Cambridgeshire County Council

Cambridgeshire Guided Busway Independent Review

August 2014

EC HARRIS
BUILT ASSET CONSULTANCY
AN ARCADIS COMPANY

Contacts

Bill Edwards FICE, FCIHT, MCICES, FCIArb.

Partner

EC Harris LLP
1 Whitehall Riverside
Leeds
LS1 4BN
United Kingdom

m 07917 520552
e bill.edwards@echarris.com

CAMBRIDGESHIRE GUIDED BUSWAY

Independent review

Version Control

Version	Status	Prepared by	Approved by	Issue Date
Version 01	Final	B Edwards	B Edwards	Aug 2014

Contents

Appendices

GLOSSARY OF TERMS

CCC	Cambridgeshire County Council
NEC	New Engineering Contract
ECC	Engineering Construction Contract
PSC	Professional Services Contract
HA	Highways Agency
DfT	Department for Transport
OGC	Office of Government Commerce
DBFO	Design Build Finance and Operate
FIDIC	Fédération Internationale Des Ingénieurs-Conseils
ICE	Institution of Civil Engineers
ECI	Early Contractor Involvement
D&B	Design and Build
WA	Welsh Assembly

1 Introduction & Brief

1.1 The Cambridgeshire Guided Busway is an example of a project designed to provide high class public transport and reduce reliance on the car. In that respect the Busway is a success. Unfortunately within the technical press and the local community it is known as a project that was delivered late and well over budget.

1.2 The parties to the construction contract, Cambridgeshire County Council and BAM Nuttall had significant disputes on the cost of the works and the time for completion which ultimately ended up in court. This report makes no observations on the rights or wrongs of the litigation, undoubtedly a significant amount of money has been spent by both parties.

1.3 Having reached a settlement with BAM Nuttall, Cambridgeshire County Council commissioned me, William James Edwards FICE, FCIHT, MCICES, FCIArb to undertake an independent review of the project with the objective of identifying any lessons that can be learned and used on future projects to hopefully prevent similar situations occurring.

1.4 My CV is attached at Appendix A, however I briefly outline my experience to demonstrate that I am experienced in major project procurement and contract administration and as such able to offer opinions on the Busway.

1.5 I have over 39 years involvement in the design, supervision and construction of major infrastructure projects. I have worked for contractor, local authority, central government and consulting engineer. Since 2005 I have been a Partner of EC Harris LLP specialising in major project procurement and contract administration. I am currently the contract administrator on the A6 to Manchester Airport Relief Road, a £290m early contractor involvement design and build highway scheme.

1.6 I am a chartered engineer, chartered arbitrator and construction adjudicator. As arbitrator / adjudicator I am very familiar with construction disputes, their cause and resolution.

1.7 I have been retained by Cambridgeshire County Council to produce this report and my brief is included in appendix B. I would however put on record that I had complete freedom to investigate whatever avenues I considered necessary to meet the overall objective of a lessons learned review.

1.8 The key areas for the review are summarised below:-

i) the process by which the chosen form of contract was selected;
ii) the appropriateness of the chosen form of contract in this instance;
iii) whether appropriate mechanisms were set up between the client, contractor and project manager to manage and oversee the contract;
iv) the risk transfer by the Council and whether this was reasonable;
v) identify what other public sector organisations have used this form of contract and if they have experienced similar outcomes;
vi) did the form of contract used create incentives for the contractor to increase spend and delay and if so, how could this have been addressed;
vii) what alternative form of contracts were available and what protection they would have afforded the Council;
viii) whether an alternative form of contract, available at the time would have been more appropriate;

ix) what the Council and other public sector organisations should consider when undertaking procurement of similar major projects;

x) are there any lessons to be learnt in procurement, that with the benefit of hindsight could have alerted us to the difficulties we eventually faced;

xi) whether there are any further modifications to the form of contract available or contracting procedures that would be more effective in managing risk.

2 The Approach to meeting the Brief

2.1 The approach I have taken in preparing this report was to read many of the key documents generated by the project. These included the tender and contract documents, Site progress meeting minutes, Steering Group minutes and copy of the pleadings used in the litigation to get an understanding of the main issues that affected the project.

2.2 I have found, however, that the best way to get to the heart of an issue is to speak to the people involved on a day to day basis. To that end I met and interviewed:-

- Bob Menzies Cambridgeshire County Council (Head of Delivery)
- Robin Clarke Atkins (Supervisor post completion)
- Andrew Munroe Atkins (Project Manager to April 2008)
- David Benfield Atkins (Project Manager April 2008 onwards)
- Philip Johnson Supervisor construction (now with East Sussex Council)
- Simon Whalley Project Manager (BAMNuttall)

2.3 To encourage a frank and open discussion I gave an assurance that the discussions were in confidence and any views would be not be attributable.

2.4 I would like to take this opportunity to thank all those who provided me with information on the project. I found the discussions to be very informative and totally honest and transparent.

2.5 I gleaned a significant amount of information in these interviews but by necessity I only comment in this report on matters related to the brief. I have also tried to avoid relying on subjective assessment.

3 The Works

3.1 The Cambridgeshire Guided Busway (CGB) comprised 26km of precast concrete busway. This was the first in the UK. The route is divided into two principle sections, north and south. The northern section runs from St Ives to Cambridge via Longstanton and the southern section runs from Cambridge to Trumpington. (figure 1)

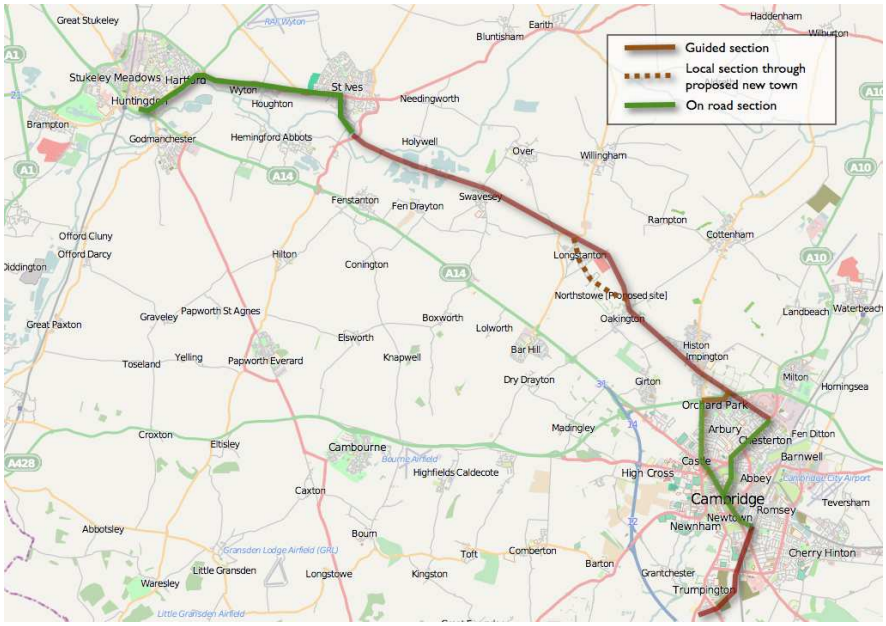

Figure 1 Scheme Layout

3.2 The majority of the work on the project was not innovative. The route selected was an abandoned railway line. The engineering and environmental works required were very similar to a traditional highway scheme. The only feature which was different was the construction of the guideway itself which used precast units laid using a mobile gantry as shown below.

Figure 2 – Gantry Laying PCC Units

3.3 Having reviewed the documents which set out the work required and interviewed the key individuals involved on the project, I have concluded that there were no engineering reasons which could have caused the problems experienced on the project.

4 The Contract and the allocation of risk.

4.1 Procurement Route

4.1.1 In undertaking this review it needs to be remembered that decisions on the procurement and form of contract were taken in 2004/05. The chosen procurement method was Design and Build (D&B) which was the recommended form of procurement by the Office of Government and Commerce (OGC) at the time. Most major infrastructure projects let by Central Government through the Highways Agency, Welsh Assembly or Transport Scotland were D&B, albeit the HA and WA were using Early Contractor Involvement (ECI) contracts.

4.1.2 As the name suggests, an ECI contract brings the contractor into the project team early, on HA schemes in advance of any Public Inquiry and the team then work together to deliver the project through the statutory procedures and then into construction. At the time the Busway was being procured there were emerging issues with the ECI model used by HA and WA in that the costs for the preliminary design and statutory process were significantly more than they had been prior to ECI.

4.1.3 Another issue with the ECI model in 2005 was that the target cost was negotiated after the award of the contract, prior to commencing construction. This meant that the cost of the project was not fixed at the time of entering in to contract with the Contractor which was prohibited by DfT as part of their major projects funding. Thus it is understandable that CCC decided to use a traditional D&B procurement route.

4.1.4 In 2014 the WA ECI model has addressed these issues by engaging the ECI contractor and his designer on a NEC Professional Services Contract and tendering the Initial target cost. This provides the cost certainty required by Local and Central Government. A more detailed explanation of the WA ECI model is provided in appendix C.

4.1.5 The ability to bring the Contractor on board early has been recognised as providing benefits in terms of buildabilty and de-risking the project. This is particularly the case where the Statutory Process is still to be completed.

RECOMMENDATION No 1

Where projects are being procured in parallel with the Statutory Process or where there is a high degree of risk then consideration should be given to procuring on the basis of an ECI contract.

4.2 The Contract

4.2.1 The contract chosen for the Busway was the New Engineering Contract 2nd Edition Engineering Construction Contract (ECC) Main Option C Target Cost with Activity Schedule. This contract was published in 1995 and was the recommended contract following Sir Michael Latham's report on the UK construction industry "Constructing the Team".

4.2.2 Whilst this edition was replaced by the 3rd Edition in June 2005, many employers were slow to make the move from the NEC 2nd Edition to the 3rd Edition. It was generally not until 2006/7 that Central Government departments fully embraced the 3rd Edition. Thus for CCC to be using the 2nd Edition in 2005 was not unsurprising.

4.2.3 The choice of the NEC against other construction contracts such as the ICE 7th Edition or international contracts such as FIDIC was reasonable and appropriate. As I stated earlier, it was recommended by Sir Michael Latham and Central and Local Government were encouraged to adopt this form of contract.

4.2.4 The ECC has five main Options, A, B, C, D & E. These relate to payment mechanisms as summarised below:-

Option A is lump sum;

Option B is remeasurable (Bill of Quantities);

Option C is a Target Cost (Activity Schedule);

Option D is a Target Cost (Bill of Quantities);

Option E is cost reimbursable.

4.2.4 Option C was chosen by CCC for the Busway and is appropriate as it encourages collaboration and incentivises the contractor to deliver the works below the target as he shares in any gain. On the other hand as was the case on the Busway, there is also a share in any overspend. The key to a target cost contract is the allocation of share between contractor and employer. On the Busway the share was:-

Share Range	Contractor's share	Employer's share
<80%	5%	95%
80% to 90%	25%	75%
90% to 100%	50%	50%
100% to 105%	50%	50%
105% to 110%	75%	25%
110% to 120%	90%	10%
>120%	100%	0%

4.2.5 The share range on the Busway is, in my experience, reasonable. It will encourage the Contractor to make savings but does not punish him for exceeding the target by a reasonable amount (+ or – 5%). Understandably the Council's liability was capped at +20%, which in the context of DfT funding being fixed is also reasonable.

4.2.6 It is true that once the + 10% is reached the Contractor is not recovering the majority of his costs, but this happens in any contract where the tender price does not meet the actual cost of performing the contract. The issue is whether the target has been adjusted correctly by the contract administrator. .

RECOMMENDATION No 2

The experience of the use of a Target Cost contract on the Busway should not influence future decisions on the form of contract to be used on infrastructure projects.

4.3 The allocation of risk

4.3.1 Every contract allocates risks and obligations to each party. The ECC is no different. The standard risk allocation, can, however be changed by making amendments to the standard clauses; this is done by the use of Z clauses. The Busway contract had over 60 Z clauses, which appears a high number, but on inspection most were what I would call at the time "standard HA amendments" plus some authority specific requirements such as

Freedom of Information Act and Best Value. The most notable changes which changed the risk profile were:-

- Responsibility for Statutory Authorities performance;
- Effects of Weather;
- Physical Conditions
- Land Rental Charges
- Discharge of Planning Conditions

4.3.2 Responsibility for Statutory Authorities performance.

This was a standard transfer of risk made by the HA at the time. It is considered that the Contractor through his liaison and management of the Statutory Authorities, is in the best position to manage this risk. The issue of the allocation of risk becomes more difficult when uncharted services are discovered. I question whether it is reasonable for the Contractor to allow in his price for these events. Thus I consider more clarity should be given to who owns what risk by setting up a simple matrix in the Works Information.

4.3.3 Effects of the Weather.

The ECC as published places the risk of weather events on the Employer if the event exceeds the 1:10 year event. This was one of the first forms of contract to treat weather events in this way. The ICE 7th Edition, however placed the cost of weather events with the Contractor but if the event was exceptional then an extension of time was awarded. This seemed to me to be a reasonable allocation of risk.

4.3.4 Thus many Employers, as CCC, did transfer this risk in full to the Contractor. Thus shifting the risk profile significantly in the opposite direction, particularly if, as is the case on the Busway, there are Delay Damages levied. As weather due to climate warming, becomes more of an issue then a fairer transfer of risk is more appropriate.

RECOMMENDATION No 3

Where the risk of weather events is transferred to the Contractor, the impact on the Completion Date should be retained by the Employer.

4.3.5 Physical Conditions.

The risk of encountering unforeseen physical conditions, mainly related to geotechnical conditions, is another standard risk transfer at the time and continues to be. This is particularly appropriate for a D&B contract where the interpretation of the conditions to prepare the design sits squarely with the Contractor and his designer.

4.3.6 Land rental charges.

The land rental charge is in principle understandable as it is directly connected to the land compensation paid by CCC as part of the statutory process. As CCC has no influence on the amount of time land is occupied by the Contractor then by levying a charge CCC recoups those costs and at the same time encourages the Contractor to minimise his presence on the land.

4.3.7 Discharging Planning Conditions

There were a number of planning conditions which, as part of the planning process, were required to be discharged either before the development started on site or prior to coming into use. This is not unusual, however the requirements to discharge the condition were transferred to the Contractor, this of itself was a logical step to take as the Contractor would have all the necessary information to make the submission. However the discharging of the condition is out of the hands of the Contractor and consequently he will find it difficult to assess this process in terms of cost and time.

4.3.8 This is adequately covered in the ECI model outlined in Appendix C, but in the traditional D&B contract used on the Busway transferred a risk to the Contractor which he could not manage or mitigate.

RECOMMENDATION No 4

Where the Contractor in a D&B contract is to take the risk on discharging planning conditions then the Works Information should be prescriptive in defining the deliverables and time, thus any change can be assessed and the Contractor compensated.

4.4 Novation of the Designer

4.4.1 The original intention of the contract was to novate the Busway designer, Arup, to the successful tenderer. The objective being to retain their knowledge of the project.

4.4.2 The consequence of this was that contractors would team up with designers in the tender period to review the design but that designer would have no guarantee of future work if successful. This was later changed to restrict Arup's involvement to 50% of the design.

4.4.3 Imposing a designer on a Contractor is never a good idea. The market should be left to sort itselves out. The retained knowledge however is an issue. At about this time Leeds City were procuring their Leeds Inner Ring Road scheme and wished to retain their in house designers, Mouchel. They decided to procure the Contractor though an ECI type contract without a designer and for the Contractor to work with the City's design team to take the project forward to construction.

4.4.4 No company is indispensable and in my opinion the retained knowledge is not as important as one sometimes thinks. It is good to have a fresh pair of eyes on the project and to challenge some of the assumptions.

RECOMMENDATION No 5

The transfer of the Employer's designer to the Contractor should only be considered after a detailed risk assessment has been undertaken and a strong business case for transfer can be made.

4.5 Design Responsibility

4.5.1 Responsibility for the design sits understandably with the Contractor and his designer. On the Busway I found two issues relating to the design which may have contributed to the situation CCC found themselves to be in. The first issue related to the completeness of the design at contract award.

4.5.2 The extent of how complete the design being inherited is at contract award is obviously very important to the Contractor as this drives his thinking on what construction works can be started and when. It is the case that the Contractor considered that the design was not as complete at contract award as he had expected and was unable to validate the completeness of the design during the tender period due to the requirement not to contact Arup. This is disputed by CCC and their advisor. Whoever is right is not the issue. What I conclude is that if the Contractor is to be responsible for the design there must be a firm commitment in the contract on what design deliverables the Contractor is to receive, i.e. full vertical and horizontal design to a stated standard. To leave it to the Contractor to assess the completeness is not satisfactory.

4.5.3 The other issue is the design review process and the use of design and construction certificates. The Busway included the need for Certificates to be provided by the Contractor to demonstrate compliance and progress. This requirement is a throwback to the Highways Agency DBFO contracts of the 1990s. It does not sit well with the NEC and the design acceptance process. I question the need for such a formal review process where one consultant reviews and critiques another consultant's design. It can lead to

preferential engineering by the reviewing consultant. I am told that the objective of the design review was to avoid this temptation but I was also told that it did occur. Either way having a second consultant reviewing / checking another's design, other than where required by standards e.g Cat 3 Checker for structures or geotechnical certification seems to me not to offer value for money and can remove some responsibility from where it truly lies – the Contractor's designer.

4.5.6 If a client decides to use a D&B contract then he should recognise that his influence on the design is limited. It does, however require, robust design requirements to be prepared but where any design issue relates to an opinion then the Contractor's design opinion should prevail.

RECOMMENDATION No 6

In D&B contracts the use of one consultant reviewing another consultant's design should be discouraged. Design decisions must be left to the Contractor and his own designer. A light touch by the Employer's contract administrator's should be the norm.

4.6 The pain / gain mechanism

4.6.1 Under an un-amended ECC the calculation of the Contractor's share is carried out at Completion. Thus where there is significant cost overrun there is the ridiculous situation where the Contractor is paid his Actual Cost in the knowledge that a proportion will be repaid as part of the pain share. This occurred on the Busway and to my knowledge also on some HA and WA schemes. This can be corrected by amending clause 53 in the contract to allow the Project Manager to make his assessment of the pain share before Completion and to deduct the appropriate amount from the monthly applications.

4.6.2 The use of a target cost contract is a move in the right direction as it encourages the project team to deliver the project below the target. However the current model only permits the Project Manager to allocate the share at Completion. This should be amended to allow the Project Manager to carry out his own assessment, say three months before the contractual Completion Date and not wait until Completion.

4.6.3 On the Busway the Contractor was overpaid by a significant amount. I am sure the Contractor would not accept that statement and I have no knowledge of the outcome of the dispute, However a lack of cash may have focussed minds to try and resolve differences sooner.

RECOMMENDATION No 7

Clause 53 of the ECC Option C should be amended to permit the Project Manager to undertake his assessment of the incentive share three months before the contractual Completion Date.

5 The Tender Process

5.1 The contract was advertised in the Official Journal of the EU in Autumn 2004 and seven responses were received. A tender list of six respondents was drawn up and invited to tender in May 2005. As it turned out two tenderers withdrew before tender invitation and one withdrew shortly after tenders were invited, leaving three tenderers.

5.2 A two stage tender process was used which was unusual. The first stage had a ten week tender period and criteria for selection in terms of quality and finance, with a 60/40 split between quality and price.

5.3 The quality submission required the tenderers to describe their approach by answering nine questions albeit question nine was in five parts as described below.

Qu.	Topic	Weighting %
1	Approach & Programme	5
2	Staffing and Structure	7
3	Quality and Continuous Improvement	4
4	Partnering	4
5	Cost Control & Risk	5
6	Design & Construction	5
7	Environmental Management	5
8	Commissioning, O&M & Handback	5
9a	Guideway	30
9b	Other Considerations	10
9c	Alternatives	2
9d	Assumptions	5
9e	Risk	13

5.4 The purpose of the quality submission is two fold, one to differentiate between tenderers and two to tie quality promises into the contract as a contractual obligation. Having effectively 13 questions means that the weighting applied to each question is less effective and may not provide the differentiation required.

5.5 As it turned out BAM Nuttall received the top quality mark of the three returned tenderers, but were the most expensive.

5.6 Prior to commencing the stage 2 tender process changes were made by CCC to the tender documents to reflect feedback from the first stage.

5.7 The same three tenderers were invited to tender in stage 2 and the process of quality / financial submissions was repeated.

5.8 The quality questions were weighted as shown in the table below

Qu.	Topic	Weighting %
1-8	General Proposals	40
9a	Guideway Design	40
9b	Other design	10
9e	Risk	10

5.9 At the end of stage 2 BAM Nuttall maintained their top quality score but this time was also the cheapest as well.

5.10 The tender process was well documented and a detailed tender evaluation report was produced.

6 The Dispute

6.1 This report is not intended to analyse the disputes that occurred. That has been covered elsewhere in litigation and an eventual commercial settlement. However I believe that to put the contractual issues into context it is necessary to consider the size, in terms of quantum and time, of the challenges with which the project team, CCC and BAM Nuttall, had to contend.

6.2 I list out below some key facts and make not further observations as I think these facts speak for themselves.

- Original Contract Duration 130 weeks
- Extension of time granted 2 weeks 3 days

- Contract Starting Date. 14th August 2006
- Contract Completion Date 27th February 2009
- Actual Completion Date 21st April 2011
- Delay Damages levied £10,884,608.78 (787 days)

- Tendered Target Cost £83,903.074
- Final Target Cost £84,197,683
- Price of Work Done to Date £147,703,011.00
-
- Early Warning Notices 1,296
- Compensation Events (PM issued) 194
- Compensation Events (Contractor Notified) 761

- Project Manager letters 3,272
- Contractor letters 3,498

7 The Administration of the Contract

7.1 Project Governance

7.1.1 The project had typical governance arrangements it had normal monthly progress meetings at site level with a Steering Group providing strategic guidance. From my discussions with the site team and from my reading of the notes of the Steering Group meetings there is evidence that the Steering Group acted more as a second tier project management role, seeking to understand the detail of the issues rather than, and this maybe with the benefit of hindsight, dealing with a commercial contract that was heading for significant contractual disputes.

7.1.2 Local and Central Government are rightly required to demonstrate that they spend public money wisely, but that can also include brokering a commercial settlement when it is obvious that the contract is heading for major disputes. I suspect if CCC were a commercial entity rather than a Local Authority the outcome may have been different.

7.1.3 Thus the Steering Group could have acted in a more strategic role, in around Spring 2008, to look for alternative routes to resolve the gulf of differences that was opening up between the parties.

7.2 The role of Contract Administrator

7.2.1 The NEC contract has two named administrators, the Project Manager and the Supervisor. Many contract set-ups have the Supervisor reporting to the Project Manager but the contract is written separating their roles for a very good reason. The Project Manager is responsible for time, money and in D&B contracts, design acceptance. The Supervisor is responsible for quality.

7.2.2 On the Busway the site set-up was as I would expect, comprising a light touch relying on the Contractor's own quality procedures and designer supervision. In discussions there were comments made about the "independence" of the Contractor's designer in inspecting the construction works.

The Supervisor

7.2.3 The quality of construction has always been an issue. However over the last ten years there has been, in my experience, a significant improvement in the quality control of construction activities, however I am a firm believer in third party oversight and thus the role of the Supervisor in an NEC contract is a key position and the number of Supervisors employed should be based on their ability to audit at least 20% of the Contractor's work.

The Project Manager

7.2.4 The Project Manager has an obligation under the contract to monitor progress through programme review and acceptance, commercial management through payment assessments and managing change, whether instigated by the Project Manager or notified by the Contractor. On a D&B contract the amount of change, which generates a Compensation Event should be small, as the design is the responsibility of the Contractor.

7.2.5 The NEC is a collaborative contract. This means that both the contract administrator and the Contractor work together for the benefit of the project. Additionally the use of main option C Target Cost incentivises the project team to save costs. On the Busway I did not get the impression that the project team worked at all well together and that the relationship became more acrimonious after Spring 2008.

7.2.6 As the issues between CCC and BAMNuttal increased in number, each party increased site resources to deal with them, thus increasing costs to all. This became a vicious circle with the consequence of formal dispute resolution.

7.2.7 It is a fact that Contractor's staff are experienced in the construction of major projects; that's what they do day in day out. On the other hand the Employer may have only one major project every ten years if that. Thus it is important for suitably skilled and experienced staff to be employed as contract administrators. I make no observation on the skills of the staff employed by CCC, but suggest that for major projects staff with the appropriate skills and experienced are engaged.

RECOMMENDATION No 8

The contract administration of major schemes should be undertaken by appropriately skilled and experienced staff. This may require engaging staff not currently employed by the procuring authority.

8 Overall Conclusion

8.1 My overall conclusion is that the procurement process, the contract conditions and contract administration were appropriate for the time. Ten years on improvements have been made to the NEC by the use of the 3rd Edition and the increasing use of ECI contracts to de-risk the project by engaging the Contractor earlier in the design process.

8.2 The funding of major schemes is currently a mixture of Local Authority funding and grants from DfT. On the Busway the procurement route and form of contract was to some extent driven by the funding regime dictated by DfT's major scheme funding requirements which discouraged an ECI form of contract.

8.3 In my opinion whilst not the full panacea, ECI contracts allow relationships to be built up between client, contractor and the contract administrator. It allows the Contractor to contribute to the design process to ease buildabilty and finally allows sufficient time to properly plan and de-risk the project, thus overall ensuring delivery to time and budget, if not improving on time and budget.

8.4 However at present there remains a significant risk to a Local Authority if, having engaged an ECI contractor to develop the design and de-risk the project the scheme ultimately fails to gain Full Approval from the DfT, in which case the Local Authority is left with a major cost with no benefit.

8.5 Whilst not part of my brief I believe that some form of accommodation should be made between the DfT and Local Authorities to encourage the use of ECI, which, after all, is the main procurement route for the HA.

Appendices

Appendix A

Bill Edwards CV

"Bill provides strategic advice to clients on the successful delivery of major projects. He has a thorough understanding of client business derivers having spent eight months as interim Commercial Director for the Highways Agency"

Core Skills

NEC Expert
Experienced Project Manager
Managed projects using PRINCE2
Over 20 years of experience in the contract administration of highway contracts

Details

Position:

Partner

Qualifications:

BSc Civil Engineering
Diploma in Arbitration (Dip Arb)
Fellow of the Institution of Civil Engineers
Fellow of the Chartered Institution of Highways and Transportation
Fellow of the Chartered Institute of Arbitrators
Member of the Chartered Institution of Civil Engineering Surveyors

Bill has over thirty nine years' experience in the construction industry, working primarily in the highway sector. He is a chartered engineer and chartered arbitrator. He has worked for Contractor, Local Authority, Central Government and Civil Engineering Consultant.

In 2007 he was seconded to the Highways Agency (HA) Major Projects Directorate as interim Commercial Director to establish the HA Commercial Division, in this role he was a member of the Project Investment Commitment Group (PICG) which acted as the financial/ contractual governance process He was also a member of the Major Projects Directorate Board.

He is currently Employer's Agent / ECCPM on the A6 to Manchester Airport Relief Road ECI contract.

Major Project Delivery Experience – EC Harris

Project Director	A456 Heads of the Valley Contract 2&3
Project Director	Tees Valley Bus Network Improvements
ECC PM	City Park Regeneration Bradford
EA/ECC PM	A6 Manchester Airport Relief Road
PM & ECC PM	M4 Corridor around Newport

Major Project Delivery Experience - Parkman

ECC PM	M60 widening J5 to J8
Employer's Agent & PM	A500 Stoke Pathfinder
Employer's Agent	A63 Selby Bypass

Dispute Resolution Experience

Bill is on the ICE and CIArb list of Arbitrators and has acted as arbitrator and arbiter on disputes ranging in value from £30 million to £500K. As a civil engineering adjudicator on the ICE and CIC lists, Bill has been involved in over twenty adjudications covering issues such as extension of time, valuation of final accounts and quality matters. He has also undertaken two expert determinations for disputes connected to a major highway DBFO contract.

Bill was a member of the ICE Dispute Resolution Panel between 2007 and 2010 and was on the editorial panel for the redrafting of the ICE dispute resolution procedures.

Bill has advised many clients who have found themselves in dispute with their suppliers and was commission manager for dispute resolution commission for the Highways Agency (2002 – 2005).

Bill was member of the ICE working group for the redrafting of CESMM4

EC Harris Project History

Contract Administrator – M4 Corridor around Newport **2014 to Present**

Project Manager and ECC PM designate for Employer's Agent commission for the delivery of the £1bn new M4 south of Newport to relive the existing congested M4. This new 21km dual 3 lane motorway includes a new structure over the River Usk, significant remediation of contaminated land at Llanwern Steelworks and complex interchanges at the tie I with the existing M4.

Contract Administrator – A6 to Manchester Airport Relief Road **2013 to Present**

Seconded to Transport for Greater Manchester as Employer's Agent / ECC PM on this £290m highway project. The construction works involve four (three over; one under) crossing of Network Rail including West Coast mainline and access to Manchester Airport. Significant environmental mitigation works such as translocation of Great Crested Newts. Major earthworks over two seasons.

Lead Auditor - Review of Welsh Trunk Road Agencies **2013 to 2014**

Led three man audit team to review the operation of the two welsh trunk road agencies. Brief was to review compliance were operations carried out to the contractual, technical, commercial and accounting requirements of the contract. Value was the operations providing the right balance of quality against both cost and risk. Transparency was operations carried out in a way that commercial, operational functions are fully visible. Report made over 20 recommendations for improvements.

Commercial Manager – Tullis Russell Papermakers CHP plant **2011 to 2013**

Seconded to RWE as Commercial Manager for the construction of a £250m Combined Heat and Power plant. The 50MW plant will supply both power and steam for paper makers Tullis Russell. The works are due for completion in mid 2013. The commercial manager is responsible for the commercial aspect of the two main contracts Balance of Plant and the Main boiler plus a number of ancillary contracts.

Project Director – Tees Valley Bus Network Improvements **2009 to 2011**

Project Director for the provision of improvements to the existing bus network of the five Tees local authorities, (Darlington, Hartlepool, Middlesbrough, Stockton & Redcar and Cleveland). The project is part funded by the DfT and involves close cooperation with the bus operators, Arriva and Stagecoach. The £60m project will deliver improvements to the basic highway infrastructure by the provision of bus lanes and bus priority junctions. Work also includes Marketing covering Smart Choices, Real time information, improvements to UTMC and Bus stop improvements.

ECC Project Manager - City Park Regeneration Bradford **2011 to 2012**

The City Park is a major public realm development creating the largest city centre water feature in the UK. It involved the creation of new bespoke public buildings, and major works to the City's Inner Ring Road. Located at the heart of the City, the park is the signature project of the Bradford City Centre Masterplan. With a scheme budget of £25m, it is an iconic landmark for Bradford and a catalyst for the regeneration of the City**.**

Project Director – A465 Heads of the Valley **2011 to Present**

Bill provides strategic guidance to the ECH team on this £200m ECI project to improve link road in South Wales to assist regeneration £200m ECI project to improve link road in South Wales to assist regeneration. Contract comprises two sections; Section 3 Construction of 9.0km of dual carriageway and associated structures between Brynmawr and Tredegar. 7.5km of road off-line Section 2 Widening of 8.5km of 3 lane to dual 4 lane carriageway including climbing lane. The works between Gilwern and Brynmawr are through the Black Rock Gorge an area of outstanding natural beauty.

Highways Agency -Interim Commercial Director for Major Project directorate **2007 to 2008**

Responsible for setting up a commercial new division in the major projects directorate. Providing guidance on the commercial aspects of major projects from design development through to completion. Member of the Major Projects Directorate board and investment approval committee.

Previous Company Experience

2003 – 2005 Mouchel Parkman Director

Responsible for Major Projects (North) division with over 100 staff based in design offices in Ellesmere Port and Manchester and highway supervision contracts on M60 Widening J5 to J8, A500 Stoke Pathfinder, A63 Selby Bypass, A1 Darrington to Dishforth DBFO and network management offices for Road Management Services (DBFO) on A1(M) and A417/A419. Fully responsible for P&L, business development and staff welfare.

As ECC Project Manager for the M60 and Employer's Agent for A63 and A500, Bill was ultimately responsible for the agreement costs and time implication of any changes to the contract. Each contract had a site teams varying in size from 4 to 10 who undertook auditing and compliance roles. Bill chaired all the monthly contract progress meetings, which reviewed progress against programme and financial progress of the projects.

Commission Manager for Highways Agency Dispute Framework offering advice to the HA on a major litigation relating to bridge bearing failure on major motorway. In this role Bill worked closely with representatives of the HA; Treasury Solicitor, Counsel and independent experts to review and recommend course of the action. A key element was reporting on litigation risk. Bill also provided independent advice on contractual claims in advance of potential adjudication.

2002 – 2003 Parkman Chief Highway Engineer

Responsible as head of profession for the quality of the Parkman highway business. Provided advice and guidance in the highway sector ensuring best practice across the many offices in the transportation business unit.

1999 - 2002 Parkman Divisional Director

Responsible for the Infrastructure division based in Ellesmere Port and Project Manager for projects for the Highways Agency:- M25 – A13 Lakeside Improvement (£25m); A500 Stoke Pathfinder ECI £50m; A66 Safety Study; Project Director for M62 Junction 6 improvements and A55 – A483 junction improvement, A5 Newtonstewart Bypass D&B (NI) .

Commission Director on local authority framework contracts with Kirklees MBC and City of Stoke on Trent. Managed a design team of 40 staff to meet deliverables. This entailed regular weekly meetings with internal team leaders to identify progress on every project and the allocation of resource.

1994 – 1999 Parkman Divisional Director

Responsible for the Construction Management division. Operated as engineer or assistant to named engineer on major highway construction contracts using the ICE 5th Edition. Projects included M25 widening J7 to J8 (£100m); A2106 Erith – Thamesmead Spine Road (£25M); A5300 Knowsley Expressway (£30m); A487 Port Dinorwic Bypass (£15m); A494 Mold Bypass (£15m). As Divisional Director Bill was responsible for the recruitment, training and professional development for all site staff.

1990 - 1994 Parkman Project Manager

Responsible for the management and client relations for the widening of the M63 between junction 6 and junction 9. Took project from initial feasibility status through public consultation and up to public inquiry.

1987 – 1990 Department of Transport - (North West)

Senior Engineer with the construction section responsible for M63 widening J1 –J3 (including Barton High Level Bridge); M63 widening J3 – J5; M62 eastbound climbing lane; A500 Nantwich Bypass. Also acted as specification focal point and dealt with all technical matters relating to pavement matters.

1982 – 1987 Cleveland County Council

Senior Measurement Engineer A66 Middlesbrough Bypass – dealt with all financial aspect of the contract from monthly valuation to claims and financial reporting. RE on highway improvement projects.

1975 – 1982 Dowsett Engineering Construction Sub Agent Structures

Responsible for the construction of all the structures on the A595 Levens Bridge Diversion and A19 Billingham Diversion. Section Engineer responsible for setting out engineers on A66 Middlesbrough Northern Route and Armley Gyratory Leeds; Setting out Engineer M11 Harlow to Loughton.

Appendix B The Brief

Background

The aim of the Busway is to deliver high quality public transport in the Huntingdon, St Ives, Cambridge corridor, both to relieve congestion on the A14 and to facilitate further development.

The project had a long gestation, but in 2001 as a result of the Cambridgeshire to Huntingdon Multi-Modal Study (CHUMMS), the Department for Transport (DfT) invited Cambridgeshire County Council to submit a business case for the scheme. In 2003, the DfT provisionally awarded funding for the scheme and the Council published a draft Transport and Works Order.

A Public Inquiry into the scheme was held in late 2004. The Cambridgeshire Guided Busway Order was made in January 2006 and full funding approval was given in June 2006. It was a requirement of the DfT major schemes funding process that full approval of funding would not be given until statutory powers were secured and procurement was completed.

The Busway was closely linked to the delivery of the new town of Northstowe. In 2004, it was expected that the new town would start on site in 2008 with the first occupants moving in by early 2009. It was considered imperative that the Busway be available for the first residents of the new town. The Council therefore proceeded with procurement of the Busway construction contract in advance of securing the Busway Order.

The Contract

The procurement strategy was developed in the first half of 2004 with the assistance of the Council's term consultants, Atkins. County Council Cabinet approved the strategy in July 2004 and the process began in September 2004 with an invitation of expressions of interest. The procurement route chosen was a design and build target cost contract, using the NEC 2nd edition, Option C. The standard form was modified to increase the level of risk transfer to the contractor, so that, for example, all weather risks lay with the contractor and there was a ten year defect correction period

The quality of the finished product was important so the contract was assessed on the basis of both quality and cost, with 70% of the score being for quality and 30% being for price. All quality statements had to be supported with evidence. To further ensure that tenderers fully understood the requirements, a two stage tendering process was adopted, with clarification meetings held between the submission of the first stage tenders and the invitation of the second stage tenders. The minutes of the clarification meetings were subsequently bound into the contract.

Six contractors were shortlisted but only three of these submitted tenders. The tenderers who withdrew cited the cost of tendering and uncertainties over both the Order and funding.

As the approval of the Busway Order took longer than anticipated the second stage of the tendering process was deferred until the Order was approved.

It was anticipated at the time of the second stage tender that the contract would be awarded in June 2006 but DfT funding approval took longer than anticipated as a result of a ministerial reshuffle, and in consequence the contract was awarded to BAM Nuttall Limited (BNL) on 16th July and started on 1st August 2006. The contract period was 130 weeks, which should have resulted in completion in February 2009.

Construction

Work on the project commenced immediately after award of contract, however, from mid 2007 onwards the contractor began to forecast both delays to completion and substantial increases in the actual cost. This was accompanied by a number of claims for increases in the target price.

Full contract completion was eventually achieved on 21st April 2011, two years late and with the actual spend from BNL very significantly above the Target Price. Under the terms of the contract, the Council made payments to BNL significantly above that expected and the difference between funding available and spend on the project was covered by Prudential Borrowing.

The Busway opened on 7th August 2011.

Current Position

Under the terms of the contract, the Project Manager assessed the final actual cost and final target cost within 7 days of completion and certified the pain share payable by the contractor. As the contractor did not

pay the pain share within 28 days the Council commenced legal action on 11th August 2011. The case was due to be heard in March 2014, however, following a mediation in June 2013 the contractor made a series of offers to the Council in July 2013 and a settlement of the dispute was reached in August 2013.

The need for a review

Following the settlement with BNL, the Council has agreed that it is appropriate to review the operation of the Busway contract to identify any lessons that can be learnt for the future to avoid a repetition of the difficulties experienced in this contract. In particular, the Council is interested to know if a different form of contract would have been more appropriate and how in general terms, procurement and contract management could have been improved. The lessons learnt from this exercise will be valuable to Cambridgeshire County Council for future contracting of major schemes but it is also hoped that the review will be of value more widely within the whole of the public and private sectors to secure best value and more certainty in contracting.

Requirements of the review

The review is intended to be undertaken at a high level and focus on generic lessons that can be learnt and whether and how things could have been done differently rather than considering in detail the day to day operation of the contract. As part of the legal case against BNL, the Council's legal advisers and technical experts considered all Compensation Events and the relationship between BNL and the Council. This review therefore does not need to replicate that work.

The key question to be answered is – Are there lessons that could be learnt from this experience that could have prevented the Council from finding itself in the position that it did with the contractor BNL?

In addressing this, particular points the reviewer may wish to consider are as follows. This is only a guide, however, and the reviewer may wish to focus on other areas.

xii) the process by which the chosen form of contract was selected;
xiii) the appropriateness of the chosen form of contract in this instance;
xiv) whether appropriate mechanisms were set up between the client, contractor and project manager to manage and oversee the contract;
xv) the risk transfer by the Council and whether this was reasonable;
xvi) identify what other public sector organisations have used this form of contract and if they have experienced similar outcomes;
xvii) did the form of contract used create incentives on the contractor to increase spend and delay and if so, how could this have been addressed;
xviii) what alternative form of contracts were available and what protection they would have afforded the Council;
xix) whether an alternative form of contract, available at the time would have been more appropriate;
xx) what the Council and other public sector organisations should consider when undertaking procurement of similar major projects;
xxi) are there any lessons to be learnt in procurement, that with the benefit of hindsight could have alerted us to the difficulties we eventually faced;
xxii) whether there are any further modifications to the form of contract available or contracting procedures that would be more effective in managing risk.

The reviewer should have substantial experience in procurement and have no connection with the Council, BNL or any of the other key parties involved in the contract such as Atkins and the BNL designers.

Budget

The budget for the review is up to £20,000 plus VAT covering all fees and disbursements. The Council will make all required and relevant information available to the reviewer.

Deliverables

The reviewer should deliver a draft report to the Council within three months of commencing work and be available to present the findings to Council Member groups.

Background documents

All relevant background documents will be made available to the reviewer including the contract, contract evaluation and details of the advice in selecting the chosen contract form. The review will be free to speak to other parties involved in the contract should that be deemed necessary

Appendix C The Welsh Assembly ECI Model

The Welsh Assembly ECI Model is based on tendering for work carried in a number of Key Stages.

Key Stage 3

This is the period between the announcement of the preferred route to publication of draft orders.

Key Stage 4

Preparation for a Public Inquiry. Dealing with objections and preparations of proof of evidence, Making of Order and Land Entry.

Key Stage 6

Detailed design and construction.

(Note Key Stage 5 applies only to D&B not ECI)

Tender

The tender for the ECI contract is based on quality / price (normally in the range 60-70:40-30). Tenderers are provided with all the available design information. The financial element of the tender is based on:-

1. Target Cost for Key Stage 3 based on time charge of resource hours for both Contractor and designer, based on NEC 3rd Edition Professional Services Contract Main Option C.

2. Time charge for Key Stage 4 based on defined hours, based on NEC 3rd Edition Professional Services Contract Main Option E.

3. Target Cost for Key Stage 6 based on priced activity schedule, for NEC 3rd Edition Engineering Construction Contract Main Option C. To maintain a level playing field for tenderers the activity schedule includes a Budget Assumptions Report (BAR). The BAR includes Employer assumptions which are mandatory and Contractor assumptions which are at the Contractor's risk. The Contractor also tenderers his fee percentage and his subcontract fee percentage.

Move from Key Stage 4 to Key Stage 6

There is no guarantee that the Contractor will automatically move from KS4 to KS6. This is subject to satisfactory performance and agreement of the KS6 Target Cost – which can only be adjusted from the tendered Initial Target Cost by Employer changes called Evaluation Events. If the Employer is content with performance and cost he invites the Contractor to submit a number of documents including the KS6 Target Cost.

Intentionally left blank