



Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
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Project Assessment Review (PAR)

Version number:	1.0
Date of issue:	29 Sep 2014
Programme or project:	COLERAINE TO LONDONDERRY RELAY – PHASE 2
Organisation:	Department for Regional Development, Northern Ireland
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Business Case stage reached:	Outline Business Case (OBC)
Review dates:	15 – 19 September 2014
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Previous review:	Gate 2, May 2010 Gate 3, May 2012



Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

Table of Contents

Number	Section	Page
1	Executive Summary	3
2	Additional Comments from Review Sponsor	3
3	Scope of the Review	4
4	Summary of Recommendations	5
5	Summary of the Project	7
6	Financial Data (if applicable)	10
7	Detailed Review Team Findings	12
Annex A	Progress against previous review recommendations	23
Annex B	Conduct of the Review	25
Annex C	List of Interviewees	26

About this Report

This report is a snapshot review of the project, reflecting the conclusions of an independent Assurance Review Team. It is based on information from project documents reviewed and from interviews carried out within a short 5 day timeframe and is delivered to the Review Sponsor at the conclusion of the review.

This Project Assessment Review was arranged and managed by:

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Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

1. Executive Summary

Delivery Confidence Assessment (DCA)

The delivery confidence of the project at this point is **AMBER/RED**. Substantial risks remain, specifically the uncertainty surrounding the market response to the forthcoming tender and the adequacy of the budget. While these risks appear manageable, it is clear that both DRD executives and the project leadership in Translink will need to focus on this objective if this Programme for Government Commitment is to be achieved.

Areas of concern

Given that this project is a Programme for Government Commitment and is a priority for the DRD Minister, the current reliance on the Department, Translink and advisors to complete specialist tasks without regular scrutiny is a concern. Communication between all parties needs to be stronger with key issues being communicated to the appropriate level at the appropriate time. The project lacks a formal assurance framework,

The current approach to estimating risk and optimism bias for projects is a concern. There appeared to be lack of awareness of guidance used in other rail markets which would enable more robust cost estimating.

The current supplier market is limited and those companies expected to bid for this project are already heavily involved in Network Rail projects in Britain. This project is relatively small scale, it's not part of a pipeline of projects and is unlikely to be strategically important to suppliers. It may not appear to be as attractive to the prospective bidders as similar contracts with Network Rail.

Areas that are working well

There are clearly some exceptional individuals working in this project and the Review Team would like to be clear that the issues highlighted in our report and the DCA rating should not be seen as criticism of individuals.

There is a strong internal Translink project management framework in place which forms a sound base for taking the recommendations of this review to strengthen the project's delivery confidence

Following the decision not to proceed with the Invensys Rail bid, the subsequent change in direction on the procurement strategy has enabled the project to far more robustly cost the rebaselined phase 2 substantially de-risking the project.

2. Additional Comments from the Review Sponsor

This report and in particular the DCA make sobering reading. The review, while recognising key strengths within Translink in terms of project management highlights weaknesses in the overall governance and costing of this Programme of Government Commitment. The report provides a degree of reassurance that the revised costs are more robust but clearly delivering the project within timetable poses a major challenge now to the Department and Translink.

John McGrath

Deputy Secretary Governance, Policy & Resources



Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

3. Scope of the Review

- 3.1 The purpose of the Review was to establish the reason for the cost escalation, test the validity of the new figures and offer a view on the robustness of the costs and the effectiveness of the delivery arrangement going forward. The Review addressed in particular the issues below:
- i. To determine whether the governance arrangements and structures in place for the project have been adequate and are robust going forward;
 - ii. To determine the robustness or otherwise of the methodology used to estimate costs of Phase 2 at the different stages in this project to date, including during the first procurement, making recommendations for improvement if needed;
 - iii. To critically review the decision making process in respect of the Invensys bid taking account of the PFG commitment and value for money considerations, and indicate whether that decision was justified;
 - iv. To critically review the robustness level around the £35m latest estimate and the explanations provided to explain the increase and assess the risks of further escalation;
 - v. To review the procurement strategy in place currently and in particular the most appropriate way to engage with the market for a successful process. In addition confirm whether proper procedural requirements for tender evaluation and award of contracts are in place;
 - vi. To review whether the project plan to complete key milestones is specified and the project is still on target to deliver a 2016 timetable and to identify any key risks to this.

4. Summary of Recommendations

Ref	Recommendation	Report Sections (where more detail can be found)	Criticality: Urgent/High/ Medium/Low
01	Clarify the roles and responsibilities of the Project Board members, in particular the representatives from the Department for Regional Development to consider an active rather than passive role. (DRD/Translink)	Section 7, Page 12	High
02	Ensure that conditions attached to Letters of Offer are tight, so that the Department is able to exercise an appropriate level of control and influence in the project (DRD)	Section 7, page 12	Medium
03	Introduce tighter reporting mechanisms, including project specific visual dashboards, to ensure that the project status and decisions are communicated through all levels and functions in a timely manner (DRD/Translink).	Section 7, Page 13	High
04	Complete a lessons learned exercise on the original phase 2 procurement to ensure tender documents fully specify all contract requirements (Translink)	Section 7, page 16	Medium
05	Adopt the DfT approach to risk and optimism bias adjustments in order to minimise the risk of underestimating project costs (Translink)	Section 7, page 16	High
06	Undertake an independent review of the estimated signalling costs as an assurance to inform the final Pre-Tender Estimate (Translink)	Section 7, page 16	Urgent
07	Re-assess the cost estimate taking into account the most recent Department for Transport Guidance with respect to the treatment of Optimism Bias (Translink)	Section 7, page 17	Urgent
08	Prepare a contingency and communications plan to address the risk of a NIL tender return for the Signalling & Telecommunications Design and Build contract (Translink)	Section 7, page 19	High
09	Undertake a review of the contract strategy for the S&T Design and Build contract, to document and assess the risks and benefits associated with each of the available contract options, for formal approval by the Project Board, to include feedback from the soft market testing (Translink)	Section 7, page 20	Urgent
10	Undertake a soft market testing exercise to inform, for example: an assessment of potential market interest; steps to increase the attractiveness of the project to the market; the definition of the acceptable risk sharing profile	Section 7, page 21	Urgent

Project Title: **Coleraine to Derry Phase 2 Signalling**NI Gateway Hub ID: **GWY/000/659**Privacy Marking: **OFFICIAL**

	between Translink and supplier; and the form of contract, including any potential for incentivisation. Update the programme to incorporate the timescales for these activities. (Translink)		
11	Prepare and approve a fully detailed Pre-Tender Estimate, independently assured, prior to formal commencement of the formal procurement process (Project Board)	Section 7, page 21	Urgent
12	Request Translink to produce a monthly project progress dashboard (single page) providing key management information to the Minister (DRD)	Section 7, page 22	Medium

Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

5. Summary of the Project

5.1 Background and Context

The Coleraine and Derry Line is a predominantly single track line with a passing loop at Castlerock Station. There is one other intermediate stop at Bellarena, located north east of Limavady. The line is 33.5 miles long with track that dates to approximately 1978.

In 2010 KPMG prepared an economic appraisal for NIR for the Coleraine to Derry Track Renewals Project. The preferred option was Option 3a which was a full relay of the existing track with the addition of a new passing loop and a new signalling system to be operated from Coleraine. The capital cost of this option, including optimism bias was budgeted at £75m. The project was approved by NITHC/Translink's executive group, the NITHC Board and DRD and DFP for implementation between April 2012 and March 2013. However funding constraints meant that the project could not go ahead at that time. In fact, only £20m of possible funding had been allocated in 2014/15 and it was not known if this was to be a one off allocation or the first tranche of the full required funding.

As a result of the delay to the proposed full relay project, an alternative scheme was developed to deal specifically with safety related works on the line in order to keep it open. An economic appraisal, *Coleraine – Londonderry Track Safety Improvements Works* was approved by the Executive Group in April 2011, the NITHC Board in May 2011 and it received a letter of offer in June 2011. This project recommended safety works to the “middle section” of the line between Castlerock and Eglinton. The preferred option was Option 3 which would put in new rail to replace 56% of the old rail to provide the largest continuous length of welded rail which required the least ancillary works. Ballast was to be topped up where required. This section was chosen as it was the most accessible and would deliver the best value given the limited funds available.

During the Summer of 2011, Translink's Infrastructure Department stated that the infrastructure between Coleraine and Derry was no longer capable of carrying 8 trains each way per day. With Derry about to become the 2013 UK City of Culture, it was determined that work had to be carried out to maintain the rail service to the North West.

In October 2011 an addendum to the appraisal was approved to carry out the relay in 3 phases as follows:

- Phase 1 was the full relay of the permanent way from Coleraine to Castlerock and from Eglinton to Derry. This included all bridge work in these sections but excluded any signalling work. All track was re-laid as continuously welded rail. This was completed by the end of March 2013 with a budget of £26.7m;
- Phase 2 was the full resignalling of the Coleraine to Derry line section and the addition of the passing loop, envisaged to be at Eglinton, at the time projected to be completed by the end of June 2015 with a budget of £19.9m;
- Phase 3 will be the full relay of the track between Castlerock and Eglinton which is being re-railed under the *Coleraine – Londonderry Track Safety Improvements Works* project. Phase 3 is expected to replace sleepers and ballast as well as refurbish

Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

bridges within this line section; however much of the new material (e.g. the new rail) being used in the safety improvement works will be reusable. Phase 3 is expected to be carried out between April 2021 and December 2021 with a budget of £31.2m.

Approvals for Phases 1 and 2 were received by way of letters of offer in October 2011.

The refurbishment of the Bann Bridge was a further project to be carried out on this section of track. The Bann Bridge was constructed in the 1920's and has 11 spans, one of which is a lifting bascule type to allow the passage of shipping to Coleraine Port. Translink are under obligation to provide ships with access to and egress from the port as required. This was a standalone project and was not dependent on the relay project; however it also required a line blockade and, to minimise passenger disruption, it was to be carried out at the same time as the Phase 1 relay project. This had been a lesson learned from previous projects undertaken by Translink.

Phase 1 of the relay was on budget. It was opened for service one week earlier than budgeted.

Phase 2 has now commenced with £1.5m of ducting having been completed during the blockade for Phase 1. It is now predicted that Phase 2 will exceed its budget of £19.9m by more than 10%. The reasons for this are:

- A change to the preferred location of the passing loop from Eglinton to Bellarena to suit capacity increases;
- Additional requirements for Infrastructure and Operations on this line section;
- Inclusion of work originally budgeted within other projects (user worked crossings and the extension of the platforms at Castlerock Station);
- Additional cost of signalling following design progression. This has led to a £15m increase in the expected costs over budget.

5.2 Aims and objectives

The aims of the project are to ensure that the line sections from Coleraine to Derry are renewed and upgraded to current standards and are capable of delivering enhanced operational timetables in accordance with the New Trains Two (NTT) programme and future strategic requirements.

The project scope involves renewing the life expired railway track and upgrading the signalling to modern standards. The project will ensure the continued safe operational use of the line for the next 30 years.



Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

5.3 Key Milestones for Phase 2

What	When
PQQ Period (Issue and Return)	29 Sep to 17 Oct 2104
Tender Period (Issue and Return)	1 Dec 2014 to 26 Jan 2015
Contract Award	1 Apr 2015
Detailed Design (Governance for Railway Investment Projects (GRIP 5)	1 Apr 2015 to 02 Mar 2016
Installation, Testing and Commissioning (GRIP 6)	30 Sep 2015 to 21 Dec 2016
Scheme Hand-back (GRIP 7)	Dec 2016

Source: Phase 2 Project Plan



Project Title: **Coleraine to Derry Phase 2 Signalling**
 NI Gateway Hub ID: **GWY/000/659**
 Privacy Marking: **OFFICIAL**

6. Financial Data

Coleraine to Derry/Londonderry Phase 2 – Breakdown of costs – historical and current estimate.

Item	2011 Letter of Offer Cost	2013 Translink Estimated Costs (After the point of tender)	2013 Translink forecast cost if contract had been awarded to Invensys	2014 Revised Estimated Costs
Permanent Way	£1,365,695	£1,258,285	£1,258,285	£1,228,964
Civil Works	£1,738,538	£2,313,200	£2,313,200	£3,749,578
Property/Land Purchase	£87,549	£69,900	£69,900	£313,140
Preliminaries	£1,044,822	£873,932	£909,932	£6,159,138
Signalling	£8,984,688	£8,000,000	£9,967,397	£15,096,602
Electrification, Plant & Telecoms	£2,078,988	£2,000,000	£2,349,090	£1,970,498
Preparation (at 6% on LoO)	£918,017	£4,085,745	£5,535,213	£1,314,168
Supervision (at 2% on LoO)	£306,006	£341,356	£341,356	£312,000
Provision of Temporary Bus Service	£20,000	£20,000	£20,000	£50,000
Optimism Bias at 20.2%	£3,341,949	£3,830,408	£4,598,403	£5,020,186
Total	£19,886,252	£22,792,826	£27,362,776	£35,214,274

Sources:

1. DRD Letter of Offer dated 21 Oct 2011.
2. DRD Internal Memo to Minister dated 3 Sep 2013
3. Coleraine to Londonderry Relay Phase 2 Addendum draft – undated (assume Jun 2014)

Note: 2014 Revised Estimate Costs – A number of categories have been excluded from the Optimism Bias calculations (permanent way, civil works, property/land purchase, temporary bus services).



Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

Phase 2 Procurement Action

Planned	OJEU	Longlist	Shortlist	On Contract
S&T Design & Build	29 Sep 2014	28 Oct 2014	01 Dec 2014	01 Apr 2015

Phase 2 Contractual commitments already in place with suppliers

	Contract Value	End Date	Spend to date (to end 14/15)	15/16	Post 2016
A	£920,223	Dec 2016	£692,644 (plus £59,617 of Compensation on Events)	£127,579	£100,000
B	Professional Services £166,270 Construction Contract (this contract is not yet let but the price is agreed at £2.68m)	Sep 2014 Dec 2016	£166,270 (plus £24,072 Compensation on Events) £2.01m	None None	None £670,196

A = Mott MacDonald

B = McLaughlin & Harvey

Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

7. Detailed Review Team Findings

Note: The following six sub-headings map directly to the Review Team's Terms of Reference as provided by DRD (see Section 3).

7.1 Governance and Structures

7.1.1 The Review Team (RT) is of the view that there is much about the governance surrounding the project that appears to be working well, but there is also a need to strengthen the governance. In particular the RT noted the absence of a formal assurance framework which, if present, would do much to alleviate the issues noted below.

7.1.2 The interviews suggested that the principal governance mechanism for the project, the Project Board, needed a clear articulation of the roles and responsibilities of the board members, both individually and collectively. In particular, interviewees had a range of perceptions of the role of Department for Regional Development representatives - that they were simply observers, or that they were there to comment, or perhaps to report back, or perhaps to assist with decision-making. This confusion is not useful and is likely to lead to ineffective governance, communication and decision making. As this is public money which has been given by the Department to Translink for a specific purpose, the RT believes the DRD representative should be given the authority to speak for the Department at these meetings including the right to intervene in the decision making process if it is right to do so. DRD could also exercise an appropriate level of control and influence by ensuring appropriate conditions are attached to letters of offer.

Recommendation: Clarify the roles and responsibilities of the Project Board members, in particular the representatives from the Department for Regional Development to consider an active rather than passive role. (DRD/Translink).

Recommendation: Ensure that conditions attached to Letters of Offer are tight, so that the Department is able to exercise an appropriate level of control and influence in the project (DRD).

7.1.3 It is right and proper that the Department should exercise appropriate scrutiny over projects like the Coleraine to Derry~Londonderry Renewal Project and hold them to account. This relates specifically to Translink, which as an arms-length body of the Department is resourced through public funds. Given the fact that the Minister was not given the chance to consider options following the decision not to proceed with the Invensys Rail bid for the single design and construct contract and the associated cost escalation surrounding the adoption of a split procurement route, it appears that the Department has applied too little scrutiny and shown too much trust in the organisations that work on its behalf.

7.1.4 In the case of the decision cited above, there was clearly a breakdown in communication somewhere along the line. The RT heard evidence that Translink personnel were unaware that the project is a Programme for Government (PfG) commitment until after it had made the decision not to proceed with the Invensys Rail bid and move to a different procurement strategy. To ensure clear visibility within the project and through the Department to the Minister, there need to be effective reporting mechanisms in place, so that key

management information from projects like the Coleraine to Derry~Londonderry Renewal Project is gathered and reported at all necessary points. It is the RT's opinion that DRD should ensure that all such projects/programmes are aware of their PfG status.

7.1.5 In the view of the Review Team, these mechanisms would benefit from the use of simple reporting dashboards, tailored for specific audiences, to ensure that key decisions affecting the project direction, status and finances are captured and communicated through the reporting lines.

7.1.6 While the RT would endorse the monthly Project Board meetings and the paperwork assembled for them, we understand that the papers are routinely tabled late and with insufficient time for attendees to absorb them. The RT saw a high level summary dashboard, DRD 'Overview of Major Projects', which captures basic project indicators across all major projects within DRD's area of responsibility. It is the RT's opinion that the existing dashboard does not sufficiently capture all of the salient project information - including the status of progress, decisions made and sought, risks, issues and dependencies. Such a project specific dashboard would facilitate communication up through the Department to the Minister, and would also be useful to cascade through the various levels and functions within the project.

Recommendation: Introduce tighter reporting mechanisms, including project specific visual dashboards, to ensure that the project status and decisions are communicated through all levels and functions in a timely manner (DRD/Translink).

7.2 Robustness of Methodology used for Estimating Costs

7.2.1 Overall. The costs of Phase 2 of the project have escalated from £20.0m for the original single design and construction procurement to £35.2m for the current split design and construction procurement. These costs are stated in a document 'Coleraine to Londonderry Phase 2 Addendum' (undated but understood to be produced in June 2014 and received by the Department in August 2014).

7.2.2 Single Design and Construction Contract Costing £20m. From the interviews, it was evident that most, if not all, Translink personnel accept that the basis for arriving at the £20m cost estimate was inadequate, in that insufficient work was done on the scope and design to be able to be confident in this figure. Also, a modest 20.2% optimism bias was applied. This is inconsistent with the optimism bias of 66% recommended by the Department for Transport guidance for Rail projects at Governance for Railway Investment Projects (GRIP) Stage 1, and was clearly insufficient to cover the uncertainties that remained at that stage. A 66% optimism bias at GRIP 1 would have led to a cost estimate of £27.5m.

7.2.3 The proposed single design and construct contract was regarded as risky by the supply side, and this was reflected in the response to the pre-qualification questionnaire and invitation to tender. Only two bidders passed the pre-qualification questionnaire stage, and one of these (Babcock Rail) dropped out of the tendering process, stating that it did not have the capability to undertake the initial design part of the contract (GRIP 1-4).

7.2.4 The remaining bidder – Invensys Rail - submitted a bid of £14.6m plus a range of daily rates to cover the unspecified and uncertain parts of the work. Subsequent cost analysis by Translink estimated the actual overall cost of Phase 2 to be £23m, after inclusion of cost items that had not been included in the original tender (see 7.3 below). Following the same modelling, the projected cost of the Invensys Rail bid for the revised scope would have risen to £27m. These figures were conveyed in a letter from the Department to the Minister in September 2013.

7.2.5 We note the argument stated by the Translink/Arup cost advisor Chandler KBS that the Invensys daily rates were far higher than would normally be regarded as reasonable, and we understand that Invensys Rail was not prepared to negotiate on the daily rates or to justify them.

7.2.6 *Split Design and Construction Contracts Costing £35m.* The RT understands that the cost figure of £35.2m for the split design and construction contracts is based on a scheme scope developed through GRIP stages 1-4 by Mott McDonald (noting that GRIP 4 was still ongoing at the time of the review). Interviewees stated that the scheme scope was rigorous, and had been subject to a lot of discussion with Translink and its advisors. They stated that they had a good level of confidence in the cost estimates deriving from it, but a number of them caveated their responses by saying that the actual cost would only be known once the market had responded to the procurement process.

7.2.7 The addendum of June 2014 records an optimism bias of 20.2% associated with the £35.2m. In our view, there is a case for adopting a higher level of optimism bias of 40% based on GRIP guidance. This would take the estimated cost to circa **£40m**.

7.2.8 The justification for the cost changes is contained in a document *Increase in Costs on Coleraine to Derry~Londonderry Project Phase 2* (undated but understood to be 15/08/2014).

Cost increases totalling £15.35m have been identified against a base cost estimate of £19.9m in the Letter of Offer of 2011. These cost increases are recorded against eight headings:

- Inflation (£2.6m);
- Transferred projects (£2.38m);
- Network capacity enhancement (£2.23m);
- Lineside safety upgrades (£0.74m);
- Modernisation of Coleraine signal box (£1.19m);
- Prolongation of fees (£0.4m);
- Optimism bias (£1.65m);
- Design development (£4.16m).

The document includes explanatory text underpinning each of these areas of cost increase.

7.2.9 *In Summary.* The view of the Review Team is that the cost estimate of £35.2m is based on a more well-founded approach and methodology than hitherto, through separating the scheme

scoping and design stage from the detailed design and construction stage. The scoping and design stage has included a significantly more detailed process for cost estimation. Both of these factors should have the effect of reducing the risk for the design and construction stage, both for the client and the supply side. However, there is a case for adopting a higher level of optimism bias, based on DfT guidance, which could take the estimated costs to circa £40m.

7.3 Review of Decision Making on the Invensys Rail Bid 2013

7.3.1 In June 2013 Translink took the decision not to proceed with the single bid it had received for the GRIP 1-8 design & build contract for phase 2 of the Coleraine to Londonderry project. The reason given to DRD was that the bid was not considered to be value for money.

7.3.2 The bid received from Invensys Rail was made against the original economic appraisal (2010) supplemented with a 2011 addendum. The Review Team was satisfied that the bid was considered fully compliant against the tender documentation issued.

7.3.3 The original tender was for the full design and build of phase 2 (GRIP 1-8). In reviewing the available documentation and from the interviews it became clear to the RT that the original economic appraisal was not as detailed as it could have been. In particular, the design for the signalling solution was unknown. Only 40% of the works items were costed in the Invensys Rail bid which resulted in an acknowledgement from Translink that the original specification was too high level, leaving considerable unknown costs to be realised if the Invensys Rail bid had been taken forward. At this point there was a missed opportunity to update the 2011 addendum which would have resulted in an increased project cost

7.3.4 While the Invensys Rail bid looked acceptable on paper, the RT was advised that the tender documents issued had only included pricing requirements for 40% of the works items, meaning that there would have been considerable additional costs to come as Invensys Rail priced the additional items. The day rates provided by Invensys Rail were identified as high, but with only one bidder Translink did not have another bid against which to compare, i.e. it was not a robust competition. The lack of willingness to move on rates by Invensys Rail suggests also that the bidder knew it was the only show in town.

7.3.5 With only 40% of the works items costed in the Invensys Rail bid, Translink had to model the additional costs from the remaining works items to arrive at an estimate of the true cost of the Invensys Rail bid. The modelling is shown in section 6 above and was reported to the DRD Minister by officials in September 2013. The modelling showed that Translink's own estimate of costs for the works as tendered was £22m and that the true cost of the Invensys bid for the scope of works now established would have been in the region of £27m (including all works items), considerably in excess of the original Letter of Offer.

7.3.6 An Optimism Bias of 20.2% has been consistently applied to costings throughout the life of this project. There was no evidence provided to the RT that this figure has been reviewed or challenged as the project has progressed. While the RT accepts that Translink will calculate the optimism bias figure to be applied there is DfT guidance (Jan 2014) on recommended risk and optimism bias adjustments which suggest that a figure of 66% at GRIP 1 would have been more appropriate. Had the DfT guidelines been adopted when the original

economic appraisal was being constructed, then this would have resulted in the original economic assessment arriving at a figure of £27.5m, very close to the Invensys Rail bid after Translink had modelled the true outturn figure. It is the RT's opinion that adopting the Network Rail approach to risk and optimism bias would further add to the de-risking of projects.

7.3.7 The RT concludes that based on the information it had to consider (the Chandler KBS concern over high day rates and taking into account the additional costs generated by the additional works items pricing) the Project Board made the right recommendation to not proceed with the Invensys bid. However, there are lessons to be learned from this failed procurement.

Recommendation: Complete a lessons learned exercise on the original phase 2 procurement to ensure tender documents fully specify all contract requirements (Translink).

Recommendation: Adopt the DfT approach to risk and optimism bias adjustments in order to minimise the risk of underestimating project costs (Translink).

7.4 Robustness of the Current £35m Phase 2 Cost Estimate

7.4.1 The latest cost estimate for Phase 2 is c£35.2m, as set out in a draft Outline Business Case Addendum, which is understood to have been shared with DRD in August 2014. This estimate includes the known costs for the two contracts that have been let, namely the S&T Design Contract for GRIP Stages 1-4, and the Civils and Permanent Way Design and Build Contract. The costs for the signalling works are understood to have been based on cost information from Mott MacDonald, whose design has completed GRIP Stage 3, and is currently in GRIP Stage 4 – Single Option Development. Given this context therefore, the base costs appear to have been developed in a robust manner, taking into account, the extent of design work now undertaken both with respect to the signalling and the passing loop at Bellarena.

7.4.2 A high level of confidence in the cost estimates was also consistently expressed by interviewees, citing what is now seen as the adequate definition of the scope, and the level of design development for both the Civils and Permanent Way Works, and the Signalling and Telecommunications Works. The project is also supported by a costed Quantitative Risk Assessment (QRA).

7.4.3 It is noted however that the original cost estimate for signalling, that informed the 2010 OBC and 2011 OBC Addendum, was from a single source – Scott Wilson. The revised estimate is also based on signalling costs from a single source – Mott MacDonald. This reliance on a single source, albeit an expert source, represents a potential vulnerability in the process of estimating costs.

Recommendation: Undertake an independent review of the estimated signalling costs as an assurance to inform the final Pre-Tender Estimate (Translink).

7.4.4 The Review Team also noted that Optimism Bias is included in this cost estimate at 20.2%, and is applied only to the Preliminaries, Signalling, Electrification, Preparation and Supervision. The draft Addendum states '*The other costs are known and need no optimism bias*'. As previously recognised in this Report, the approach that has been adopted for

Project Title: **Coleraine to Derry Phase 2 Signalling**
 NI Gateway Hub ID: **GWY/000/659**
 Privacy Marking: **OFFICIAL**

assessing Optimism Bias is not in accordance with either the current or previous Department for Transport Guidance on the appraisal of rail projects, including the treatment of Optimism Bias. The current DfT Guidance on the treatment of Optimism Bias for capital expenditure is summarised below:

Project Development Level (Equivalent to Network Rail's GRIP stages)*	Level 1	Level 2	Level 3	Level 4	Level 5
Quantitative Risk Assessment, contingency	No	No	No	QRA at mean estimate	QRA at mean estimate
Optimism Bias (% of present value capex)	66%	50%	40%	18%	6%

Project Development Level 1-3:

*Risk and optimism bias adjusted cost = (Base Cost excluding QRA) * (1+Optimism Bias)*

Project Development Level 4-5:

*Risk and optimism bias adjusted cost = (Base cost + QRA) * (1+Optimism Bias)*

7.4.5 It is the view of the Review Team, based on a preliminary assessment, that if this methodology was applied to this project, then the total cost estimate would be of the order of £38m to £40m.

Recommendation: Re-assess the cost estimate taking into account the most recent Department for Transport Guidance with respect to the treatment of Optimism Bias (Translink).

7.4.6 Explanation of Cost Escalation. The history of the reported cost escalation is summarised in the Table below, and indicated an escalation from £19.89m to £35.21m from the time of issue of the Letter of Offer in 2011, and the latest cost estimate in 2014. In these estimates, Optimism Bias has consistently been applied at 20.2%.

	2011 Letter of Offer Cost	2013 Translink Estimated Costs (After the point of tender)	2013 Translink forecast cost if contract has been awarded to Invensys	2014 Revised Estimated Costs
Total	£19,886,252	£22,792,826	£27,362,776	£35,214,274



7.4.7 Had an Optimism Bias of 66% been applied, in accordance with DfT Guidance for GRIP Stage 1, to reflect the significant uncertainties at the initial concept stage, then the 2011 cost estimate would have been £27.5m.

7.4.8 The justification for the cost escalation has been set out in the document entitled '*Increase in Costs on Coleraine to Derry~Londonderry Project Phase 2*', as described previously in this report. This is undated, but is understood to have been prepared in August 2014. This details cost increases totalling £15.35m, against the base cost estimate of c£20m, as set out in the Letter of Offer of October 2011, and these are included in Section 6 of this Report, so are not repeated here.

7.4.9 It is clear from the interviews, that there is a general acceptance that the costs in the Outline Business Case Addendum were underestimated. The two main factors that were seen as contributing to this:

- The additional costs associated with the relocation of the passing loop from Eglinton to Bellarena, with the associated land take and station/platform implications; and
- The cost impact of the disaggregation of the single contract, under which the work would have been undertaken by means of a single blockade, to two contracts, with work being undertaken overnight and with limited weekend possessions. This approach has a significant impact on the programme, and preliminaries, with consequential cost implications.

7.4.10 The Review Team was not provided with evidence to suggest that the specialist cost consultants had been asked to provide advice or input into the impact of the disaggregation of the single contract on cost.

7.4.11 The Review Team is of the view that if the above two factors had been fully taken into account at the time of the OBC 2011 Addendum, given that it had already been established that the passing loop would be at Bellarena, and Optimism Bias had been applied in accordance with DfT Guidance for a GRIP 1 concept, then it is unlikely there would have been a significant cost escalation.

7.4.12 Risks of Further Cost Escalation. The project is supported by a documented and costed QRA, that is regularly reviewed and updated, as part of the project management arrangements that are in place on this project. The design is also well developed, with the GRIP 4 design now underway.

7.4.13 The risk of cost escalation, due to typical project risks is therefore seen as relatively low by the Review Team. However, the single greatest risk, consistently cited by interviewees, is the commercial risk associated with a market comprising a very limited number of suppliers, reportedly four or five. There is therefore the potential for very limited market interest, with perhaps only one or two bids submitted, and the associated potential to have to pay a premium for the work. This is essentially the same situation as arose under the original procurement process.

7.4.14 This risk can be mitigated to some degree by engaging with the market – see below – and ensuring an adequate level of Optimism Bias, as noted above. However, a number of

interviewees highlighted the risk that no tender might be received. It is important that there is a contingency plan, and communications plan in place, to cover this possibility. Under these circumstances, it was identified that the contingency/fallback position is likely, in the short term, to comprise maintenance of the existing service, with the potential to carry out the work internally over a long period, as existing systems are understood to not be life expired.

Recommendation: Prepare a contingency and communications plan to address the risk of a NIL tender return for the Signalling & Telecommunications Design and Build contract (Translink).

7.5 Review of New Procurement Strategy

7.5.1 The current procurement strategy to deliver Phase 2 of the Coleraine to Londonderry Track Renewals Project represents a significant change from the original approach, which was based on a single Design and Build contract. In the original procurement process, two companies pre-qualified and were invited to tender – Invensys Rail and Babcock Rail. Babcock Rail subsequently withdrew during the tender period, reportedly indicating that they had not fully understood the scope of the Works. In this context, it is also worth noting that Amey Rail did not seek to pre-qualify, indicating that the work did not fit within their strategic market framework.

7.5.2 A revised procurement strategy has been developed and implemented in response to the failure of the original tender exercise. Although this has been referred to, at the Project Board Meetings of June and July 2013, it does not appear to have been presented to the Project Board for formal consideration and approval. It is noted, for example, that reference is made at the June Project Board Meeting to actioning the second procurement programme ‘*once approved by Translink*’. This is prior to ratification of the Project Board’s decision not to accept the tender from Invensys.

7.5.3 The revised procurement strategy, which has been progressed on a number of fronts, disaggregates the single contract, as envisaged under the original procurement, into a number of separate contracts, as follows:

- **Contract 1: Signalling and Telecommunications (S&T) Outline Design (GRIP 1-4):** Mott MacDonald was appointed in or about October/November 2013, to progress the signalling design to GRIP 4. This GRIP lifecycle stage is ‘*Single Option Development*’, the objective of which is ‘*to develop the design to ‘the point of engineering scope freeze and in sufficient detail to allow finalisation of the business case’*’.
- **Contract 2: Civils and Permanent Way Works:** This contract includes the design and construction of the civil and permanent way works associated with the construction of the passing loop at Ballarena. McLaughlin and Harvey was appointed as the Design and Build contractor, with the initial start-up meeting held in May 2014.
- **Contract 3: Signalling and Telecommunications (GRIP 5 – 8) Design and Build Contract:** This includes the detailed design, and the installation, testing and commissioning of the S&T works. This contract has not been tendered, but the programme provided to the Review Team indicate key activities as follows:
 - *PQQ Period (Issue and Return):* 29 September to 17 October 2014.

Project Title: **Coleraine to Derry Phase 2 Signalling**
 NI Gateway Hub ID: **GWY/000/659**
 Privacy Marking: **OFFICIAL**

- *Tender Period (Issue and Return):* 01 December to 26 January 2015.
- *Contract Award:* 01 April 2015.
- *Detailed Design (GRIP 5):* 01 April 2015 to 02 March 2016.
- *Installation, Testing and Commissioning (GRIP 6):* 30 September 2015 to 21 December 2016.

7.5.4 It is the view of the Review Team that the current procurement strategy is well structured and logical. Although it adds costs and complexities, it does add certainties, and significantly de-risks the project from a number of perspectives. The Project Team has also learned from the difficulties experienced with the original process, and sought to make the project more attractive and less risky for potential suppliers.

7.5.5 The form of contract for the Signalling & Telecommunications (GRIP 5 – 8) Design and Build Contract does not yet appear to have been formally documented and signed off at Project Board level. However, there appeared to be a general view that the contract would be a 'Fixed Price Lump Sum' contract. No documentation setting out a justification for this form of contract has been provided to the Review Team, and there are alternative forms of contract available, including: Re-measurement, Target Cost or Cost Reimbursable.

Recommendation: Undertake a review of the contract strategy for the S&T Design and Build contract, to document and assess the risks and benefits associated with each of the available contract options, for formal approval by the Project Board, to include feedback from the soft market testing (Translink). See below.

7.5.6 The Review Team also heard that it is intended to commence the procurement process with the publication of the OJEU Notice and the issue of the Pre-Qualification Questionnaire on 29 Sep 2014.

Market Engagement

7.5.7 Notwithstanding the above, effective market engagement for the S&T tender, to warm up potential suppliers, is considered to be a critical issue for a number of reasons, including:

- There are a limited number of potential suppliers;
- The project is of small scale, it does not form part of a pipeline of projects, and will not be strategically important to suppliers;
- The experience from the original tender, including: an unwillingness to participate; and a lack of understanding of the scope of works being tendered, which led to a withdrawal during the tender period.

7.5.8 The Review Team noted that the recommendation in the May 2010 Gate 2 Review: Delivery Strategy to '*undertake an industry day ... in order to gauge the response of potential suppliers...*' has not been implemented. This lack of engagement and associated understanding of the market was evident in the outcome of the original procurement process.

7.5.9 Market interest was consistently identified as the key risk by interviewees, but the Review Team heard various views as to whether there was market engagement currently

ongoing or not. Market engagement is not included within the Project Programme as an activity, nor was any documentation provided which set out a market engagement strategy.

7.5.10 Given the limited number of potential suppliers in the market, this could be a relatively simple soft market testing exercise that might include a number of elements, for example, a questionnaire, a supplier day and a site visit.

Recommendation: Undertake a soft market testing exercise to inform, for example: an assessment of potential market interest; steps to increase the attractiveness of the project to the market; the definition of the acceptable risk sharing profile between Translink and supplier; and the form of contract, including any potential for incentivisation. Update the programme to incorporate the timescales for these activities. (Translink)

Procedures for Tender Evaluation and Contract Award

7.5.11 Translink is a recognised CoPE (Centre of Procurement Expertise) and procedurally has appropriate systems in place for the management of the procurement process, from issue of tender documentation to receipt and evaluation of tenders and award of contract. There has been nothing in the documentation provided to the Review Team to indicate that there were any shortcomings in the systems adopted by Translink with respect to this project.

7.5.12 The tender submitted by Invensys was a compliant bid, which included a priced commercial submission totalling c£14.6m. The Review Team was advised that:

- The purpose of the commercial submission was to allow for: comparison of bidders' submissions; and the development of a cost model to project outturn costs;
- The commercial submission included for 40% of the work items, for the scope of the work as tendered, and omitted 60%.

7.5.13 It has been indicated to the Review Team that, based on this model, the cost of the works, as tendered, and as re-scoped, would have breached the Works Cost Limit, and that the potential procurement risks associated with this had been discussed, but not apparently at the Project Board. It was also confirmed that a final Pre-Tender Estimate, which would have informed the Works Cost Limit, had not been prepared for sign-off by the Project Board, prior to the issue of the Tender.

Recommendation: Prepare and approve a fully detailed Pre-Tender Estimate, independently assured, prior to formal commencement of the formal procurement process (Project Board).

7.6 Review of Project Plan

7.6.1 The Review Team saw and heard evidence that the project is currently on schedule to complete in December 2016. This is the timeline as agreed under the rebaselining of June 2013. However, after reviewing the project plan and scheduled key milestones, it is clear to the RT that there is virtually no opportunity in the project plan to recover time should there be a delay to the procurement and engagement of the contractor. In particular, the Pre



Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

Qualification Questionnaire issue date is 29 September, shortly after the completion of this review.

7.6.2 The project can be delivered on time, but it will require all parties (DRD, Translink, advisors) to work together closely to ensure the required key deliverables are produced. While the Review Team saw evidence of good project management documentation, we feel that the project would benefit from a monthly project 'dashboard', to be passed to DRD/the Minister and which will encompass, on a page, the health of the project (current RAG status, current issues, risks, mitigating actions, summary cost information, etc). Use of a dashboard in this manner would serve to make sure the Minister was aware of progress on a key Programme for Government commitment, to address any key issues personally, and importantly would make sure he was not presented with any surprises.

Recommendation: Request Translink to produce a monthly project progress dashboard (single page) providing key management information to the Minister (DRD).

Project Title: **Coleraine to Derry Phase 2 Signalling**
 NI Gateway Hub ID: **GWY/000/659**
 Privacy Marking: **OFFICIAL**

ANNEX A – Progress against Previous Review Recommendations

Gate 3, May 2012, Amber/Green

Key Recommendations	Summary of Progress
The project board should satisfy themselves that all Translink stakeholders are actively inputting to the risk registers and should consider if a Client risk manager should be appointed in addition to the consultant risk manager already in place.	At all subsequent Risk Workshops since OGC3, the range of Translink Stakeholders have been invited to, and have been in attendance at, the Risk Workshops. The output risks have then been distributed amongst the Translink Stakeholders. The Client Project Coordinator (Programme Manager) now reviews all major projects risks and escalates appropriate high level risks to the portfolio risk register. This is in addition to the work carried out by the Consultant Risk Manager.
The roles and responsibilities of the Translink top team are defined through at least to the end of phase 2 of the project	The roles and responsibilities of the Translink Top Team were defined through to the end of Phase 2. These are as set out in the Project Team Organisational Structure as set out in the Project Execution Plan. The role that had prompted the comment from the OGC 3 review panel was that of Project Co-ordinator (R.Savage). This was defined as the day-to-day support to the Project Sponsor and oversight of the Project Manager (Arup).

Gate 2, May 2010, Amber/Green

Key recommendations	Summary of progress
The Project Team should define how it will implement its procurement strategy and clarify the responsibilities, accountabilities and processes involved in an integrated delivery team option. This action should ensure consistent understanding and full buy-in by all the team to the proposed contract strategy	Arup developed the procurement strategy around an IDT in Summer & Autumn 2010 and described it at the Project Board meetings at that time. Due to the timeframe within which funding for the project was made available and the window of time between the issue of a LoO for renewals phase 1, the IDT plan was set aside and the project delivery strategy changed to Design & Build. Subsequently, ARUP produced a paper entitled 'Coleraine to Derry – Track Renewal Contract Options' of November 2011. The project execution plan was updated accordingly. The project board, the Translink Executive Board and the NITHCo board were all informed of the proposed strategy and the PEP are included on the CDERom which has been provided to the OGC3 Review panel.
The project team should undertake an industry day before the project tender process begins in order to gauge the	The Project Board and the Executive Board both recognised the benefits of an industry day however, NIR did not proceed with this initiative after OGC 2 because it



Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

response of potential suppliers to the proposed procurement strategy.	had become apparent to NIR, from the discussions leading up to the CSR and then the output of the CSR that the project was struggling in terms of attracting full funding from Government. As a result the Project Board decided not to hold an industry day for a scheme that might not proceed in the near future. When funding was approved in the Letter of Offer of Oct 2011, NIR issued a PQQ to which we received 5 strong responses.
The project team should produce, based on the work carried out to date, a schedule of learning from past Translink projects that could be discussed at the industry day and used later as part of the contract information pack.	This was developed by the project team but was not included within the tender documents. Items of learning from previous projects (both positive and negative in impact) are being discussed during the design and target cost stage between NIR, Arup and McCannBam JV.
The procurement group within Translink should review the existing contract with Arup to determine whether it remains fully compliant.	The NIR/Arup contract was reviewed by the NIR procurement group and the project team post OGC2. It was found to be compliant. All changes to Arup's scope of work were found to have been documented as per NIR's project management procedures and approved and signed off at project board, prior to being enacted.
Procurement representatives should be fully incorporated within the project team.	Paul McCollough, NIR's buying manager, joined the project board following OGC2 and he represents the procurement group there and advises the project team. Paul is also the buying manager who has guided the project team through all the various procurement activities on this project.
The project team should formally document and agree its contingency plans.	The contingency plans were agreed and documented. These resulted in: PQQ's being prepared in advance of any Letter of Offer and any determination on the CSR; a track asset study being produced; and the track safety improvement works project being initiated.
The draft project organisation chart for the future delivery of the project should be amended to show the role that the marketing team will play in the delivery of the 'stakeholder and communications strategy'	The organisation chart was amended after OGC2. The marketing team has been kept up-dated on the project's progress at project team level through briefings from R Savage to L Shannon and at Executive level through the Executive Board meetings. The marketing team has begun to get our message out to the public representatives about the up-coming works and associated service interruption. The communications strategy has been produced and is described in outline in the PP and in detail in the Communications plan.



Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

ANNEX B – Conduct of the Review

The review was conducted over 5 days at the Department for Regional Development in Clarence Court, Belfast and at Translink, Milewater Road, Belfast.

The Review Team is grateful to interviewees and other participants in the review for their engagement with the review process which greatly assisted the team's understanding of the project.

Programme/Project documents reviewed

The following documents were reviewed by members of the Review Team and informed the findings and recommendations in this report:

1. Terms of Reference as agreed by Departmental Minister
2. KPMG Economic Appraisal – June 2010 (Full Relay)
3. Coleraine to Londonderry Track Renewals Project – Addendum to 2010 Appraisal (Phased Approach) and DFP Approval
4. Letter of Offer
 - Coleraine to Londonderry Relay Addendum – Phase 2
5. Ministerial Statement – October 2011
6. Project Board Minutes from October 2012 until August 2014 (PB 36 to PB 57)
7. KBS Chandler Report – June 2013
8. KBS Chandler Report – July 2014
9. Comparison of Projected Outturns – March 2013 to August 2014
10. July & August 2014 Project Board Papers
11. Additional Translink Papers
 - - Project Execution Plan
 - Two Current Risk Registers - Signalling & Telecoms and Civil and P-Way
 - Master Programme for Renewals Phase 2



Project Title: **Coleraine to Derry Phase 2 Signalling**
NI Gateway Hub ID: **GWY/000/659**
Privacy Marking: **OFFICIAL**

ANNEX C – List of Interviewees

Interviewee	Role
John McGrath	Deputy Secretary, DRD
Stephen McKillop	G7, Public Transport Services Division, DRD
Brenda Burke	Economist, DRD
Philip O'Neill	Chief Operating Officer, Translink
Clive Bradberry	Infrastructure Executive and SRO, Translink
Ruairi Savage	Project Civil Engineer and Manager, Translink
Mal McGreevy	General manager, Rail Services, Translink
David McShane	Arup
Brendan Harkin	Project Control Manager, Translink
Geoff Brown	New Works Project Manager, Translink
Chris Caves Arup	External Project Manager, Arup
Rodney McClune	Special Advisor to Minister Danny Kennedy
Paul McCollough	Procurement Advisor, Translink
Ian Morris	Partner, Chandler KBS
Eamon Scullion	Senior Cost Manager, Chandler KBS
Ross Bowie	Partner, Chandler KBS
Peter Moore	Economist, Translink
Gwen McKee	Board Finance Representative
Jim Moore	Project Sponsor, Translink