.</p>

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.2	To ensure experience gaps are minimised, it is recommended that a co-ordinated approach to the support arrangements between role holders is established.	Low	All SSMs and PTOs are required to undergo training before being given access to GEOGIS and Ellipse. Support for complex changes is available from the DQ NST if it is required - details are available to the Delivery Units on MESD Online.	Continued informal support arrangements between SSMs operate based on old territories or similar personal relationships. This continues to allow a fragmented inconsistent process to exist with less central oversight than is required.
10.3	A process should be established to monitor the level of GEOGIS and Ellipse updates both at an overall level and by area, in order to identify possible productivity issues.	Medium	A mechanism for providing visibility of, and the provision of data from, track renewals projects has been summarised in the response the Recommendation 4.1 above. It is planned to implement similar tracking mechanisms, for all other types of asset data by January 2010.	Tracking reports are available in Infrastructure Investment which indicate delays, but these do not yet appear to feature in NST tracking. The continued unavailability of a forward view report means monitoring of data provision and future workloads continues to be difficult.
10.4	The Data Quality Improvement Programme should be finalised and agreed as soon as possible in order to provide a clear framework for other data quality improvement activities. An extensive supporting communication plan should be developed.	Medium	An over-arching plan for DQ interventions is in place and maintained by the DQ NST. Within this Maintenance are progressing with their own DQ improvement plan for data that they manage, full details of which are available on MESD Online. The overarching plan is governed by the ADQG who monitor its progress and add further initiatives to the plan as appropriate. Information on any changes to the plan is then cascaded down into the functions by their representatives on the ADQG.	The DQIP and DQuIP plans appear to be thorough and well intentioned. Overall timescales to complete these projects compared to available resources in the field and any localised workload/resourcing issues mean that in some areas the programme appears to be overwhelming some SSMs.

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.5	The DQIP should define the differing data ownership roles (for example Data Owner, Data Steward and Data Provider) and the responsibilities of these roles, in accordance with appropriate good practice, such as ISO 8000.	Medium	As far as is reasonably practicable, AITP project AI03 (Data definition) will seek to identify and allocate the accountabilities of Data Owner, Steward & Provider though this is not explicitly linked to ISO8000. It is recognised that subsequent work may need to be undertaken to realign these roles in light of company structure changes implemented through the Organisational Change Transformation Programme.	Data ownership roles are still not defined and are not clearly understood at a local level ADM process ownership roles are also unclear. The AM07 project (formerly AI03) which should address some of these issues has not started yet
10.6	The MESD OnLine portal should be updated to include all supporting material used by SSMs.	Low	MESD is up-to-date with all corporate support documentation for GEOGIS. Where local 'guidance notes' have been developed, as identified by AMCL, it is anticipated that these will be identified during the course of DQIP and the necessary steps taken to standardise these notes, reassess system training where applicable or update existing documentation if it is required.	MESD OnLine appears to contain most material to support the ADM process and appears to be updated regularly. However, there are still low awareness levels of the availability of this resource.
10.7	Options that would allow external parties to be able to access all relevant supporting process information should be investigated.	Low	The relationship between external data providers and Network Rail is managed by the relevant NR project manager who has access to both DEL08, that specifies data requirements, and MESD Online, where all relevant supporting documentation can be accessed. Project managers themselves are in turn supported by the local SSM and PTO's.	This process places much reliance on the Project Manager. In the projects reviewed, ADM work activities get devolved to the Site Manager and Contractor to liaise with the SSM. However, the contractor cannot readily access supporting information for themselves. Local arrangements to provide additional support to contractors were instigated in two of the projects reviewed. This appeared to have benefits for the provision of data but is outside Network Rail's current written processes.

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.8	Network Rail should finalise the requirements of the ADM Log and the Data Quality Issues Log (DQIL) applications. The ADM Log should include the ability to generate a consistent view of forthcoming projects.	Medium	This is covered by the following aspects of the proposed scope of Transformation Project AI03 (subject to a positive business case being demonstrated at the feasibility phase): Tracking of asset data * Create or purchase suitable system for Asset Data Management Log & DQ Issues	The absence of standard logging system and a central process view is believed to be hindering operating the ADM process as a single process
10.9	In the interim, a standard report to provide a forward view of projects should be developed and distributed to relevant staff regularly.	Low	This is currently being progressed with a possible solution making use of information held within the P3e planning tool.	A forward view report is being developed, but this is not finalised and issued yet. There are concerns that underlying data quality problems in P3e may restrict its usefulness initially Meanwhile, staff continue to use other routes e.g. PIC, contractors lists etc. to identify forthcoming work.
10.10	A clear and consistent approach to the minimum acceptable standard for logging change requests and tracking the overall workload of SSMs should be enforced.	Medium	This recommendation will be covered by the implementation of the process by which SSMs are informed of projects taking place, tracking of project returns of asset data and the development and delivery of the ADM Log.	A relatively simple action to standardise process logging which does not appear to have been completed, nor has an alternate system been instigated.
10.11	Optimised plans for the delivery of MDM type functionality should be developed, including short and medium term improvements to the current tool and a strategic assessment of the most suitable long term approach.	Medium	This will be covered by the following aspects of the proposed scope of Transformation Project AI03 (subject to a positive business case being demonstrated at the feasibility phase): * Specify and create software system to make the metadata control processes more efficient	The AM07 project (formerly AI03) has a different scope to AI03 and states "rationalise data collection systems". However, the project is not yet started and early phases are looking at information requirements only.

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.12	<p>Activities to refine and agree the Engineering Verification Process should include:</p> <ul style="list-style-type: none"> • Ensuring that data accuracy verification becomes a core part of the process • Ensuring that issues are traced to their root cause • Providing an appropriate level of statistical analysis of results, and • That logging and monitoring of resultant actions is undertaken. 	High	<p>The primary purpose of the Engineering Verification Process is to assess the safety related compliance of the asset. Where this entails a check of asset information then it could be used to verify asset data. However this process should not play the central role assigned to it by the AMCL recommendations.</p> <p>The Asset Correlation process currently being developed by Maintenance will be specifically aimed at the improvement of asset-related data. Initiated as part of DQIP, the process will assess the quality of data in Ellipse and GEOGIS, identifying missing data (inc MSTs) , duplicate records, etc. Information will be reconciled by desktop exercises (sig diagrams, etc.) and physical verification where appropriate. the process will be reviewed and overseen by the ADQG.</p>	<p>Network Rail does not appear to have any regular process to assess the accuracy of asset data. Additionally, no discrete audits to assess accuracy levels have taken place; therefore Network Rail is not aware of the true accuracy of asset data. This leads to the risk that other activities may not be prioritised correctly if there is no awareness of actual accuracy levels.</p> <p>The Asset Correlation process focuses on desktop application of standard MST designs to assets with site checks only where necessary. This is stated as a one off initiative and not an ongoing process.</p>

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.13	There should be clear formal communication to all relevant project staff of their responsibilities for the provision of asset data arising from projects.	High	<p>Responsibilities for the provision of asset data arising from Projects are formally detailed in DEL08 (Data Management Delivery), a mandatory part of the GRIP process.</p> <p>Additional communication to project staff is carried out as appropriate - this is undertaken as a matter of course when procedures are materially changed or systemic issues are identified. The mandatory presence of a representative from Infrastructure Investment on the ADQG facilitates the cascading of data quality issues back to the II community. This will be further strengthened through the visibility of project compliance with ADM as summarised against Recommendation 4.1 above.</p>	<p>Communication in DEL08 appears clear, however the Project Managers Handbook makes little reference to any information deliverables from projects.</p> <p>Project staff now appear to be more aware of the needs for provision of asset information.</p> <p>Better tracking and logging systems should then identify problem areas once they have been developed.</p>
10.14	Further audits of the completeness, accuracy, and validity of data supplied by projects should be undertaken.	Medium	<p>Systems audits, including data accuracy etc., are already included in NCAP for both Ellipse and GEOGIS. The Maintenance Asset Correlation process and LTA Database /DQIL provide additional visibility of data quality issues and pathways for their resolution. The possible inclusion of an ADM audit as a separate line within NCAP is being progressed by the DQ NST.</p>	<p>The latest NCAP programme does not appear to feature asset data.</p> <p>Current activities by Infrastructure Investment are focussed on whether data has been transferred and not necessarily whether it is correct.</p>

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.15	The supply of asset attribute information, bulk load processes and checking arrangements for new and changed assets should be reviewed, optimised and consistently formalised.	Medium	<p>This will be covered by the following aspects of the proposed scope of Transformation Project AI03 (subject to a positive business case being demonstrated at the feasibility phase):</p> <p>Control of data requirements</p> <ul style="list-style-type: none"> * Create, consult and document the process for controlling asset data requirements * Specify and create software system to make the metadata control processes more efficient * Brief and implement interim process using existing tools <p>Tracking of asset data</p> <ul style="list-style-type: none"> * Create or purchase suitable system for Asset Data Management Log & DQ Issues 	<p>The AM07 project (formerly AI03) has a different scope to AI03 and states "define data requirements, rationalise data collection systems, streamline processes".</p> <p>These activities should improve the supply and control of asset information; however the project is not yet approved.</p>
10.16	A standard training package that SSMs can utilise to ensure that all relevant project staff understand their responsibilities for the provision of asset information should be developed.	Medium	<p>Responsibility for the provision of asset data lies with the Network Rail project manager and it is therefore the PM should ensure project staff understand their responsibilities vis-à-vis ADM. Whilst formal training could be given, the ADM standards rightly emphasis a continual dialog between the PM and the SSM as process expert. Supporting documentation and presentations are available to the PM via MESD Online to help them understand the role that they and their staff are to play in the provision of asset data.</p>	<p>Whilst standard material is available, Project Managers are reliant on SSMs to make the process operate effectively. This typically appears to involve the SSM in ongoing dialogue with contractors and more junior project staff.</p> <p>Whilst the Project Manager is accountable for the provision of asset information, they do not appear to be able to add much value to the process.</p> <p>Perhaps more formal recognition of responsibilities of the project team is required.</p>

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.17	An ADM Process Owner and ADM Governance body should be established to ensure that the overall operation of ADM processes is overseen.	High	The Asset Data Quality Group is the governing body overseeing the overall operation of the asset data management procedures and related data quality initiatives. The Engineering Business Manager is the owner of the ADM process.	<p>Whilst the ADQG (Asset Data Quality Group) monitors the overall quality of data and individual components of the ADM process, they do not appear to have an overview of the effectiveness of the process as a whole.</p> <p>Whilst the Engineering Business Manager is stated as the process owner, it is not clear how this role is being approached. SSMS and others are not aware of this responsibility.</p> <p>Active process ownership is an essential requirement to make the ADM process function as a single process with clear visibility of performance metrics and emerging issues.</p>

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.18	A requirement specification should be developed to allow assets in both Ellipse and GEOGIS to positively identify that data was assessed as correct on a particular date to allow other staff an indication of whether the data can be relied upon.	Medium	<p>Issues surrounding the use of such functionality need to be explored more fully. Flagging up some data as being correct on a particular date may have the effect of undermining confidence in unflagged data or data that is 'old'. The aim is to increase confidence in the systems and data as a whole through the work being undertaken through the Transformation Programme, the data quality improvement programmes, the Maintenance Asset Correlation process and the NCAP systems audits.</p> <p>Any requirements for changes to GEOGIS and Ellipse would require business cases, unlikely in the case of GEOGIS. The requirements specification for TASR does include the ability to flag particular asset data to indicate its validation status. However, it is too early to say exactly how this will work.</p>	<p>The ability for systems and users to identify validated data is a key enabler to improving confidence in the quality of data which in turn encourages better approaches to data management. Current anecdotal evidence suggests that data accuracy issues may exist, however, it is not possible to clarify this or assess the scale and significance of such issues.</p> <p>It is argued that such an indication would not undermine confidence in data so long as it is relatively easy for staff to indicate data that has been verified as correct, or to supply data corrections.</p>
10.19	Identify all the activities which could realistically deliver improvements in data accuracy. These should be linked together in an overall data accuracy framework to ensure effective targeting of accuracy checking.	Medium	Initiatives for the improvement of data quality are reviewed and prioritised at the monthly ADQG. Transformation stream AI03 will establish data definitions to a standard format and provide accuracy standards to match business criticality, "As is" and "To be" analysis will provide gap actions and recommendations for an improvement programme.	<p>ADQG appears to be focussed on single initiatives and actions. The recommendation was intended to identify field based 'Business As Usual' processes and activities which do, or could, contribute to improving data accuracy. This could then allow improved approaches to the accuracy of data to be instigated with minimal impact.</p> <p>The AM07 project (formerly AI03), whilst sound in itself, does not appear broad enough to cover this recommendation.</p>

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.20	Define the core and desirable competencies to undertake the SSM and PTO roles.	Low	Competencies are defined in job descriptions and in more detail in role profiles. These roles have yet to have role profiles completed; this may be addressed as part of the Phase 2B/C Maintenance organisational change in April 2010.	Role profiles for these roles have been withdrawn, therefore it is more difficult to assess whether staff meet the required competencies. Some of the PTOs and STOs interviewed appeared to have low levels of competence in interrogating and updating GEOGIS, leading to a growing risk that GEOGIS updates may not be completed as intended.
10.21	Implement the Data Quality Improvement Plan across Network Rail, supported by an extensive communication plan.	Medium	This recommendation is covered by recommendation 10.4 above.	See comments on 10.4, above
10.22	Implement arrangements to allow contractors and external parties to have direct access to relevant supporting information.	Low	This recommendation is covered by recommendation 10.7 above.	See comments on 10.7, above
10.23	Implement changes to ensure that complex, infrequent tasks, such as track remodelling, as undertaken by staff with higher levels of skills and experience either by setting up a dedicated team to undertake such work, or adding these responsibilities to a suitable existing team.	Medium	With the advent of TASR it is not realistic to implement a dedicated team to undertake complex changes within GEOGIS. Therefore core responsibility for maintaining GEOGIS will remain with the Delivery Unit, with support for complex changes available from the DQ NST when it is required - details are available to the Delivery Units on MESD Online.	Complex changes to GEOGIS are either undertaken by the DQ NST or by GEOGIS experts local to the relevant Delivery Unit. If staff other than the DQ NST undertake such changes, even if they are competent to do so, then it becomes harder to communicate a clear message over who should make such changes and these staff may not have such activities recognised in their true roles. The quality of all GEOGIS updates is reviewed by the DQ NST, so the risk of incorrect changes remaining in the system is lessened.
10.24	Develop and implement the ADM Log and DQIL applications to underpin the ADM processes.	Medium	This recommendation is covered by recommendation 10.8 above.	See comments on 10.8, above

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.25	Review the suitability, usability and effectiveness of the ADD-Lite application. Identify, plan and implement any required system and process changes.	Medium	<p>Transformation project AI03 will undertake the following activities:</p> <p>Control of data requirements: Create, consult and document the process for controlling asset data requirements Specify and create software system to make the metadata control processes more efficient Brief and implement interim process using existing tools</p> <p>AI03 will examine the current effectiveness of the ADD-lite application and will make recommendations for improvements to the structure and use of the system. Adoption of these recommendations will be subject to a successful business case.</p>	<p>AM07 (formerly AI03) should provide more suitable standards for the provision of asset information and systems to support this provision. However, this project is not yet approved.</p> <p>Network Rail should ensure that if the AM07 project is not approved, that a suitable alternative project is instigated promptly.</p>
10.26	Implement the approved Engineering Verification Process, ensuring that Verifiers and Lead Verifiers have received training and are suitably competent.	Medium	The Maintenance Asset Correlation Process is seen to be a more suitable vehicle for asset data verification - see recommendation 10.12 above.	See comments on 10.12, above
10.27	Enhance the National Core Audit Programme (NCAP) to include asset data as an individual 'line' within the programme with an appropriate scope and schedule of asset data accuracy audits.	Medium	The inclusion of an ADM audit as a separate line within NCAP is being progressed by the DQ NST and will support the current Maintenance Systems audits already undertaken. Providing a vehicle for the auditing of high priority issues, the actual scope of the audit, year on year, will be determined by the ADQG.	<p>The current NCAP audit plan does not appear to include any ADM related audits or audits of actual data quality.</p> <p>Due to the importance of asset data to many processes across and outside Network Rail it is important that NCAP audits, or other suitable processes, assess the quality of asset and other data.</p>

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.28	Deliver an extensive communication process to all Network Rail project staff to ensure that they are fully aware of the requirements of the ADM process, the related standards, the availability and content of MESD On Line and where to obtain more information.	Medium	The requirements of the ADM process are detailed in DEL08 (Data Management Delivery), a part of the GRIP process.	Although no formal communication process has taken place, awareness of the needs to supply asset information, as specified in DEL08, appears more widespread. Efforts should now focus on monitoring compliance to the ADM process.
10.29	Ensure that all SSMs deliver training to contractors on the requirements of the ADM process at the start of each project.	Low	Responsibility for the provision of asset data lies with the Network Rail project manager. It is therefore the responsibility of the project manager to ensure contractors have all relevant information and detail necessary to enable the provision of that asset data. Resources to help the PM do this are available of MESD Online.	Project Managers have the accountability for this, but they appear to devolve the actual awareness training to the SSMs. This is a more pragmatic approach, so perhaps should be reviewed and considered for adoption as a corporate standard.

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.30	Implement a suitable competency management framework for all SSMs and PTOs to improve overall competency levels.	Medium	<p>All SSMs and PTOs are required to undergo training before being given access to GEOGIS and Ellipse. Shortfalls in data quality will be highlighted through the ADQR and the Maintenance league tables will provide focus on individual areas. Where there is a consistent shortfall in quality staff will be retrained as appropriate.</p> <p>It is also proposed to strengthen this by including in the ADM procedures a mandatory responsibility on the DQ NST to highlight any unsatisfactory data quality to the appropriate level of management, and provide enough detail for remedial action to be taken. It is also proposed that the need for, and means of, escalation is specified if action is not taken by local management and that there is a requirement on the management to respond to issues raised and report on them to the point of resolution. However at this stage the precise solution cannot be specified at this stage - consultation will have to take place and any solution may also be affected by changes in organisational structure.</p>	<p>Once training is completed, staff are not necessarily fully competent to undertake GEOGIS updates, however competence is likely to develop over time through the use of these skills.</p> <p>Anecdotal and observed evidence of PTOs and STOs using GEOGIS suggest that the skills and competency may not be at desired levels.</p> <p>Network Rail should instigate a more active competency management process to check staff are actually using the systems they should, to review data updates undertaken and to assess awareness of how to undertake regular system tasks.</p> <p>Training or mentoring should be arranged to address any identified shortfalls in competence.</p>

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.31	Develop a logical standard approach to the recording of colloquial names to ensure that the current inconsistent approaches between disciplines are not maintained.	Low	<p>The colloquial names are specific to Ellipse and provide a variety of different ways for delivery units to 'name' assets. The purpose is to allow local ways of describing assets so valid local variances in naming conventions can be recorded. Consistent naming of asset types and their local name is held in the equipment description fields 1 and 2.</p> <p>Whilst the exercise to specify data definitions within AI03 does not yet include requirements to correct local colloquialisms or dialectic anomalies, the preparation and implementation of a more robust data dictionary with well-defined terms is likely to support a longer-term change on behaviours.</p> <p>A systemic solution for colloquial name issues within the fault management process will also be considered by the project to replace FMS.</p>	<p>AM07 (formerly AI03) should review the usage of asset names and colloquial names to ensure that appropriate names are used that are relevant to users and support various related systems, for example, FMS.</p>
10.32	Deliver a long term system to deliver the stable and consistent measures in the ADQ Reports.	Medium	<p>The current ADQR is managed and produced through the use of MS Office tools though, as stated by AMCL, the limits of the tools are being reached. It is also recognised that efficiencies are to be gained through the use of a bespoke or COTS package - a business opportunity statement is being drafted by the DQ MST and will be submitted in July.</p>	<p>The existing reports are continuing to be refined, and whilst possibly having stability and efficiency problems, have the flexibility to better respond to changing reporting needs.</p> <p>As particular reporting requirements stabilise, the consideration of longer term automated tools to deliver these reports should commence.</p>

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.33	Undertake a review of the effectiveness of the Phase 2A reorganisation with respect to data management in order to identify learning points and areas where further changes are required.	Medium	During the implementation of Phase 2a a number of indicators were put in place to measure the effects of the new organisation on data (in particular Ellipse Data). These included system outputs as well as the monitoring of system availability and accessibility. Where variances against targets occurred at Delivery Unit control measures were put in place. The Data Quality improvement programme being lead by Infrastructure Maintenance is also driving further consistency in the management and use of data. The post implementation reviews for Phase 2a also made recommendations to improvements in the organisation structure in terms of data inputting, these changes are currently being implemented. In terms of supporting future change programmes that impact on the structure of Ellipse a project (Ellipse single district) has started which will make boundary changes and the restructuring of the Ellipse system data far easier in the future.	<p>The basic organisational structure implemented in 2a to support ADM processes appears to be generally working as desired, however, there are still a number of areas that Network Rail should review in order to deliver all the intended benefits:</p> <ul style="list-style-type: none"> ▪ Overall process ownership of the ADM process ▪ Overall review of the workload and resourcing to support the ADM process to ensure that resource or workload issues are identified and managed proactively ▪ Introduction of standard tools and approaches for logging work activities ▪ Ensure similar approaches are taken for tracking and recording GEOGIS updates ▪ Consider amending the requirements of PTOs and STOs for updating GEOGIS to ensure they understand their role and add value to it <p>Whilst the current 2a structures appear generally to be improving awareness of the ADM process and the effectiveness of such processes, this approach is almost certainly less efficient than a more centralised approach. Network Rail should monitor the efficiency and effectiveness of the ADM process in order to identify whether changes are required to improve efficiency.</p>
10.34	Implement the agreed standard approach to colloquial names for assets.	Low	This recommendation is covered by recommendation 10.31 above.	See comments in 10.31, above.

ID	Recommendation	Criticality	Network Rail 2009 Response Update	Progress
10.35	Review of the implementation and effectiveness of the Data Quality Improvement Plan.	Medium	<p>This will be undertaken by the Asset Data Quality Group (ADQG), the remit of which states under the Purpose of the group:</p> <p>3. Own and monitor data quality improvement projects</p> <p>This refers to specific, discrete initiatives sanctioned by the group and delivered by Maintenance, Engineering or outside contractors.</p>	<p>The ADQG does not appear to have formally started this role yet, although the ADQR covers the impacts of DQIP.</p> <p>Maintenance is using Data Quality Dashboards to track progress and performance of DQIP.</p>
10.36	Review the implementation and effectiveness of the Engineering Verification Process once it has been in use for around a year.	Medium	<p>In line with its remit, the ADQG will undertake to review the effectiveness of all initiatives, including the Maintenance Asset Correlation process, to raise the quality of asset data in Network Rail's systems. See Recommendation 10.12 above.</p>	<p>As the Engineering Verification process will not be assessing and improving data quality the original recommendation is no longer valid.</p> <p>Since no other activities are planned to monitor and improve data accuracy and quality generally, it is important that Network Rail implements suitable monitoring activities and then reviews their effectiveness once established.</p>

Appendix B - Interviewees and projects reviewed

Role	Name	Location	Meeting Date(s)
	Martin Tiller		27/8/09
	Ian Rush	-	4/9/09
SSM1	Richard Lewis	Cardiff (for Shrewsbury)	08/10/2009
SSM2	Alex Warren	Bletchley	01/10/2009
SSM3	Darren Jaundrill	Sandwell & Dudley	28/09/2009
PTO1	Andy Beech	Shrewsbury	22/09/2009
PTO2	Martin Freed	Bletchley	01/10/2009
PTO3	Edward Jarvis	Sandwell & Dudley	28/09/2009
PM1	Steve Weitz and Gwyn Rees	Cardiff	08/10/2009
PM2	Darren Cooke and Ross Collins	Bletchley	09/10/2009
PM3	Patrick Vallely	Sandwell & Dudley	28/09/2009
Contractor1	Warren Eldridge	Amey Colas - Cardiff (for Shrewsbury)	08/10/2009
Contractor2	Steve Neville	Amey Colas - Bushbury	28/09/2009
Contractor3	Mark Deane	Westinghouse - Northampton	09/10/2009
	Glen Garrard	-	07/08/2009
MESD	N/A	Access via Ian	
	Robert Thomas	-	28/08/2009
	Nigel Edwards	-	26/08/2009
	Aaron Brown	Shrewsbury	22/09/2009

The projects reviewed as part of this audit were:

- 45259 – Church Stretton
- PBJ210146 – Bushbury
- 107906 – Northampton Resignalling