Caerphilly and Taff Rhondda Turn-back Final Evaluation:
Final Report

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AECOM

Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government.

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Glossary of acronyms

CASR   Cardiff Area Signal Renewal

CP4   Control Period 4

CTRT   Caerphilly and Taff Rhondda Turn-back

ERDF   European Regional Development Fund

GRIP   Guide to Rail Investment Process

PMB   Project Management Board

PTR   Programme Tactical Review

WEFO   Welsh European Funding Office

Executive Summary

1. AECOM was commissioned by the Welsh Government in December 2014 to undertake a Final Evaluation of the Caerphilly and Taff Rhondda Turn-backs (CTRT) project. The project, part funded by Welsh Government and the European Regional Development Fund (ERDF), was developed to encourage modal shift from car to rail through the provision of the following rail infrastructure:

   - An additional platform (known as a 'turn-back') at Caerphilly station on the Cardiff to Rhymney corridor; and
   - An additional platform (turn-back) at Pontypridd station on the Cardiff to Taff Vale corridors.

2. This additional infrastructure was designed to facilitate the running of additional rail services on the Rhymney and Taff Vale corridors, between Caerphilly, Pontypridd and Cardiff. The turn-backs allow trains to terminate at Caerphilly and Pontypridd off the main line, allowing continuous paths for through trains on the main lines. The works were also designed to improve both stations as intermodal facilities.

3. The works associated with the project were completed in 2014, providing additional network capacity. However, at the time of the Final Evaluation no additional rail services were timetabled for the two stations. This was due to the need to complete the Cardiff Area Signalling Renewal (CASR) programme, including the opening of Platform 8 at Cardiff Central which is now scheduled to be operational in 2017.

4. The scope of the Final Evaluation included a process evaluation of the implementation and management approaches adopted on the project. No ex-post impact evaluation was undertaken due to the lack of additional services operating to Caerphilly and Pontypridd stations.

5. The project was delivered within the forecast budget, although some variance was observed in forecast costs during implementation. The

monthly finance meetings between Welsh Government and Network Rail were an effective approach to manage project costs.

6. The project was procured and commenced construction later than forecast, and delays were experienced on specific elements of both turn-backs. The interdependencies with CASR introduced programme delays which impacted on the CTRT project. Overall, the construction periods for both turn-backs were within the forecast durations.

7. A key issue which affected the benefits achieved by the project was the fact that the planned service improvements were not implemented at the time of evaluation. Despite this lack of service improvements the operators have been able to make use of the turn-back to hold trains, providing additional network resilience.

8. The level of stakeholder engagement varied across the project. Engagement and liaison between strategic delivery stakeholders, such as Welsh Government, Network Rail and Arriva Trains Wales, was good, enhanced by the introduction of the Programme Management Board in early 2014. The Welsh Government and Welsh European Funding Office (WEFO) Rail Programme Board was also considered effective by stakeholders, a view endorsed by the evaluators. The approach to public engagement was considered by some stakeholders to be less effective, with the timing of scheme completion publicity a central area of concern.

9. The overarching management and oversight of the project was also significantly enhanced by the introduction of the Programme Management Board in January 2014. This monthly meeting increased the level of scrutiny across project delivery.

10. The cross-cutting themes were evaluated and the CTRT project provided fully accessible facilities for all potential users, alongside bi-lingual information. No assessment of the impacts of such improvements on demand and issues such as social inclusion were feasible at the time of

the evaluation. The scheme was anticipated to have a beneficial impact upon environmental sustainability via reduced carbon emissions resulting from achieving modal shift away from car use. It was, however not possible to assess whether this objective had been achieved due to the current lack of associated service improvements on the corridor. Additionally, no ex-post evaluation data was available to assess the economic value for money of benefits achieved. However, stakeholders did indicate that through integration with CASR, significant cost savings had been achieved compared to delivering the project in isolation.

1 Evaluation Scope

Introduction

1.1 As required under ERDF arrangements for projects receiving in excess of £2m support, the CTRT project required an independent ex-post Final Evaluation. The specification[1] for the evaluation of the CTRT project identified the following requirements:

- To determine which aspects of project delivery had led to positive outcomes, or could be viewed as good practice; and
- To understand the barriers and constraints the project faced and the lessons learnt from dealing with such barriers and constraints.

1.2 The following overarching aims were also set for the evaluation as part of the contract:

- To conduct a comprehensive evaluation of project activity and results against the key performance indicators as outlined in the project Business Plan;
- To assess the effects and efficiency of project delivery in achieving project aims and objectives outlined in the Business Plan;
- To understand the added value of the project for its beneficiaries and stakeholders with regard to the packages of support offered;
- To determine the nature of unintended outcomes not covered by the WEFO key performance indicators; and
- To address the project's delivery and achievement against the cross cutting themes, aims, aims objectives and cross cutting theme related indicators outlined in their Business Plan.

Process Evaluation

1.3 To answer the above questions, a process evaluation was undertaken based upon evidence from a number of different sources, thereby permitting the triangulation of findings. Sources included in-depth interviews with members of the project team, key local and national stakeholders (the Welsh Government and Network Rail). All available

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[1] Prepared by the Department for Economy, Science and Transport of the Welsh Government

project related data and reports have also been obtained, including financial reports, schedules, meeting terms of reference and minutes.

1.4 A scoping exercise was undertaken at the start of the evaluation to identify the areas of project implementation where a robust process evaluation could be undertaken. The key areas of project implementation included within the process evaluation were:

- Finance;
- Schedule/Programme;
- Stakeholder Engagement;
- Risk Management; and
- Project Management.

1.5 Each of these areas is presented in turn in subsequent sections of this report. The following evaluation questions were defined for each of the above areas to guide the process evaluation.

Finance
- Whether the project was delivered to the forecast cost, and if not what the main causes for variation?
- Which areas of project delivery experienced the greatest level of cost variance, and why?
- What mitigation was developed to minimise cost variance and how effective were they?
- How was the financial spend managed to ensure project delivery?
- What lessons can be learnt regarding project costing assumptions?

Schedule/Programme
- Was the project delivered on time, as scheduled at the Business Plan stage, and if not what were the main causes of programme slippage?
- Which areas of project delivery experience the greatest variance in terms of programme and why?
- What lessons were learnt regarding project programming and slippage?

- What techniques and methods for project programming and management represented good practice and why?

Stakeholder Engagement
- Who were the key stakeholders and why? What were their roles and responsibilities?
- What were the different approaches to stakeholder engagement? Which were the most effective at engaging with their target audience and why?
- What lessons were learnt regarding stakeholder management and engagement?

Risk Management
- What were the main risks identified in the Business Plan, and did they materialise?
- What was the cost associated with key risks, and how accurate were the cost estimates?
- What were the main risk mitigation methods and how well did they work?
- Which areas of project delivery generated the most risks and why?
- What approach was taken to risk management and how effective was it?

Project Management
- How effective were the various project management procedures?
- How effective was communication between the delivery partners?
- Which approaches worked well and what lessons were learnt?
- How effective were the monitoring and evaluation activities?
- What equal opportunities monitoring has been undertaken during the project delivery?

1.6 The following evaluation questions relating to cross-cutting themes were also in scope of the evaluation:
- To what extent has the project delivered good value for money?

- To what extent has the project enhanced the level and/or quality of accessibility?
- To what extent has the project enhanced the level and/or quality of environmental sustainability?

Interviewees

1.7   The process evaluation involved extensive stakeholder consultation with members of the project delivery team, Welsh Government, Network Rail and Arriva Trains Wales. A summary of the stakeholders interviewed is presented below.

Project Team

1.8   The interviews undertaken with the project delivery team included individuals with a working knowledge of the project delivery processes. This enabled the reasons for any cost variances to be explored, schedule delays or changes in stakeholder management arrangements to be assessed. Interviews were undertaken with the following members of the Welsh Government project team:

- Rail Technical Advisor;
- Rail Development and Delivery Manager;
- Rail European Union (EU) Grants Manager; and
- Rail Projects Officer.

Stakeholders

1.9   In addition to the project team, interviews were undertaken with relevant stakeholders to establish wider views of the project performance. Interviews were undertaken with the following key stakeholders:

- Welsh Government EU Programme Manager;
- Network Rail Project Sponsor CASR[2];
- Network Rail Route Enhancement Manager;
- Network Rail Project Sponsor;
- Network Rail Project Sponsor; and

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[2] Cardiff Area Signal Renewal, with the aim of easing congestion on the rail services on the Cardiff and south Wales Valleys networks.

- Welsh Government Head of Rail.

1.10 In accordance with evaluation best practice, no individuals are identified in this report, and all comments/views have been anonymised. This commitment was undertaken at the outset of the evaluation to ensure that interviewees felt able to comment on the CTRT project in an open manner.

2 Project Overview

Introduction

2.1 This section presents an overview of the CTRT project. The project objectives, inputs (investment), outputs (physical works implemented) and logic map of anticipated results and impacts are presented.

Objectives

2.2 The CTRT project, as defined in the 2011 Business Plan[3], had the following stated objectives, to:

- Provide enhanced infrastructure therefore encouraging a modal shift by reducing the level of car usage, particularly single occupancy journeys;

- Enhance sustainable accessibility to employment opportunities, key services and enabling local people to access education and training opportunities and the major employment locations in Wales; and

- Reduce harmful greenhouse gas emission levels through additional rail services.

Project Inputs

2.3 The outturn inputs (cost) for the Caerphilly turn-back was £4.94m and for the Taff Rhondda turn-back was £5.75m.

Project Outputs

2.4 An initial activity in the evaluation was to define the precise delivered outputs of the project. The infrastructure delivered is presented for each turn-back below.

Caerphilly Turn-back

2.5 The Caerphilly turn-back consisted of the following elements:

- Bay platform to accommodate 6 car units;

- 200metres of plain line track;

- Waiting shelter (1 unit);

- Customer information system;

- Lighting;

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[3] Caerphilly and Taff Rhondda Turn-back Business Plan Final Version –V0.3, 2011.

- Crossovers (2 units);

- Turnover (1 unit); and

- Signal (1 unit).

Taff Rhondda Turn-back

2.6   The Taff Rhondda turn-back consisted of the following elements:

- Bay platform to accommodate 6 car units, using the disused bay at Pontypridd station;

- Waiting shelter (1 unit);

- Customer information system;

- Lighting;

- Crossovers (2 units);

- Turnover (1 unit); and

- Signal (1 unit).

2.7   The WEFO defined output indicators have been recorded for the overarching CTRT project (Table 1).

Table 1: WEFO Indicators – forecast values

WEFO Indicator	CTRT Project
Intermodal facilities created or improved	2
Rail roads created or reconstructed (km)	1km each (approx.)
Public transport services created or improved (vehicle km	2
Gross passenger kilometres on public transport	508,513.8 annual kms[4]

Source: Welsh Government Department for Economy, Science and Transport

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[4] This figure represents the forecast passenger km as presented in the 2011 Business Plan and based on forecast demand following track and service enhancements. The scope of the Final Evaluation has not included an impact assessment and therefore no updated passenger km values have been derived. Delivery on this target will be measured in the first 12 months following the completion of the improvement and the commencement of the new services.

Project Results and Impacts

2.8 As noted above, the scope of the final evaluation of the CTRT project did not include an ex-post impact evaluation. This was due to the lack of additional rail services operating to Caerphilly and Pontypridd stations limiting the ability to increase rail patronage. However, to provide oversight of the CTRT project and for completeness of the ex-post evaluation, the anticipated results of the project have been defined.

2.9 Figure 1 presents a logic map of the CTRT project, indicating the logic through which the project objectives would be achieved. This has been presented in the Final Evaluation to demonstrate how the delivered outputs will generate modal shift and reduced greenhouse gas emissions.

2.10 Although no additional rail services were being operated at the time of evaluation, compared with the pre-turn-back baseline, operational/performance benefits were being realised according to stakeholders. There had been a limited use of the turn-backs to enable the main lines to be cleared; it was estimated by stakeholders that approximately five trains per day had been using each turn-back. This was provided an enhanced level of network resilience (a first order result in Figure 1) and was a function of the legacy timetable rather than specific changes to service frequencies.

2.11 Because no detailed ex-post impact evaluation has been feasible and no attempt has been made to attribute changes to the CTRT project, the logic map presents anticipated results as defined in the current WEFO evaluation guidance[5].

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[5] Monitoring and Evaluation Guidance V1.02, November 2008, WEFO

Figure 1: Caerphilly and Taff Rhondda Turn-backs Logic Map
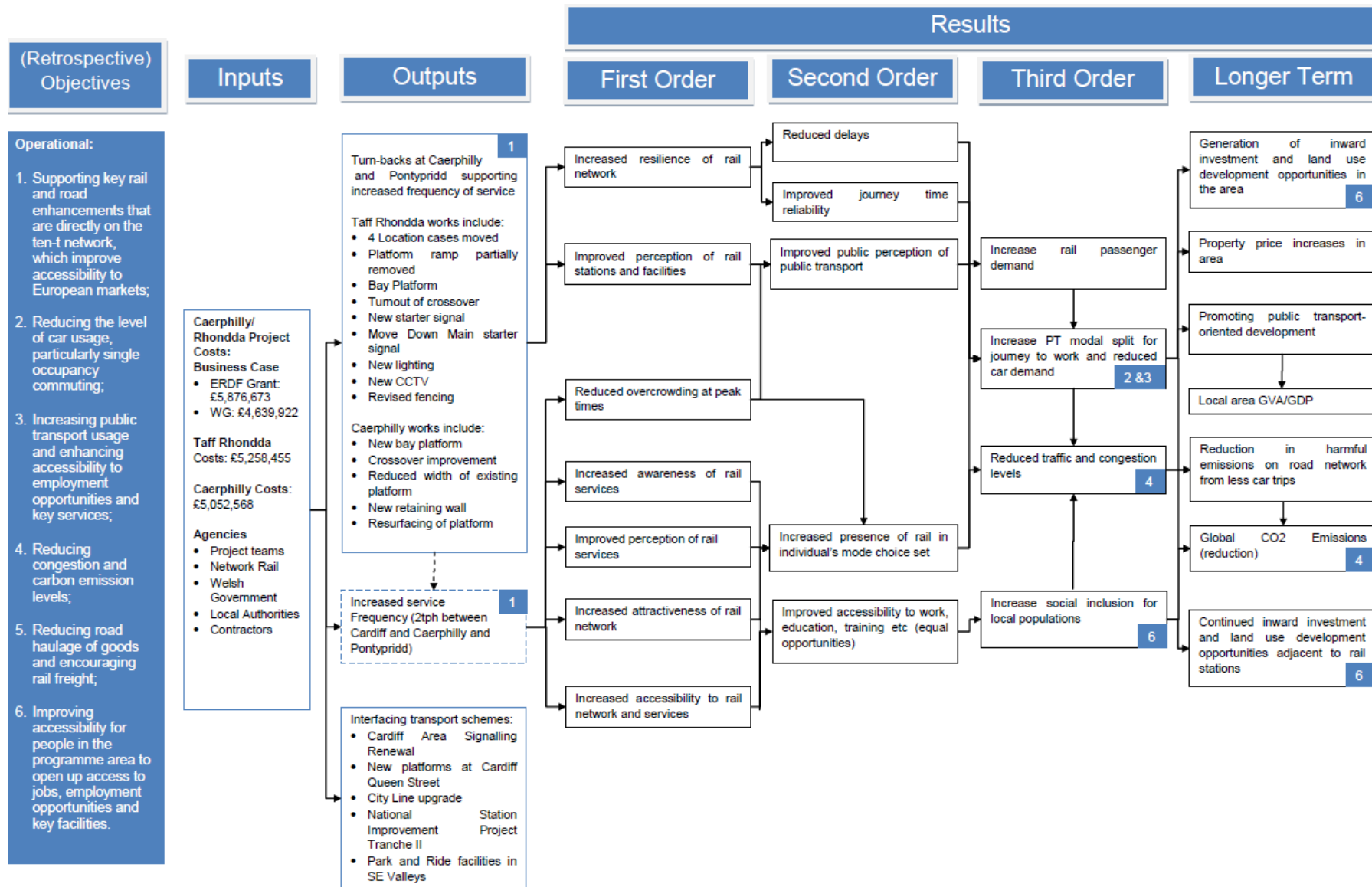
3 Finance

Introduction

3.1 The first element of the process evaluation examined the capital investment into the project. It included a quantitative analysis of financial performance comparing the ex-ante Business Plan costs with the outturn costs. Data from the Network Rail four weekly financial reports have also been used to track changes in costs through the duration of the project. A qualitative analysis of cost management has also been facilitated by interviews with the project delivery team and stakeholders. This element of the evaluation addressed the following evaluation questions:

- Whether the project was delivered to the forecast cost, and if not what the main causes for variation?

- Which areas of project delivery experienced the greatest level of cost variance, and why?

- What mitigation was developed to minimise cost variance and how effective were they?

- How was the financial spend managed to ensure project delivery?

- What lessons can be learnt regarding project costing assumptions?

Planned Costs

3.2 In 2011 as part of the Business Plan submission the project was anticipated to cost £10,311,013 (£5,258,445 for Taff Rhondda and £5,052,568 for Caerphilly) of which £442,946 (4%) were ineligible costs. Of the remaining £9,868,067 eligible costs, £5,362,296 (54%) was to be funded by the ERDF and £4,505,772 (46%) funded by Welsh Government. The details of this cost breakdown are shown in Table 2.

Table 2: Project Costs

Project Element	Eligible Costs	Ineligible Costs	Total Costs
Caerphilly	£4,836,480	£216,088	£5,052,568
Taff Rhondda	£5,031,587	£226,858	£5,258,445
Project Total	£9,868,067	£442,946	£10,311,013

Source: Annex 7a and 7b of 2011 Business Plan

3.3   The detailed planned costs for each element of the project are outlined in Tables 3 and 4[6]. This showed that for both elements of the project the direct contractor costs represented the biggest anticipated area of expense. It is noteworthy that the contractor's indirect costs were significantly lower for the Caerphilly scheme (£472,885) compared with the Rhondda scheme (£1,065,456). One explanation for this variance was the completion of design and preliminary works, and the allocation of costs, for Caerphilly as part of the wider CASR programme.

3.4   For the Taff Rhondda turn-back the biggest individual area of expense was the cost of providing the Permanent Way (i.e. the track itself), at £1.9m. Within the Network Rail costs an industry risk fund of £90,743 was allocated to cover any cost risks which are realised during the project. Schedule 4 costs, the compensation paid to the operator due to Network Rail taking possession of the network, were assumed at £226,858.

3.5   For the Caerphilly turn-back the biggest area of direct construction costs was again predicted to be the installation of the track itself, costing £1.55m, with a further £0.5m for the materials required, such as track and fittings. This element of the project identified a budgeted industry risk fund of £86,435 to cover the costs of risks being realised. Schedule 4 costs of £216,088 were predicted for the costs of track possessions.

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[6] Extracted from Annex 7a and 7b from the Business Plan

Table 3: Taff Rhondda Turn-back

ITEM	CAPITAL COST
Contractors Direct Costs	
Signalling	£722,799
Electrification and Plant	£72,099
Permanent Way	£1,898,430
Telecoms	£124,769
Structures	
General Civils (Operational Property)	£347,913
Sub Total	**£3,166,010**
Contractors Indirect Costs	
Preliminaries	£589,618
Design	£346,703
Testing and Commissioning	£129,135
Sub Total	**£1,065,456**
Network Rail Direct Costs	
Possession Management	£47,385
Network Rail Project Management Costs	£435,135
Network Rail Fee Fund (5% excluding contingency)	£226,858
Industry Risk Fund (2% excluding contingency)	£90,743
Sub Total	**£800,121**
TOTAL ELIGIBLE PROJECT COSTS	**£5,031,587**
Excluded	
Schedule 4 (5% excluding contingency)	£226,858
Total	**£226,858**
TOTAL PROJECT COSTS	**£5,258,445**

Source: Annex 7a of 2011 Business Plan

Table 4: Caerphilly Turn-back

| ITEM	CAPITAL COST
Contractors Direct Costs	
Signalling	£428,266
Electrification and Plant	£53,256
Track Installation	£1,546,202
Telecoms	£23,323
Structures	inc
General Civils	£1,416,938
Utilities	inc
Sub Total	**£3,467,985**
Contractors Indirect Costs	
Preliminaries	£371,784
Design	£101,101
Testing and Commissioning	inc
Sub Total	**£472,885**
Network Rail Direct Costs	
Materials – Track and fittings	£513,087
Engineering Trains	inc
Tamper	inc
Possession Management	inc
Network Rail Project Management Costs	£80,000
Network Rail Fee Fund (5% excluding contingency)	£216,088
Industry Risk Fund (2% excluding contingency)	£86,435
Sub Total	**£895,610**
TOTAL ELIGIBLE PROJECT COSTS	**£4,836,480**
Excluded	
Schedule 4 (5% excluding contingency)	£216,088
Total	**£216,088**
TOTAL PROJECT COSTS	**£5,052,568**

Source: Annex 7b of 2011 Business Plan

Outturn Costs

3.6   The evaluation of cost variance through the period of project
      implementation was a key requirement of the Final Evaluation. The
      Welsh Government project team provided the evaluators with data as of
      February 2015, indicating an approved investment of £10,660,687, and
      forecast cost of £10,406,805.

3.7   Figure 2 shows how forecast costs for the two main elements of the
      project changed during the course of project design and implementation.
      This analysis was based upon financial data provided by Welsh
      Government and Network Rail through the four-weekly reports that feed
      into the Financial Review meeting (see Section 7 for details). This
      dataset is consistent in the format of reporting, allowing a longitudinal
      review of spend to be undertaken. However, it is noted that the cost
      values presented in the four-weekly reports differ slightly from those
      presented in the 2011 Business Plan and the above February 2015
      costs.

Figure 2: Projected Out-turn costs
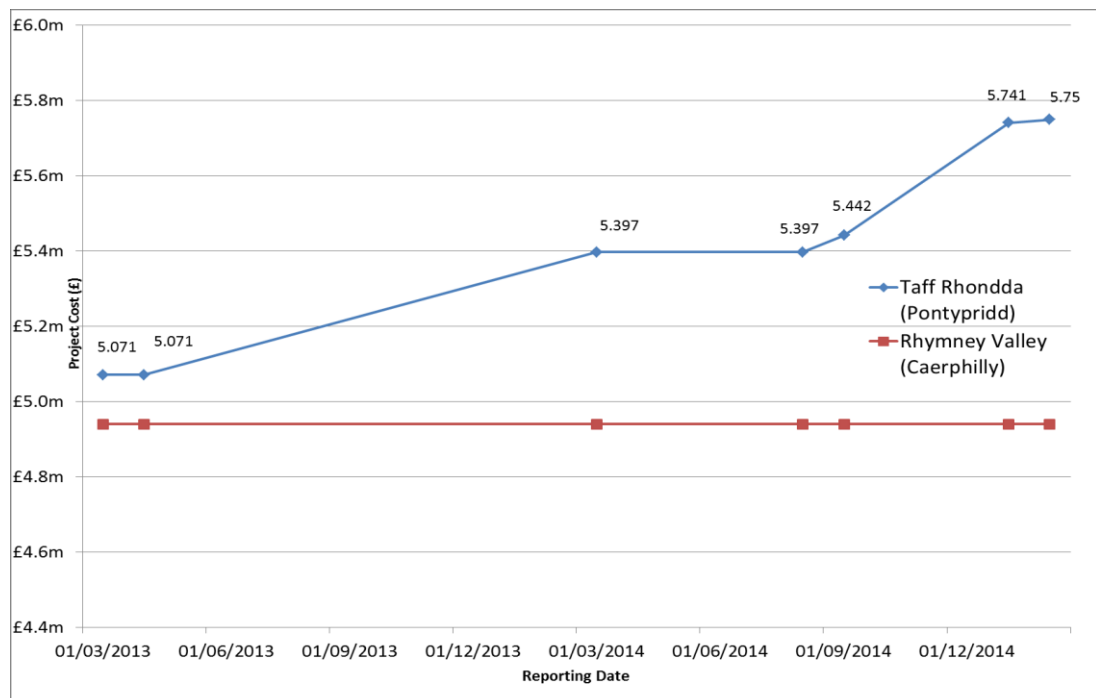
Source: Network Rail 4 weekly reports

3.8   Figure 2 shows that for the Caerphilly turn-back costs remained
      consistent at £4.94m (compared to the £4.84m reported in the Business

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Plan). This reflected the lump sum (staged payments) contract established between Network Rail and the Welsh Government for this element of work. There may have been an internal overspend on this task within Network Rail, but this would not be reported in the information available to the Welsh Government, nor have Welsh Government been exposed to any overspend. However, discussions with Network Rail identified that no cost variance was experienced, and that this element of the project was therefore delivered to the anticipated costs.

3.9   For the Taff Rhondda turn-back it can be seen in Figure 2 that costs escalated through the course of the project, from £5.07m in March 2013 to £5.75m in February 2015, an increase of £679,000 (13%). This increase reflected the emerging costs contract adopted for this element of the CTRT project. The anticipated outturn eligible cost of £5.75m was (£718k) above that indicated in the Business Plan (£5.03m). However, the outturn cost remained within the £5.77m contractual value established between Welsh Government and Network Rail in February 2013[7].

Barriers and Constraints - Reasons for cost variations
3.10 A selection of four-weekly financial reports was reviewed to establish the issues contributing to cost variance within the project budget. No issues were identified for the Caerphilly turn-back as noted above. The key factors contributing to increased costs for the Taff Rhondda turn-back were:
- Protracted discussions between Network Rail and Arriva Trains Wales regarding fence alignments;
- Gaps in the programme of delivery requiring the re-mobilisation of staff;
- Additional works at Pontypridd station, including tactile paving;
- The need to extend the platform at Pontypridd to facilitate the use of longer trains as part of the electrification of the valleys lines; and

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[7] Source: Contracts letter from Network Rail to Welsh Government, dated 11th February 2013.

- Revised possession arrangements as part of CASR leading to an extension of time costs [for the Taff Rhondda project].

3.11 The issue of electrification was discussed as part of the interviews undertaken with key project delivery staff and stakeholders. The need for modifications to the Taff Rhondda turn-back scheme and the abortive costs of design to accommodate electrification were discussed. The initial design was to accommodate 6 x 21metre carriage diesel trains. Upon the announcement of a decision regarding electrification the platforms were redesigned to accommodate 6 x 23metre electric trains. This led to extra costs in the region of £250k for abortive design work. This cost was drawn down from the project risk contingency and had no material impact on the overall project costs.

3.12 This redesign work was undertaken as part of the Taff Rhondda turn-back work, and there was consensus among stakeholders that this was the most cost-effective approach. This specific additional design requirement did not form part of the initial design specification and could not reasonably have been predicted at the inception stage as key decisions related to electrification had not been made at this point.

3.13 The implementation of the Caerphilly turn-back as part of the wider CASR programme introduced dependencies regarding cost and programme. Whilst it was widely acknowledged by stakeholders that the availability of funding through CASR was an important factor in realising the Caerphilly project, delays in implementation were also experienced (see Section 4). However, potential cost escalations through revised track possessions and associated time cost extensions were absorbed by CASR.

Cost Management

3.14 The CTRT project costs were managed via finance meetings held on a monthly basis between members of the Network Rail and Welsh Government project teams. This provided a project-level forum to discuss and resolve any detailed risk or cost issues. The four-weekly finance reports provided the framework for these discussions.

3.15 However, discussions with the Welsh Government have indicated that they have found it difficult to obtain accurate cost forecasts from Network Rail. Accurate forecasting is required as part of the reporting prescribed by WEFO, therefore ensuring accurate forecasts has required significant engagement between Network Rail and Welsh Government to meet this requirement.

Lessons for future projects

3.16 An area of concern noted by the project team and stakeholders in relation to project finances was the accuracy of the cost estimate information used as part of the scheme development process. Interviewees felt that the GRIP Stage 3 process used in the project planning phase to inform the scheme costs and programme, which subsequently fed into the Business Plan, was not suitably comprehensive to allow accurate estimates to be made. A key lesson for future projects would be to ensure the accuracy of these estimates and ensure that suitable levels of optimism bias are included in these estimates; a figure of 40% is best practice for UK transport ex-ante evaluations[8].

3.17 The implementation of the above approach would require additional ex-ante evaluation work to be undertaken beyond the current requirements of the GRIP process. Additionally, it was felt by stakeholders that because the project was bid for and contractors procured during a period of economic recession the estimates provided by contractors at that point may have been particularly low to ensure the work was awarded to

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[8] WebTAG Unit A1.2 – Scheme Costs and Unit A5.3 – Rail Appraisal

them. The increasing construction costs within the industry since the time of procurement may have negatively impacted upon project outturn costs, although as identified previously, only the Taff Rhondda turn-back was commissioned through an emerging costs contract. Furthermore, as noted above, the overarching project was delivered within the original forecast cost, so this risk was has not materially influenced the outturn costs.

3.18 There was a requirement for redesign work to extend the platforms at Pontypridd associated with the announcement of electrification of the Valleys lines. This decision could not have been predicted at the design stage. However, further consideration could have been given at this point to the resilience of the proposed scheme to future changes and future proofing the proposals for the possibility of longer electric vehicles at some point in the future.

3.19 Part of the rationale for the timing of the CTRT project was to maximise the benefits of, and synergies achieved with, the wider £220m CASR project. This offered the potential for economies of scale to be delivered, for example through shared track possessions to undertake adjacent works. Anecdotal evidence from stakeholders indicated that without the CASR project the costs for the CTRT project would have increased. No quantified evidence or justification was provided by stakeholders and the evaluators were not able to substantiate this viewpoint. This highlights the importance of considering the efficiencies and economies of scale that can be achieved with other projects when planning and designing a scheme.

4   Schedule/Programme

4.1   The process evaluation included the assessment of the project programme, comparing the scheduled duration defined in the Business Plan with the variance observed during the course of the project. This section of the report reviews the programme management of the project to address the following evaluation questions:

- Was the project delivered on time, as scheduled at the Business Plan stage, and if not what were the main causes of programme slippage?
- Which areas of project delivery experienced the greatest variance in terms of programme and why?
- What lessons were learnt regarding project programming and slippage?
- What techniques and methods for project programming and management represented good practice and why?

Planned Timescales

4.2   Analysis of available data has been undertaken to establish the planned start date and duration for the key elements of the project.

Taff Rhondda Turn-back

4.3   Prior to the commencement of the project, the 2008 GRIP State 3 Option Selection Report for the Taff Rhondda turn-back indicated the below planned project timescales (Table 5). The award of contract was anticipated to occur in November 2009 and work onsite completed by September 2010, following a 124 day detailed design period and 174 day construction period.

Table 5: Taff Rhondda 2008 Planned Timescales

Task	Milestone	Duration (days)
Contract Award	13 November 2009	-
Detailed Design Complete	17 March 2010	124
Start on site	18 March 2010	-
Contract Complete	08 September 2010	174

Source: 2008 GRIP State 3 Option Selection Report

4.4 However, the contract to undertake the Taff Rhondda turn-back was awarded in January 2013 and signed on the 11th February 2013. Table 6 shows the updated implementation programme as of 2013. It indicates that work on site was anticipated to commence in January 2014, with all work to be completed in October 2014. This included an extended detailed design period of 238 days, followed by a further 110 days prior to work commencing on site. The initial site works and main construction period covered a duration of 277 days. A comparison of the Business Plan and contracted durations of key implementation stages is presented in Figure 3.

Table 6: Taff Rhondda February 2013 Contracted timescales

Task	Taff Rhondda Turn-Back	Duration
Initial Contract	01 March 2010	-
Contract Award	30 January 2013	-
Detailed Design Complete	25 September 2013	238
Start on site	13 January 2014	-
Main Commissioning	30 June 2014	109
Contract Complete	17 October 2014	-

Source: 2013 Network Rail contract with the Welsh Government

Figure 3: Comparison of implementation dates
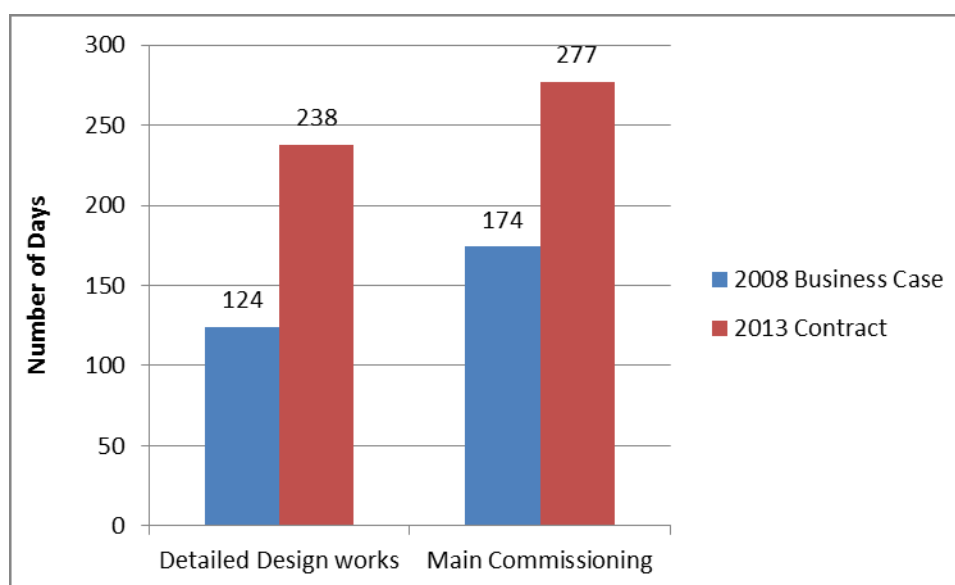
Source: 2011 Business Plan and 2013 contractual documents

Caerphilly Turn-back

4.5 The March 2012 contracts documentation between Welsh Government and Network Rail identified the 26th June 2013 as the forecast completion date for the Caerphilly turn-back. No further information was available on the anticipated timescales for this element of the project.

Actual Timescales

4.6 The four-weekly financial reports were reviewed to establish how project timescales changed throughout the duration of the two key components of the project. Table 7 shows how anticipated project completion timescales shifted as the two projects proceeded.

Table 7: Planned and achieved project completion dates

| Project Reporting Period	Taff Rhondda	Caerphilly
Period 1 2013/14	• Planned 31/03/2014*	• Planned 30/09/2013*
Period 12 2013/14	• Planned 01/12/2014*	• Planned 30/09/2013*
Period 6 2014/15 (Report issued 22/9/2014)	• Grip 6 Construction planned 20/10/2014 • First trains planned 07/12/2014 • Grip 7 Handback planned 7/2/2015 • GRIP 8 Close Out planned 28/10/2015	• Grip 6 Construction planned 31/10/2014 • Grip 7 Handback planned 1/9/2016 • GRIP 8 Close Out planned 1/3/2018
Period 12 2014/15 (Report issued 6/3/2015)	• Grip 6 Construction achieved 20/10/2014 • First trains achieved 15/12/2014 • Grip 7 Handback planned 17/8/2015 • GRIP 8 Close Out planned 16/8/2016	• Grip 6 Construction achieved 31/10/2014 • Grip 7 Handback planned 3/11/2017 • GRIP 8 Close Out planned 21/5/2019

Source: Network Rail four-weekly finance reports
* Assumed to represent the end of construction period as no definition provided in reports.

Taff Rhondda Turn-back

4.7 Figure 4 shows the Taff Rhondda planned and actual completion dates for each GRIP stage. The Taff Rhondda turn-back commenced on site on the 31st March 2014, two months later than originally anticipated in the signed contract documents. No cause of this delay has been identified during the evaluation.

Figure 4: Taff Rhondda Completion Dates
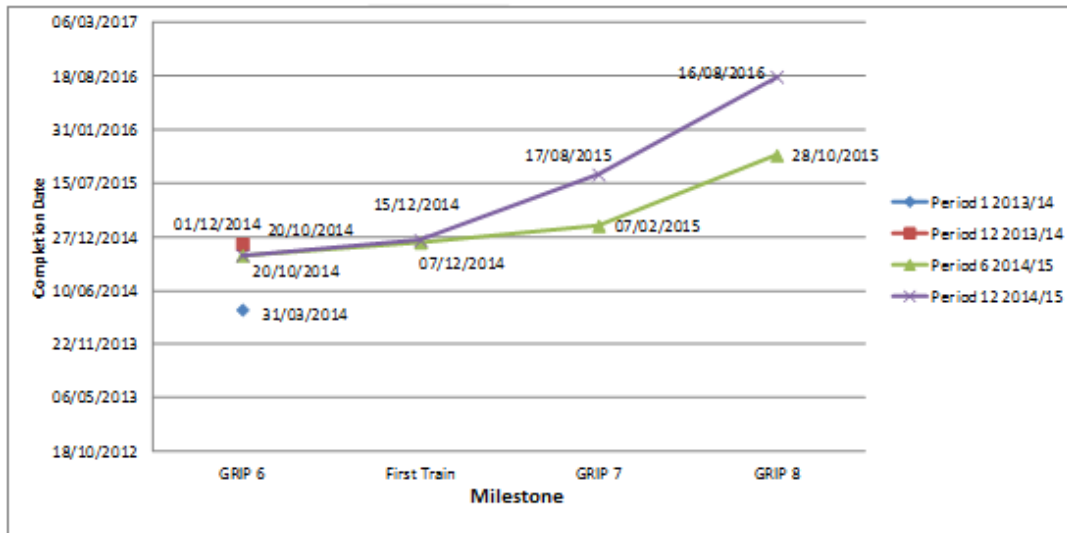
Source: Network Rail/Welsh Government finance reports

4.8 The contract documents indicated an intended on-site duration of 277 days from the start of works to completion of GRIP 6 construction. The project finance reports indicated that at the start of work the planned duration had been reduced to 161 days.

4.9 However, the anticipated completion date for GRIP 6 construction was extended from March 2014 to December 2014 (as reported in the March 2014 finance report). No details were available as to the cause of this delay. GRIP 6 construction was actually completed in October 2014, so ahead of this revised programme, but with a 364 day duration (77 days longer than forecast in the contract).

4.10 The 2014/15 finance reports also included the planned and actual dates for the first trains to use the turn-back. The March 2015 report (Period 12 2014/15) indicated that the first trains used the new turn-back on the 15th December 2014, reflecting the new timetable period.

4.11 However, the project as a whole is not scheduled to be closed out (GRIP Stage 8) until August 2016 (as reported in Period 12 2014/15), compared with October 2015 (reported in Period 6 2014/15).

Caerphilly Turn-back

4.12 Work on-site commenced on the 22nd May 2013 for the Caerphilly turn-back, with an anticipated completion date of September 2013 (Figure 5). The GRIP 6 construction stage was completed in October 2014 (duration of 527 days), with the bay platform at Caerphilly station (the key element of the scheme) completed in March 2014. However, because of the scheme's dependencies with the wider CASR project the 2014/15 financial reports provided completion dates aligned to CASR and not Caerphilly in isolation. The GRIP 7 and 8 stages have therefore been delayed due to changes in the CASR programme.

Figure 5: Caerphilly Completion Dates
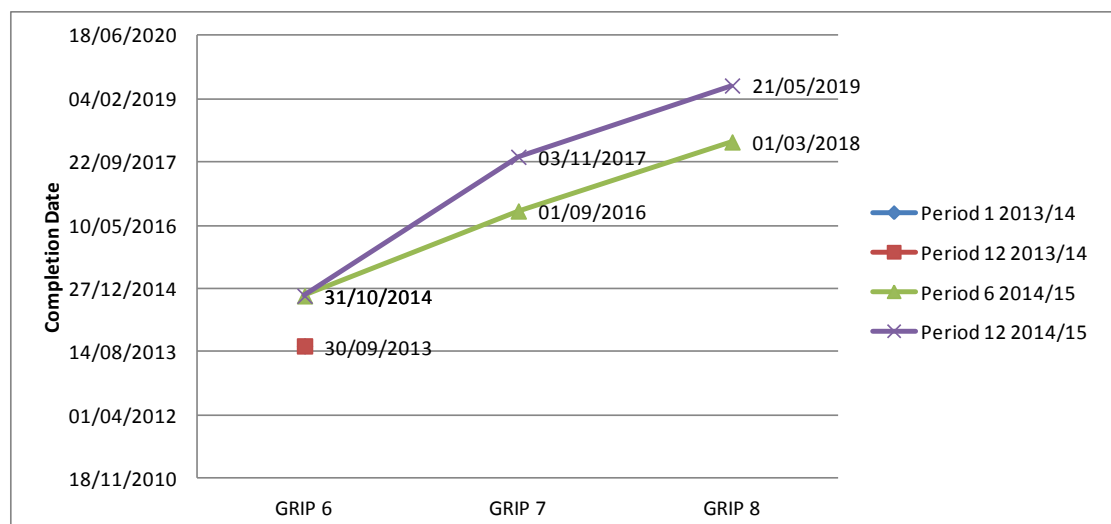
Barriers and Constraints

4.13 In addition to analysing available information on programme, discussions were held with the project delivery team on the issues they felt affected the project programme. Key issues identified included:

- Knock on effects of delays to the wider CASR project;
- Delays caused by adoption of new signal technologies; and
- Ongoing issues with the barriers at Caerphilly station.

4.14 The CASR project to which these projects were designed to achieve synergies and economies of scale was delayed. Stakeholders indicated that this was due to insufficient time contingency within the programme. Due to the interconnections with these projects this has caused delays to the completion of the final elements of the Caerphilly turn-back.

4.15 As part of the Caerphilly and CASR projects new rail signalling technologies were installed. These new technologies initially did not work as expected, causing delays to both CASR and Caerphilly turn-back until a resolution could be found.

4.16 The Taff Rhondda turn-back experienced issues with the positioning of barriers. The view of interviewees was that the design scope for this task was poorly defined, leading to a difference of opinion between client and contractor.

4.17 Despite the above mentioned delays the construction works for both turn-back facilities were delivered ahead of the December 2014 rail timetable change, meaning that they did not impact upon rail service provision in any way.

Lessons for future projects

4.18 The decision to undertake this project alongside the larger CASR project was a strategic decision to achieve overall economies of scale. It was indicated by stakeholders that without CASR this project was unlikely to

have proceeded due to the additional costs of undertaking the work in isolation. However, because of the interdependence with CASR, delays to the CTRT project were experienced. For future projects it is important that the interdependencies between projects are well defined at the pre-construction phase, with mitigation put in place to avoid delays being cascaded from one project to the next. Additionally, putting sufficient time contingencies within the project could have assisted with reducing delays.

4.19 In the view of some interviewees the initial programmes presented for this project were considered overly optimistic. Further involvement from the delivery teams from both the Welsh Government and Network Rail with the teams responsible for the development of the Business Plan would have assisted in ensuring a more realistic programme was defined. For example, through this approach it may have been possible to identify the programme risks associated with the use of new signal technologies.

4.20 Additionally further site investigations at an early stage in the project development could have assisted in identifying potential issues earlier.

4.21 Whilst the interdependencies between CASR and the turn-back project led to delays, further such arrangements, for example with the National Station Improvement Plan works, have been recommended by stakeholders as a potential way of reducing overall project timescales. Providing suitable risks and contingencies are defined this approach is supported by the evaluators.

5   Stakeholder Engagement

5.1   The process evaluation has considered the stakeholder management
and engagement undertaken during the course of the project. This
section of the report presents the different techniques and mechanisms
used to engage with stakeholders to answer the following evaluation
questions:

- Who were the key stakeholders and why? What were their roles and
responsibilities?

- What were the different approaches to stakeholder engagement?

- Which were the most effective at engaging with their target audience
and why?

- What lessons were learnt regarding stakeholder management and
engagement?

Key Stakeholders

5.2   Table 8 presents the key stakeholders involved in project, as well as
their role/interest and the engagement methods utilised. No stakeholder
management plans were available to the evaluation team through which
to assess the planned approaches to stakeholder management. The
below information was therefore based upon the discussions held with
the project team and key stakeholders.

Table 8: Key project stakeholders

Stakeholder	Role/Interest	Engagement Method
Public	Line side residents and passengers interested in construction disruption caused and benefits/impacts of the proposals.	Statutory consultation undertaken by Network Rail.
Network Rail	Key delivery partner responsible for delivery of the rail and station improvements.	Regular Programme Management Board between Welsh Government and Network Rail.
Arriva Trains Wales	Train operator, interested in service disruption during construction and service benefits of the proposals.	Regular steering group meetings with Network Rail to discuss proposed facilities and service impacts.
Local Councils	Projects located within Rhondda Cynon and Taff and Caerphilly Council areas and affecting travel opportunities for residents of these areas.	Level of local authority involvement is currently unknown.
Welsh Government	Key delivery agent responsible for part of project funding and channelling in EU funds. Also responsible for procuring service improvements. Working alongside NR to deliver the infrastructure improvements.	Regular Programme Management Board between Welsh Government and Network Rail and.
WEFO	Responsible for distribution of EU funding for the scheme. Interested in outputs of the scheme and the reporting of these to European Commission.	Quarterly Welsh Government and WEFO meetings.

Source: Evaluation study derived information

Barriers and Constraints

5.3 The following stakeholder engagement issues were identified during interviews, which are elaborated upon in subsequent paragraphs:

- Public concerns regarding temporary fencing at Caerphilly station;

- Publicity of scheme completion ahead of resolving final snagging issues;

- Difficulties engaging with Network Rail due to its complex organisational structure;

- Lack of Network Rail understanding of WEFO engagement requirements related to equality impacts; and

- Conflict of opinion with Arriva Trains Wales regarding waiting shelter designs.

5.4   Temporary fencing was installed at Caerphilly station whilst construction work was ongoing. This was not considered a satisfactory solution by residents and station users, who complained about this element of the scheme. However, due to a boundary dispute, it took a significant amount of time for a permanent solution to be installed.

5.5   Welsh Government officers involved with the project felt that Network Rail publicised the completion of the turn-backs before final snagging issues, such as the barriers at Caerphilly Station, were fully resolved. This was felt to have created a less positive public image of the project as the supposedly complete scheme still appeared (to the public) to be under construction. Additionally, Welsh Government officers found Network Rail difficult to engage with due to the complexity of the organisation, with a variety of different people within Network Rail needing to be engaged regarding different issues.

5.6   Equality is at the heart of Welsh Government and European Policy and this placed requirements on contractors to ensure that correct processes were in place for engaging with equality impact groups. Welsh Government officers felt that the level of understanding within Network Rail regarding these requirements was not at the level that it should be. However, the evaluators did not identify any specific equality issues which affected this project negatively.

5.7   The evaluators noted some conflicts of opinion regarding the design of waiting shelters at Caerphilly between Network Rail and Arriva Trains Wales. This led to abortive design work and associated costs. Further

checks and measures should be adopted to ensure these requirements are followed.

5.8 The evaluators also noted concerns among stakeholders of the approach to stakeholder and public engagement adopted by Network Rail. A 'corporate approach' was observed with little recognition of the specific project location, population and characteristics in engagement programmes. Network Rail operated a two-tier approach to stakeholder management:

- **Tier One**: including Welsh Government, Network Rail, Arriva Trains Wales and the Department for Transport. The formal Project Management Board was established to provide an effective programme of engagement; and
- **Tier Two**: including local authorities, interest groups, businesses and the general public. No formal arrangements were reported.

5.9 Some stakeholders felt that there was too much focus on the Tier One stakeholders at the expense of the Tier Two group, for which no formal engagement arrangements were in place. This group includes the ultimate client for all rail improvements; the general public.

Lessons for future projects

5.10 The stakeholder engagement arrangements could have been improved through the development of project specific stakeholder management plans. These would have allowed project specific issues likely to be of consequence to stakeholders to be communicated and managed in an effective way. Such plans would also define the proposed means and timing of engagement for each stakeholder group, including the public.

5.11 Earlier engagement with stakeholders may have been beneficial, for example in the case of agreeing waiting shelter designs. This could have negated the abortive shelter design costs that occurred.

5.12 Further engagement between Network Rail and Welsh Government would have been beneficial to ensure that the equality impact requirements stipulated by Welsh Government and WEFO are fully understood and complied with the their implementation by Network Rail. The Programme Management Board established in January 2014 is considered by the evaluators to have provided the forum for such issues to be discussed.

5.13 To ensure that equalities issues are given sufficient consideration as part of project delivery it is recommended that Equality Impact Assessments are undertaken at the start of projects to ensure that any identified issues can be 'designed out', reducing risks associated with issues identified at the later stages of project delivery.

6 Risk Management

6.1 Risk management undertaken during the course of the project was a central element of the evaluation. This section of the report presents the assessment of risk ownership and management to answer the following evaluation questions:

- What were the main risks identified in the Business Plan, and did they materialise?
- What was the cost associated with key risks and how accurate were the cost estimates?
- What were the main risk mitigation methods and how well did they work?
- Which areas of project delivery generated the most risks and why?
- What approach was taken to risk management and how effective was it?

Planned Approach to Risk Management

6.2 The 2011 Business Plan indicated that risks on this project would be managed by the Welsh Government's Rail Capital Project Delivery Manager. This would be in conjunction with Network Rail via the maintenance of a risk log, thereby seeking to avoid and mitigate risks via regular meetings. The only risk identified in 2011 related to the unplanned unavailability of sections of the rail network due to the implementation of the project.

6.3 The 2008 GRIP Stage 3 Option Selection Report has been reviewed to identify the anticipated key risks for the Taff Rhondda turn-back (no equivalent report was available for the Caerphilly turn-back). This report indicated that the following four risks were considered most significant based upon their expected costs and probability of occurring (Table 9).

Table 9: Risk Assessment for Taff Rhondda Turn Back

Risk Number*	Description	Mitigation	% Probability	Cost (£)
4	Additional works may be required to brickwork, coping stones etc.	Develop through the design stage and seek funding from other assets where remedial works should be covered by asset stewards.	100%	£840,000
8	Standard project risks including ground conditions, contamination, access, weather possessions, plant resources, engineering train orders, buried cables, records availability and materials availability.	Order trains and materials early.	100%	£140,000
1	Railways and Other Guided Transport Systems (Safety Regulations 2006 (ROGS) Approval of the scheme.	Get ROGS representative involved, hold signal sighting committee and hold layout risk modelling session all as soon as possible to ensure scope can be frozen.	2.5%	£300,000
9	Increased use of a crossover may affect its condition.	Discuss the above issue with key individual (*name given, but not included here*).	7.5%	£62,500

Source: GRIP 3 Risk Register, 2011

*Reference number relates to the risk register sequential numbering.

Materialisation of Risks

6.4   The evaluators were unable to obtain the project risk register(s) utilised by Network Rail during the project. The only risks evaluated were therefore those identified specifically by project stakeholders during the process evaluation interviews. The evidence available also did not enable an evaluation of the effectiveness of the approach undertaken to risk management.

6.5   Of the above risks identified at the project design stage only risk 8 (standard project risks) became an issue according to stakeholders. This risk, which encompassed a range of different project risks, transpired in terms of the issues procuring rolling stock, despite the risk having been identified and mitigation proposed in terms of ordering trains early.

6.6   Other issues which materialised, but were not anticipated as risks at the GRIP 3 planning stage included:
- The knock-on effects of CASR on project timescales;
- Technical issues associated with new signal technologies;
- The need for redesign of the platforms to accommodate electric trains;
- The need for redesign of waiting shelters; and
- Public opposition to temporary fencing at Caerphilly associated with a boundary dispute.

6.7   The details of the above issues have already been discussed in the finance, programme and stakeholder sections of this report, so are not reiterated here.

6.8   A delineation of risks was noted during stakeholder consultations. Welsh Government representatives highlighted the commercial risks that resided with them on the Taff Rhondda turn-back.

6.9   Welsh Government consultees were also critical of Network Rails' approach to risk mitigation. A perception was noted that Network Rail

was focused on managing potential reputational risks on the project. Although Welsh Government interviewees supported the level of detail provided within GRIP 3 reports, and welcomed the presence of project risk registers, some questioned the extent to which active mitigation and management of risks was undertaken. This was considered to be a legacy of Network Rails' Control Period 4 (2009-14) procurement arrangements. The internal procedures of Network Rail are not within scope of this evaluation, but it is noted that significant initiatives have been implemented in CP4, such as Efficient Infrastructure Delivery, to enhance supply chain and delivery management. Network Rail confirmed during the evaluation that Quantified Risk Management was undertaken on the project each period.

6.10 Another weakness identified by stakeholders was the scope of risk-related work undertaken through GRIP 3 Option Selection[9]:

- Aim: Develop options for addressing constraints. Assesses and selects the most appropriate option that delivers the stakeholders' requirements together with confirmation that the outputs can be economically delivered; and

- Main Output: Single option determined and stakeholder approval to option secured through Approval in Principle.

6.11 And GRIP 4 Single Option Development:

- Aim: Initiation of the development of the chosen single option; and

- Main Output: Reference/outline design.

6.12 The project development activities undertaken up to the end of GRIP 4 do not involve detailed site investigation or the involvement of contractors. Only when the project progressed to GRIP 5 Detailed Design were contractors involved. GRIP 3 risk registers were therefore based on incomplete information in the view of some stakeholders.

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[9] Source: Network Rail Guide to Rail Investment Process (GRIP)

Lessons for future projects

6.13 Due to the lack of risk management information available to evaluators it was not possible to conclude on their effectiveness. However, a key lesson of note is the importance of risk registers being available and monitored by all parties from the project inception stage. It is recommended by the evaluators that risk be added to the Tactical Review Meeting (see Section 7) to ensure that risks are visible and the planned mitigation is agreed.

6.14 In relation to the issues that materialised during implementation, the following mitigations could have been put in place.

Knock-on effects of CASR

6.15 To achieve economies of scale the projects were interlinked with CASR. However, this interdependence presented a project risk as delays to CASR resulted in delays to the CTRT project. It would therefore have been appropriate to produce a shared risk register to consider the impact of CASR risks on this project and visa-versa.

Technical issues associated with new signal technologies

6.16 As with any new technologies, unforeseen circumstances can occur. Sufficient time contingency should have been added to the project programme to mitigate these impacts.

The need for redesign of the platforms to accommodate electric trains

6.17 No project is undertaken in isolation, and the changing policy and technological landscape should have been given greater consideration at the point of design to ensure the resilience of proposals in relation to future proofing against possible future requirements. This work should seek to balance out the costs of such future proofing measures against the probability of them being required in order to avoid redundant expenditure.

The need for redesign of waiting shelters

6.18 This issue resulted from a lack of early consultation between various stakeholders (in this case Network Rail and Arriva Trains Wales). Early stakeholder involvement is always beneficial in order to identify potential risks and avoid unnecessary rework or delays. Interviewees indicated that insufficient stakeholder involvement was undertaken at the early stages of this project.

Public opposition to temporary fencing at Caerphilly associated with a boundary dispute.

6.19 As discussed in the stakeholder section, a project specific stakeholder management plan would have identified this particular issue and assisted in negating public opposition to the works. Additionally, earlier consideration of land ownership issues could have negated the boundary dispute issues that occurred.

7 Project Management

7.1 The process evaluation has considered the project management processes and procedures utilised during the course of the project, and the structures and systems which facilitated decisions being made and enacted. Multiple decisions of differing levels of frequency and consequence are made throughout the lifespan of a project, a key element of the process evaluation was to determine whether the project management and decision making process were effective and assisted in delivering a successful project outcome. As part of this the following key questions were addressed:

- How effective were the various project management procedures?
- How effective was communication between the delivery partners? Which approaches worked well and what lessons were learnt?
- How effective were the monitoring and evaluation activities?
- What equal opportunities monitoring has been undertaken during the project delivery?

Project Team

7.2 At the stage of bidding for funding the development of the Business Plan was managed by the Transport Funding Unit within Welsh Government, whose remit included bidding for EU funds for all types of transport schemes. This team operated independently of the Welsh Government rail team and dealt with a variety of different types of projects, without specific rail expertise.

7.3 For the delivery of the scheme, the intention was that oversight of the project would be provided by the Rail Capital Project Delivery Manager through liaison with the Network Rail Senior Sponsor, as shown in Figure 6. However, during the project there were a succession of organisational changes in the management structure within Welsh Government and management responsibility for this project was changed as a result.

7.4   The projects were managed by the Rail Technical Advisor, who joined
       Welsh Government in October 2013. These projects form part of their
       portfolio of responsibility along with a number of other rail projects
       currently being delivered by Welsh Government. A Programme
       Management Board was set up to manage the delivery of these
       schemes and all other rail capital projects (see below).

7.5   The interviews with key stakeholders indicated that as a result of the
       previously mentioned organisational changes there was a perceived lack
       of staff continuity within Welsh Government working on the CTRT
       project. This was considered by some interviews to have affected the
       quality of reporting to WEFO, a situation that was addressed through the
       appointment of the Welsh Government's Rail EU Grants Manager.
       Stakeholders also felt that the lack of continuity applied to the Network
       Rail team and that this had led to communication difficulties between
       Network Rail and Welsh Government.

Figure 6: Initial Organisation chart
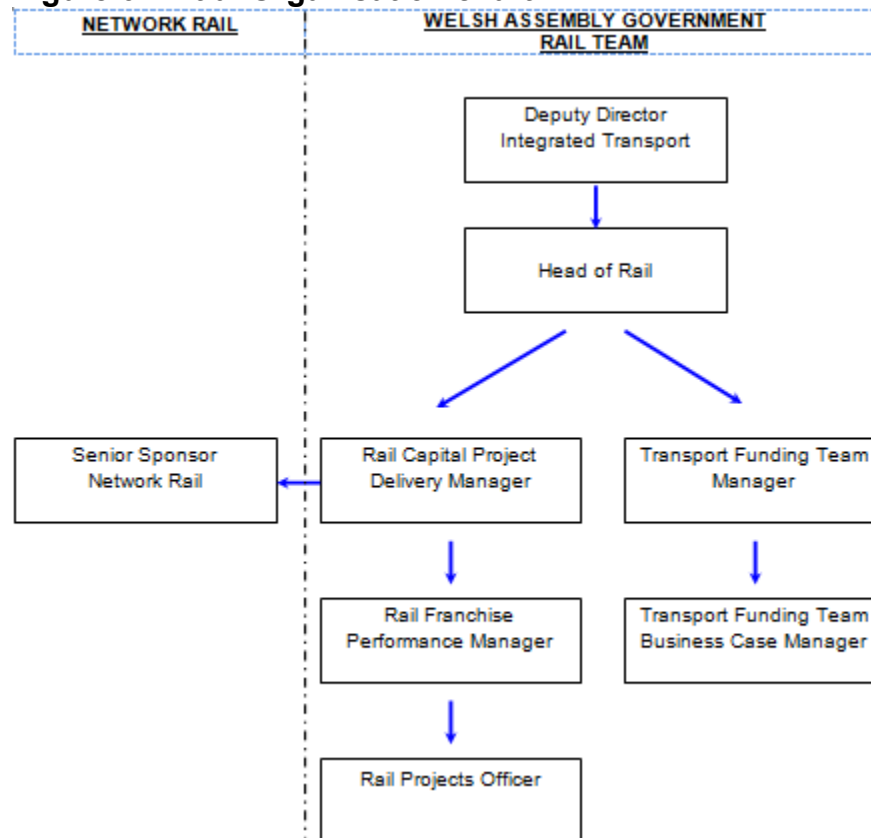
Programme Management Board

7.6   At the inception of the CTRT project no formal arrangements were in place to facilitate regular meetings between Welsh Government and Network Rail. A programme of 4-weekly finance meetings was in place, with a focus on resolving any project invoicing matters. Informal meetings were also convened on an ad hoc basis between the Welsh Government Deputy Director for Integrated Transport and Network Rail's Senior Manager. These discussions were instigated by both parties on an issue-by-issue basis, and no formal terms of reference were established.

7.7   This arrangement was considered by stakeholders to be sufficient in the initial delivery period of the turn-back project. However, with the inception of additional rail capital projects, and following the emergence of delays on selected projects, a more formal arrangement was considered necessary.

7.8   In January 2014 the Programme Management Board (PMB) was instigated by Welsh Government to establish a more formal working arrangement with Network Rail, including providing oversight of the turn-back project. The draft Terms of Reference for the PMB defined the overall objectives as being:

- To jointly develop and deliver projects and programmes for the benefit of the public in Wales;
- To ensure that best practice health, safety, welfare and environmental practices are deployed constantly;
- To ensure that demonstrable value for money is derived; and
- To ensure that good governance is deployed consistently across all projects and programmes.

7.9   To support this, the PMB was defined to have a role to[10]:

- Specify and Implement Programme Governance criteria;
- Approve Programme priorities and plans;

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[10] Source: draft Terms of Reference

- Ensure that the project/programme budgets are managed and controlled;

- Monitor the projects/programmes to ensure they remain on course to deliver expected benefits within agreed timescales;

- Manage strategic risks and define criteria for reporting project/programme status, including the process for escalation and resolution of risks and issues;

- Develop a process for the management of project/programme contingencies and then ensure its deployment;

- Oversee the strategy for community consultation, communications, publicity and wider stakeholder relationships;

- Approve all funding submissions and ensure that funding applications are prepared in accordance with recognised best practice such as the 5 Case Business Model;

- Apply independent scrutiny to the projects/programmes; and

- Engage and influence at a high level and in a manner that fosters mutual trust and co-operation.

7.10 A central rationale for the PMB from the Welsh Government's perspective was to provide a forum to work with Network Rail towards a mutual understanding of their objectives for projects such as the turn-backs. A core outcome reportedly derived was an enhanced understanding of Welsh Government requirements relating to project implementation, management and monitoring. As such, the PMB was considered by Welsh Government to have been a success.

7.11 The PMB membership consisted of three attendees each from Welsh Government and Network Rail, with an additional independent member from Arriva Trains Wales. The meetings were chaired by a Welsh Government representative. This membership model did not include the presence of any non-executive members, although this option was considered.

7.12 The PMB met on a monthly basis, and was supported by two other programme-level meetings. The first, as noted above, was a monthly finance meeting, which was convened one week prior to each PMB. The finance meeting reviewed project issues which were subsequently passed to the PMB for consideration and resolution. However, both Welsh Government and Network Rail perceived this arrangement as being too project specific, with the PMB constrained in its ability to consider more strategic matters. It is recommended that the remit of the PMB be considered in relation to whether this should include other rail improvement schemes and EU programmes to allow more strategic matters to be considered.

7.13 The revised 2015 model of delivery saw the introduction of a Programme Tactical Review (PTR) meeting, designed to replace the finance meeting. The PTR focused on individual project issues, resolving those of a minor nature and only passing issues to the PMB if they could not be resolved satisfactorily. The consequence of this was a redefined scope for the PMB, considering projects only by exception and moving from 'problem solving to strategic thinking' (Figure 7).

Figure 7: PMB Models
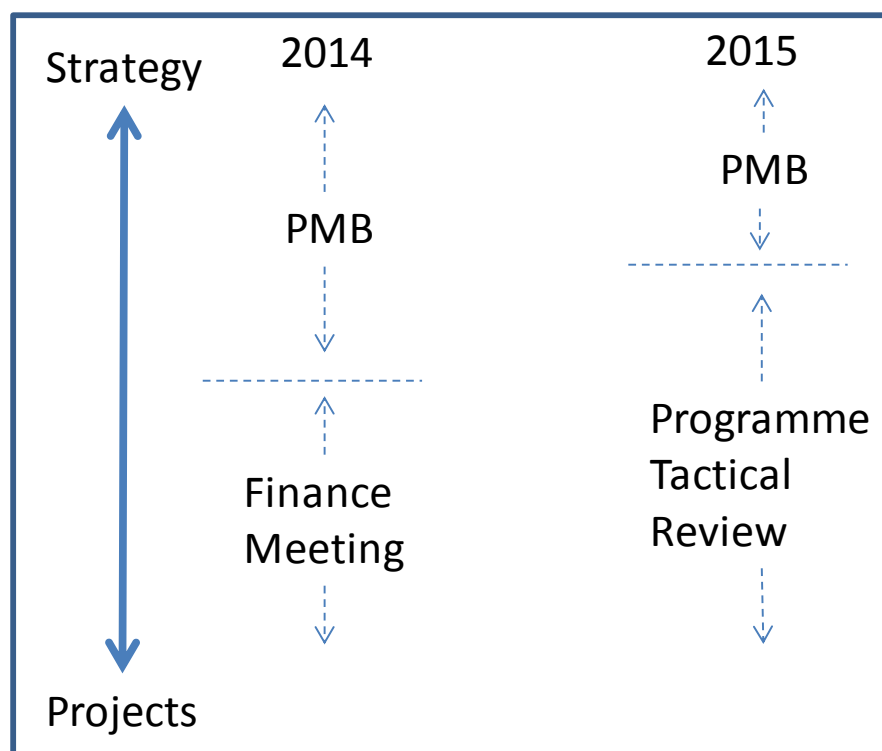
7.14 A direct benefit of the PMB, noted by Welsh Government representatives interviewed as part of the process evaluation, was the change in reporting approach by Network Rail. The schedule of more regular meetings ensured that all emerging issues were discussed prior to any impact on project programme or profiles. The PMB remains central to the ongoing management of rail projects, and was considered by stakeholders to have contributed to the timely completion of the CTRT project.

7.15 The introduction of the PMB and ongoing refinement to meeting and reporting arrangements reflected a step-change in governance arrangements for Welsh Government rail capital projects, including the CTRT project. Following the confirmation of funding allocations for the 2007-13 programme period, it was noted by consultees that the level of Welsh Government resources fluctuated. This was perceived to have raised concerns about the project team's ability to close out projects, including the CTRT.

7.16 The overarching governance lessons learnt through the CTRT project, alongside other 2007-13 WEFO supported rail projects, were noted by Welsh Government consultees and changes were made to enhance the 2014-20 funding period preparation and subsequent delivery. The introduction of the position of EU Rail Programme Manager in July 2014, within the Department for Economic, Science and Transport of Welsh Government, reflected the enhanced governance arrangements established.

WEFO Rail Programme Board

7.17 In response to the observed gaps in governance arrangements and project delivery associated with the CTRT project, a Welsh Government and WEFO Rail Programme Board was also established in January 2014. This was convened to 'identify and fill the gaps' in Welsh Government resources with quarterly meetings arranged. From

December 2014 the frequency of meetings was increased to monthly. Issues discussed have included:

- Project progress, slippage and mitigation;
- Issues arising on projects;
- Rail Programme or projects;
- Funding commitments and de-commitments;
- Innovation;
- Progress on WEFO indicators; and
- 2014-20 programme emerging projects and prioritisation.

7.18 Membership originally focused on issues of transport and finance, but from February 2015 the remit and attendees were broadened to cover all WEFO supported areas. Attendees in February 2015 included:

- Welsh Government Department for Economy, Science and Transport:
  o Finance and Performance (Chair);
  o Transport;
  o Public Transport;
  o Infrastructure Delivery;
  o Property;
  o Economic Policy;
  o Tourism;
  o Development.
- Welsh European Funding Office:
  o Programme Management;
  o Planning and Strategy;
  o Connectivity; and
  o Project Development.

7.19 Key outcomes from this Board have included an agreement to challenge project delivery profiles/schedules for the 2014-20 programme period.

Effectiveness of Monitoring and Evaluation Activities

7.20 The 2008 Taff Rhondda turn-back GRIP Stage 3 Business Plan included a Monitoring and Evaluation Plan outlining how the success of the project would be assessed. This indicated that monitoring activities on the project would focus on the five indicators agreed with WEFO, presented in Section 1 of this report. This information would be monitored on a quarterly basis. Lessons learnt from previous projects would also be considered via an existing Local Government and Communities - Transport Department of the Welsh Government framework for monitoring and evaluation.

7.21 Stage Gateway reviews were proposed as part of the GRIP process to evaluate ongoing project performance. Additionally, external evaluations were proposed, overseen by a steering group of Welsh Government and Network Rail representatives and undertaken at an interim period during the project as well as at the end of the project period. The results of the evaluation would be used by the Welsh Government to inform future delivery of transport projects, with findings disseminated to interested stakeholders.

7.22 The final evaluation consultation with stakeholders determined that no interim monitoring or evaluation had been undertaken on the CTRT project. In the view of the evaluators this has increased the difficulty of collating consistent and relevant evidence for the final evaluation, particularly given the turn-over of staff in the project team. It is recommended that for ERDF supported projects enhanced interim data collation is embedded into project management practices.

Equal Opportunities Monitoring

No evidence was available to the evaluators through which to assess the extent of equal opportunities monitoring undertaken as part of this project. However, both turn-back platforms were fully Disability Discrimination Act compliant to ensure that they were accessible by all

potential users. Customer information at both Caerphilly and Pontypridd stations were provided in both English and Welsh.

Lessons for future projects

7.23 During the project there was a lack of team continuity, with different teams developing the funding applications, managing the project at the inception phase and managing the project to completion. This lack of continuity was a result of changes to the team structure within Welsh Government.

7.24 Additionally there was a lack of continuity of team within Network Rail. This presented a communication challenge for the management of this project as there was a learning curve for the project delivery teams to get up to speed with delivery of the project and to understand the roles and responsibilities of the team. Whilst it would be optimum for a consistent team to have been available throughout the project from the Business Plan development stage to completion, this is not always practical. Further documentation of roles and responsibilities at the project inception stage as well as comprehensive handover of tasks may have been beneficial in overcoming some of the communication issues that occurred.

7.25 The Project Management Board provided a formal and regular forum for project and strategic discussions to be held between key stakeholders. This proved very effective in resolving project issues and the ongoing operation of the Board is supported by the evaluators as an effective management process which could be expanded to consider other rail improvement schemes and EU programmes.

7.26 Monitoring and evaluation activities on the project concentrated on the monitoring of key outputs as agreed with WEFO as well as the final evaluation of project performance. A larger list of monitoring objectives aligned to key project delivery goals would have been beneficial in ensuring the project was progressing to plan. Additionally, an interim

evaluation would have identified any systematic issues with project delivery, allowing improvements to be made during the duration of project delivery.

8   Cross Cutting Themes

8.1   The European Commission requires that all projects qualifying for EU funding must incorporate the following cross-cutting themes to help contribute towards a well-balanced, sustainable and innovative economy:

- Equal opportunities;
- Environmental Sustainability; and
- Value for money.

8.2   This section of the report brings together the evidence presented elsewhere in this evaluation to establish how the project has contributed towards each of these themes.

Equal Opportunities

8.3   Equality is at the heart of Welsh Government and European Policy and this placed requirements on contractors to ensure that correct processes were in place for engaging with equality impact groups. Welsh Government officers felt that the level of understanding within Network Rail regarding these requirements was not at the level that it should be. However, the evaluators did not identify any specific equality issues which affected this project negatively.

8.4   No evidence was available to the evaluators through which to assess the extent of equal opportunities monitoring undertaken as part of this project. However, both turn-back platforms were fully DDA compliant to ensure that they were accessible by all potential users. Customer information at both Caerphilly and Pontypridd stations were provided in both English and Welsh.

8.5   Further engagement between Network Rail and Welsh Government would have been beneficial to ensure that the equality impact requirements stipulated by Welsh Government and WEFO are fully

understood and complied with the the their implementation by Network Rail. The Programme Management Board established in January 2014 is considered by the evaluators to have provided the forum for such issues to be discussed.

8.6 To ensure that equalities issues are given sufficient consideration as part of project delivery it is recommended that Equality Impact Assessments are undertaken at the start of projects to ensure that any identified issues can be 'designed out', reducing risks associated with issues identified at the later stages of project delivery.

Environmental Sustainability

8.7 Objectives for the CTRT project outlined in Section 1 of this report included reducing levels of car use, reducing congestion and carbon emission levels, and reducing road haulage of goods and encouraging rail freight. These objectives are directly related to improving environmental sustainability. The scope of this final evaluation did not include an ex-post impact evaluation; therefore it is not possible to ascertain the extent to which these objectives have been achieved. The current lack of additional rail services operating to Caerphilly and Pontypridd stations is likely to have limited the environmental sustainability benefits achieved to date. However, the project has provided the additional network capacity required to facilitate these outcomes once additional service frequency is achieved.

Value for Money

8.8 As indicated above the scope of this final evaluation did not include an ex-post impact evaluation; it is therefore not possible to quantify whether the benefits achieved by the scheme represent economic value for money against the cost of implementing the scheme. As part of the process evaluation interviews undertaken stakeholders were asked for their views on the extent to which the CTRT project represents value for money. The consensus was that the project was able to achieve value

for money through achieving synergies with the CASR project. It was felt that this helped to significantly reduce the cost of the project compared to delivering CTRT in isolation. With the planned service improvements currently not in place the economic benefits achieved by the scheme are limited to reliability benefits for existing services which are able to utilise the turn-back facilities to improve operational efficiency.

9 Conclusions

9.1 The final evaluation of the CTRT project considered performance in relation to its stated aims and objectives, and determined which aspects of project delivery led to positive outcomes. The barriers and constraints that the project experienced and the lessons learnt in dealing with these were also assessed. The evaluation considered five key areas of project performance; Finance, Schedule/Programme, Stakeholder Engagement, Risk Management and Project Management.

9.2 The CTRT project was delivered within the forecast budget, although some variance was observed in forecast costs during implementation. The monthly finance meetings between Welsh Government and Network Rail were an effective approach to manage project costs. Key challenges experienced included revised track possessions due to CASR, issues relating to fence alignments and tactile paving, and the need to re-mobilise resources in an elongated implementation programme.

9.3 The project was procured and commenced construction later than forecast, and delays were experienced on specific elements of both turn-backs. A key driver for this project was the maximisation of the benefits associated with the £220m CASR programme. This provided the opportunity for the Caerphilly and Taff Rhondda turn backs to be implemented through offering economies of scale. However, the programme synergies with CASR introduced programme delays which impacted on the CTRT project.

9.4 A key issue which affected the benefits achieved by the project was the fact that the planned service improvements were not implemented at the time of evaluation. Despite this lack of service improvements the operators have been able to make use of the turn-back to hold trains, providing additional network resilience.

9.5 The level of stakeholder engagement varied across the project. Engagement and liaison between strategic deliver stakeholders, such as Welsh Government, Network Rail and Arriva Trains Wales, was good, enhanced by the introduction of the Programme Management Board in early 2014. The Welsh Government and WEFO Rail Programme Board was also considered effective by stakeholders, a view endorsed by the evaluators. The approach to public engagement was considered by some stakeholders to be less effective, with the timing of scheme completion publicity a central area of concern.

9.6 The identification of risks was extensive in the GRIP 3 reports. Cost and time impacts were estimated to provide a robust basis to establish project costs. However, the approach to risk management and mitigation adopted during implementation was considered by stakeholders to be varied in quality. Improved visibility and mitigation were identified as key areas for improvement.

9.7 The overarching management and oversight of the project was significantly enhanced by the introduction of the Programme Management Board in January 2014. This monthly meeting increased the level of scrutiny across project delivery.

9.8 The cross-cutting themes were evaluated and the CTRT project provided fully accessible facilities for all potential users, alongside bi-lingual information. No assessment of the impacts of such improvements on demand and issues such as social inclusion were feasible at the time of the evaluation.

10 Recommendations

10.1 This final evaluation has identified a number of lessons for future projects which could help in improving project delivery for future rail projects in Wales. These recommendations are listed below in relation to the key areas of project delivery analysed as part of this process evaluation.

Finance

10.2 To ensure the accuracy of GRIP 3 estimates and ensure that suitable levels of optimism bias are included in these estimates; a figure of 40% is best practice for UK transport ex-ante evaluations[11].

10.3 Conduct site survey work earlier for complex sites, even if not required by the GRIP process, to assist in mitigating risks or factoring in the cost of additional works.

10.4 Consider the efficiencies and economies of scale that can be achieved with other projects when planning and designing a scheme, including detailing the potential programme and cost risks of delayed implementation.

Schedule/Programme

10.5 It is important that the interdependencies between projects are well defined at the pre-construction phase, with mitigation put in place to avoid delays being cascaded from one project to the next. Additionally, putting sufficient time contingencies within the project could assist with reducing delays.

10.6 Enhanced involvement from all delivery teams responsible for the development of Business Plans would assist in ensuring a more realistic programme of delivery.

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[11] WebTAG Unit A1.2 – Scheme Costs and Unit A5.3 – Rail Appraisal

Stakeholder Engagement

10.7 The development of project specific stakeholder management plans. These would allow project specific issues likely to be of consequence to stakeholders to be communicated and managed in an effective way. Such plans would also define the proposed means and timing of engagement for each stakeholder group, including the public.

10.8 Early engagement between Network Rail and Welsh Government/local councils to ensure that the equality impact requirements are fully understood and complied with as part of their implementation.

10.9 To ensure that equalities issues are given sufficient consideration as part of project delivery it is recommended that Equality Impact Assessments are undertaken at the start of projects to ensure that any identified issues can be 'designed out', reducing risks associated with issues identified at the later stages of project delivery.

Risk Management

10.10 The review of risks should be added to the Tactical Review Meeting (see Section 7) to ensure that risks are visible and the planned mitigation is agreed.

10.11 For interlinked projects in the future it would be appropriate to produce a shared risk register to consider the interconnections between risks.

10.12 Sufficient time contingency should be added to future project programmes where new technologies are proposed to mitigate these impacts.

10.13 Early site investigations should therefore be undertaken for future projects where difficult ground conditions are predicted, with sufficient time and cost contingency in place to mitigate this risk.

Project Management

10.14 Enhanced documentation of roles and responsibilities at the project inception stage, as well as comprehensive handover of tasks, would be beneficial for future projects in overcoming some of the communication issues that occurred here.

10.15 Enhanced monitoring and evaluation activities should be undertaken for future projects. A baseline exercise should be undertaken to collate data, such as passenger demand (per line or station) and service frequencies. Where more than one year has elapsed between business case approval and project implementation a review should be undertaken of the business case demand forecasts to ensure that the baseline position reflects fully the base year. An interim evaluation should also be undertaken to identify any systematic issues with project delivery, allowing improvements to be made during the duration of project delivery. Interim data required for the final evaluation should also be collated, to ensure that all necessary data is available for the final evaluation.