Executive summary

Introduction

In March 2011, the ORR asked the Independent Reporter (Part C) (Nichols consortium) (the Reporter) to undertake a review under Part C Reporter Mandate CN013, Quality Review of Edinburgh Waverley Steps and Bletchley Remodelling project.

The mandate required the Reporter to review the Bletchley Remodelling Project to check whether it has been designed, specified, and installed to the appropriate quality and therefore delivering minimum whole life costs. The definition of whole life costs for this quality review are the total costs of acquisition (including consultancy, design and construction and equipment), and the costs of operating and maintaining the assets over its whole life through to its disposal[1].

Background

In November and December 2009, two quality reviews were undertaken by Halcrow Group Limited and Nichols Reporters on the North London Line (CH02) and Glasgow-Kilmarnock Line (CN03) respectively. The methodology adopted for the quality review of the Bletchley Remodelling Project is consistent with and builds on these quality reviews. We have also built on the findings and recommendations from the previous quality reviews.

The Bletchley Remodelling Project was originally part of the 2003 West Coast Strategy requirement to be delivered by December 2008. In 2006, a decision was taken to progress the Milton Keynes Remodelling Project instead and defer Bletchley Remodelling to Control Period 4 (CP4).

The Bletchley Remodelling Project is to provide capacity enhancement and renew life-expired signalling and track assets in the Bletchley station and the adjacent carriageway siding area. In June 2010, Network Rail's Investment Panel approved a cumulative authority of £123.691m to take the project through to GRIP Stages 5 to 8 in line with the GRIP Stage 4 plan. The project is currently reporting an Anticipated Final Cost (AFC) of £103m after the award of the five major delivery contacts.

[1] OGC definition

Objectives of review

The objectives of the quality review are to:

- understand the scope, objectives and current position of the Bletchley Remodelling Project
- understand the relevant project quality assurance processes that are deployed on the project
- understand the key project roles that are responsible for delivering the end-product quality, and to assess their effectiveness
- review one specific asset category in terms of providing expert engineering view of whether the project is demonstrating best practice in the design and delivery of the asset work-scope; track was for detailed review

The mandate required a professional opinion as to whether the processes in place together with the asset category that has been reviewed in more detail represents a minimum life cycle cost approach and to highlight any examples of a minimum whole life cost approach.

Approach

We applied the following tests in our assessment of whether the project has been designed, specified, and installed to the appropriate quality and therefore delivering minimum whole life cycle costs:

- the degree of compliance with Network Rail's GRIP[2] standard is an indicator of good practice and efficient delivery
- the project's approach to the principles of quality management impacts on how efficiently the project is being delivered, with quality defined under the categories of quality planning, quality assurance, quality control and continuous improvement
- a minimum whole life cost approach is to deliver the specified project quality whilst minimising the total costs of acquisition (including consultancy, design and construction and equipment), and the costs of operating and maintaining the assets over its whole life through to its disposal
- sufficient rigour and control is applied to the installation and construction of the assets.

In undertaking the review, we conducted interviews with the Network Rail project staff and reviewed key project documents.

[2] Governance to Railway Investment Projects – NR/L1/IN1/PMP/GRIP/ Level 1 and 2 Mandatory 3 March 2011

Key findings

- Network Rail has revised its asset management policies and strategies in response to the recommendations from the quality reviews of the Glasgow-Kilmarnock Line and North London Line. The updated Asset Management Strategy[3] confirms that Network Rail may not be able to demonstrate that its decisions are optimised to deliver the minimum whole life cost and that its existing policies are based to a significant extent on traditional practices and engineering. The Bletchley Remodelling Project was too advanced in the design process to take into account any of the changes in asset management policy and guidance. As such, there is little evidence that the recommendations from the quality reviews have been fully addressed.

- There is insufficient evidence that the project will deliver an overall minimum whole life cost solution. The project scope of work was constrained to identify a scheme that could be delivered within the available budget rather than identify the minimum whole life cost solution. Similarly, the option selection report in March 2009 did not include whole life cost analysis of the options considered. There are some examples where the project has applied a whole life cost approach; these are described in the later section – Examples of good practice.

- The Bletchley Remodelling Project was originally part of the West Coast Strategy requirement to be delivered by 2008. The concept design for the Bletchley Remodelling Project was developed from the WCML Functional Requirement Specification which later fed into the project's Operational Requirements Specification (ORS). The Bletchley Remodelling Project was deferred in 2006 to progress the Milton Keynes signalling upgrade project instead. In June 2010, the Bletchley Remodelling Project received Investment Panel authority to progress project through GRIP Stages 5-8. The project is now at GRIP Stage 5/6 with five major tenders awarded for the design and build of the works. It is scheduled for Practical Completion in September 2013 and full commissioning of signalling upgrade in December 2012. All milestones were reported to be at 'green' status in the latest PDG Report for Period 13 - 2011.

- The project has demonstrated compliance with Network Rail's quality processes. There is good evidence of compliance with Network Rail standards, including GRIP, the use of standard components and engineering management for projects. Similarly, there is good evidence of effective quality assurance in the concept design, tender action, detailed design and with maintainer and operator involvement.

[3] Network Rail Asset Management Strategy, February 2011.

- The project team has implemented a quality control process to monitor and control the implementation works. There is good evidence that the PMP has been kept updated to reflect the current stage of the project and the role changes within the project team. The key features of site implementation control include: flow charts identifying key responsibilities for each construction activity; project configuration plan; test and inspection plans; and daily e-mail reports. Furthermore, there is also good evidence from site inspection plans that the process for configuration control has been implemented for the works on site.

- The staging plan adopted for the project's implementation is based on pre-planned phases which formed part of the delivery contract, sets the track access arrangements and influences the project's duration. The compensation to Train Operating Companies (TOCs) for loss of service due to track access possession and other access related costs are a significant proportion of the overall project cost. There is insufficient evidence that the project's access arrangements are the minimum cost solution.

- The segmentation in procurement of designers between GRIP Stage 4 and GRIP Stage 5 to 8 has reduced the opportunity for innovation in terms of buildability and identifying whole life costs solutions.

Examples of good practice

There are a number of examples of good practice, which positively affect the whole life cycle costs of the assets.

- Track renewals and maintenance works have been included in the work scope to gain some efficiency of delivery and to facilitate the enabling works for the project.

- The signalling upgrade has been developed to reduce the overall volume of infrastructure in order to improve maintainability and reliability.

- The project has sought to minimise maintenance and operating costs by deciding to re-locate the signal control from Bletchley to Rugby. This would facilitate the isolation of discrete sections of track for maintenance activity. However, any cost saving could not be verified as the whole life cost calculations were not included in the options selection report.

- The project has carried out some value management activities in the selection of the signalling power option, the development of the signalling design strategy and the review of the Christmas 2012 blockade.

- The project has engaged with maintainers and operators in the upgrade of assets on the operating railway. The Asset Management Plan (AMP), '113363 Bletchley Project', describes the strategy and responsibilities agreed between the project and the maintenance organisation for inspection, handover and maintenance of new and renewed assets.

- There is some evidence that as part of GRIP Stage 4, the project undertook an assessment of the SSI and Smartlock 400 Implementation Strategy, which considered whole life cost benefits of the design as part of the selection process.

- The signalling contractor is monitoring the assets' reliability through the Failure Reporting and Corrective Action (FRACAS) process. The project is currently using the FRACAS information from Drayton Road and Water Eaton Road. The data is released on a monthly basis and analysed by the project. Meetings are arranged with key stakeholders (Maintainer, Operation, Contractors, Project) to discuss the failure and attribute actions as required.

- There are also some good practice examples embedded in the design of the Bletchley Remodelling signalling scheme, including:

    - the provision of data logging to enable quick diagnostics

    - good practice cable management

    - signalling power supply systems with appropriate redundancy and automatic switching facilities.

Conclusions

Network Rail has revised its asset management policies and strategies in response to the recommendations from the quality reviews of the Glasgow-Kilmarnock Line and North London Line. However, there is little evidence that the recommendations from the quality reviews have been fully addressed. The updated Asset Management Strategy confirms that Network Rail may not be able to demonstrate that its decisions are optimised to deliver the minimum whole life cost and existing policies are based to a significant extent on traditional practices and engineering.

The Bletchley Remodelling Project was originally part of the WCML. Since receiving Investment Panel authority in June 2010 to progress project through GRIP Stages 5 to 8, the project has made good progress and is now at GRIP Stage 5/6 with Practical Completion scheduled in September 2013 and full commissioning of signalling upgrade in December 2012. All milestones were reported to be at 'green' status in the latest PDG Report for Period 13 - 2011.

The project demonstrates good compliance with Network Rail's quality processes with evidence of effective quality assurance and quality control. However, whilst there are examples of good practice, there is no evidence that these represent minimum whole-life cost.

The Reporter's opinion

Network Rail has made good and consistent progress in the delivery of the Bletchley Remodelling Project. In particular, the project has:

- established a project team, which is delivering well with reported green status for all of its key milestones in the P13 2011 PDG Report
- to date, delivered good compliance with Network Rail's project quality assurance processes and the track and signalling design is in accordance with Network Rail's standards and reflects good practice
- implemented a number of examples of good practice.

However, there is insufficient evidence that the permanent way specifications represent minimum whole life cost. Further, there is evidence that the overall approach adopted on the project is based on traditional practices and engineering rather than minimum whole life cost.

Recommendations

- Network Rail to develop a whole life cost methodology, which includes a standardised template for estimating whole life costs; this is a recommendation from the North London Line Quality Review (2009).
- Network Rail to investigate options to deliver minimum track access costs through earlier engagement with delivery contractors to optimise track access.
- The project team to document the process for control of SSFs within the current Engineering Management Plan, which should be maintained as a live document and controlled and managed by the DPE.

For wider consideration

- Network Rail could investigate contracting options for signalling and control upgrade projects to incentivise suppliers to provide lower whole life cost solutions including design, build and maintain.