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**Network Rail**  
from  
Asset Management Consulting  
Limited (AMCL)

Version 1.0  
24<sup>th</sup> August 2012

**AMIP to AMCL Roadmap  
Validation  
MRN/BA021**

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## Executive Summary

On the 13<sup>th</sup> April 2012 AMCL published an update to its Network Rail Asset Management Roadmap<sup>1</sup> which defines a revised set of Capabilities, Improvement Specifications and Success Criteria that would enable Network Rail to achieve the Roadmap Asset Management capability maturity trajectories agreed between Network Rail and the ORR in March 2011<sup>2</sup>. The updated 2012 Asset Management Roadmap (2012 Roadmap) was produced following AMCL's latest assessment of Network Rail's Asset Management capabilities using the AMCL Asset Management Excellence Model™ (AMEM)<sup>3&4</sup>. The 2012 Roadmap report considered the Asset Management capability maturity targets, set for the end of the current regulatory control period as per the original Roadmap, but took into account the progress Network Rail has made since the publication of the original Roadmap in 2010.

As part of its role as Independent Reporter for Asset Management, AMCL was asked to validate Network Rail's plans against the latest 2012 Roadmap. This report contains the findings and conclusions from that validation exercise.

Network Rail has recently updated its Asset Management Improvement Programme (AMIP) and the overall governance of the AMIP lies with the Asset Management Steering Group (AMSG). The AMSG has developed an overall plan (the AMSG Folio Plan) which aims to collate all the relevant activities required to deliver the AMIP.

It should be acknowledged that Network Rail's plans are continuing to evolve, and that for the purposes of this report the AMSG Folio Plan as at 27<sup>th</sup> June 2012 was taken as the baseline. All commentary in this report is based on that plan, augmented by further Network Rail provided evidence and knowledge from other Independent Reporter work streams, where available. The work did not review the quality of outputs except for any relevant documents provided, and provides a 'best case' scenario by assuming what's been planned has been or will be done. However, it is acknowledged that Network Rail, in working with its industry partners or in other internal 'business as usual' activity, will be identifying and implementing continuous improvement actions beyond AMSG's immediate scope that may not be immediately available

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<sup>1</sup> Network Rail Asset Management Roadmap Update, Version 1.0, issued 13th April 2012

<sup>2</sup> <http://www.rail-reg.gov.uk/upload/pdf/nr-cp4-success-010311.pdf>

<sup>3</sup> 2011 AMEM Assessment, Version 1.1, issued 6<sup>th</sup> December 2011

<sup>4</sup> AMEM Assessment IIP update report, version 1.0 issued 2<sup>nd</sup> May 2012

to this review. These actions may result in better outcomes with respect to meeting trajectories than those recorded here.

It should also be noted that the AMMSG Folio Plan, at the time of the validation exercise, contained a number of 'place holders' or simple key dates for further relevant corporate activity that was outside of the direct control of AMMSG. Network Rail acknowledges this does introduce alignment and management risks across various activities within the organisation but that lack of detail contained within the AMMSG Folio Plan does not necessarily mean lack of activity.

The findings of this alignment work are expressed as three Red, Amber and Green (RAG) scales, as shown in Table 1 below. The three RAG scales have been applied to each of the 61 Capabilities defined in the 2012 Roadmap. An 'AMEM Activity RAG', which is the average of the two SBP RAGs ('Scope' and 'SBP Deliverability') for all Capabilities within each Activity, was also produced to allow comparison with Network Rail's own analysis.

Appendix B contains the first level of detail of this assessment. It shows how the three Scope and Deliverability RAGs were applied to each of the 61 Roadmap Capabilities and the resultant 'AMEM Activity RAG'. Appendix C through to Appendix I contain the detailed assessment split by the six AMEM Groups.

RAG Scale	Red	Amber	Green
Scope	No or very few requirements evident in AMIP	A good proportion of requirements evident in AMIP	All requirements evident in AMIP
SBP Deliverability	Very unlikely to achieve AMCL Roadmap requirements for SBP	Some risk to achieving AMCL Roadmap requirements for SBP	No specific risks identified to achieving AMCL Roadmap requirements for SBP
End of CP4 Deliverability	Very unlikely to achieve AMCL Roadmap requirements for End of CP4	Some risk to achieving AMCL Roadmap requirements for End of CP4	No specific risks identified to achieving AMCL Roadmap requirements for End of CP4

**Table 1 RAG Scales**

Section 2 contains the methodology and findings for this work. The output of this assessment using the three RAG scales described above is summarised in Table 2 below.

RAG	Red Capabilities	Amber Capabilities	Green Capabilities
Scope	8%	44%	48%
SBP Deliverability	12%	25%	63%
End of CP4 Deliverability	10%	41%	49%

**Table 2 Summary of RAG analysis**

Overall, the following conclusions have been made:

- 1) Network Rail has made significant progress in updating the AMIP to reflect the 2012 Roadmap report but gaps still remain. Specifically, there is a lack of demonstrable alignment between the developing Asset Management capabilities, such as the overall Asset Management System and resulting asset information requirements, being captured in the AMSG Folio Plan and the on-going ORBIS programme.
- 2) There are a number of areas where activities are only superficially considered in the AMSG Folio Plan or do not yet have activities defined for the time between SBP and the end of CP4. This is in part due to some activities captured in the AMSG Folio Plan being outside the direct control of the AMSG but this limits Network Rail's ability to demonstrate alignment with the 2012 Roadmap.
- 3) The mapping of the AMSG Folio Plan to the AMCL Roadmap is not always clear. The RAG analysis for Scope coverage, which compares the scope of Network Rail's planned activities with the Improvement Specifications defined in the AMCL Roadmap, indicates that, in AMCL's opinion, around 48% of the Roadmap Capabilities in the AMSG Folio Plan fully cover the AMCL Roadmap Improvement Specifications (Green RAG), with another 44% partially covered (Amber RAG), and 8% inadequately covered (Red RAG).
- 4) The RAG analysis for deliverability (i.e. will the activities be delivered by the SBP and end of CP4, including the consideration of dependencies) shows that:
  - a. For SBP – 63% of Capabilities are Green, 25% are Amber and 12% are Red;  
and
  - b. For End of CP4 – 49% of Capabilities are Green, 41% are Amber and 10% are Red.
- 5) The dependencies between Capabilities identified by AMCL in the Roadmap are evident in the AMSG Folio Plan, and have been supplemented by further dependencies identified by Network Rail. Assuming all dependencies are implemented effectively, the AMSG Folio Plan should effectively integrate the development of the Roadmap Capabilities. Where issues relating to the detailed content and timing of the development of Capabilities have been raised in this report, delivery of the plan may suffer.

The overall recommendation of this assessment is that Network Rail should continue to develop and manage the AMSG Folio Plan, to provide greater clarity that the Improvement Specifications contained in the AMCL Roadmap will be delivered and that the plans will be delivered by the SBP and the end of CP4. Activities that are not yet fully integrated need to be

defined, incorporated, and monitored as a single programme. Specifically, Network Rail should consider the following for the different categories of RAG:

- 1) Scope and Deliverability where the RAG analyses are Green – monitor and review against AMCL Roadmap requirements on a periodic basis;
- 2) Scope and Deliverability where RAG analyses are Amber – refine the plan or further clarify activities against the AMCL Roadmap Improvement Specification, and ensure all activities beyond SBP to end of CP4 are defined; and
- 3) Scope and Deliverability where RAG analyses are Red – undertake a further review of the documented approach or Network Rail validation of planned outcomes against the AMCL Roadmap requirements.

In addition the 'AMEM Activity RAG' which is a consolidated RAG at the AMEM Activity level, for SBP only, has been compared to Network Rail's 'Forecast vs. Trajectory' RAG which represents Network Rail's view on its own progress to SBP.

The comparison shows that the two RAG analyses agree in 14 out of 24 Activities, with a further 3 being in agreement if Network Rail's fourth assessment category of 'Yellow' is considered to be the same as 'Amber'. This is shown in Figure 1 on the following page. It should be noted that Unit Costs have been split (CAPEX/OPEX) to align with the 2012 Roadmap and that Network Rail's development of Unit Costs is subject to on-going Progressive Assurance via Arup. As part of the revision of this report from Draft B to Version 1.0, AMCL validated its findings against Arup's current understanding of Network Rail's plans for unit costs, and this assessment can be seen in Section 2.2 of this report.

Activity Group	AMEM Activity	AMCL	NWR (SBP forecast only)
Strategy & Planning	Policy & Strategy	G	G
	Demand Analysis	G	G
	Strategic Planning	G	G
	AMPs	A	G
WLC Justification	Opex Evaluation	A	A
	Unit Costs (Maintenance)	A	Y
	Capex Evaluation	G	G
	Unit Costs (Renewal)	R	Y
Lifecycle Delivery	Asset Creation	A	G
	Systems Engineering	A	G
	Maintenance Delivery	A	G
	Resource & Outage Management	R	G
	Incident Response	G	G
	Asset Rationalisation & Disposal	G	G
Asset Knowledge	Asset Information Strategy & Standards	G	G
	Asset Data & Knowledge	A	Y
	Asset Information Systems	A	A
Organisation & People	Individual Competence & Behaviour	A	A
	Organisational Structure & Culture	A	Y
	Contract & Supply Management	G	G
Risk & Review	Risk Assessment & Management	G	G
	Sustainable Development	G	G
	Weather & Climate Change	G	G
	Review & Audit	A	G

Figure 1 Comparison of AMCL Activity and Network Rail's 'Forecast vs. Trajectory' to SBP RAGs

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# 1 Introduction

## 1.1 Overview

On the 13<sup>th</sup> April 2012 AMCL published an update to its Network Rail Asset Management Roadmap<sup>5</sup> which defines a revised set of Capabilities, Improvement Specifications and Success Criteria that would enable Network Rail to achieve the agreed Roadmap Asset Management capability maturity trajectories agreed between Network Rail and the ORR in March 2011<sup>6</sup>. This was produced following AMCL's latest assessment of Network Rail's Asset Management capabilities using the AMCL Asset Management Excellence Model™ (AMEM)<sup>7&8</sup>.

The revised Roadmap in April 2012 considered the same Asset Management capability targets, set for the end of the current regulatory control period, as the original Roadmap but took into account any progress in capability development Network Rail had made since the publication of the original.

As part of its role as Independent Reporter for Asset Management AMCL was asked to validate Network Rail's plans against the latest Asset Management Roadmap. This report contains the findings and conclusions from that validation exercise.

## 1.2 Objective and Scope

The objective of this work was to validate the Network Rail AMIP (Asset Management Improvement Plan) programme against the revised AMCL Roadmap and the achievement of SBP and end of Control Period 4 (CP4) trajectory targets by Network Rail.

The scope of this work included a review of all planned and evidenced activities within Network Rail that form its approach to delivery of the AMCL Roadmap. Network Rail has a number of initiatives which comprise its overall scope for Asset Management improvement. These include ORBIS (Offering Rail Better Information Services), BCAM (Buildings & Civils Asset Management), and the work underpinning the SBP submission which is developing Network Rail's Asset Policies and Tier 1 and Tier 2 modelling. The AMIP picks up the majority of activity required to deliver the AMCL Roadmap, including significant overlaps with the other Asset

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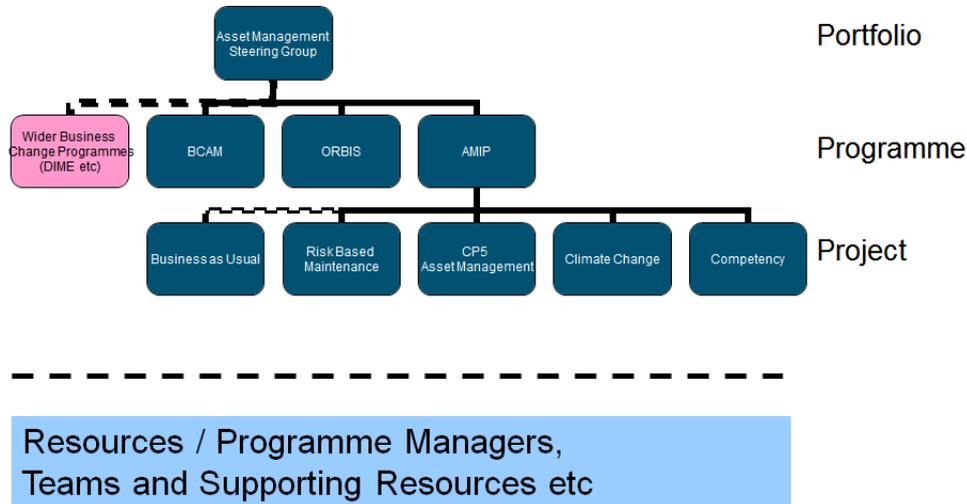
<sup>5</sup> Network Rail Asset Management Roadmap Update, Version 1.0, issued 13th April 2012

<sup>6</sup> <http://www.rail-reg.gov.uk/upload/pdf/nr-cp4-success-010311.pdf>

<sup>7</sup> 2011 AMEM Assessment, Version 1.1, issued 6<sup>th</sup> December 2011

<sup>8</sup> AMEM Assessment IIP update report, version 1.0 issued 2<sup>nd</sup> May 2012

Management specific improvement initiatives mentioned above. The overall governance for these Asset Management specific improvement initiatives (including AMIP) lies with the Network Rail Asset Management Steering Group (AMSG). The AMSG has developed an overall plan (the AMSG Folio Plan) which aims to collate all the relevant activities within its remit to deliver the AMIP. The Network Rail provided AMSG governance structure is as shown below.



**Figure 2 Network Rail’s AMSG Governance Structure**

However, the quantum of work currently being undertaken by Network Rail that is likely to impact Asset Management comprises:

- 1) Work wholly under the governance of AMSG – as defined above;
- 2) Wider Business Change Programmes – these include cross-cutting Industry or wider Network Rail programmes in which AMSG members have representation to ensure alignment of scope but are not wholly controlled by AMSG; and
- 3) On-going areas of continuous improvement.

It should be noted that the AMSG Folio Plan, at the time of this validation exercise, contained a number of ‘place holders’ or simple key dates for further relevant corporate activity that was outside of the direct control of AMSG. Network Rail acknowledges this does introduce alignment and management risks across various activities within the organisation but that lack of detail contained within the AMSG Folio Plan does not necessarily mean lack of activity.

It should also be acknowledged that Network Rail’s plans are continuing to evolve, and that for the purposes of this report the AMSG Folio Plan as at 27<sup>th</sup> June 2012 was taken as the baseline. All commentary in this report is based on that plan and some additional evidence provided for factual accuracy post the release of the Draft A version of this report. All

documentary evidence taken into account in the preparation of this report is listed in Appendix A.

### **1.3 Activities**

The following activities have been completed:

- 1) Network Rail provided information against each element of the AMIP which gave sufficient information of what is planned and the timescales, which in its view allowed AMCL to validate whether or not the planned activities and deadlines will achieve the AMCL Roadmap definitions, and by when.
- 2) AMCL then validated the AMIP against the latest AMCL Roadmap on the basis of this information. Where this was not sufficient to complete the validation AMCL sought further information or further clarification from Network Rail.
- 3) The validation exercise included the following:
  - a. Validation that the AMIP covers all AMCL Roadmap requirements, assuming the AMIP is delivered.
  - b. Comment on the integration of activities across the AMIP and whether or not this represents good practice Asset Management.
  - c. On the basis of the review, and assuming Network Rail delivers the AMIP, a view on whether or not achievement of the AMCL Roadmap trajectories agreed between the ORR and Network Rail will be achieved and if not then by what point they will be.
  - d. A view on the main risks to achieving the AMCL Roadmap trajectories, including those related to timescales and competences.

## 2 Methodology and Findings

### 2.1 Overview of RAG Scales and Findings

The findings for this work are expressed on three final RAG scales as shown in Table 3 below. For each of the 61 Capabilities defined in the AMCL Roadmap these three RAG scales have been applied.

RAG Scale	Red	Amber	Green
Scope	No or very few requirements evident in AMIP	A good proportion of requirements evident in AMIP	All requirements evident in AMIP
SBP Deliverability	Very unlikely to achieve AMCL Roadmap requirements for SBP	Some risk to achieving AMCL Roadmap requirements for SBP	No specific risks identified to achieving AMCL Roadmap requirements for SBP
End of CP4 Deliverability	Very unlikely to achieve AMCL Roadmap requirements for End of CP4	Some risk to achieving AMCL Roadmap requirements for End of CP4	No specific risks identified to achieving AMCL Roadmap requirements for End of CP4

**Table 3 RAG scales**

An 'AMEM Activity RAG', which is the average of the first two RAGs described above for all Capabilities within each Activity, was also produced, and compared with Network Rail's 'Forecast vs. Trajectory' RAG which represents its view on its own progress to SBP. This top-level comparison is shown in Figure 3 below. It should be noted that Unit Costs have been split (CAPEX/OPEX) to align with the 2012 Roadmap and that Network Rail's development of Unit Costs is subject to on-going Progressive Assurance via Arup.

Activity Group	AMEM Activity	AMCL	NWR (SBP forecast only)
Strategy & Planning	Policy & Strategy	G	G
	Demand Analysis	G	G
	Strategic Planning	G	G
	AMPs	A	G
WLC Justification	Opex Evaluation	A	A
	Unit Costs (Maintenance)	A	Y
	Capex Evaluation	G	G
	Unit Costs (Renewal)	R	Y
Lifecycle Delivery	Asset Creation	A	G
	Systems Engineering	A	G
	Maintenance Delivery	A	G
	Resource & Outage Management	R	G
	Incident Response	G	G
	Asset Rationalisation & Disposal	G	G
Asset Knowledge	Asset Information Strategy & Standards	G	G
	Asset Data & Knowledge	A	Y
	Asset Information Systems	A	A
Organisation & People	Individual Competence & Behaviour	A	A
	Organisational Structure & Culture	A	Y
	Contract & Supply Management	G	G
Risk & Review	Risk Assessment & Management	G	G
	Sustainable Development	G	G
	Weather & Climate Change	G	G
	Review & Audit	A	G

Figure 3 Comparison of AMCL Activity and Network Rail's 'Forecast vs. Trajectory' to RAGs for SBP

Appendix B contains the next level of detail of this assessment. It shows how the three Scope and Deliverability RAGs were applied to each of the 61 Roadmap Capabilities, the resultant SBP 'AMEM Activity RAG', and the comparison with Network Rail's 'Forecast vs. Trajectory' RAG for SBP.

The remainder of Section 2 provides more detail on the approach and findings. This is supported by Appendix C through to Appendix I, which contain the detailed assessment split by the six AMEM Groups. These Appendices contain the 61 AMCL Roadmap Capability Statements, their Improvement Specifications and Success Criteria, and five additional columns which provide the following information for each Capability:

- Are all AMCL Roadmap requirements covered in the Network Rail programme?
- Will the AMCL Roadmap trajectories be achieved on time?
- A summary of the main risks to achievement.
- The Scope RAG.
- The two Deliverability RAGs.

## 2.2 Validation of AMIP against AMCL Roadmap Requirements (Scope)

Network Rail's AMIP has been consolidated into a single Microsoft Project plan which contains 1,402 lines split into each of the AMCL Roadmap improvement areas (the AMMSG Folio Plan). This plan has been assessed by each improvement area and this analysis is shown in Appendix C through to Appendix I. In assessing compliance with the AMCL Roadmap requirements the following 'Scope' RAG scale was used:

- Full Coverage (Green RAG) – based on the planned activities in the AMMSG Folio Plan it appears that all requirements specified in the AMCL Improvement Specification are addressed.
- Partial Coverage (Amber RAG) – based on the planned activities in the AMMSG Folio Plan it appears that there are some elements of the AMCL Improvement Specification missing.
- Inadequate Coverage (Red RAG) – there is not sufficient evidence from the planned activities in the AMMSG Folio Plan to be confident that the requirements specified in the AMCL Improvement Specification will be addressed.

In summary Network Rail has full coverage of the AMCL Roadmap requirements for 48% of Improvement Specifications, with a further 44% partially covered, and 8% inadequately covered. Table 4 shows a summary of the 61 improvement areas.

Group	Inadequate Coverage (Red RAG)	Partial Coverage (Amber RAG)	Full Coverage (Green RAG)	Totals
Strategy & Planning	0	5	7	<b>12</b>
WLC Justification (Maintenance)	2	4	2	<b>8</b>
WLC Justification (Renewal)	0	3	5	<b>8</b>
Lifecycle Delivery	3	3	5	<b>11</b>
Asset Information	0	5	2	<b>7</b>
Organisation & People	0	3	4	<b>7</b>
Risk & Review	0	4	4	<b>8</b>
<b>Totals</b>	<b>5</b>	<b>27</b>	<b>29</b>	<b>61</b>
<b>Percentage</b>	<b>8%</b>	<b>44%</b>	<b>48%</b>	<b>100%</b>

**Table 4 Summary of AMIP coverage of AMCL Roadmap requirements**

The main reasons for Partial or Inadequate Coverage are that:

- The level of detail in the AMMSG Folio Plan was not sufficient to establish that all the detailed elements of the Improvement Specification will be met. In some cases there appeared to be clear gaps, in others planned activities may provide coverage but at this stage this was not clearly demonstrated.
- In general, Network Rail has adopted a planning horizon up to and including SBP, therefore some activities specified in the AMCL Roadmap are not planned in any detail in the AMMSG Folio Plan beyond that point.
- In some cases, the AMMSG Folio Plan has 'place-holder' activities only, nominally as they are activities outside the direct control of the AMMSG. These 'place-holders' are aligned to the Improvement Specification requirements in the AMMSG Folio Plan but do not have sufficient detail underneath or references to other material to provide evidence that the Improvement Specification will be delivered.

Overall, the AMMSG Folio Plan contains a huge range of detail. Some areas, such as the implementation of handheld equipment for maintenance management, or competence development, provide extensive details and are linked to established projects. In other areas the level of detail is limited to a single line in the plan.

One of the less well defined areas within the AMMSG Folio Plan relates to unit costs, which are split into maintenance and renewal unit costs in the AMCL Roadmap (Capability References 2.8 and 2.16 respectively). AMCL was asked to consider Arup's view on Network Rail's development of unit costs as this area is subject to on-going Progressive Assurance by them. The opinion expressed by Arup is as follows:

- 1) Maintenance unit costs: In Period 6 2012/13 Network Rail migrated from their previous MUC framework of approximately 50 defined unit costs to an expanded framework of approximately 110. The findings of a Data Assurance Audit undertaken by Arup concluded that the new MUC framework increased unitised cost coverage to just under 80%. However, Arup's data quality audit was limited to the sample of MUC data presented in Statement 14 of the regulatory accounts, which were reconciled back to the previous (pre-Period 6 2012/13) unit cost definitions to facilitate historical comparisons. The 26 x MUCs listed in Statement 14 of the regulatory accounts account for 35% of total 2011/12 maintenance spend. Network Rail were assessed at B2, which means the limited sample of 26 unit costs were broadly documented and estimated to be accurate to within 5%. Arup's focus for its audit was on the utilisation of MUCs for historical efficiency reporting. Arup

was less clear on Network Rail's forward plans for MUCs, and had not seen a clearly defined plan explaining how MUCs are being applied for CP5 planning purposes, but it considers it should be possible for Network Rail to apply the MUC framework in place for the purposes of forward planning as well as monitoring actual cost levels and making historical comparisons.

- 2) **Renewal unit costs:** Arup reported that Network Rail has at least two known approaches to renewal unit costs. Firstly, RUCs were first presented approximately 12 months ago for the purposes of efficiency reporting through Network Rail's regulatory accounts, and for this purpose are defined in a 'top-down' fashion by dividing accruals-based expenditures for particular activities by volumes. Network Rail has explained to Arup that the RUCs were being defined to demonstrate efficiencies only and would not be used for planning. Secondly, Network Rail developed 'bottom-up' renewal unit costs that were utilised in the Tier 1 models for the IIP, and which were going to be gradually refined and improved in a controlled fashion until SBP. Arup understands that this process is continuing, but that devolution has impacted on this approach. Network Rail has informed Arup that the Tier 1 models will no longer be used to plan, but will be used to validate the Route planning submissions, and the Routes will define their own costing approaches (a possible third approach). Currently, Arup is undertaking analysis of the interplay between central unit costs and route level submissions as part of its mandate AO/034 (unit costs for planning) and is due to report in October 2012.

AMCL has concluded that its assessment of Network Rail's plans for maintenance and renewal unit costs (Capability References 2.8 and 2.16 respectively) is consistent with Arup's view.

### **2.3 Achievement of AMCL Roadmap Trajectories (Deliverability)**

The premise of the AMCL Roadmap is that if Network Rail was to implement the 61 Improvement Specifications it contains, and achieve this within the timescales specified in the 'SBP' and 'End of CP4' Success Criteria, the expected AMCL Roadmap trajectories would be achieved.

To assess the deliverability risk the following RAG analysis was applied to each of the 61 AMCL Roadmap Capabilities for each of the two Success Criteria timescales (SBP and End of CP4):

- **Low Confidence (Red RAG)** – On the evidence presented it is very unlikely that Network Rail will achieve the AMCL Roadmap requirements for either the SBP or End of CP4 timescales.

- Medium Confidence (Amber RAG) – On the evidence presented there is some risk to Network Rail achieving the AMCL Roadmap requirements for either the SBP or End of CP4 timescales.
- High Confidence (Green RAG) – On the evidence presented there were no specific risks identified that Network Rail will not achieve the AMCL Roadmap requirements for the SBP or End of CP4 timescales.

Table 5 shows a summary of the 60 improvement areas which have an SBP requirement.

Group	Red	Amber	Green	Totals
Strategy & Planning	0	1	11	12
WLC Justification (Maintenance)	1	4	3	8
WLC Justification (Renewal)	1	1	6	8
Lifecycle Delivery	5	0	6	11
Asset Information	0	3	4	7
Organisation & People	0	4	2	6
Risk & Review	0	2	6	8
<b>Totals</b>	<b>7</b>	<b>15</b>	<b>38</b>	<b>60</b>
<b>Percentage</b>	<b>12%</b>	<b>25%</b>	<b>63%</b>	<b>100%</b>

**Table 5 Summary of risks to achievement of AMCL Roadmap activities to SBP**

Table 6 shows a summary of the 59 improvement areas which have an End of CP4 requirement.

Group	Red	Amber	Green	Totals
Strategy & Planning	0	4	8	12
WLC Justification (Maintenance)	1	4	3	8
WLC Justification (Renewal)	1	3	3	7
Lifecycle Delivery	4	1	5	10
Asset Information	0	4	3	7
Organisation & People	0	5	2	7
Risk & Review	0	3	5	8
<b>Totals</b>	<b>6</b>	<b>24</b>	<b>29</b>	<b>59</b>
<b>Percentage</b>	<b>10%</b>	<b>41%</b>	<b>49%</b>	<b>100%</b>

**Table 6 Summary of risks to achievement of AMCL Roadmap activities to End of CP4**

The main reasons for Red or Amber Deliverability risks are:

- As described in Section 2.2, Network Rail has adopted a planning horizon up to and including SBP, therefore some activities specified in the AMCL Roadmap are not planned in any detail in the AMSC Folio Plan beyond that point.
- Dependencies to previous activities within the plan, which AMCL has assessed as a concern, may delay consequential activities.
- Some activities appear to have quite compressed timescales, or have timescales that appear to have been missed.

## **2.4 Integration of AMIP activities**

Network Rail provided a summary of the interfaces in the AMSC Folio Plan, shown in Appendix J. This shows the dependencies for each of the improvement areas by listing the 'interfaces in' and the 'interfaces out' of each. In general Appendix J shows that the AMSC Folio Plan is well integrated across all the improvement areas.

The black references in Appendix J show those dependencies that were identified in the AMCL Roadmap, and the blue references show additional dependencies identified by Network Rail in putting the AMSC Folio Plan together. This demonstrates that the AMSC Folio Plan has at least the level of integration AMCL would expect and specified within the AMCL Roadmap.

The dependencies between Capabilities identified by AMCL in the Roadmap are evident in the AMSC Folio Plan, and have been supplemented by further dependencies identified by Network Rail. Assuming all dependencies are implemented effectively, the AMSC Folio Plan should effectively integrate the development of the Roadmap Capabilities. Where issues relating to the detailed content and timing of the development of Capabilities have been raised in this report, delivery of the plan may suffer.

## 2.5 Assessment of Overall Risk and Suggested Mitigations

To assess whether the AMMSG Folio Plan will achieve the expected trajectories is a combination of how completely the plan covers the Improvement Specification requirements (see Section 2.2) and confidence in the timescales within which these are planned to be achieved (see Section 2.3). From this assessment the risks to achievement can be identified.

An overall assessment of this risk, the 'AMEM Activity RAG', has been produced. This is the average of the two SBP RAGs described in Sections 2.2 and 2.3 for all Capabilities within each Activity. This analysis, already introduced in Figure 3 on Page 13, has shown that:

- 11 out of 24<sup>9</sup> AMEM Activities (46%) are Green;
- 11 out of 24 AMEM Activities (46%) are Amber; and
- 2 out of 24 AMEM Activities (8%) are Red.

This analysis suggests the following generic strategies for the improvement of Network Rail's AMIP:

- Green RAG – monitor and review against AMCL Roadmap requirements on a periodic basis;
- Amber RAG – refine plan or further clarify activities against the AMCL Roadmap Improvement Specification, and ensure all activities beyond SBP to end of CP4 are defined; and
- Red RAG – further review of documented approach or Network Rail validation of planned outcomes against the AMCL Roadmap requirements.

There are four Capabilities out of the total of 61 which have all three RAGs red. These are listed in Table 7 on the following page with the key findings for scope and deliverability analyses.

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<sup>9</sup> Note that the Unit Costs AMEM Activity has been split between Maintenance and Renewal

Improvement Area		
Ref.	Capability Statement	Finding
2.3	A maintenance requirements analysis process is in place that defines the approaches for developing maintenance regimes for all asset types	Points 1 & 2 of the specification are specifically referred to in the programme, however points 4 to 10 are not. The definition of the MRA is marked as complete on the AMMSG Folio Plan within the timescales required (April 2012), as does 'conduct MRA' between March and April 2012 although this seems to be a very tight timescales for such an activity. Activities following this up to 2013 have not been defined.
3.3	The scope and timing of all renewal and enhancement work undertaken is aligned with the Route AMP and Delivery Plan	There is insufficient detail in the AMMSG Folio Plan to give confidence that the Improvement Specification will be achieved.
3.4	RAMS requirements management processes proportionate to the complexity of a project are defined and implemented.	There is insufficient detail in the AMMSG Folio Plan to give confidence that the Improvement Specification will be achieved.
3.7	All engineering disciplines have clear guidance on the tolerance of maintenance and inspection activities and processes in place to manage any exceedences.	There is insufficient detail in the AMMSG Folio Plan, which allows 0 days for the improvement activity.

**Table 7 Four Red/Red/Red Assessed Risk Areas in AMMSG Folio Plan**

### 3 Conclusions and Recommendations

This assessment has provided a validation of Network Rail's current Asset Management improvement activities, as expressed primarily in the AMMSG Folio Plan, against the AMCL Roadmap. Overall, the following conclusions can be made:

- 1) Network Rail has made significant progress in updating the AMIP to reflect the 2012 Roadmap report but gaps still remain. Specifically, there is a lack of demonstrable alignment between the developing Asset Management capabilities, such as the overall Asset Management System and resulting asset information requirements, being captured in the AMMSG Folio Plan and the on-going ORBIS programme.
- 2) There are a number of areas where activities are only superficially considered in the AMMSG Folio Plan or do not yet have activities defined for the time between SBP and the end of CP4. This is in part due to some activities captured in the AMMSG Folio Plan being outside the direct control of the AMMSG but this limits Network Rail's ability to demonstrate alignment with the 2012 Roadmap.
- 3) The mapping of the AMMSG Folio Plan to the AMCL Roadmap is not always clear. The RAG analysis for Scope coverage, which compares the scope of Network Rail's planned activities with the Improvement Specifications defined in the AMCL Roadmap, indicates that, in AMCL's opinion, around 48% of the Roadmap Capabilities in the AMMSG Folio Plan fully cover the AMCL Roadmap Improvement Specifications (Green RAG), with another 44% partially covered (Amber RAG), and 8% inadequately covered (Red RAG).
- 4) The RAG analysis for deliverability (i.e. will the activities be delivered by the SBP and end of CP4, including the consideration of dependencies) shows that:
  - a. For SBP – 63% of Capabilities are Green, 25% are Amber and 12% are Red;  
and
  - b. For End of CP4 – 49% of Capabilities are Green, 41% are Amber and 10% are Red.
- 5) The dependencies between Capabilities identified by AMCL in the Roadmap are evident in the AMMSG Folio Plan, and have been supplemented by further dependencies identified by Network Rail. Assuming all dependencies are implemented effectively, the AMMSG Folio Plan should effectively integrate the development of the Roadmap Capabilities. Where issues relating to the detailed content and timing of the development of Capabilities have been raised in this report, delivery of the plan may suffer.

In addition the 'AMEM Activity RAG', which is a consolidated RAG at the AMEM Activity level for SBP only, has been compared to Network Rail's analysis on its own progress to SBP. This shows that the two RAG analyses agree in 14 out of 24 Activities, with a further 3 being in agreement if Network Rail's fourth assessment category of 'Yellow' is considered to be the same as 'Amber'.

The overall recommendation of this assessment is that Network Rail should continue to develop and manage the AMMSG Folio Plan, to provide greater clarity that the Improvement Specifications contained in the AMCL Roadmap will be delivered and that the plans will be delivered by the SBP and the of CP4. Activities that are not yet fully integrated need to be defined, incorporated, and monitored as a single programme. Specifically, Network Rail should consider the following for the different categories of RAG:

- 1) Scope and Deliverability where the RAG analyses are Green – monitor and review against AMCL Roadmap requirements on a periodic basis;
- 2) Scope and Deliverability where RAG analyses are Amber – refine the plan or further clarify activities against the AMCL Roadmap Improvement Specification, and ensure all activities beyond SBP to end of CP4 are defined; and
- 3) Scope and Deliverability where RAG analyses are Red – undertake a further review of the documented approach or Network Rail validation of planned outcomes against the AMCL Roadmap requirements.

## Appendix A List of Documentary Evidence

## A.1 Plan and Programme Information

Ref	Evidence	Filename	Comments
1	AMIP Competency Plan	AMIP Competency Plan.pdf	Overall plan to drive NR's overall AM competency development.
2	AMSG Folio Plan	AMSG Folio Plan.pdf	Overall plan covers all aspects of the AMIP at a high level (PDF).
3	AMSG Folio Plan	AMIP 250612.pdf	Later PDF version of the AMSG Folio Plan
4	Baseline AMSG Folio Plan	AMSG Folio Plan 250612 No Package recovered.ppt	The 'baseline' version of the AMSG Folio Plan used for the assessment.
5	High Level Plan	Visio-200612.pdf	The 'Overall High Level Plan'
6	WLC Justification PoP	Visio-opex 250612.pdf	WLCC cost justification maintenance PoP
7	Competency PoP	Visio-PoP V1.2.pdf	Competency PoP
8	AMSG Portfolio Delivery Plan Internal Draft C	AMSG Portfolio Delivery Plan Internal Draft C.pdf	This is a direct copy-and-paste from the AMCL Roadmap.
9	CP5 High Level Plan	CP5 HLP.pdf	Overall plan covers all aspects of the AMIP at a high level.
10	AMSG Portfolio High Level SBP Plan	Visio-AMSG Portofolio High Level SBP Plan Draft C.pdf	This is a high-level summary for AMSG governance.
11	SBP Deliverables Owners and milestones	SBP-asset_management-deliverables V001 22_Feb_2012.docm	Outlines the key deliverables required from asset management – central function and Routes – to support the publication of the Strategic Business Plan in January 2013
12	BCAM Programme alignment	Programme Board Tier-1 23-APR-12 v1 0.PPT	BCAM Transformation Programme Board Presentation
13	ORBIS programme alignment	NR ORBIS Roadmap (Condensed Edition) v1.1.pdf	ORBIS programme alignment presentation
14	Mapping of Activity to Improve Asset Management Capability	dependencies between programmes.doc	A high-level mapping of AMEM Activities to Network Rail improvement plans and programmes.
15	BCAMS Overview	BCAMS IS Strategy Overview - AMCL 20.06.12.ppt	Overview presentation of the BCAMS programme.

## A.2 Other Information Considered

Ref	Evidence	Filename	Comments
16	High level AM Framework/System Diagram	Visio-Framework V1.1 issue 1.pdf	Overview diagram of Network Rail's developing AM Framework
17	Grayrigg Recommendation 2 - Closure Statement	Grayrigg Recommendation 2 Closure Statement 230412.pdf	This DRAFT statement provides Network Rail's answer to the following recommendation from the RAIB report on Greyrigg: <i>Network Rail should implement processes to:</i> <i>A. capture, and record on a single national database, data about component failures, and interventions made during maintenance and inspection activities, for each set of S&amp;C;</i> <i>B. use the data from a) above to monitor failure and intervention rates locally and nationally in the behaviour of S&amp;C components;</i> <i>C. identify precursor faults that might lead to more serious failures; and</i> <i>D. identify those precursor faults where the failure and intervention rates indicate a need to reduce the risk of catastrophic failure"</i>
18	NR-wide Maintenance Activity Ranking (Criticality Exercise)	Maintenance Activity Ranking - Draft - 08.05.12.xls	This spreadsheet contains a criticality ranking for all of NR's maintenance activities / spend. It is an input to the Maintenance Policy document.
19	NR-wide Maintenance Activity Ranking (Criticality Exercise)	Maintenance Activity Ranking - MC - Draft - 24.05.12.xls	This spreadsheet contains a criticality ranking for all of NR's maintenance activities / spend. It is an input to the Maintenance Policy document (later draft of above).
20	Infrastructure Maintenance Policy (Draft 080512)	Maintenance Policy - Draft - 08.05.12.doc	This document contains a draft Maintenance Policy (Strategy) which includes many of the elements that would be expected in such a document. Linked to the Maintenance Activity Ranking evidence.
21	Infrastructure Maintenance Policy (Draft 240512)	Maintenance Policy - MC - Draft - 24.05.12 - Extract.doc	This document contains a draft Maintenance Policy (Strategy) which includes many of the elements that would be expected in such a document (later draft of above). Linked to the Maintenance Activity Ranking evidence.
22	RCM Desktop Specification (software vendor sales literature)	RCM Desktop Specification.pdf	This is a software vendor's sales brochure for an RCM facilitation desktop package.
23	Risk Based Maintenance - Programme Scope	Risk Based Maintenance Scope_rev 02_040512_Issued to Tim Kersley.pdf	This is a programme scope document for NR's risk-based maintenance plans. It gives the details of four programme phases, completing in March 2014, the first of which is complete. Also contains overall scope, dependencies, benefits and stakeholder information.
24	Email message from RJE to Dave Wynne on NR's RBM work	FW NR's OPEX Evaluation Maturity.msg	Email from RJE to Dave Wynne providing early feedback on NR's RBM work.
25	DCAM Progress Report	Mandate 019_Assessment of Progress Report_March_2012_v02.pdf	Arup report on NR progress against BCAM
26	Engineering Verification Standard	606-E01-NR L2 RSE 070-Standard.pdf	Level 2 Engineering Verification Standard
27	Engineering Verification briefing	606-E01-NR L2 RSE 070-Brefing.ppt	Level 2 Engineering Verification Standard briefing presentation

Ref	Evidence	Filename	Comments
28	Engineering Verification protocol	606-E03-NR L2 RSE 070-Question Protocol.docx	Engineering Verification check sheet
29	Organisation & People Overview	AM Organisation & People Overview & Progress v1.4.ppt	Presentation summarising new O&P approach. Appears to mirror Folio Plan but some more detail.
30	AM Activity Profiles	Visio-Competency Profile C.pdf	Pro-forma for defining NR AM Activity Profiles

### A.3 Post Draft A Information Considered

Ref	Evidence	Filename	Comments
31	High-level Asset Management update slides	Network Rails Improvement of Asset Management.ppt	Graphically clarifies the AMSG governance structure.
32	Project overview slides	Project Apple - Update 1 Pre-reading.pdf	This presentation summarises Project 'Apple' to date. Apple is a 12 week organisational structure and culture specification process – at the time of provision to AMCL this was 'about 4-5 weeks through'. The outcome will be an organisational design which will then need to be implemented. This will take until March 2013.
33	Detailed themes and outcomes slides	2014 outcomes - EL conference call (2).pdf	Related to Apple and overall culture change. Understood to be David Higgins' new 2014 and 2024 strategic outcomes, of which 'Asset Management Excellence' is one. They have been defined to help embed the new top team and set a new strategic direction for NR which will address McNulty and devolution issues.
34	Single (graphic) overview slide	Asset Management Culture Brainstorm.pdf	Summarises how the new AM 'end-to-end' process requires a change in culture within Network Rail, with 'Asset Management Services' having a range of 'touch points' into this process even though other parts of the organisation are primarily responsible. Project 'Olympus' is the process for achieving this.
35	Values and behaviours slides (2 off)	NETWORK RAIL, Values & Behaviours.ppt	Supports the culture change issues.
36	Brief progress update slides	Project Olympus.pdf	A reporting pack update including milestone plan for Project Olympus.
37	Project overview slides	Phoenix Programme Brief.pdf	'An overall, scalable methodology to govern Network Rail's overall programme and project management requirements is in place which applies in whole or in part to any of the engineering disciplines.' Still in an extensive scoping stage.
38	Project overview slides	IAPIP - Brief for Kent Pilot v1.1.ppt and RDG SteerCo Update - 22nd June v3.0.ppt	Both cover the work of IAP (Industry Access Planning) which is overseen by the Rail Delivery Group (RDG). The presentations cover the running of pilots to optimise possession planning and activity.
39	Unit cost information gathering remit	1 - Remit - PR13 Unit cost for SBP.doc	This is NR's remit for capex unit cost work for SBP.
40	Internal NR report	SBP Deliverability 200712Initial Draft.doc	Reviews strategically how deliverable the SBP plans are through an analysis of workloads, national resources, market capability etc.
	RBM Scoping Document	Risk Based Maintenance Scope_rev 07_300512.pdf	Is the latest RBM scope document for GRIP stage 1.

## **Appendix B RAG Analysis by Roadmap Capability**

AMEM Activity	2012 Capability Ref	2012 Capability Name	Scope RAG	Deliverability RAG (SBP)	Deliverability RAG (End CP4)	Comments	AMCL Consolidated RAG (SBP)	NR 'Forecast vs. Trajectory' RAG (SBP)
Policy & Strategy	1.1	Asset Management System	G	G	G	None	G	G
Policy & Strategy	1.2	Asset Management Policy	G	G	G	None		
Policy & Strategy	1.3	Asset Management Strategy	A	G	G	Improvement Spec scope not complete, but could be covered by terminology / discipline' document.		
Policy & Strategy	1.4	Asset Stewardship Report	G	A	G	Not clear how the CSR content is being published at SBP		
Policy & Strategy	1.5	CP5 Asset Management Capabilities	A	G	A	Lack of clarity over coverage of Roadmap and how funding is going to be secured for the various initiatives but programmed on time.		
Demand Analysis	1.6	Long-term Demand Projections	G	G	A	End of CP4 actions not yet programmed.	G	G
Demand Analysis	1.7	Route Specifications	A	G	G	Not clear that the Route Specifications update includes all AMCL Roadmap requirements.		
Strategic Planning	1.8	Strategic Planning Framework and Process	G	G	G	None	G	G
Strategic Planning	1.9	Strategic Business Model	G	G	G	None		
Strategic Planning	1.10	Network Strategic Asset Management Plan	A	G	G	Lack of clarity against Improvement Specification but programmed on time.		

AMEM Activity	2012 Capability Ref	2012 Capability Name	Scope RAG	Deliverability RAG (SBP)	Deliverability RAG (End CP4)	Comments	AMCL Consolidated RAG (SBP)	NR 'Forecast vs. Trajectory' RAG (SBP)		
Strategic Planning	1.11	Quantified Risk Assessment	G	G	A	End of CP4 actions not yet programmed.				
AMPs	1.12	Route AMPs	A	G	A	Lack of clarity against Improvement Specification and end of CP4 actions not yet programmed.	A	G		
Opex Evaluation	2.1	Maintenance Criticality Analysis	G	G	G	None – work programme shown as complete	A	A		
Opex Evaluation	2.2	Maintenance Strategy	A	A	A	Folio plan shows strategy on time but scope not clear and actual delivery is 6 months after Roadmap date – creates risks for other Opex Evaluation capabilities				
Opex Evaluation	2.3	Maintenance Requirements Analysis Process	R	R	R	Improvement Specification not complete, and End of CP4 actions not yet programmed.				
Opex Evaluation	2.4	Maintenance Analysis Plan	A	A	A	Not clear that the Folio Plan covers the activities in the Improvement Specification - therefore risks to delivering improvement specification				
Opex Evaluation	2.5	Risk-based Maintenance Analysis	R	A	A	Activities appear to be focused on piloting rather than maintenance regime development - also RCM not RBM - although programmed on time.				
Opex Evaluation	2.6	Maintenance Standards	G	G	G	None				
Opex Evaluation	2.7	Maintenance Implementation Plan	A	G	G	Improvement Spec not complete, but programmed to complete in time.				
Unit Costs	2.8	Maintenance Unit Costs	A	A	A	Improvement Spec not complete, SBP activities scheduled but missed. Network Rail's development of Unit Costs is subject to on-going Progressive Assurance via Arup.			A	Y
Capex Evaluation	2.9	Capex Criticality Analysis	G	G	A	End of CP4 actions not yet programmed.			G	G

AMEM Activity	2012 Capability Ref	2012 Capability Name	Scope RAG	Deliverability RAG (SBP)	Deliverability RAG (End CP4)	Comments	AMCL Consolidated RAG (SBP)	NR 'Forecast vs. Trajectory' RAG (SBP)
Capex Evaluation	2.1	Asset Policy and DST Deployment Strategy	G	G	G	None	G	G
Capex Evaluation	2.11	Asset Policy Scenarios	G	G	N/A	None		
Capex Evaluation	2.12	Asset Policies - Renewal & Enhancement	A	G	G	Not clear if the Folio Plan will cover the improvement specification for all asset groups but plan aligns with required timescales		
Capex Evaluation	2.13	Asset Policy Monitoring & Evaluation	A	G	G	Not clear if the Folio Plan will cover the improvement specification for all asset groups but plan aligns with required timescales		
Capex Evaluation	2.14	Asset Policy Communication	G	G	A	End of CP4 actions not yet fully programmed.		
Capex Evaluation	2.15	Decision Support Tools	G	A	A	Improvement spec covered but little detail, and SBP timescale missed. End of CP4 actions not yet programmed.		
Unit Costs	2.16	Renewal Unit costs	A	R	R	Insufficient detail provided in plan. Partial specification coverage clarified post Draft A. Network Rail's development of Unit Costs is subject to on-going Progressive Assurance via Arup.	R	Y
Asset Creation	3.1	Programme Management Methodology	G	G	G	None	A	G
Asset Creation	3.2	Project Handback	G	G	G	None		
Asset Creation	3.3	Alignment with Asset Management Plan	R	R	R	Insufficient detail provided in plan.		
Systems Engineering	3.4	RAMS Requirements	R	R	R	Insufficient detail provided in plan.	A	G

AMEM Activity	2012 Capability Ref	2012 Capability Name	Scope RAG	Deliverability RAG (SBP)	Deliverability RAG (End CP4)	Comments	AMCL Consolidated RAG (SBP)	NR 'Forecast vs. Trajectory' RAG (SBP)
Systems Engineering	3.5	Reliability & Availability Modelling	A	G	A	Feedback to Asset Policy Development does not appear to be addressed and end of CP4 actions not yet programmed.		
Maintenance Delivery	3.6	Handheld Devices	G	G	G	None	A	G
Maintenance Delivery	3.7	Maintenance Tolerances	R	R	R	Insufficient detail provided in plan.		
Resource & Outage Management	3.8	Long-term Resource Forecasting	A	R	N/A	Insufficient detail provided in plan. Further evidence relating to RDG/IAP provided post Draft A which although not aligned to the 2012 Roadmap is relevant and supports the overall scope requirements.	R	G
Resource & Outage Management	3.9	Continuous Improvement of Resource Planning	A	R	R	Insufficient detail provided in plan. Further evidence relating to RDG/IAP provided post Draft A which although not aligned to the 2012 Roadmap is relevant and supports the overall scope requirements.		
Incident Response	3.1	Root Cause Analysis	G	G	G	None	G	G
Asset Rationalisation & Disposal	3.11	Asset Rationalisation	G	G	G	None	G	G
Asset Information Strategy & Standards	4.1	Asset Information Strategy Alignment	G	G	A	End of CP4 actions not yet programmed.	G	G
Asset Information Strategy & Standards	4.2	Asset Information Specification Process	A	G	G	Asset Information specification process for SBP is not explicitly defined in the plan and does not appear to be aligned with the ORBIS strategy in terms of how emerging requirements are to be captured, communicated and implemented.		
Asset Information Strategy & Standards	4.3	Data Dictionary	G	G	G	None		

AMEM Activity	2012 Capability Ref	2012 Capability Name	Scope RAG	Deliverability RAG (SBP)	Deliverability RAG (End CP4)	Comments	AMCL Consolidated RAG (SBP)	NR 'Forecast vs. Trajectory' RAG (SBP)
Asset Data & Knowledge	4.4	Asset Information Plan	A	A	A	This is combined with 4.3 in the AMSG Folio Plan but it is not clear how it integrates and does not appear to align with the ORBIS programme	A	Y
Asset Data & Knowledge	4.5	Data Confidence Assessment	A	G	G	Not clear how the data confidence process will be applied to SBP and end of CP4 asset data		
Asset Data & Knowledge	4.6	Asset Data Management	A	A	A	No detail provided in plan below the required milestones - understood to be addressed in OPRBIS but no alignment with ORBIS strategy		
Asset Information Systems	4.7	Asset Information Systems	A	A	A	No detail provided in plan below the required milestones - understood to be addressed in OPRBIS but no alignment with ORBIS strategy	A	A
Individual Competence & Behaviour	5.1	Asset Management Competence Requirements	A	A	A	Quality of the output is likely to be compromised by the absence of a longer term strategic component, a business case, limited involvement with senior managers or potential users	A	A
Individual Competence & Behaviour	5.2	Asset Management Training	A	A	A	This is dependent on the quality of output from 5.1 and is therefore assigned the same status		
Organisational Structure & Culture	5.3	Alignment of Asset Management Teams	A	A	A	This is dependent on the quality of output from 5.1 and is therefore assigned the same status	A	Y
Organisational Structure & Culture	5.4	Strategic Oversight of AM competences	G	G	A	End of CP4 actions not yet programmed.		
Organisational Structure & Culture	5.5	Asset Management Culture	G	A	A	Plan is too general in this area and engagement with senior managers appears inadequate - no plan for end of CP4. Post Draft A evidence of on-going (Project Apple/EL Conference Call/Project Olympus) structure and culture specification process.		
Contract & Supply management	5.6	Contract Performance Assessment	G	N/A	G	None	G	G

AMEM Activity	2012 Capability Ref	2012 Capability Name	Scope RAG	Deliverability RAG (SBP)	Deliverability RAG (End CP4)	Comments	AMCL Consolidated RAG (SBP)	NR 'Forecast vs. Trajectory' RAG (SBP)
Contract & Supply management	5.7	Contract initiation	G	G	G	None		
Risk Assessment & Management	6.1	Integrating Asset and Risk Management	A	G	G	Some issues around alignment of risk management with Asset Management and the Asset Management System	G	G
Sustainable Development	6.2	Sustainability Strategy	G	G	G	None	G	G
Weather & Climate Change	6.3	Climate Change Adaptation & Mitigation	G	G	G	None	G	G
Review & Audit	6.4	Asset Management System Review	A	A	A	Plans not clear between 6.4 and 6.5 and there is no reference to recommendation 48	A	G
Review & Audit	6.5	Asset Management System Audit	A	G	G	Activities should address the roadmap capabilities when the plan is corrected		
Review & Audit	6.6	Engineering Verification	G	A	A	Impact of devolution not fully considered in the plan.		
Review & Audit	6.7	Capability, Stewardship & Performance KPIs	A	G	A	Plan too superficial to determine alignment with improvement specification – needs cross reference to the Asset Management System, Policy & Strategy		
Review & Audit	6.8	Benchmarking	G	G	G	None		

## **Appendix C Strategy & Planning Group Validation**

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG (SBP/CP4)
Policy & Strategy	1.1	Asset Management System	The Systems, Process and Monitoring Document fully describes the Asset Management System	The Systems, Process and Monitoring document includes: 1. A description of Network Rail's Asset Management System, boundaries and interfaces 2. A high-level process definition of the Asset Management System 3. A high-level description of how Network Rail meets each of the requirements of BSI PAS 55 4. Key RACIs and mapping 5. An explanation of the interfaces between the Centre and the Routes	The Systems, Process and Monitoring document has been completed and an implementation plan is in place by April 2012	The Systems, Process and Monitoring document has been updated based on lessons learned from the SBP and from the issue of ISO 55000 by December 2013	No specific gaps identified	1.01 programmed to complete by April 2012 with publication of AMS scheduled for 2/7/12 with interim period for review & lessons learnt.	No specific risks identified for SBP and end of CP4 Roadmap capabilities.	G	G/G
Policy & Strategy	1.2	Asset Management Policy	An Asset Management Policy is in place that incorporates the learning from the IIP development process and emerging good practice.	The Asset Management Policy is enhanced to include: 1. The additional statements of principle to cover the following: a. The capability to consider different scenarios to enable the whole-life costs and risks of different funding and output scenarios to be articulated b. Assessing the trade-off between efficiency of work delivery through longer possessions and access of the network to customers to deliver the timetable c. Work delivery activities will always be undertaken in accordance with the Asset policies including appropriate feedback where it is found that these Asset Policies are not practical or optimal 2. Explicit reference to other corporate policies and strategies; and 3. Clearly defined consistent terminology for all aspects of the Asset Management System. In addition criteria should be defined against which the Asset Management Policy will be evaluated to assure effectiveness and compatibility with business objectives.	1. The Asset Management Policy has been updated based on Independent Reporter recommendations and lessons learned from the IIP submission and a draft is in place by April 2012. 2. The updated Asset Management Policy has been signed-off by appropriate Director(s) and it can be demonstrated that it has been effectively implemented and integrated into the wider Asset Management system by January 2013	The Asset Management Policy has been evaluated against the defined evaluation criteria, the lessons learned from the SBP submission and from the issue of ISO 55000. It has been updated and signed-off accordingly by March 2014	In general but not clear that the 'statement of Principles' includes all AMCL Roadmap requirements.	1.02 programmed to complete by 31/3/14, but key recommendations addressed by April 2012 - noted that sign off does not happen until January 2013. Publication of the revised AM Policy is scheduled for 31/1/13 with a further review against ISO 55000 in 2014.	No specific risks identified for SBP and end of CP4 Roadmap capabilities.	G	G/G

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG (SBP/CP4)
Policy & Strategy	1.3	Asset Management Strategy	An Asset Management Strategy is in place that incorporates the learning from the IIP development process and emerging good practice.	<p>The Asset Management Strategy is enhanced to include:</p> <ol style="list-style-type: none"> <li>1. A better explanation of how the Asset Management Strategy has taken account of the principles in the Asset Management Policy and the linkage between these principles and the objectives in the Asset Management Strategy</li> <li>2. A clear definition of the Asset Groups that described how the infrastructure is divided up for the purposes of Asset Policy and Route AMP development</li> <li>3. The inclusion of measureable Asset Management objectives in the Asset Management Strategy and better referencing to show how these objectives link to the asset discipline specific objectives in the Asset Policies</li> <li>4. Reference to and alignment with the strategic Asset Management framework and process (see capability 1.8)</li> <li>5. An explanation of how the Asset Management Strategy is intended to work in terms of responsibilities in the Centre and the Routes</li> <li>6. An overview of the updated workstreams for the AMIP that will deliver the end of CP4 AMCL Roadmap trajectory for the 23 AMEM activities</li> </ol>	<ol style="list-style-type: none"> <li>1. The Asset Management Strategy has been enhanced based on Independent Reporter recommendations and the wider lessons learned from the IIP submission and a draft is in place by April 2012.</li> <li>2. The updated Asset Management Strategy had been signed-off by appropriate Director(s) and it can be demonstrated that it has been effectively implemented and integrated into the wider Asset Management system by January 2013</li> </ol>	<p>The Asset Management Strategy has been evaluated against the defined Asset Management objectives, the lessons learned from the SBP submission and from the issue of ISO 55000. It has been updated and signed-off accordingly by March 2014</p>	<p>Partial – AMCL Roadmap improvement specification items 3 &amp; 5 have explicit lines, the remaining items may be covered by the terminology/discipline document.</p>	<p>1.03 programmed to complete by 28/2/14 but Strategy scheduled for completion April '12. Publication of the revised AM Strategy is scheduled for 4/1/13 with further review against ISO 55000 in 2014.</p>	<p>Scope of activity in AMSC Folio Plan may not be sufficient to cover AMCL Roadmap improvement specification.</p>	A	G/G

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG (SBP/CP4)
Policy & Strategy	1.4	Asset Stewardship Report	The 2012/13 CSR, or other similar publication, contains a section on Asset Stewardship that describes the 'state of the nation' of Network Rail's Infrastructure	<p>Network Rail should further develop the section on Asset Stewardship in its Corporate Responsibility Report, or other similar publication, to include the following:</p> <ol style="list-style-type: none"> <li>1. A summary of Network Rail's Asset Management principles to demonstrate that these are aligned with the long-term interests of customers and stakeholders;</li> <li>2. A brief report on the 'state of the nation' of Network Rail's assets and how Network Rail's stewardship will ensure the infrastructure capability required by Network Rail's customers will be delivered in a sustainable manner;</li> <li>3. An overview of Network Rail's Asset Management strategy and objectives to show how Network Rail is sustainably reducing the costs of ownership of its infrastructure assets whilst continuing to deliver the required level of service and risk;</li> <li>4. An explanation of how Network Rail's sustainable development objectives and activities are supporting the overall Asset Management approach;</li> <li>5. An overview of how Network Rail is developing the competence of its people to develop and deliver more effective asset stewardship of Network Rail's infrastructure.</li> </ol>	The 2012/13 CSR, or other equivalent publication, includes an expanded section on Asset Stewardship as specified	The 2013/14 CSR, or other equivalent publication, has been updated to reflect changes in Network Rail's Asset Stewardship since the SBP submission	No specific gaps identified but not clear how this is being published at SBP	1.04 programmed to complete by 31/3/14 with the CSR updated post SBP publication, however activities are scheduled for completion much earlier, by 10/1/13.	Not clear how this CSR content is being published at SBP. No specific risks identified for end of CP4 Roadmap capabilities.	G	A/G

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG (SBP/CP4)
Policy & Strategy	1.5	CP5 Asset Management Capabilities	A forecast is in place for the Asset Management capability maturity of Network Rail's Asset Management system at the end of CP5 and a corresponding Asset Management Improvement Plan has been identified	Asset Management capability maturity forecasts are identified for each of the activities within Network Rail's Asset Management System for the end of CP5 that will be necessary to deliver in order to 'provide the benchmark against which organisations throughout the world assess their own asset management capabilities' [extract from Network Rail 2011 Asset Policy]. These forecasts are expressed as a percentage maturity on an agreed maturity scale. The Asset Management capability maturity forecasts will be compared to peer organisations in both the rail sector and in other asset intensive industries to ensure the targets are comparable with its peers. Fully funded and costed improvement projects will be identified that will deliver the required improvements in Asset Management capability by the required dates. Customers and other stakeholders will be consulted on these plans to ensure they adequately reflect the priorities facing the UK rail industry. Appropriate arrangements are implemented to ensure Network Rail can demonstrate achievement of these Asset Management capability maturity targets throughout CP5 by using an Independent Reporter or equivalent independent assessor.	Asset Management capability maturity forecasts are identified for the 23 AMEM Activities for the end of CP5 and a draft Asset Management Improvement Plan to deliver these forecasts is in place by January 2013	Asset Management capability maturity forecasts are identified for all 23 AMEM activities for the end of CP5 and a fully funded Asset Management Improvement Plan to deliver these forecasts is in place by March 2014	Scope of activity in AMSC Folio Plan may not be sufficient to cover AMCL Roadmap improvement specification	Maturity forecasts and projects to achieve them identified by Jan 2013, which is aligned with AMCL roadmap, however clarity over funding is missing.	Partial – securing funding for the identified projects appears to be missing.	A	G/A
Demand Analysis	1.6	Long-term Demand Projections	Demand analysis is used to predict the range of expected capacity requirements for each route for 30 years and RUSs updated accordingly	The long-term planning process is clearly defined, with a good understanding of historical demand and the drivers of demand are documented with the relevant information stored and accessible. The Network RUS will clearly inform the Scenario Planning process. Bespoke demand forecasting tools are developed from the requirements identified during the Scenario Planning process. The RUS for each Route reflects the long-term demand and the requirements for infrastructure enhancement to deliver this demand.	Ranges in demand for the next 30 years are defined and options for the infrastructure required to meet this demand are documented in the RUS for each Route by December 2012	The RUSs are updated where necessary by December 2013 to reflect any changes in demand or policy since the SBP	No specific gaps identified	The ranges in demand for the next 30 years are defined by 31/12/12 but it is not clear that the RUSs are updated by that time.	AMSC Folio Plan does not specifically acknowledge end of CP4 success criteria	G	G/A

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG (SBP/CP4)
Demand Analysis	1.7	Route Specifications	Route Specifications are in place for all Routes that define the infrastructure requirements for CP5 in terms of capability, availability and minutes delay	Route Specifications include the following elements which are derived from the requirements set out in the HLOS: 1. Target infrastructure minutes delay 2. Capacity requirements of the infrastructure including headway and timetable 3. Required capability of the infrastructure including gauge, line speed and bridge strength 4. Infrastructure availability including allowance for possessions	The Route Specifications are updated to reflect the requirements of the HLOS and are integrated into the Route AMP development process by September 2012	The Route Specifications are updated by December 2013 to reflect any constraints on Network Rail's ability to deliver the HLOS as a result of the CP5 determination	Partial – not clear that the Route Specifications update includes all AMCL Roadmap requirements.	Route AMPs due for completion 18/09/12 in advance of target date, with update carried over 15 months up to 30/12/13. Further detail will be added to programme closer to the date	SBP likely to be achieved End of CP4 activities need further development in the plan	A	G/G
Strategic Planning	1.8	Strategic Planning Framework and Process	Network Rail's strategic Asset Management planning framework and process is implemented	The strategic Asset Management planning framework and process considers: 1. Clear alignment with the Systems, Process and Monitoring document showing 'line of sight' from SBP to Asset Policies, Route AMPs and Delivery Plans 2. How the difference processes, asset information, models and plans are linked 3. The appropriate method to develop work volumes, cost schedules and output measures for different types of asset, where necessary, taking into account asset criticality 4. How demand analysis and required outputs are considered and modelled in the development of the strategic Asset Management Plan 5. How work volumes and costs are developed for different funding scenarios to reflect potential changes in demand, output requirements and available funding. 6. How confidence levels in asset information, and asset policies and unit costs will be considered and how this will impact on the confidence levels in work volumes and costs 7. The extent to which each component of the framework will be developed and integrated by the time the SBP is published.	1. The strategic Asset Management planning framework and process is fully defined and effectively implemented by April 2012 2. Funding scenarios are agreed by June 2012	The strategic Asset Management planning framework and process has been updated to reflect lessons learned from the SBP by December 2013	No specific gaps identified	Programme to complete in line with Roadmap	No specific risks identified for SBP and end of CP4 Roadmap capabilities	G	G/G

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG (SBP/CP4)
Strategic Planning	1.9	Strategic Business Model	A strategic business model is in place for producing CP5 work volumes and costs	<p>The strategic business model that is used for determining CP5 work volumes has the following capabilities:</p> <ol style="list-style-type: none"> <li>1. Able to predict work volumes and costs for all enhancement, renewal and maintenance activities in CP5 for the agreed funding scenarios</li> <li>2. Work volumes are derived from the application of the asset policies to the asset populations</li> <li>3. Work volumes and costs for high criticality assets are based on whole-life cost modelling with interfaces to Tier 2 models</li> <li>4. Work volumes and costs for medium criticality assets are based on service life relationships</li> <li>5. Work volumes and costs for low criticality assets are based on historical spend</li> <li>6. Predicts key outputs for CP5 and future control periods</li> </ol>	The strategic business model is implemented with the specified capabilities by September 2012 in order to produce the SBP for the agreed funding scenarios	The strategic business model is updated based on lessons learned from the SBP by December 2013 in order to produce the CP5 Delivery Plan	No specific gaps identified	SBP Success criteria for production of strategic business model are planned to be met (Sep 2012), with CP4 update (Dec 2013) being achieved , however detail required over inclusion of lessons learnt	No specific risks identified for SBP and end of CP4 Roadmap capabilities, but clarity over the inclusion of lessons learnt required	G	G/G

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG (SBP/CP4)
Strategic Planning	1.10	Network Strategic Asset Management Plan	A Network-wide Strategic Asset Management Plan is in place that defines the long-term Asset Management activities and expected outputs across Network Rail's infrastructure	<p>The network-wide Strategic Asset Management Plan includes:</p> <ol style="list-style-type: none"> <li>1. Work volumes and costs for each key activity and each key asset type for each funding scenario;</li> <li>2. A preferred scenario that delivers the required CP5 outputs for the lowest sustainable whole life costs;</li> <li>3. Confidence levels in both work volumes and costs over the next 25 years reflecting the levels of confidence in the Asset Information, Asset Policies and Units Costs</li> <li>4. An appropriate level of detail and level of confidence to reflect the criticality of the different activities and asset types;</li> <li>5. A summary of the asset portfolio and its service condition and age profile, including historical changes over the last 10 years and the predicted changes to this condition and age profile over the next 25 years;</li> <li>6. The expected outputs and performance that will be delivered by the work defined within each scenario over the next 25 years;</li> <li>7. The metrics and performance inductors that will be used to monitor these outputs and performance measures;</li> <li>8. The expected efficiencies that will be delivered over CP5 clearly differentiating between work scope efficiencies from unit costs efficiencies;</li> <li>9. Different scenarios to reflect different assumptions relating to demand, output requirements and available funding.</li> </ol>	The network-wide Strategic Asset Management Plan is issued as part of the SBP in January 2013	<p>The network-wide CP5 Delivery Plan is issued in March 2014 which includes:</p> <ol style="list-style-type: none"> <li>1. Work volumes and costs for all enhancement, renewal and maintenance activities that reflect the CP5 Determination</li> <li>2. An explanation of why the work volumes have changed since the CP4 Delivery Plan(s) and the CP5 SBP</li> <li>3. Expected outputs for each year of CP5 and alignment with HLOS and Route Specifications</li> </ol>	Partial – not clear that the planned activities include all Improvement Specification requirements.	SBP Success criteria for issue of Strategic Asset Management Plan will be met (Jan 2013) with CP4 criteria (March 2014) also being achieved.	No specific risks identified for SBP and end of CP4 Roadmap capabilities assuming all Improvement Specification requirements are included	A	G/G

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG (SBP/CP4)
Strategic Planning	1.11	Quantified Risk Assessment	A Quantified Risk Assessment is in place that provides confidence levels for both the work volumes and costs in the network-wide Strategic Asset Management Plan	The QRA analysis should be allow the following to be produced: 1. Target level of confidence to reflect the criticality of the different activities and asset types 2. The levels of confidence in the Asset Information, Asset Policies and Units Costs used to produce the Strategic Asset Management Plan 3. Confidence levels in work volumes and costs (including efficiency assumptions) over CP5 reflecting the levels of confidence in the Asset Information, Asset Policies and Units Costs 4. Sensitivity Analysis showing the greatest contributors to uncertainty in work volumes and costs over CP5 5. An estimate of the confidence levels in both work volumes and costs in CP5	QRA is submitted as part of the SBP in January 2013	QRA is updated to reflect the confidence levels in the CP5 Delivery Plan in March 2014	No specific gaps identified	QRA plan scheduled for submission on time with update scheduled to meet SBP, however clarity over update process for CP4 is not provided within programme	No specific risks identified for SBP Roadmap capabilities but end of CP4 actions not programmed	G	G/A

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG (SBP/CP4)
AMPMs	1.12	Route AMPs	Route AMPs are in place for all Network Rail's Routes which include expected work volumes, costs and expected outputs for each year of CP5	<p>Route Asset Management Plans are in place that contain:</p> <ol style="list-style-type: none"> <li>1. All proposed enhancement, renewal, refurbishment and maintenance activities throughout the remainder of CP4 and CP5</li> <li>2. Top down (from strategic business model - see capability 1.10) and bottom up work volumes and costs (from delivery units) for each year of CP4 / CP5 for high and medium criticality activity</li> <li>3. Explanation on how the top down work volumes and costs were derived</li> <li>4. Costs for low criticality activities for each year of CP4 / CP5</li> <li>5. Commentary on any discrepancy between top down and bottom up volumes and costs (high and medium criticality) - including discrepancy between proposed activity types</li> <li>6. Justification for any deviation from Asset Policy</li> <li>7. Analysis of CP5 proposed work volumes with CP4 work volumes and commentary on key differences</li> <li>8. Review of historical condition and performance against CP4 targets</li> <li>9. Predicted condition, performance and other outputs for each year of CP5 and how these align to the requirements defined in the Route Specification</li> </ol> <p>In addition, review processes are in place to monitor progress against the Route AMPs during the remainder of CP4 and CP5 and to ensure the plan continues to be aligned with the SBP and CP4 and CP5 Delivery Plan (when published). These review processes require the monitoring of performance and condition compared to the expected outcomes described in the SBP and the Delivery Plans.</p>	Route AMPs are published for each of Network Rail's 10 Routes that contain the specific content by December 2012 that align with the SBP submission	Route AMPs have been reviewed in accordance with the defined review process and are updated for each of Network Rail's 10 Routes to reflect the CP4 actual delivery against the Delivery Plan and the CP5 determination by March 2014	Partial – not clear that the planned activities include all AMCL Roadmap requirements.	RAMPs are ready for publication by Dec 2012 as required, but there is no clear view beyond this.	Some risks identified for SBP due to scope not being clear but end of CP4 actions not programmed	A	G/A

## **Appendix D WLC Justification Group (Maintenance) Validation**

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Opex Evaluation	2.1	Maintenance Criticality Analysis	A maintenance criticality analysis has been undertaken that prioritises asset types based on maintenance costs and risks	<p>1. The criticality analysis includes consideration of the following annualised costs and risks:</p> <ul style="list-style-type: none"> <li>Planned maintenance costs;</li> <li>Reactive maintenance costs;</li> <li>Performance costs;</li> <li>Risk costs;</li> <li>Operating costs;</li> <li>Environmental, societal and reputational risks</li> </ul> <p>2. Asset types are categorised into different risk categories, e.g. high, medium or low criticality asset types from a maintenance perspective</p>	The maintenance criticality analysis has been undertaken and documented by March 2012 and is consistent with Network Rail's Risk Management Framework and Asset Policies. A sample of asset types has been identified in each risk category for inclusion in the pilot of the risk-based maintenance analyses programme by March 2012	The priority asset types for the development of risk-based maintenance regimes up to the end of CP4 have been identified by February 2013	No specific gaps identified	Majority of work programme was completed prior to plan being drawn up.	No specific risks identified for SBP and end of CP4 Roadmap capabilities	G	G/G
Opex Evaluation	2.2	Maintenance Strategy	A maintenance strategy is in place detailing the approach to determining risk-based planned maintenance, minimum action and inspection interventions.	<p>A maintenance strategy is in place that includes the following:</p> <ol style="list-style-type: none"> <li>Definition of the key principles that define Network Rail's approach to maintenance</li> <li>The approach to determining maintenance requirements (including inspection and minimum actions) depending on the criticality and characteristics of deterioration of the different asset types</li> <li>The approach to addressing risk mitigation including appropriate consideration of probability and consequence of failures</li> <li>How technology can support the maintenance strategy including the contribution of Intelligent Infrastructure and remote condition monitoring</li> <li>High-level assessment of the resources, information requirements and competences required to undertake the proposed maintenance requirements analysis</li> <li>The strategy for resourcing both the analysis and implementation of the new maintenance regimes</li> <li>High level business case based on the analysis costs and expected benefits of optimising maintenance regimes</li> <li>The parameters that define what decisions the Routes can make with respect to changing maintenance regimes</li> </ol>	The maintenance strategy is complete and effectively directing the development of new maintenance regimes by March 2012	The maintenance strategy has been updated based on the lessons learned from the development of risk-based maintenance regimes for the sample asset types within the pilot by February 2013	Not clear that the folio plan covers all items in the improvement specification	Folio plan shows strategy on time but actual delivery is 6 months after Roadmap date – creates risks for other Opex Evaluation capabilities. CP4 success Criteria in Feb 2013, however clarity over update process is not provided within programme	Strategy will be delivered late. End of CP4 actions not programmed	A	A/A

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Opex Evaluation	2.3	Maintenance Requirements Analysis Process	A maintenance requirements analysis process is in place that defines the approaches) for developing maintenance regimes for all asset types	The maintenance requirements analysis process for determining the appropriate maintenance and inspection regimes for high, medium and low-criticality asset types considers the following: 1. The steps in the analysis process and how this aligns to the 10 step asset policy process 2. How asset hazards will be identified including appropriate use of FMECA 3. How maintenance and inspection tasks will be identified including the appropriate use of RCM techniques 4. How risks will be identified and evaluated for different maintenance interventions, including appropriate consideration of uncertainty 5. How maintenance and inspection intervals will be set, taking into account the cost- risk trade-off 6. How reliability and safety justification will be undertaken 7. How activities will be packaged into practical work schedules 8. The requirements for implementation of the new inspection and maintenance regimes 9. RACI for the definition of the maintenance regimes and the extent to which the Routes will be able to determine maintenance requirements 10. The asset information requirements to support the maintenance requirements analysis process	The maintenance requirements analysis process is complete by April 2012.	The maintenance requirements analysis process has been updated based on the lessons learned from the risk-based maintenance analyses of the sample asset types in the pilot by March 2013.	No Points 1 & 2 of the specification are specifically referred to in the programme, however points 4 to 10 are not. Further evidence (RBM Scope) provided post Draft A but no material impact on scores.	The definition of the MRA is marked as complete on the AMSC Folio Plan within the timescales required (April 2012), as does 'conduct MRA' between March and April 2012 although this seems to be a very tight timescales for such an activity. Activities following this up to 2013 have not been defined.	Improvement Specification unlikely to be achieved for both SBP and end of CP4	R	R/R
Opex Evaluation	2.4	Maintenance Analysis Plan	A resourced plan is in place for the proposed risk-based maintenance analysis activities	A plan is in place that defines the activities and resources necessary for analysing risk-based maintenance regimes that includes: 1. Inclusion of all priority asset types to analyse up to the end of CP4 including those selected for the pilot analysis 2. The justification for the priority asset types 3. The timescales for the analysis to be completed and for the appropriate changes made to standards 4. The resources necessary to undertake the analysis work 5. The competences required to undertake the analysis work 6. Any requirements for training and / or outsourcing to overcome resource or competence shortfalls 7. Any constraints and assumptions	A fully resourced plan for the analysis of the risk-based maintenance regimes for the sample asset types within the pilot is in place by April 2012	A fully resourced plan for the analysis of risk-based maintenance regimes for the priority asset types in up to the end of CP4 is in place by March 2013	Not clear that the Folio Plan covers the activities in the Improvement Specification	Some clarity exists for sign off and implementation of the SBP success criteria in April 2012 but scope not clear - also the programme makes no mention of plan for priority asset types by the end of CP4 in March 2013	Risks that Improvement Specification will not be achieved for both SBP and end of CP4	A	A/A

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Opex Evaluation	2.5	Risk-based Maintenance Analysis	Risk-based maintenance regimes have been developed for all appropriate asset types	<p>Risk-based maintenance regimes have been developed in accordance with the maintenance requirements analysis process for all appropriate asset types and the following undertaken:</p> <ol style="list-style-type: none"> <li>1. Revised maintenance, inspection and minimum action activities and periodicities are defined</li> <li>2. Requirements for fitment of Intelligent Infrastructure or other remote monitoring equipment are identified</li> <li>3. Tolerances and mitigations for missed maintenance are identified</li> <li>4. Competence requirements for the maintenance activities are identified</li> <li>5. Spares and tools requirements for the maintenance activities are identified</li> <li>6. Safety and reliability justification for new regimes are peer reviewed and approved by the appropriate stakeholders.</li> <li>7. Expected outputs and business benefits from implementation are identified</li> <li>8. Requirements for implementation are identified</li> </ol>	Risk-based maintenance regimes have been developed for the sample of asset types in the pilot by January 2013	Risk-based maintenance regimes have been developed for the priority asset types identified in the maintenance analysis plan by January 2014	No The AMMSG Folio Plan activities appear to be focused on piloting rather than maintenance regime development – plus focus on RCM and not RBM	Pilot Plan is implemented 8 months earlier than target (Apr 2012) , and regime for priority asset types is planned for completion in Oct 2013, ahead of planned schedule (Jan 2014) however there is a lack of clarity in the AMMSG Folio Plan of adherence to all items in improvement specification	AMMSG Folio Plan activities do not match the Improvement Specification	R	A/A
Opex Evaluation	2.6	Maintenance Standards	Maintenance standards have been updated and implemented to reflect the new risk-based maintenance regimes	<p>An agreed corporate approach to changing maintenance standards to reflect changes in the revised risk-based maintenance regimes is in place. Relevant maintenance specifications and standards have been updated in accordance with this process and the following undertaken:</p> <ol style="list-style-type: none"> <li>1. Peer review to ensure resulting tasks and intervals are consistent with the maintenance requirements analysis process and the safety and reliability justification</li> <li>2. Changes to standards briefed to internal maintenance personnel</li> <li>3. Changes to standards briefed to external contractors where appropriate</li> </ol>	An agreed corporate approach to the update of standards for new maintenance regimes is in place by January 2013	The relevant standards have been updated for the priority asset types identified in the maintenance analysis plan by March 2014	No specific gaps identified.	Corporate approach defined and implemented in advance of SBP success criteria date of Jan 2013, with CP4 criteria being met	No specific risks identified for SBP and end of CP4 Roadmap capabilities	G	G/G

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Opex Evaluation	2.7	Maintenance Implementation Plan	A resourced plan is in place for the implementation of the new risk-based maintenance regimes	A plan is in place for the implementation of the revised risk-based maintenance regimes which includes the following: 1. Prioritised implementation plan for each Route reflecting local priorities 2. Impact on resources for each Route including changes to competence requirements 3. Changes required to work management systems and schedules 4. Changes to spares and tools requirements 5. Updates to procedures for missed maintenance 6. Plans for implementation of Intelligent Infrastructure or other remote monitoring equipment 7. Arrangements for monitoring the reliability and other outputs and comparing these to assumed outputs	A fully resourced plan for the implementation of the risk-based maintenance regimes for the sample asset types in the pilot is in place by January 2013	A fully resourced plan for the implementation of the risk-based maintenance regimes for the priority asset types identified in the maintenance analysis plan is in place by March 2014	Partial – not clear that the planned activities include all detailed plan requirements as per Improvement Specification.	Pilot Plan is implemented on target (Jan 2013), and plan for priority asset types is planned for completion in April 2013, ahead of planned schedule (Jan 2014) however there is a lack of clarity in the AMSG Folio Plan of adherence to all items in improvement specification including breakdown by routes	No specific risks identified for SBP and end of CP4 Roadmap capabilities assuming plan content is complete	A	G/G
Unit Costs	2.8	Maintenance Unit Costs	Maintenance units costs are specified and captured in a consistent manner	Activity-based maintenance unit costs are specified and captured to a sufficient level of detail to support the analysis of risk-based maintenance requirements. This includes the consideration of which portion of the unit cost is treated as variable and fixed for the purpose of the cost-risk trade-off undertaken as part of the maintenance requirements analysis process.	Maintenance unit costs are available for the sample asset types in the pilot by April 2012	Maintenance unit costs are available for the priority assets types identified in the maintenance analysis plan by April 2013	Partial – not clear that the planned activities include all detailed plan requirements as per Improvement Specification. Network Rail's development of Unit Costs is subject to ongoing Progressive Assurance via Arup.	SBP success criteria are planned for April 2012, however it appears this target will be missed as programmed completion date is 31/07/12. The requirements for CP4 criteria are planned for completion on schedule on 30/04/13, although a general lack of detailed activities.	Compressed timescale for accurate recording of costs phase of the programme	A	A/A

## **Appendix E WLC Justification Group (Renewal) Validation**

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Capex Evaluation	2.9	Capex Criticality Analysis	An asset criticality analysis is in place that categorises Network Rail's asset types into high, medium and low criticality based on whole life costs and risks and categorises asset types into appropriate risk categories across the network	<p>1. The criticality analysis includes consideration of the following annualised costs and risks:</p> <ul style="list-style-type: none"> <li>• One-off Capex costs;</li> <li>• Renewal costs;</li> <li>• Maintenance costs;</li> <li>• Performance costs;</li> <li>• Operating costs;</li> <li>• Environmental, societal and reputational risk costs</li> </ul> <p>2. Asset types are categorised into different risk categories, e.g. high, medium or low criticality asset types</p> <p>3. Within an asset type, assets are grouped into risk categories that reflect the criticality of the route or the specific asset criticality</p> <p>4. 'System' criticality is considered where appropriate to reflect the interdependencies between asset types</p>	<p>1. The Capex criticality analysis has been undertaken and documented by July 2012 and is consistent with Network Rail's Risk Management Framework.</p> <p>2. The method of grouping assets within an asset type into risk categories has been documented by July 2012</p>	All assets are allocated to risk categories by March 2014	No specific gaps identified for SBP	Milestone for SBP success criteria is defined in programme for 31/07/12 in advance of required date. Further detail is required for the CP4 success criteria which is programmed between 01/08/12 and 29/03/13	No specific risks identified for SBP Roadmap capabilities but CP4 needs detailed plan	G	G/A
Capex Evaluation	2.10	Asset Policy and DST Deployment Strategy	A strategy is in place that defines how the Asset Policies and Decision Support Tools will be deployed across Network Rail's Routes	<p>A strategy has been developed that shows how the Asset Policies and DSTs are to be deployed in the devolved Routes. This will include:</p> <ol style="list-style-type: none"> <li>1. The overall vision for how Asset Policies and DSTs will develop to support devolution</li> <li>2. The use of 'Policy on a Page' for communicating the Asset Policies (see capability 2.14)</li> <li>3. The extent to which the Routes can identify interventions that vary from those defined in the Asset Policies</li> <li>4. The extent to which the Routes are engaged in evaluating the outcomes of the Asset Policies (see capability 2.13)</li> <li>5. The extent to which the Routes will use the DSTs to evaluate asset interventions</li> <li>6. The way in which lessons learned from the application of Asset Policies and DSTs can be fed back into the Asset Policy development process</li> </ol>	A draft strategy is in place by June 2012 that defines how the Asset Policies and Decision Support Tools will be deployed across Network Rail's Routes	The Asset Policy and DST deployment strategy has been agreed and is implemented in the Routes by January 2013	No specific gaps identified	SBP target defined in AMMSG Folio Plan with completion date of 31/5/12 and CP4 target set as 31/12/12. Both targets align with success criteria requirements	No specific risks identified for SBP and CP4 Roadmap capabilities	G	G/G
Capex Evaluation	2.11	Asset Policy Scenarios	Funding and technical scenarios that will be evaluated during Asset Policy development are agreed	<p>The funding and technical scenarios are defined for each Asset Policy that consider:</p> <ol style="list-style-type: none"> <li>1. Common funding scenarios across the asset groups that align with the requirements in the HLOS</li> <li>2. Technical scenarios that describe different technology choices, for example the introduction of ERTMS, which may differ by asset group</li> </ol>	<p>1. Asset Policy funding and technical scenarios are agreed by June 2011.</p> <p>2. Revised funding and technical scenarios are agreed after the HLOS publication in August 2012.</p>	n/a	No specific gaps identified	SBP target defined in AMMSG Folio Plan with completion date of 28/5/12 and CP4 target set as 28/08/12 both of which are earlier than success criteria requirements	No specific risks identified for SBP	G	G/na

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Capex Evaluation	2.12	Asset Policies - Renewal & Enhancement	Asset Policies for renewal and enhancement interventions contain renewal criteria and preferred choice of asset type (where appropriate) for different risk categories that represent the lowest asset system and whole-life cost and risk.	<p>Asset Policies for renewal and enhancement are developed in a consistent manner across the asset groups in accordance with the 10-step Asset Policy development process and include the following:</p> <ol style="list-style-type: none"> <li>1. Consideration of all agreed funding and technical scenarios to reflect different assumptions relating to demand, output requirements and available funding;</li> <li>2. Different policy options for delivering the scenarios showing the assumptions and constraints applied within the different scenarios;</li> <li>3. Deterioration and whole-life cost analysis to justify the choice of asset type and renewal criteria to a level appropriate to the criticality of each asset type based on the DSTs (see capability 2.15);</li> <li>4. Consideration of the whole asset system costs and the interdependencies between asset types;</li> <li>5. An assessment of the impact of unit cost efficiencies on the preferred policy;</li> <li>6. The level of confidence for each of the scenarios based on sensitivity analysis and uncertainties in asset information;</li> <li>7. The specification of asset information requirements that are needed to support Asset Policy development and the justification for this information</li> <li>8. Evidence that shows the extent to which the interventions contained within the Asset Policies are sustainable;</li> <li>9. Consideration of the cost implications and other impacts on policy options for the wider industry;</li> <li>10. Analysis to show the impact on safety, performance, environmental, social and reputational risks;</li> <li>11. The expected asset condition, age profile and other outputs and the proposed metrics to monitor and evaluate the Asset Policy (see capability 2.13);</li> </ol>	<ol style="list-style-type: none"> <li>1. Asset Policies for renewal and enhancement are segmented by risk category to include the specified improvements by January 2013 for all high and medium criticality asset types.</li> <li>2. System or route-wide opportunities for further policy enhancement are identified by January 2013.</li> </ol>	Asset Policies for renewal and enhancement are segmented by system or route for all high and medium criticality assets and published as part of the CP5 Delivery Plan in March 2014.	Partial – the detailed Improvement Specification requirements are not clearly met in the AMSG Folio Plan.	Whilst programme dates are all within data parameters (2012) for completion, there is a lack of detail in AMSG Folio Plan against the requirements of the improvement specification	No specific risks identified for SBP and CP4 roadmap criteria assuming folio plan covers the improvement specification for all asset groups	A	G/G

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Capex Evaluation	2.13	Asset Policy Monitoring & Evaluation	A monitoring and evaluation process is in place to review the outcomes from the application of Asset Policies and to compare these with the expected outcomes	The monitoring and evaluation process considers the following aspects of the Asset Policies to assess the extent to which the expected outcomes defined in the Asset Policies are being achieved in practice: 1. The expected asset lives; 2. The expected condition of the assets; 3. The expected unit costs of renewal activity; 4. The expected asset reliability and availability; Findings from the evaluation are documented and fed into the Asset Policy development process as required by stage 2 of the 10-stage process	An evaluation of the CP4 Asset Policy expected outcomes has been undertaken for all high criticality asset types by June 2012 and lessons learned incorporated into the CP5 Asset Policy development process	An updated regime is in place for monitoring and evaluating the CP5 Asset Policy outcomes by April 2013	Partial - Improvement specification criteria defined in AMSP Folio Plan with specific reference to SBP success criteria for monitoring, but clarity is required over how evaluation is carried out. CP4 criteria are defined and within timescale.	Both SBP and End of CP4 timescales are compliant.	No specific risks identified for SBP and CP4 roadmap criteria assuming folio plan covers the improvement specification for all asset groups	A	G/G
Capex Evaluation	2.14	Asset Policy Communication	An appropriate means of communicating the Asset Policies is in place which has resulted in effective implementation of the Asset Policies	Communication methods have been developed to ensure the Asset Policies can be effectively implemented in accordance with the Asset Policy and DST deployment strategy (see capability 2.10) including: 1. Appropriate briefing on the purpose and objectives of the Asset Policies 2. Development of 'Policy on a Page' to ensure the Asset Policies can be effectively communicated 3. Guidance on where the Routes can deviate from defined policy options including permissible tolerances 4. Appropriate training and support for the above	Implementation and communication of CP4 Asset Policies is complete and effective from March 2012	Implementation and communication of CP5 Asset Policies is complete and effective from March 2014	No specific gaps identified	SBP target planned to be achieved on time with detail regarding CP5 to be developed closer to the time in 2013/14.	No specific risks identified for SBP roadmap criteria End but CP4 actions not fully programmed	G	G/A

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Capex Evaluation	2.15	Decision Support Tools	Decision Support Tools are in place to develop policy options that represent the optimum trade-off for whole life cost and risk for different risk categories and for different funding scenarios.	<p>Appropriate Decision Support Tools have been developed to include the following:</p> <ol style="list-style-type: none"> <li>1. Undertake modelling for each asset type in a manner consistent with the Asset Management Framework and Strategic Planning Processes (see capability 1.8) taking into account the criticality of different asset types.</li> <li>2. Model the costs and risks over the life of each asset type to determine the optimum renewal interventions.</li> <li>3. Model the trade-off between maintenance and renewal interventions to identify the optimum combination of interventions.</li> <li>4. Assess the impact of efficiencies and changes in unit cost on the optimum interventions.</li> <li>5. Assess the impact of different scenarios and policy options on the optimum interventions.</li> <li>6. Utilise the outputs from the decision support tools as part of the justification for the preferred choice of asset type and interventions define within the Asset Policies for each scenario or policy option.</li> <li>7. Apply the interventions defined within Asset Policies to Network Rail's asset portfolio to determine work volumes, costs and expected outputs over a minimum of 25 years.</li> <li>8. Determine confidence levels in these outputs based on the confidence in the asset information and in the interventions defined within the Asset Policies.</li> </ol>	Appropriate Decision Support Tools are complete and are being used to inform the CP5 Asset Policy development by June 2012	<ol style="list-style-type: none"> <li>1. The Decision Support Tools have been deployed within the appropriate teams at the Centre and in the Routes by March 2013</li> <li>2. An evaluation of the Decision Support Tools with the Routes has been undertaken and documented by September 2013</li> </ol>	No specific gaps identified	Although success criteria are listed as activities in the AMSC Folio Plan, the SBP ones are not marked as complete although the date has passed. There is also little detail below this however.	No specific risks identified for SBP roadmap criteria but CP4 actions not fully programmed	G	A/A

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Unit Costs	2.16	Renewal Unit costs	Renewal and unit costs are developed to an appropriate level of detail to support the development of Asset Policies and the CP5 SBP.	<p>Activity-based renewal unit costs are specified and captured to a sufficient level of detail to support the whole-life costs analysis within the DSTs and Asset Policies which includes consideration of the following:</p> <ol style="list-style-type: none"> <li>1. A specification for renewal unit costs is in place that clearly describes the method of determining the unit costs</li> <li>2. The cost breakdown structure for capturing renewal unit costs is aligned with the asset definitions and standard work types that are defined in the asset information strategy.</li> <li>3. The parameters that affect renewal unit costs are analysed and understood.</li> <li>4. A process for capturing renewal unit costs in accordance with the unit cost specifications has been defined.</li> <li>5. Confidence levels are estimated for each unit cost which reflect the relative criticality of the activity</li> </ol> <p>Activity-based renewal unit costs are used to develop the costs within the Strategic Asset Management Plan and Route AMPs</p>	Renewal unit costs are available for all high criticality asset types by April 2012 at an appropriate level of confidence	Renewal unit costs are available for all high and medium criticality asset types by April 2013 at an appropriate level of confidence	No detail provided in plan. Further evidence of specification provided post Draft A which covers elements of the 2012 Roadmap specification but not all. Network Rail's development of Unit Costs is subject to on-going Progressive Assurance via Arup.	No detail provided	Improvement specification not achieved	A	R/R

## **Appendix F Lifecycle Delivery Group Validation**

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Asset Creation	3.1	Programme Management Methodology	An overall, scalable methodology to govern Network Rail's overall programme and project management requirements is in place which applies in whole or in part to any of the engineering disciplines.	An overall, scalable methodology to govern Network Rail's overall programme and project management requirements is in place which: 1. Builds on the existing GRIP and E2E processes 2. Incorporates appropriate external best practice 3. Defines an appropriate level of control commensurate with the criticality of the programme or project 4. Incorporates an appropriate level of systems engineering commensurate with the complexity of the programme or project 5. Is applicable to all engineering disciplines in whole or in part 6. Is mandated but applied as appropriate according to the required LoC for the project	The revised programme and project management methodology is defined by January 2013.	The revised methodology is implemented and effective by March 2014.	No significant gaps identified. Further evidence (Project Phoenix) provided post Draft A but no material impact.	SBP and CP4 success criteria achieved in advance of planned dates	No specific risks identified for SBP or end of CP4 roadmap criteria	G	G/G
Asset Creation	3.2	Project Handback	Network Rail's projects at LoC 1 and 2 are effectively handed back into maintenance.	1. Handback criteria are clearly defined at the 'Outline Design' stage of the project (GRIP stage 4 or equivalent). 2. These criteria are based on the revised processes introduced in 2011, and are implemented in a consistent and complete fashion for all projects ranked LoC 1 or 2. 3. Handback performance against the criteria are monitored quarterly.	The number of projects handed back in accordance with the handback criteria is established as a baseline measure by December 2012.	Network Rail hands back a targeted percentage of projects above its baseline in accordance with the handback criteria by December 2013.	No significant gaps identified. Further evidence (Project Phoenix) provided post Draft A but no material impact.	SBP and CP4 success criteria are scheduled in the AMMSG Folio Plan to be achieved by the planned dates	No specific risks identified for SBP or end of CP4 roadmap criteria	G	G/G
Asset Creation	3.3	Alignment with Asset Management Plan	The scope and timing of all renewal and enhancement work undertaken is aligned with the Route AMP and Delivery Plan	All renewal and enhancement work is undertaken in accordance with the Route AMP and Delivery Plan, and deviations from these plans are effectively change controlled and justified.	Network Rail can demonstrate that all new start work for SBP is aligned with the Route AMP and Delivery Plan by January 2013 across all Routes.	Network Rail can demonstrate that work is delivered in accordance with the Route AMP and Delivery Plan, with appropriate change control, by January 2013 across all Routes.	Insufficient detail in the AMMSG Folio Plan	There is insufficient detail in the AMMSG Folio Plan to give confidence that the Improvement Specification will be achieved.	Improvement specification not achieved	R	R/R
Systems Engineering	3.4	RAMS Requirements	RAMS requirements management processes proportionate to the complexity of a project are defined and implemented.	A RAMS requirements management process that is aligned with BSEN50126 is in place which is proportionate to the LoC assigned to the project.	A coherent plan which links RAMS analysis, reliability & availability modelling, and the setting of strategic planning targets, is in place by December 2012.	RAMS requirements management process is defined and implemented in accordance with BSEN 50126 by December 2013.	Insufficient detail in the AMMSG Folio Plan	There is insufficient detail in the AMMSG Folio Plan to give confidence that the Improvement Specification will be achieved.	Improvement specification not achieved	R	R/R

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Systems Engineering	3.5	Reliability & Availability Modelling	Reliability & Availability Modelling is routinely undertaken on significant enhancement projects	The availability and reliability models are, to a level of granularity related to the criticality of an investment decision, able to: 1. Identify and prioritise changes in infrastructure capability necessary to deliver changes in output specification, for example PPM; 2. Analyse enhancement projects, including different design options, to determine their impact on different outputs measures; 3. Quantify the financial benefits of different enhancement projects and to develop more robust business cases; 4. Identify the critical drivers of performance and to prioritise improvement initiatives accordingly; 5. Provide an input to the development of different scenarios within asset policies by identifying preferred designs and choice of technology for given output or funding scenarios.	The reliability and availability models have been used to justify enhancements and learning is fed back into asset policies for high criticality assets by December 2012	The reliability and availability models have been used to refine the enhancements in the CP5 Delivery Plan as a result of the determination by April 2014	Feedback to Asset Policy Development does not appear to be addressed	SBP and CP4 success criteria are scheduled in the programme to be achieved by the planned dates, although CP5 plan refinement needs clarification as it is currently programmed for 1 day	Some scope risk identified for SBP roadmap criteria and CP4 actions not fully programmed	A	G/A
Maintenance Delivery	3.6	Handheld Devices	Handheld devices are utilised to manage maintenance and inspection activities where the cost is justified.	1. The experience of the Signalling discipline in the use of handheld devices for maintenance and inspection work control management is assessed for the other disciplines. 2. If a business case is evident the use of hand-held devices is extended accordingly.	Business cases for the extension of maintenance and inspection work control management are identified and developed by March 2013.	Use of handheld devices for maintenance and inspection work control management is extended according to a fully justified business cases by March 2014.	No significant gaps identified	SBP success criteria will be achieved in March 2013, with CP4 criteria being planned ahead of plan in 2013	No specific risks identified for SBP or end of CP4 roadmap criteria	G	G/G
Maintenance Delivery	3.7	Maintenance Tolerances	All engineering disciplines have clear guidance on the tolerance of maintenance and inspection activities and processes in place to manage any exceedences.	1. Each engineering discipline enhances its core maintenance and inspection instructions to include tolerances for critical maintenance and inspection activities, and clear guidance on what to do if these tolerances are exceeded. 2. These revised maintenance and inspection specifications are underpinned by Opex Evaluation analyses.	First tranche of new standards on maintenance and inspection tolerances are developed by December 2012.	Each engineering discipline has issued and effectively implemented the priority new standards on maintenance and inspection tolerances by April 2014.	Insufficient detail in the AMSG Folio Plan	There is insufficient detail in the AMSG Folio Plan, which allows 0 days for the improvement activity.	Improvement specification not achieved	R	R/R

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Resource & Outage Management	3.8	Long-term Resource Forecasting	Resource forecasting beyond two years is formalised into a long-term risk-assessed plan.	A long-term resource forecast is developed that informs a range of identified stakeholders and includes: 1. A risk-assessed evaluation of the impact of future resource requirements on the current resource pool 2. An agreed set of actions for ensuring the availability and continuity of resource in the future 3. Agreed and co-ordinated programmes for investment in resources for the future	A 'long-term' resource forecast is in place that informs a range of identified stakeholders by December 2012.	None	Insufficient detail in the AMMSG Folio Plan. Further evidence relating to RDG/IAP provided post Draft A which although not aligned to the 2012 Roadmap is relevant and supports the overall scope requirements.	The AMMSG Folio Plan defines a milestone for the SBP deliverable, however there is no detail related to the improvement specification, and only 1 day is provided for the improvement activity.	Improvement specification not achieved	A	R/na
Resource & Outage Management	3.9	Continuous Improvement of Resource Planning	Resource planning accuracy against work plan is formally reviewed and continuously improved.	NR/L3/NDS/302 is updated to include a formal requirement for the review and update of the possession & resource planning process at a national level, to include: - evaluation of the forecasting accuracy of both access and resources against actual delivery - the effectiveness of the national process in engaging with the Routes to produce, deliver and monitor plans - the development and tracking of recommendations to improve NR/L3/NDS/302 and associated documentation	NR/L3/NDS/302 has been updated to include formal review and update of the possession & resource planning process at a national level by September 2012.	NR/L3/NDS/302 has been through one formal review cycle by December 2013.	Insufficient detail in the AMMSG Folio Plan. Further evidence relating to RDG/IAP provided post Draft A which although not aligned to the 2012 Roadmap is relevant and supports the overall scope requirements.	AMMSG Folio Plan allows 1 day for improvement activity	Improvement specification not achieved	A	R/R

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Incident Response	3.10	Root Cause Analysis	Information sufficient for the immediate or subsequent unambiguous identification of root cause of failure is collected and captured in a consistent fashion and utilised to demonstrably improve asset performance.	<p>Infrastructure Control Centres (ICCs), supported by Route staff, capture sufficient information to establish the failure mode for all reported infrastructure incidents to allow root cause analysis. The process should include:</p> <ol style="list-style-type: none"> <li>1. Definitions of failure modes that are consistently applied and aligned with the processes underpinning Opex Evaluation (e.g. Failure Modes &amp; Effects Analysis (FMEA) studies)</li> <li>2. Consistent process for collecting and capturing failure modes and asset ID if applicable for both Route staff (e.g. checklists or handheld menus) and ICCs (e.g. fields in FMS aligned to FMEA studies)</li> <li>3. Defined guidance for what to do if failure mode information does not align with the processes prescribed above (e.g. alternative, free-form, inputs)</li> <li>4. Defined process for the evaluation of root cause from the information gathered.</li> <li>5. Demonstrable feedback and use of root cause information in the development of risk-mitigation strategies and plans (e.g. systematic analysis and identification of opportunities for asset enhancement or maintenance / inspection improvement)</li> <li>6. Analysis by manufacturers where root cause cannot be established by Network Rail Route personnel</li> <li>7. Integration of failure date and performance data (e.g. FMS and TRUST)</li> </ol>	The root cause process is designed and implemented, and information sufficient to support this process is being routinely captured in FMS or other appropriate systems, by January 2013.	Analysis of root cause of failure is being used to improve Asset Management processes, policies and standards by March 2014.	No specific gaps identified	SBP and CP4 Success criteria dates are aligned with programme	No specific risks identified for SBP or end of CP4 roadmap criteria	G	G/G
Asset Rationalisation & Disposal	3.11	Asset Rationalisation	Periodic asset rationalisation analysis is undertaken and equipment identified for removal and disposal	<p>Network Rail's Routes periodically undertake analysis for the potential rationalisation of assets on the Route based on:</p> <ol style="list-style-type: none"> <li>1. 'bottom up' engineering and 'top down' strategic (demand led) requirements for Route utilisation</li> <li>2. Optimisation of the trade-offs related to the rationalisation opportunities (operational flexibility, performance risk, and whole-life cost of ownership)</li> </ol> <p>Opportunities to rationalise assets are included in the Route AMP and Delivery Plan and the appropriate assets are removed and disposed of within a reasonable timescale.</p>	An asset rationalisation analysis has been undertaken on each Route and any proposals for removal of assets are included in the Route AMPs and Delivery Plans by January 2013	Any assets identified for rationalisation during CP4 have been removed and disposed of and the expected outcomes assessed against the original justification by March 2014	No specific gaps identified	SBP and CP4 Success criteria dates are aligned with programme	No specific risks identified for SBP or end of CP4 roadmap criteria	G	G/G

## **Appendix G Asset Information Group Validation**

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Asset Information Strategy & Standards	4.1	Asset Information Strategy Alignment	The Asset Information Strategy is fully aligned with the Asset Management System and the requirements of key stakeholders	The Asset Information Strategy is reviewed in the light of the publication of the Asset Management System (see capability 1.1) to ensure: 1. The scope is consistent with the Asset Management System 2. The Asset Information Strategy reflects the high-level Asset Management processes defined within the Asset Management System 3. The key decisions within the Asset Management processes and the information necessary to support these are captured in the Asset Information Strategy 4. The capability, stewardship and performance KPIs used to monitor the effectiveness of the Asset Management System are captured within the Asset Information Strategy (see capability 6.6) 5. It reflects the findings from the periodic review of the Asset Management System (see capability 6.4)	The Asset Information Strategy has been tested and reviewed, using a defined process, against the Asset Management System requirements and the SBP Asset Information Plan has been updated, where appropriate, by May 2012.	The Asset Information Strategy has been tested and reviewed, using a defined process, against the revised Asset Management System requirements and the Asset Information Strategy, Information Specification, Data Dictionary and Asset Information Plan have been updated, where appropriate, by March 2014.	No specific gaps identified in the scope.	SBP success criteria planned for achievement by June 2012, one month late, however achievement of CP4 criteria is not expressed clearly in the AMMSG Folio Plan	No specific risks identified for SBP roadmap criteria but no plan for end of CP4	G	G/A
Asset Information Strategy & Standards	4.2	Asset Information Specification Process	An Asset Information Specification process is in place that defines the current and foreseeable future information requirements necessary to deliver the Asset Information Strategy and external stakeholder needs, and is aligned with appropriate systems architecture(s).	An Asset Information Specification process is developed and implemented to provide: 1. An Asset Information Specification that defines internal and external stakeholder information requirements for key milestones, eg. SBP and start of CP5 2. A clear 'line-of-sight' from the Asset Information Specification to the Asset Information Strategy. 3. A Cost/benefit justification and prioritised information requirements to take account of stakeholder requirements, operational contexts and asset data criticality. 4. A RACI for the end-to-end Asset Information arrangements as a result of devolution.	1. The Asset Information Specification process for SBP is developed by April 2012. 2. The Asset Information Specification for SBP has been produced by April 2012.	1. The Asset Information Specification process for CP5 has been developed and implemented by September 2012. 2. The Asset Information Specification for CP5 has been produced by September 2013	Partial – Asset Information specification process for SBP is not explicitly defined within the programme, and does not appear to align with the ORBIS programme in terms of how emerging requirements are to be captured, communicated and implemented.	SBP and CP4 Success criteria dates are aligned with programme	Both SBP and end of CP4 likely to be achieved assuming Asset Information Specification is included	A	G/G

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Asset Information Strategy & Standards	4.3	Data Dictionary	A Data Dictionary is in place that defines the required attributes and data quality requirements for the initial capture and maintenance of information in accordance with the Asset Information Specification.	The Data Dictionary is developed to provide: 1. A centralised data dictionary detailing the required asset information as defined in the Asset Information Specification, including asset attributes and hierarchy. 2. An appropriate means of assuring control and quality of asset data and estimating the impact of data changes, consistency in data use, easier data analysis, reduced data redundancy and the enforcement of standards. 3. Defined confidence levels for data quality and accuracy based on the criticality of the asset information and the requirements defined in the Asset Information Specification. 4. The necessary definitions for the capture, management and analysis of: - Maintenance information; - Condition information; - Defect and failure information; - Performance and failure consequence information; and - Asset utilisation information. 5. Clarity of the Asset Knowledge Standards arrangements as a result of devolution.	1. The Data Dictionary for SBP is updated by December 2012 by reflect the SBP Information Specification 2. The CP5 Data Dictionary for Track assets has been implemented and it can be demonstrated that it aligns with the CP5 Asset Information Specification for Track assets by December 2013.	The CP5 Data Dictionary for all assets has been implemented and it can be demonstrated that it aligns with the CP5 Asset Information Specification for all assets by September 2013.	No specific gaps identified	SBP & CP4 success criteria target dates align with the programme	No specific risks identified for SBP or end of CP4 roadmap criteria	G	G/G
Asset Data & Knowledge	4.4	Asset Information Plan	An Asset Information Plan is in place that defines the key activities and timescales necessary to deliver all Asset Information requirements defined in the Data Dictionary and is being implemented.	An Asset Information Plan is in place that includes: 1. A gap analysis of current data availability against the requirements of the Asset Information Specification and Data Dictionary. 2. A methodology and programme for data collection, data entry and validation for all requirements defined in the Data Dictionary. 3. Clarity of the Asset Information Plan arrangements as a result of devolution. Asset data is being collected and validated in accordance with the Asset Information Plan.	1. The Asset Information Plan for SBP is complete by May 2012. 2. The data collection process for SBP is completed by December 2012.	1. The CP5 Asset Information Plan for Track assets has been developed for all routes and is fully aligned with the Track elements of the CP5 Data Dictionary by June 2013. 2. The CP5 Asset Information Plan for all assets has been developed and is fully aligned with the CP5 Data Dictionary by March 2014. 3. The data collection process for CP5 is progressing in accordance with the CP5 Asset Information Plan by March 2014.	Partial - Insufficient detail in the AMMSG Folio Plan and does not appear to align with the ORBIS programme in terms of how emerging requirements are to be captured, communicated and implemented.	This is combined with 4.3 in the AMMSG Folio Plan but it is not clear how it integrates – however, ORBIS plan does provide some assurance	Improvement specification not achieved but however, ORBIS plan does provide some assurance	A	A/A

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Asset Data & Knowledge	4.5	Data Confidence Assessment	An effective Data Confidence Assessment methodology is in place to provide necessary assurance to Network Rail and its stakeholders of data confidence levels.	The data confidence assessment approach has been enhanced to provide: 1. An effective and consistent methodology, process and timescales for assessing the level of confidence in asset data against the requirements of the Asset Knowledge Standards 2. Assurance of data collection in accordance with Asset Information Plan. 3. Assurance of data confidence to both Network Rail and its stakeholders. 4. Prioritisation of further data capture.	1. The data confidence assessment approach and application plan have been developed by June 2012. 2. The outputs of the SBP assessment are consistent with the requirements of the Data Dictionary, or corrective actions established, and have been shared with relevant stakeholders by January 2013.	The outputs of the data confidence assessment continue to be consistent with the requirements of the Data Dictionary for CP5, or corrective actions established, and have been shared with relevant stakeholders by March 2014 as part of the Delivery Plan.	Partial – whilst AMMSG Folio Plan includes auditing asset data quality, there is a lack of clarity against the success criteria	The data confidence assessment plan is complete. Not clear how SBP and end of CP4 data will be assessed using this process	Scope ok but lack of clarity over the application of the confidence assessment process for SBP and end of CP4	A	G/G
Asset Data & Knowledge	4.6	Asset Data Management	Data management and assurance procedures are in place to ensure the ongoing governance of Asset Information is undertaken in accordance with the Data Dictionary.	The Asset Data Management procedures have been enhanced to provide: 1. Assurance that asset information is formally managed throughout Network Rail, including 'on the ground', in accordance with the Data Dictionary. 2. Ongoing assurance of data confidence levels. 3. Consolidation of existing tactical Asset Knowledge & Data AMEM recommendations identified.	The programme of identified ADM priorities for SBP has been completed by January 2013.	The Asset Data Management procedures have been updated and it can be demonstrated that they fully align with the CP5 Data Dictionary and have been fully briefed and implemented throughout the organisation by March 2014.	Insufficient detail in the AMMSG Folio Plan but ORBIS understood to be addressing this using MDM	The AMMSG Folio Plan specifies milestones for the SBP & CP4 success criteria, however no detail is provided against the Improvement Specification or for the activity times.	Improvement specification not achieved and not aligned with the ORBIS strategy	A	A/A

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Asset Information Systems	4.7	Asset Information Systems	Appropriate Asset Information Systems are in place that provide the Asset Information to Network Rail and external stakeholders in accordance with the Asset Information Plan	<p>The Asset Information Systems and Architectures have been enhanced to provide:</p> <ol style="list-style-type: none"> <li>1. Full alignment of the architecture with the organisation's and its external stakeholders' requirements as defined in the Asset Management Strategy, Asset Information Strategy, Asset Information Specification, Asset Knowledge Standards and Asset Data Management procedures.</li> <li>2. Full alignment of all proposed systems with the organisation's and its external stakeholders' requirements as defined in the Asset Management Strategy, Asset Information Strategy, Asset Information Specification, Asset Knowledge Standards, Asset Information Plan and Asset Data Management procedures.</li> <li>3. Clarification of 'master data' sources and interfaces of all proposed systems.</li> <li>4. Clarity of which, how and when systems will be used during CP5.</li> <li>5. Consolidation of existing tactical Asset Information System AMEM recommendations identified.</li> </ol>	Tactical system improvements identified in ORBIS have been implemented by January 2013.	<ol style="list-style-type: none"> <li>1. The Asset Information Systems and Architectures for CP5 and beyond have been shared with relevant stakeholders and it can be demonstrated that they fully align with the Asset Information Strategy and Data Dictionary by March 2014.</li> <li>2. Asset Information Systems have been implemented in accordance with the ORBIS strategy by March 2014.</li> </ol>	Insufficient detail in the AMMSG Folio Plan but ORBIS understood to be addressing this	The AMMSG Folio Plan specifies milestones for the SBP & CP4 success criteria, however no detail is provided against the Improvement Specification or for the activity times.	Improvement specification not achieved and not aligned with the ORBIS strategy	A	A/A

## **Appendix H Organisation & People Validation**

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Individual Competence & Behaviour	5.1	Asset Management Competence Requirements	Asset Management competence requirements and performance standards have been defined and are used for personal development	<ol style="list-style-type: none"> <li>1. An overall Asset Management competence framework is in place and all competence frameworks with an Asset Management component have been reviewed and revised as appropriate to make them consistent across the organisation.</li> <li>2. A systematic approach to developing Asset Management competence is in place which incorporates personal development plans.</li> <li>3. Assessment against Network Rail competence requirements is undertaken to identify training needs for staff who have a role in the delivery of the Asset Management Strategy.</li> <li>4. Asset Management competence descriptions are reviewed and modified to ensure consistency across all roles with respect to level of detail and what counts as core competence.</li> <li>5. Staff with an Asset Management role have their Asset Management responsibilities written into their role profiles</li> <li>6. Assessment of Asset Management related competence places a greater emphasis on practical skills.</li> </ol>	<ol style="list-style-type: none"> <li>1. The IAM competence framework has been configured to produce Network Rail's Asset Management competence framework by April 2012</li> <li>2. All key asset manager roles are defined and the criteria for selecting these explicitly defined by April 2012</li> <li>3. Role profiles are defined for all key asset manager roles that include the performance standards required against the Asset Management competence framework by May 2012</li> <li>4. Initial assessments have been carried out for all key asset manager roles against the role profiles and any gaps identified by July 2012</li> </ol>	<ol style="list-style-type: none"> <li>1. Role profiles are defined for all asset manager roles that include the performance standards required against the Asset Management competence framework by April 2013</li> <li>2. Annual Assessments are carried out for all asset manager roles against the role profiles and any gaps identified by June 2013</li> <li>3. All staff in Asset Management roles have personal development plans relating to their Asset Management competence in place by June 2013</li> <li>4. Processes for assessing competence have been reviewed, revised and their effectiveness validated by March 2014</li> </ol>	No specific gaps identified but risks on quality of output	The SBP Success Criteria assume integration of a fit for purpose competences framework – timescales for the completion of this look optimistic and the quality of the output is likely to be compromised by the absence of a longer term strategic component, a business case, limited involvement with senior managers or potential users, and no evidence of a risk based approach.	A	A/A	
Individual Competence & Behaviour	5.2	Asset Management Training	Asset Management training courses, tailored to key Asset Management roles, have been identified and / or developed and are available to relevant staff.	<ol style="list-style-type: none"> <li>1. Staff in roles related to Asset Management are given a consistent understanding of Asset Management principles and how to apply them.</li> <li>2. Training plans are put in place for developing staff in the application of Asset Management principles.</li> <li>3. Locally oriented training and structured feedback focused on developing understanding of and decision making skills for Asset Management is provided.</li> <li>4. Re-training and refresher training are available in key skill areas particularly related to Asset Management related initiatives.</li> </ol>	<ol style="list-style-type: none"> <li>1. Staff in key Asset Management roles have training and development plans in place to address their Asset Management training and any refresher training needs by January 2013</li> <li>2. Training courses for key Asset Management staff have been reviewed for their relevance to the Asset Management competence framework and the balance of skills covered by January 2013</li> </ol>	<ol style="list-style-type: none"> <li>1. The training and development plan has been delivered for staff in key Asset Management roles by January 2014</li> <li>2. Staff in all Asset Management roles have training and development plans in place to address their Asset Management training and any refresher training needs by March 2014</li> </ol>	No specific gaps identified	<p>SBP trajectories appear to be planned for delivery on time; however CP4 criteria achievement is not clearly defined within the programme with respect to refresher training identification.</p> <p>The quality and effectiveness of the approach is dependent on successful outcomes from the competence framework development – looks optimistic as a result.</p>	A	A/A	

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Organisational Structure & Culture	5.3	Alignment of Asset Management Teams	The goals and group competences for Asset Management teams are defined and aligned with the Asset Management Strategy	<ol style="list-style-type: none"> <li>1. Network Rail has a process for selecting teams which is explicitly mapped to the company's Asset Management competence framework.</li> <li>2. Network Rail defines what competences (skills, knowledge, etc.) asset managers need to have as a group so that Asset Management strategic objectives can be met.</li> <li>3. Team coverage of these group competences is determined and translated into team goals and objectives and teams created as appropriate.</li> <li>4. Teams contributing to the delivery of the Network Rail Asset Management strategy are briefed on what is expected of them and how their performance will be measured.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify key Asset Management teams and the criteria for selecting these are explicitly defined by April 2012</li> <li>2. Key Asset Management teams have Asset Management goals and group competence requirements built into their terms of reference by January 2013</li> </ol>	<ol style="list-style-type: none"> <li>1. All Asset Management teams have performance requirements which can be used to demonstrate their contribution to the delivery of the overall Asset Management Strategy by April 2013</li> <li>2. Staff in all Asset Management teams have personal competence requirements in their job descriptions which are aligned with team competence requirements by March 2014</li> </ol>	<p>This is dependent on fit for purpose competence framework form 5.1</p> <p>No mention of how the competence framework might be used to design teams or select team members</p>	<p>Folio Plan is not clear and appears to start too late to achieve SBP timescales. CP4 Teams have been in place for 12-18 months – the tool developed to meet the Improvement Specification will be applied retrospectively to assess achievement and associated success criteria.</p>	A	A/A	
Organisational Structure & Culture	5.4	Strategic Oversight of AM competences	A system is in place which provides up-to-date information and strategic oversight of the competences of Asset Management staff	<ol style="list-style-type: none"> <li>1. A database is created which contains a consolidated record of key information about the experience, skills, abilities, licences, permits, training record, training and development needs, etc. of Asset Management staff.</li> <li>2. A process is put in place for collecting competence information and adding it to the database.</li> <li>3. The database contains information about both competence currently in use and competence "in stock", i.e. competence possessed by individuals beneficial to the organisation but not currently in use.</li> </ol>	<ol style="list-style-type: none"> <li>1. Staff in all key Asset Management roles have the full range of their current competence captured in the database by January 2013</li> <li>2. The database is accessible by all those with a legitimate reason for doing so by January 2013</li> <li>3. The database is in a form that can readily be interrogated and can provide information necessary for such activities as team creation, training planning and manpower planning by January 2013</li> </ol>	<ol style="list-style-type: none"> <li>1. Staff in all Asset Management roles have their competence records on the database by March 2014</li> <li>2. The records cover both competence currently in use and competence "in stock" by March 2014</li> </ol>	No specific gaps identified	<p>SBP success criteria targets are defined and achieved within the AMSC Folio Plan, however CP4 criteria are not defined specifically as focus has been on SBP.</p>	G	G/A	

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time?	Risks to achievement	Scope RAG	Deliverability RAG
Organisational Structure & Culture	5.5	Asset Management Culture	An Asset Management culture(s) is evident and consistent with the Asset Management Strategy and fully supported by all senior managers	<ol style="list-style-type: none"> <li>1. Network Rail has developed a definition of the organisational culture(s) it desires which is consistent with any mission or value statements in place and with its Asset Management Strategy.</li> <li>2. Analyses are undertaken on a sufficiently regular basis of the gap between the desired culture(s) and the current culture(s) - this should make use of such evidence as is already collected but may also require additional survey work.</li> <li>3. The key influencing factors for, and barriers to, culture change are understood and actions are in place to address these which are under regular review.</li> </ol>	<ol style="list-style-type: none"> <li>1. Agreement is reached both at senior manager level and amongst key asset managers on the desired Asset Management culture by January 2013</li> <li>2. Gap analysis has been carried out and areas where cultural change is necessary have been identified by January 2013</li> </ol>	<ol style="list-style-type: none"> <li>1. A culture change management programme and migration strategy have been produced by March 2014</li> <li>2. The desired culture and the change management programme has been communicated to the organisation as a whole by March 2014</li> <li>3. Survey evidence demonstrates that there has been meaningful change towards the desired culture by March 2014.</li> <li>4. Outstanding barriers or pockets of resistance to change have been identified and options for actions to close the gaps identified and initiated by March 2014.</li> </ol>	No mention of strategy or ensuring that this set of actions gels with other initiatives to articulate organisational culture goals or achieve them  Senior management are key players in this area but the plan makes little reference to mobilising their input or support  Post Draft A evidence of on-going (Project Apple/EL Conference Call/Project Olympus) structure and culture specification process.	SBP success criteria targets are defined but This part of the plan is too general. CP4 criteria are not defined specifically as focus has been on SBP.	Some risks to both SBP and end of CP4 Roadmap capabilities	G	A/A
Contract & Supply management	5.6	Contract Performance Assessment	A performance assessment system is developed which explicitly relates supplier and contract performance to the company's Asset Management Strategy	<ol style="list-style-type: none"> <li>1. Existing contract performance indicators are kept under review to determine their value with regard to the Asset Management Strategy.</li> <li>2. Contractors are evaluated in terms of their contribution to meeting the Asset Management Strategy.</li> <li>3. A fit for purpose performance improvement process exists the elements of which are proportionate to the importance of any problems that arise.</li> </ol>	n/a	<ol style="list-style-type: none"> <li>1. Performance indicators have been reviewed and revised as necessary by March 2014</li> <li>2. New performance indicators have been communicated to suppliers and contractors and are included in all new contracts by March 2014</li> <li>3. New performance improvement process has been developed, communicated and is written into all new contracts by March 2014</li> </ol>	No specific gaps identified	CP4 success criteria and defined and planned for early implementation ahead of the 2014 target	No specific risks identified for end of CP4 Roadmap capabilities	G	na/G
Contract & Supply management	5.7	Contract initiation	The company explicitly sets out and meets its commitment to suppliers and contractors on contract start dates.	<ol style="list-style-type: none"> <li>1. Performance standards are in place for Network Rail procurement.</li> <li>2. The performance standards are captured as performance indicators for Network Rail in the tendering, contract negotiation and contract start-up processes.</li> <li>3. Performance against these standards is regularly reviewed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Performance standards have been defined and are included in tender information by January 2013</li> <li>2. Standards are achieved for at least 80% of contracts awarded by January 2013</li> </ol>	Standards are achieved for at least 95% of contracts awarded by March 2014	No specific gaps identified	SBP and CP4 success criteria are clearly defined within programme	No specific risks identified for SBP and end of CP4 Roadmap capabilities	G	G/G

## **Appendix I Risk & Review Group Validation**

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time ?	Risks to achievement	Scope RAG	Deliverability
Risk Assessment & Management	6.1	Integrating Asset and Risk Management	The Risk Management Framework is effectively integrated into the Asset Management System	The Risk Management Framework is effectively integrated into the Asset Management System: 1. Risk management is clearly linked to the achievement of Network Rail's Asset Management objectives. 2. Asset Policies and DSTs are used to manage to an acceptable level the risks identified through the implementation of the Risk Management Framework. 3. The identification, assessment and migration of all Asset Management delivery risks is completed in accordance with the Risk Management Framework. 4. The risks identified and managed through the above are fed into the Asset Management System review.	Integrated Risk and Asset Management processes (1 to 3) are defined and implemented by January 2013.	Integrated Risk and Asset Management process (4) is implemented by March 2014.	Some issues around alignment of risk management with Asset Management and the Asset Management System	According to programme SBP & CP4 success criteria will be achieved earlier than planned, with completion due 11/9/12.	Some risk identified for SBP and end of CP4 Roadmap capabilities around alignment with the Asset Management System	A	G/G
Sustainable Development	6.2	Sustainability Strategy	A Sustainability Strategy in place and is integrated into the Asset Management system	Network Rail develops a Sustainability Strategy that is designed to deliver: 1. the content of the Sustainability Policy 2. the various projects and initiatives on-going or planned within Network Rail (including all of those reported in the CRR) 3. the defined plan for CP5.  One senior person within Network Rail is then given accountability for the delivery of this strategy.	A single Sustainability Strategy has been developed by January 2013 to deliver all Network Rail's initiatives in this area.	By December 2013 one senior person is accountable for the delivery of the Sustainability Strategy which is being effectively delivered.	No specific gaps identified	According to programme both SBP and End of CP4 success criteria will be achieved by 31/12/13.	No specific risks identified for SBP and end of CP4 Roadmap capabilities	G	G/G
Weather & Climate Change	6.3	Climate Change Adaptation & Mitigation	Asset Policies include a link to the requirements of climate change adaptation and mitigation	Network Rail's climate change adaptation requirements are fully considered in the CP5 Asset Policies (as set out in various internal and external studies and plans) such as: 1. the Network Rail Climate change Adaptation report 2. the Climate Change Adaptation Study 3. the on-going CP5 delivery plans	Each asset group has drafted changes to their Asset Policies which reflect Network Rail's climate change adaptation requirements by December 2012.	The CP5 Delivery Plan includes a clear linkage to Network Rail's climate change adaptation requirements by March 2014.	No specific gaps identified	SBP and CP4 success criteria are aligned to the programme, although clarity over Asset Groups is lacking in the AMSG Folio Plan	No specific risks identified for SBP and end of CP4 Roadmap capabilities	G	G/G
Review & Audit	6.4	Asset Management System Review	An effective Asset Management System management review cycle is in place.	Network Rail has implemented its Asset Management System (see capability 1.1) and has designed a management review process for this system that meets the requirements of PAS 55 Clause 4.7.	The Asset Management System review cycle is defined by December 2012.	At least one management review cycle of the Asset Management System has been undertaken by December 2013.	The activities in the plan appear to relate to 6.5 not 6.4 as focus mainly on audit and not an overall review of the Asset Management System	Plans not clear between 6.4 and 6.5 and there is no reference to recommendation 48	Some risks identified in scope regarding testing the fitness for purpose of the Asset Management System	A	A/A

AMEM Activity	2012 Capability Ref	2012 Capability Name	2012 Capability Statement	2012 Improvement Specification	SBP Success Criteria	End of CP4 Success Criteria	All requirements covered in NR Programme?	Will AMCL Trajectories be achieved on time ?	Risks to achievement	Scope RAG	Deliverability
Review & Audit	6.5	Asset Management System Audit	An audit plan is in place that is focused on the Asset Management System.	The NCAP (or equivalent) is enhanced with the following requirements: 1. Audit plans which are defined by the requirements of the Asset Management System (as defined by Network Rail's Asset Management Framework). 2. The audit plan should be risk-based and delivered by people independent from the audited activities. 3. The plan should include sufficient cross-functional audits to ensure integration of the Asset Management System.	The strategy for an overall audit and assurance regime relevant to Asset Management is complete by September 2012.	The outputs from Asset Management Framework audits are being used to support the Asset Management System review by December 2013.	These activities appear to be defined under 6.4 as no plan appears for 6.5 – reference is made to recommendation 50 – should be 49.	Plans not clear between 6.4 and 6.5	Activities should address the roadmap capabilities when the plan is corrected	A	G/G
Review & Audit	6.6	Engineering Verification	An engineering verification system is in place to provide assurance that the expected outputs from the Asset Management System are delivered.	1. The current revision to the Engineering Verification standard is completed and takes into account the impact of devolution. 2. The Engineering Verification standard is implemented with sufficient resources to ensure it will be provide assurance that the expected outputs from the Asset Management System are delivered, including: - safety related issues - asset condition and reliability - quality of work undertaken - level of defects - non-compliance with standards or other requirements	The new Engineering Verification standard has been effectively implemented within the devolved organisation by March 2012.	The outputs from the Engineering Verification audits are being used to support the Asset Management System review by December 2013.	No significant gaps identified but reference is made to recommendation 51 – should be 50.	SBP work stream is complete and CP4 success criteria are aligned to the programme, however clarity is required to confirm standards take into account issues surrounding devolution, as specified in the improvement specification. Planning underway to ensure outputs are suitable for AM system review	Some risks identified for SBP and end of CP4 wrt to effective implementation in the devolved routes	G	A/A
Review & Audit	6.7	Capability, Stewardship & Performance KPIs	A suite of Asset Management KPIs is in place to monitor the capability, stewardship and performance of Network Rail's Asset Management	Capability, stewardship & performance KPIs are in place which include a balanced set of appropriate measures including: 1. Lagging performance measures (such as failures or minutes delay) 2. Leading stewardship measures (such as asset condition, renewal rates or average remaining lives) 3. Leading capability measures (such as competence)	Capability, stewardship & performance measures are defined and baselined by January 2013.	Capability, stewardship & performance measures are being used to support the Asset Management System review by December 2013.	Plan too superficial to determine alignment with improvement specification – needs cross reference to the Asset Management System, Policy & Strategy	SBP and success criteria are aligned to the programme but plan for CP4 limited to one line	No specific risks identified for SBP Roadmap capabilities but CP4 plan not yet developed	A	G/A
Review & Audit	6.8	Benchmarking	Benchmarking is actively used to improve the Asset Management System	Benchmarking is actively used to improve the Asset Management System through: 1. Becoming an embedded 'business as usual' process. 2. Identifying appropriate internal and external benchmarking opportunities and targets. 3. Focusing on value for money outcomes. 4. Feeding into the Asset Management System management review process.	An evidenced set of reasoning based on benchmarking data is used to support the SBP submission by January 2013.	Benchmarking data is being used to support the Asset Management System review by December 2013.	No specific gaps identified	SBP and CP4 success criteria are aligned to the programme	No specific risks identified for SBP and end of CP4 Roadmap capabilities	G	G/G

## **Appendix J   AMSG Folio Plan Dependencies**

Interfaces in							Workpackage	Title	Interfaces out														
1.2	6.5	6.4					1.1	Asset Management System	4.1	5.1	6.4	1.5	2.15	3.2	5.5	6.1	6.5						
2.12	6.8	6.2	6.4				1.2	Asset Management Policy	1.3	2.9	2.11	5.1	5.5	6.2	6.3	6.5	6.6	6.7	6.8				
1.2	6.8	6.4					1.3	Asset Management Strategy	1.1	1.2	1.4	1.8	6.1	2.9	2.1	2.11	3.5	4.2	5.1	4.1	5.5	6.6	
1.3	6.7						1.4	Asset Stewardship Report															
1.1							1.5	CP5 Asset Management Capability	5.1														
1.12	2.1	3.8					1.6	Long Term Demand Projections	1.7	1.9	2.9	6.2	6.3										
1.6							1.7	Route Specification	1.12	1.10	3.11	3.4											
1.1	1.3						1.8	Strategic Planning Framework and Process	6.4	1.12													
1.6	1.7	1.11	1.12	2.12			1.9	Strategic Business Model	1.10	1.11	2.1	2.3											
1.9							1.10	Network Strategic Asset Management Plan	1.6	6.3													
1.9							1.11	QRA	1.9														
1.7	1.8						1.12	Route AMP's	1.6	1.7													
1.2	2.11	1.9					2.1	Maintenance Criticality Analysis	1.6	6.1	3.7	3.8	3.9	3.11									
							2.2	Maintenance Strategy	2.3	2.8													
2.2	2.11	1.9					2.3	Maintenance Requirements Analysis Process	2.4	2.5													
							2.4	Maintenance Analysis Plan	2.5														
2.3	2.4						2.5	Risk-based Maintenance Analysis	2.6	2.7	3.10												
2.5	2.12						2.6	Maintenance Standards	2.7														
2.5	2.6						2.7	Maintenance Implementaion Plan	5.5														
2.2							2.8	Maintenance Unit Costs	2.11														
1.2	1.3	6.1	1.6	4.4			2.9	Capex Criticality Analysis	2.12														
1.3	3.11						2.10	Asset Policy and DST Development Strategy	2.12	3.5													
1.2	1.3	2.8	2.13	2.14	2.16	3.4	2.11	Asset Policy Scenarios	2.12	2.15	2.1	2.3											
2.9	2.10	2.11	6.3	6.8	6.2		2.12	Asset Policies - Renewal & Enhancement	1.2	2.13	2.14	2.6	2.16	3.4	4.2								
2.12							2.13	Asset Policy Monitoring & Evaluation	6.7	2.11													
2.12	2.15						2.14	Asset policy Communication															
2.11	6.1	1.1					2.15	Decision Support Tools	2.14	2.11													
4.2	2.12						2.16	Renewal Unit Costs															
							3.1	Programme Management Methodology															
1.1							3.2	Project handback															
1.12							3.3	Alignment with Asset Management Plan															

Interfaces in						Workpackage	Title	Interfaces out													
1.7	3.5	2.12				3.4	RAMs Requirements	2.11													
1.3	2.10					3.5	Reliability & Availability Modelling	3.4													
4.6						3.6	Handheld Devices														
2.1						3.7	Maintenance Tolerances														
1.12						3.8	Long Term Resource Forecasting	1.6													
1.12						3.9	Continuous Improvement of Resource Planning														
2.5	4.1	4.5	4.6			3.10	Root cause Analysis														
1.12						3.11	Asset Rationalisation	2.10													
1.1	1.2	1.3				4.1	Asset Information Strategy Alignment	3.10	4.2	6.4	6.7										
1.3	4.1					4.2	Asset Information Specification Process	4.7	2.16												
2.8	4.2	2.12				4.3	Data Dictionary	4.7													
4.2	4.3					4.4	Asset Information Plans	4.5	4.7	2.1	2.9										
4.4						4.5	Data Confidence Assessment	3.10	4.6	4.7											
4.5						4.6	Asset Data Management	4.10	4.7	3.6											
4.2	4.3	4.4	4.5	4.6		4.7	Asset Information Systems														
1.1	1.2	1.3	1.5			5.1	Asset Management Competence Requirements	5.2	5.3	5.4	5.5										
5.1						5.2	Asset Management Training														
5.1						5.3	Alignment of Asset Management Teams														
5.1						5.4	Strategic Oversight of AM competancies														
1.1	1.2	1.3	5.1	2.7		5.5	Asset Management Culture														
						5.6	Contract Performance Management														
						5.7	Contract Initiation														
1.1	1.3					6.1	Integrating Asset & Risk Management	2.9	2.15	2.12	6.4										
1.2	1.6					6.2	Sustainable Strategy	1.2	2.12												
1.2	1.6	1.10				6.3	Climate Change Adaption & Mitigation	2.12													
1.1	1.8	6.5	6.6	6.7	6.8	6.4	Asset Management System Review	1.1	1.2	1.3											
1.1	1.2					6.5	Asset Management System Audit	6.4	1.1												
1.2	1.3					6.6	Engineering Verification	6.4													
1.2	2.13					6.7	Capability Stewardship & Performance KPI's	3.4	1.4	6.4											
1.2						6.8	Benchmarking	2.12	1.2	1.3	6.4										

