AGENDA MANAGEMENT SHEET

Name of Committee	**Communities Overview And Scrutiny Committee**
Date of Committee	**28th April 2011**
Report Title	**Scrutiny of the Rugby Western Relief Road**
Summary	This report outlines the proposed findings and recommendations from Select Committee in relation to the Rugby Western Relief Road.
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Would the recommended decision be contrary to the Budget and Policy Framework?	No.
Background papers	None

CONSULTATION ALREADY UNDERTAKEN:- Details to be specified

Other Committees	☐	....
Local Member(s)	☒	N/A
Other Elected Members	☐	....
Cabinet Member	☐	
Chief Executive	☐	....
Legal	☒	Ian Marriott
Finance	☐	....
Other Strategic Directors	☒	David Carter, Strategic Director for Resources Group, Paul Galland, Strategic Director for Environment and Economy
District Councils	☐	....
Health Authority	☐	....

Police	☐	....
Other Bodies/Individuals	☐	....

FINAL DECISION NO

SUGGESTED NEXT STEPS:		Details to be specified
Further consideration by this Committee	☐	....
To Council	☒	*To be confirmed*
To Cabinet	☒	12th May Cabinet meeting
To an O & S Committee	☐	....
To an Area Committee	☐	....
Further Consultation	☐	....

Agenda No 8

Communities Overview And Scrutiny Committee - 28th April 2011.

Scrutiny of the Rugby Western Relief Road

Report of the Chair of the Communities Overview and Scrutiny Committee

Recommendation

The Committee is recommended to consider the proposed findings and recommendations from Select Committee in relation to the Rugby Western Relief Road and consider the independent report from Stradia (which was not available at the select committee meeting) and amend the Committee's report as appropriate.

Agree a final report to be submitted to the Cabinet for consideration at the 12th May meeting.

Agree that following Cabinet consideration of the report on the 12th May, the report is then considered by full Council.

Attached as Appendix A is the draft report following the Select Committee meeting held on the 15th March in relation to the Rugby Western Relief Road. The report outlines some proposed findings and recommendations which the Committee is asked to consider.

The Committee will recall that at the meeting on the 15th March, reference was made to a report by Stradia, an external specialist cost consultant, which was not available at the time of the meeting. This report has since been published and is attached as Appendix B. The Committee is asked to take the findings from the Stradia report into consideration whilst discussing the Committee's report, findings and recommendations.

CLLR JOHN WHITEHOUSE
Chair of the Communities
Overview and Scrutiny
Committee

Shire Hall
Warwick

12 April 2011

Communities Overview and Scrutiny Committee

Scrutiny of the Rugby Western Relief Road

April 2011

Foreword by Chair of the Communities OSC, Cllr John Whitehouse

This has been a very important scrutiny exercise undertaken by the Committee, and has been unprecedented in a number of key respects.

The scale of the Rugby Western Relief Road project, the time and money spent delivering it, and the delays and budget overruns incurred during its construction, all meant that a major scrutiny review was justified. In order to retain public confidence in the council and its processes, it was essential that all the evidence considered by the Committee could be made freely available to the public. In our select committee meeting we were able to involve members of the public fully, both through questions submitted in advance and via questions and answers at the meeting. I pay tribute to the helpful contributions and perspectives from members of the public during our whole review process.

I would like to thank all the members of the Committee for their work in absorbing the details of this matter, and contributing to a very clear set of recommendations. In this they were assisted greatly both by the professional support of the Democratic Services and Legal teams, and also by the open-book approach of both the Portfolio Holder and the Strategic Director for Environment & Economy. A shared determination to get all the facts on the table, and to extract the key lessons to be learned for the future, has underpinned the whole review process.

The Committee has made a number of key recommendations for the future management of large, complex projects undertaken by the Council. These are lessons for the whole Council to take on board, not just an individual directorate. We make these recommendations for Cabinet to consider, with the further recommendation that our report should be referred on to a full Council meeting. This will enable the key changes we recommend to gain the widest possible support, and to allow all elected members to contribute their views on the many important perspectives on the ways in which the Council operates that this review has highlighted so clearly.

1. Introduction

1.1 On the 15th March 2011, the Communities Overview and Scrutiny Committee held a select committee meeting in Rugby in relation to the Rugby Western Relief Road (RWRR). The Committee sought to explore and understand the factors that contributed to the delays and overspend experienced in the project and to identify learning points in order to ensure that future projects do not experience similar issues. The Committee invited the following individuals to attend the select committee meeting to share their views and experiences in relation to the RWRR project.

- Cllr Alan Cockburn, Portfolio Holder for Environment and Economy
- Paul Galland, Strategic Director for Environment and Economy
- Graeme Fitton, Head of Transport and Highways
- Roger Newham, County Transport Planner
- Dave Clarke, Strategic Director for Resources
- Chris Juckes, Head of Projects, Resources
- Nigel Barr, Stradia Ltd.

1.2 Recognising that the issue was one of significant local importance, members of the public were invited to participate in the scrutiny exercise by submitting questions in advance.

1.3 The Committee used the following evidence to inform their deliberations of the issues at the Select Committee meeting:

- Strategic Director for Environment and Economy's Report to the Committee
- Independent report by Contractauditline Ltd

1.4 Following the Select Committee meeting, the Committee also considered a report by Stradia, an external specialist cost consultant, which was not available at the time of the meeting.

1.5 The Committee concluded that the delays and overspends of the project were not attributable to a single cause, but were rather the result of multiple factors which were indicative of systemic failure in both project management and governance. This report summarises the Committee's findings and recommendations.

2. Background to RWRR

2.1 In 1997, Rugby Local Plan identified the Western Relief Road as a key infrastructure requirement to support major developments at Cawston, Malpass Farm, Swift Valley and Coton. The development of the project spanned several years and included two public inquiries prior to the contract for construction being awarded in 2007.

2.2 In July 2007, the Council entered into a target cost contract with Carillion JM Ltd for the construction of the RWRR. The target cost for the contract was set at £24.16m and included a projected end date of September 2009. The total cost of the project at the time the contract was awarded to Carillion JM Ltd was an estimated £36.57m. However, the project experienced significant delays and overspends. The RWRR finally opened to traffic in September 2010, with the outturn costs of the project having increased to £60m. The costs for the construction contract had increased from the target cost of £24.16m to £39.75 m.

2.3 In the summer of 2008 the significant increase in the construction costs was bought to the attention of both the Council and the Cabinet. A partially successful bid was made to the Department for Transport (DfT) for additional funding. At this time the County Council's Internal Audit Team and specialist financial support from the Resources Directorate were bought in to assist the Environment and Economy Directorate in managing the project. Following a confidential report to Cabinet in October 2009 setting out an estimate of the predicted costs at that time and recording concern at the escalating costs, the Cabinet established a Board of Members and Strategic Directors to oversee a review of the project and to establish reasons for the increased costs. Cabinet asked the Board to consider the following questions:

i) Was the procurement process robust enough?
ii) Was this the right contract for the scheme?
iii) Could any of the increased costs have been foreseen?
iv) Are the increased costs justified?
v) Has the project management been robust enough?
vi) Are there any wider lessons for the Council?

2.4 Contractauditline (CAL), a specialist audit and contract consultant, was brought in to assist with the review. The report from CAL identified a number of issues and areas for improvement and formed part of Communities OSC consideration of the matter.

2.5 In response to a recommendation made in the CAL report, Stradia, an external specialist cost consultant, was appointed in January 2010 to provide dedicated commercial expertise to the Council in relation to RWRR. Stradia also produced an independent report, which was published in April.

2.6 A timeline of the development of the project is attached as Appendix A.

3. Key findings and recommendations of the Committee

<u>Route Choice for the Southern Section</u>

3.1 The Committee's first consideration was to explore whether the route choice for the southern section of the RWRR had been appropriate. The original public consultation for the RWRR in 1998 proposed that the southern section of the route would be on the disused railway between Leamington and Rugby. However, the context surrounding the scheme subsequently changed, leading to changes to the original proposals. The introduction of the Local Transport Plan in 2000 enabled Local Authorities to bid for funding and consequently influenced the Council's decision to extend the scheme the full length of the road to Potsford Dam to divert traffic away from the Cawston Housing Estate. Additionally, at this stage Rugby Cement were considering reopening the disused railway line in order to divert trucks off the road network. This subsequently led the Council to re-plan the southern section of the route on greenbelt land. Whilst Rugby Cement later decided that re-opening the line would not be economically viable and decided against this option, the Council decided that the possibility of re-opening the railway line at some stage in the future should be preserved.

3.2 Changes to the original proposal increased the controversy surrounding the project and prompted the first Public Inquiry in 2003. The outcome of that inquiry supported the original proposal for the southern section to be on the disused railway. In June 2004, Cabinet considered the views of Rugby Area Committee, rejected the outcome of the first Public Inquiry and called for a second Public Inquiry. This was subsequently held in 2005 and led to the Secretary of State approving the revised plans, subject to some minor modifications.

3.3 The OSC sought to understand whether pursuing the original proposal for the southern section of the route would have avoided significant delays and expenditure. It is not clear whether the cost of the scheme would have been substantially less if the southern section of the road had been built on the disused railway line. The ecological and engineering challenges of using the disused railway line for the southern section are unknown, but it is unlikely that this approach would have saved £10m. The cost of acquiring the additional land for the southern section had not been high, but inevitably there was an environmental impact that cannot be easily quantified. Additionally, the ownership of the disused railway line has since transferred to Sustrans, where it is held under a covenant by the Secretary of State limiting use to rail or cycle routes only.

3.4 Overall, there is no evidence to suggest that using the disused railway line would have been more cost effective. Costs associated with planning work between 1998 and 2002 that was subsequently not carried out, whilst regrettable, could not have been foreseen.

Finding	**Recommendation**
The decision to move away from the original proposal to use the disused railway line for the southern section of the route was influenced by changing context and circumstances which could not have been foreseen at the time that the original proposal was published. There is no evidence to suggest that using the disused railway line would have substantially reduced the overall costs of the project.	None

Procurement process and contract

3.5 The *Rethinking Construction* report produced by Sir John Egan in July 1998 sought to raise standards in the UK construction industry and shift from an adversarial approach to a collaborative partnership approach to contracts. Target cost contracts, where clients and contractors develop a partnership approach seeking to achieve cost savings and subsequently sharing any savings (gain) or increases (pain) in expenditure, became common practice. Organisations such as the Highways Agency and British Airports Authority began adopting such contracts. Therefore, following advice from ARUP and Warwick Business School, the Council decided to adopt a target cost contract for the RWRR with early contractor involvement (ECI), with the aim of benefits being realised in the construction stage. Mowlem were awarded the professional services contract (ECI) in 2003, which included an expectation that the construction contract would subsequently be awarded to Mowlem, if the Council chose to do so and subject to the agreement of an acceptable price. The Committee is satisfied that at the time of letting the contract, target cost contracts were considered best practice in the industry and that the initial procurement process for the ECI was robust and in-line with required standards. However, it is now possible to conclude that the perceived benefits of ECI and a target cost contract were not realised.

3.6 Mowlem were acquired by Carillion in 2006 and at this point the Council decided to continue the professional services contract (ECI) with Carillion on the basis that Carillion were, and still are, on the Council's approved tenderers list. Moreover, the Council had experience of working with Carillion on the highways maintenance contract, where a good working relationship had been developed with the company. There were no identified risks at the time in continuing with Carillion as there was an expectation that key staff within Mowlem would remain on the project. Indeed, the majority of the Mowlem project team continued to work on the project for 18 months following the takeover and meetings continued to be held at a senior level during this time.

3.7 Carillion submitted an acceptable price for the construction element of the contract, which the Council awarded to them in July 2007. However, the evidence suggests that following the award of the construction contract to Carillion, the nature of the relationship between the Council and Carillion shifted to a traditional adversarial style of contract, rather than a partnership approach. The high level of compensation events that were submitted by Carillion (over 1,400) were indicative of this shift. The Council had insufficient experience with target cost contracts on major capital projects, which was not uncommon at the time, but limited the ability of the Council to effectively manage the contract and the shift in relationship that occurred.

3.8 Consideration needed to be given as to whether, at the point at which Carillion acquired Mowlem, the Council made the right decision to continue with the ECI contract with Carillion and subsequently award the construction contract to Carillion. It appears that throughout the project there was a strong desire to start the construction of the road and to avoid any further delays. Indeed, elected members expressed a desire for the construction to start as soon as possible and were concerned about the potential loss of Section 106 funding and implications of high inflation if the project was delayed any further. This is illustrated by the motion to Council on 12th December 2006. These were reasonable concerns, which were symptomatic of the circumstances surrounding the project at that time. The desire to progress the construction influenced the Council's decision not to re-tender the ECI at the point when Mowlem was acquired by Carillion. It would not have been possible for the Council to revert to the other companies who submitted tenders for the ECI contract at the construction stage of the project, as at it would have been a substantially different contract. Re-tendering at this stage would have required an entirely separate tendering process.

3.9 Whilst it was reasonable for the Council to seek to continue the contract with Carillion, this decision should have been informed by a robust risk assessment, including consideration of the culture within Carillion, to allow a balanced decision to be made against the costs of a retendering exercise. Instead, it appears focus was placed on the costs and delays to the project if a retendering exercise was carried out, rather than whether the assumptions upon which the original contract was awarded to Mowlem would or could change if the contract was transferred to Carillion.

Findings	**Recommendations**
The Committee is satisfied that at the time of letting the contract, target cost contracts were considered best practice in the industry. However, the experience of the RWRR project has illustrated the difficulties and challenges involved with this type of contract for major capital projects and programmes.	A) Target costs contracts should not be awarded for major construction projects going forward.
The Committee recognises that there was a strong desire for the construction of the road to be started as soon as possible and re-tendering the construction element of the project would have inevitably led to further delays and increased costs associated with the potential loss of section 106 funding and rises in inflation. It was reasonable for the Council to seek to continue the contract with Carillion as the company was on the approved tenderers list and already had a good working relationship with the Council in	B) If presented with a similar situation in the future, where the original contractor is acquired by a third party during the contract, a detailed review should automatically be undertaken before awarding the contract to the third party to ensure that none of the assumptions upon which the choice of contractor was based have changed.

relation to highways maintenance contract. However, this position should not be assumed and should have been informed by a robust risk assessment, including consideration of the culture of Carillion, to allow a balanced decision to be made against the costs of a retendering exercise.	

Design

3.10 The contract for construction of the RWRR was let to Carillion without a complete design. Whilst progressing infrastructure projects without a complete design is common practice in the industry, this should be mitigated by the identification of the risks posed by this approach and a realistic estimation of the costs associated with these risks. However, in the case of the RWRR the impact and risks of progressing with an incomplete design had not been appropriately assessed and lacked appropriate levels of contingency. Again the desire to progress the scheme as soon as possible and concerns regarding potential loss of external funding, were the primary drivers for progressing the scheme without a complete design.

3.11 However, it is now clear that the incomplete design contributed to the increased costs and delays experienced by the project. A more complete design would have produced a more realistic cost and would have avoided some of the issues that arose. Indeed, the design of some elements of the project had to be altered due to design deficiencies that became apparent during construction. In some cases these design alterations were made after partial construction of the original design. For example, two of the roundabouts on the route required a major change in design and one other required a minor redesign. The CAL report identifies a number of compensations events valued at £200,000 or more that were directly attributable to the incomplete design or errors within the design, including:

- Error in drawings regarding existing and proposed location of Cemex Tunnel leading to an additional estimated cost of £900,000
- Correction of error in traffic signs specified for the scheme leading to an additional estimated cost of £621,733
- Design error resulting in extra setting out, drainage and traffic signage following remodelling of Cawston roundabout leading to an additional estimated cost of £400,000
- Extra work, including design, following the introduction of the south west wing wall at Parkfield Road Rail Bridge leading to a cost of £324,000

3.12 The Committee acknowledges that the engineering issues that arose on the site were extremely difficult and unavoidable. In their consideration of the issues, Stradia are confident that the Council has not paid any unjustifiable costs. Nevertheless, a more complete design could have avoided some or all of the additional costs. The Committee welcomes the internal investigation that is currently being undertaken in relation to the design of the scheme.

3.13 In addition to issues regarding the content of the design, the Committee also has concerns regarding the design process. The design was carried out by a combination of the Environment and Economy Directorate's internal design team, its partner design consultant ARUP and the construction contractor under ECI (Mowlem and subsequently Carillion). However, the Council's client role was potentially compromised by involvement in the design process. Such joint working inevitably creates blurred lines of responsibility and accountability. Therefore, on major projects it would be prudent for the entire design work to be contracted out to an external provider.

Findings	Recommendations
Progressing the scheme without a complete design, although common practice in the industry, contributed to the increased costs and delays.	C) As much design work as possible should be undertaken in future projects prior to contracts being let.
The Council jointly working with external designers and the ECI contractor on the design work potentially compromised the Council's client role.	D) Design work on major projects be entirely contracted out to avoid the Council's role as a client being compromised.

Risk Management and Contingency

3.14 Risk management and contingency for the project were inadequate. The CAL report highlights weaknesses in the risk management and cost reporting procedures that were in place and that these weaknesses resulted in an insufficient provision for contingencies and allowed a backlog of unresolved compensation events to occur.

3.15 Whilst the Strategic Director for Environment and Economy is confident that steps were taken to identify and manage risks throughout the project, the extent to which the risk management process effectively identified, logged, costed and appropriately dealt with risks is unclear as the approach to maintaining the risk register was not as robust as it should have been. The CAL report highlights that whilst 'Risk Reduction' meetings took place, these focussed on the mitigation of risks in respect to events that had already occurred, rather than focussing on potential future risks.

3.16 It appears that significant risks were effectively identified, but the judged impact and value of those risks was clearly underestimated. A low level of contingency, 2% of the tendered construction target cost, was allocated on the basis that the combination of ECI and a target cost contract would lead to a lower risk of costs increasing. However, a 2% contingency budget was inadequate. The CAL report suggested that a 10% contingency budget would have been more appropriate for a project the size of the RWRR. However, it is now clear that 10% would have not been sufficient.

3.17 Ultimately, the experience of RWRR suggests that the Council needs to improve its approach to risk management and contingency, which will in turn improve projections of outturn costs. The CAL report proposes a more rigorous approach to risk management, however the approach advocated is at a higher level than has been traditionally operated within the Council and raises the question whether the Council has sufficient levels of skills and knowledge for the dynamic risk assessment envisaged. What is clear, is that there needs to be closer working between Members and Officers to assess the risk around major capital programmes and to agree an appropriate level of contingency. Members need to have a full understanding and appreciation of all risks involved within major capital programmes and projects.

Findings	**Recommendations**
It appears that whilst significant risks had been effectively identified, judged impact and costing of these risks was inadequate, leading to an insufficient contingency budget being allocated. The approach to managing the risk registered was not as robust as it should have been.	E) A more rigorous and dynamic approach to risk management, in line with the approach advocated in the CAL report, needs to be introduced for all major projects. SDLT should be required to instigate the introduction of an improved approach to risk management as a matter of urgency. F) The improved approach to risk management should include a greater role for members to work with officers to assess the risk around major capital programmes and to agree an appropriate level of contingency.

<u>Project Management</u>

3.18 Inevitably, given the significance of the delays and overspends experienced on the project, questions have been raised regarding the Council's project management of the scheme. The CAL report is critical of some aspects of the Council's project management, in particular the staff resources allocated during the early stage of construction to deal with design issues and compensation events, were considered insufficient. From the Council's perspective, the project was still being managed on the basis that the client and contractor were working together to identify efficiencies and drive down costs. Therefore, additional resources were not deemed necessary.

3.19 The overspend on the project was identified in the summer of 2008 and was immediately brought to the attention of the Strategic Director and the Portfolio Holder. Extra resources were swiftly allocated and an internal review was instigated. Following this a report was taken to the Cabinet in early autumn 2008 and Internal Audit and a Systems Project Team were brought in late autumn 2008. The Committee is satisfied that the actions that followed the identification of the overspend were sufficiently prompt and robust. However, it is the Committee's view that recognition of the issues should have occurred sooner.

3.20 In managing major projects like the RWRR it is fundamentally important to ensure that the Council has the appropriate skills, knowledge and capacity to manage the project effectively. Whilst the Council has a lot of project management expertise, it needs to be recognised that the Council may not have all the required skills to effectively manage major projects. In the case of the RWRR, the Council lacked sufficient commercial skills to manage the challenging circumstances that arose during the project. Clearly, it is not expected that the Council should possess all the skills required to effectively manage a major project, but there needs to be an awareness of the skills gaps within the Council and knowledge of how to procure these skills externally as and when required. Therefore, the planning process for major projects should include a full skills analysis to identify the best individuals within the organisation to manage the project and to identify any gaps in the internal skills base where external expertise maybe required. Moreover, sufficient Council resources need to be allocated to manage projects from conception to implementation. Officers selected to manage major projects should be released from their role to work on the project full time.

3.21 With current reductions in the Council's workforce, there is a need to ensure that there remains an appropriate level of officers across the Council who are fully trained and experienced in applying the principles of Prince2, the Council's recognised project management tool.

Findings	Recommendations
The Council had sufficient project management capabilities to manage the RWRR, but lacked sufficient commercial skills to manage the challenges that arose.	G) Major projects should include a full skills analysis as part of the planning process and identify any gaps in the internal skills base, where external expertise may be required.
Sufficient resources need to be allocated to projects from conception to implementation.	H) Officers selected to manage projects should be released from their role to work on the project full time.

Whilst the Council currently has sufficient skills and expertise in project management, the Council needs to ensure that during a period of workforce reduction an appropriate level of officers across the Council who are fully trained and experienced in applying the principles of Prince2 is maintained. The actions that followed the identification of the overspend were sufficiently prompt and robust.	I) A detailed audit of those officers qualified and experienced in applying the principles of Prince2 is undertaken and, where appropriate, staff are supported to undertake the qualification. None

Project Governance

3.22 There were inadequate project governance arrangements in place to oversee the project management of the RWRR. A Strategic Management Board (SMB), consisting of the Contractor's Regional Director and Senior Contract Manager, and the Council's Project Manager and the Design Services Group Manager was established. The Board met three times between July and December 2003 but became dormant when the scheme was put on hold following an adverse decision from the first public inquiry. The Board was reconvened in November 2007 following the start of construction in August. During the period that the SMB was dormant, the internal Warwickshire Engineering Board assumed the governance role for the project. The Project Manager provided update reports to that internal Board on a two monthly basis. However, the RWRR was just one aspect of the Warwickshire Engineering Board's work at this time. This arrangement was inadequate given the scale of the RWRR project.

3.23 Additionally, the CAL report highlights that when the Board did reconvene there were fewer formal reports presented than might have been expected for a project of this size. CAL also expressed the view that the minutes of the Board lacked sufficient evidence to confirm that the quantum of the increasing costs were being reported prior to July 2008 or that the actions being taken to address them were being recorded. In July 2008, the Board was advised that additional costs had accrued totalling some £3.3m, however the minutes from this meeting do not contain any comments or actions to be taken. By December 2008, the Board had been made aware that the increases in cost could be more that £12m. CAL recommended a number of actions for enhancing the cost reporting processes for the remainder of the project, which were then put in place.

3.24 Ultimately, a more rigorous approach to Project Governance, with a Project Board meeting regularly and continually throughout the project, would have enabled greater challenge to the Project Management of the RWRR. Moreover, a level of corporate oversight would have also proved beneficial, enabling a degree of strategic challenge. SDLT should be part of the monitoring and appraisal processes of major programmes and projects.

3.25 The experience of the RWRR raises interesting questions regarding the role of elected members in the project governance of major projects. Concern was raised that following the letting of the contract, there was a period of a year before the Cabinet was made aware of the financial issues. Reports were made to Cabinet in the Spring and Winter of 2007. Whilst regular briefings were held with the relevant Portfolio Holder, this is insufficient mechanism for project governance or member involvement with major projects. All major programmes and projects should be governed by an Officer and Member Project Board, responsible for overseeing the project and challenging progress.

Findings	**Recommendations**
The project governance arrangements were inadequate for a project of this size.	J) Major projects and programmes should be overseen by an Officer and Member Project Board that meets regularly throughout the life of a project. K) SDLT should form part of the monitoring and appraisal processes of major projects. L) The Leader should review how relevant Portfolio Holders should discharge their responsibilities for major projects and programmes, and for ensuring full and timely reporting back to both Cabinet and Full Council as appropriate.
There is a need for members to have greater exposure to, and involvement with the project governance of major programmes and projects.	M) Prince2 training should be available to members in the member development programme, subject to a learning need being identified through a Personal Development Plan.

Network Rail and Public utilities

3.26 A significant amount of the increased costs on the RWRR were a direct result of issues that emerged in relation to gaining access to Network Rail’s land. CAL’s report provides an insight into these difficulties:

- Difficulties in getting Form A & B approved by Network Rail which caused uncertainty in predicting when work would restart for the removal of the south west wingwalll at the Parkfield Road Rail Bridge costing £2,315,100
- Reprogramming of work at Parkfield Road Rail Bridge, due to delays by Network Rail in the diversion of 25kv power supply and other apparatus, costing £634,918

3.27 The Council is required to negotiate with Network Rail to gain access to land, under the terms of a national agreement between the Local Government Association and Network Rail. This national agreement required the County Council to accept all risk associated with the contract, other than negligence. The Council is unable to seek redress from Network Rail for additional costs the Council incurred. The agreement with Network Rail needs to be challenged at a national level.

3.28 As part of the scheme design, detailed enquiries were made to all Public Utilities to determine how utilities would impact on the scheme and to determine the requirements for utility diversions. Legislation requires the Council to pay Public Utilities to design and execute service diversions. The Council is ultimately reliant on the Public Utilities for accurate information about the presence of services and diversion costs. However, the Public Utilities’ estimates for work proved to be inaccurate which led to an underestimation of costs. During construction, difficulties with service diversions and inaccuracies in the Public Utilities records lead to a 78% rise in the costs associated with Public Utilities on the project. In addition to the direct costs paid to the Public Utilities, these difficulties also caused delays and disruptions, which inevitably increased costs.

3.29 Whilst the level of inaccurate information provided by Public Utilities was exceptional, the Council should have anticipated a higher level of risk than it did, with a substantially higher contingency to manage this. The inaccuracy of Public Utilities’ records needs to addressed at a national level.

Findings	Recommendations
A significant portion of the increased costs are attributable to problems faced in terms of getting access to network rail land and the inaccuracy of Public Utilities records.	N) The Leader and PH should write a letter to the Secretary of State, copying in local MPs, lobbying for a change to statues and agreements that allow Network Rail and utilities, to generate costs for local authorities,

	and that where possible, other local authorities should be invited to sign this letter.
The Council should have anticipated a high level of risk associated with public utilities records than it did and set aside a more substantial level of contingency to manage this risk.	As per recommendation E above.

Value for Money

3.30 Analysis of the new road indicates a cost-benefit ration of 4.5:1, (for every pound invested there is £4.50 worth of benefits), supporting the claim that the RWRR represents good value for money despite costing far more than originally budgeted. However, better value for money could have been achieved through the scheme and although the scheme stills stands up to the Government's calculation of Value for Money, this does not justify the substantial loss of value that has occurred due to the significant delays and increased costs. If the final costs of the project had been known at the outset, it is unlikely that the project would have been pursued.

3.31 In terms of the effectiveness of the scheme, an initial assessment of the impact of the RWRR on traffic flow undertaken in October 2010, indicated that there had been a reduction in traffic flow that was broadly in line with the predictions, including a 24% reduction in Main Street, Bilton, 27.8% reduction on Bilton Road (near Lidl Supermarket) and 15.7% reduction in Newbold Road. It is anticipated that these reductions will further increase as time progresses.

Findings	**Recommendations**
Whilst the RWRR represents a cost-benefit ratio of 4.5:1, the value for money of the scheme has inevitably been reduced due to the significant delays and overspend.	None

4. Conclusion

4.1 The Committee concludes that the delays and overspend experience on the RWRR cannot be attributed to a single cause. Rather multiple interrelated factors were responsible. These factors can be summarised as:

- Shift in the relationship between the Council and its contractor

- Lack of commercial skills within the Council and lack of experience of managing Target Cost Contracts for major construction projects
- Desire to progress the construction as soon as possible
- Incomplete design and design errors
- Inadequate risk management and contingency
- Inadequate project governance
- Problems associated with Network Rail and Public Utilities

4.2 The identification of multiple factors is symptomatic of systemic failure and illustrates weaknesses in the Council's approach to the management and governance of major projects. There are important lessons for the Council to learn from the experience of the RWRR and the Committee's recommendations are well placed to drive improvement in the Council's approach to project management and embed a corporate responsibility for major projects like the RWRR in the future.

Appendix A

Communities Overview and Scrutiny Committee – 29 November 2010

Rugby Western Relief Road

Rugby Western Relief Road – Development History

Date	Activity, Event or Decision	Estimate
1997	Rugby Local Plan adopted with the Western Relief Road as a key infrastructure requirement to support planned major developments at Cawston, Malpass Farm, Swift Valley and Coton.	
1997 to 2000	Negotiations with developers to secure S106 funding. Agreements gave 10 years for the money to be spent before refunds had to be made to developers. The amount of developer funding secured was insufficient to fund the full length of the scheme. WCC decided to implement a shortened first phase which utilised the primary distributor road of the Cawston housing estate.	
October 1999	Planning permission granted for the shorter scheme with alignment on the disused railway and utilising the primary distributor road of the Cawston housing estate at the southern end.	
August 2000	Rugby Cement announced its intention to reopen the disused railway line. Cabinet had previously agreed in March 2000 to support reopening if Rugby Cement decided to proceed.	
Autumn 2000	A bid was made to DfT for funds to extend the road to Potsford Dam and to move alignment off the disused railway. Provisional approval was granted by DfT in December 2000 with a provisional major scheme funding allocation of £8.06M.	£20.2M
October 2001	Cabinet approved a revised scheme with an alignment off the disused railway and extending to Potsford Dam. Approval given to commence statutory procedures for planning and Orders.	
April 2002	Further revisions to the outline scheme design and revised estimate approved by Cabinet.	£20.6M
May 2002	Planning application for current scheme submitted	
July 2002	Rugby Cement abandon plans to reopen railway.	
Sept 2002	Cabinet approve continuation with scheme off the disused railway to preserve the opportunity for reopening and a revised estimate	£21.4M
Spring 2003	Planning permission granted for full length scheme. First public inquiry held.	
July 2003	Cabinet approved award of Early Contractor Involvement (ECI) contract to Mowlem	
January 2004	Cabinet approved revised estimate	£23.9M

Feb-June 2004	Secretary of State (SoS) announced in February 2004 that he was minded to approved the Orders only the northern section of the road. Reports to Area Committee (May) and Cabinet (June) led to a decision to reject the SoS decision and to seek a second public inquiry.	
April 2005	Cabinet approved revised estimate	£26.8M
Spring 2005	Second public inquiry held	
Dec 2005	SoS approved the Orders for the full length scheme subject to a range of amendments	

Feb 2006	Cabinet approved : 1. scheme amendments to meet SoS requirements. 2. Continued employment of the ECI contractor	
May 2006	Cabinet approved revised estimate	£30.57M
May 2006	Mowlem taken over by Carillion	
July 2006	Revised planning permission granted incorporating the amendments required by the SoS	
Nov 2006	SoS gave final approval to the scheme Orders	
Dec 2006	Notice of Motion to Full Council expressing concern of lack of progress with the scheme	
Feb 2007	Cabinet approves 1. Revised estimate 2. Letting of a contract for construction subject to full approval of the scheme (funding) by DfT. 3. Letting of an advanced contract for site clearance. This work had to be carried out before the bird nesting season to avoid undue delay to the start of the scheme. It was necessary to let a low value advance contract due to the lack of final funding approval from DfT which prevented letting of the main contract.	£35.1M
Feb 2007	Planning permission granted incorporating further requirements of the SoS	
8 March 2007	DfT granted full approval and £17.083M funding	
29 March 2007	Cabinet approved revised estimate	£36.5M
June 2007	Cabinet approved award of main contract to Carillion	
August 2007	Work started on main construction contract	
January 2008	Cabinet approved earmarking of capital receipts for RWRR from sale of properties previously purchased for road improvements made redundant by the Western Relief Road	
Sept 2008	Cost increase reported to Cabinet. Network rail and Utilities were identified as the cause	£38.5M
January 2009	Cost increase and an 11 month delay reported to Cabinet. Additional costs and delays due to Network rail and Utilities were identified as the cause	£42.9M
January 2009	DfT granted an additional £4.179M to the scheme following a bid of £6.33M from WCC	
October 2009	Major report to Cabinet and Council. Council approved a revised estimate.	£55M

Warwickshire County Council

Rugby Western Relief Road
Project Performance Review

28 March 2011

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Warwickshire County Council
Project Performance Review

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1. Executive Summary

This report was commissioned to provide a review of the project management processes and procedures used in the delivery of the Rugby Western Relief Road (RWRR) project with the overriding objective of ensuring that any lessons learned in improving efficiency and avoiding pitfalls are available for future project delivery teams.

Due to the significant increase in the cost of the project the review focuses principally on the lessons that can be learnt from commercial management and the contractual relationship between Warwickshire County Council (the Council) and Carillion Civil Engineering Ltd (the Contractor). This report focuses on the Council and how it can draw lessons in relation to its role in future contracts. The report does not comment on the failing of the Contractor or improvements that the Contractor should consider.

In 2002/3, in an effort to maximise value for money for the taxpayer, the Council elected to adopt a procurement route embodying collaborative techniques such as Early Contractor Involvement (ECI) and a target price incentive arrangement using the NEC3 standard form of construction contract. This was a relatively new procurement method in 2002/3.

However the target price for this strategically important project increased considerably from approximately £24M at the time the contact was awarded in July 2007 to final target price of £39.75M. The reasons for this increase are fully considered and explained in this review.

In order to understand the detail behind why the final target price exceeded the Council's budget its Communities Overview and Scrutiny Committee held a special meeting on the 15 March 2011. The meeting highlighted several major areas of concern including:

- Was the procurement process robust enough?
- Was the NEC3 (Option D - Target Price with Bills of Quantities) the right contract for the scheme?
- Could any of the increased costs have been foreseen or avoided?
- Are the increased costs justified?
- Has the project management been robust enough?
- Are there any wider lessons for the Council?

1. Executive Summary

In undertaking this review it has been noted that despite the concerns set out above there has nevertheless been a number of successes recorded on the project which are also considered valuable in the lessons learned process.

Stradia was appointed by the Council in January 2010 to provide commercial management advice and support services in connection with the delivery of the RWRR project.

Following the settlement of the final account in December 2010 Stradia has been further commissioned to review project performance and report on any recommendations that should be considered in the delivery of any future projects or related situations.

The scope of this report concentrates on the processes and procedures adopted in the construction of the RWRR project and does not consider the wider implications of the project such as land acquisition costs, planning implications, etc.

Summary of Key Points Arising out of the Review

Project Achievements:

- Taking into account the need to overcome several major issues (e.g. Network Rail, Cemex Tunnel, changes in design, etc) this complex project was delivered within a reasonable time (ahead of the Council's expert planner's (ARUP) recommendations)
- Little or no remedial work (defects) on handover due to the quality of the finished construction work
- The final account for the project was settled within 3 months of completion
- Good liaison with local businesses, schools and other key local community stakeholders

Areas for improvement:

- Better understanding of collaborative procurement and the use of the NEC3 form of contract
- More detailed and robust design prior to commencement on site
- Projects should adopt more proactive strategies for managing risk associated with third parties who impact on the critical path activities (e.g. Network Rail, Utilities, etc)

1. Executive Summary

Summary of Key Points Arising out of the Review – continued

- Stronger project leadership to drive performance and the ability to challenge project performance as a whole
  Proactive project management (linked to robust risk management and cost control processes)
- When appointing external consultants ensure they have the appropriate skills and resources
- A greater understanding within the Council in the use of the NEC3 suite of contracts is necessary, in particular improved understanding and skills for the following key project management processes
  - Integration of client and contractor teams
  - Cost management, control and reporting (when using target price options)
  - Decision making and problem resolution
  - Design development
  - Change control
  - Risk management
  - Value engineering

During the construction of the project there were many meetings and discussions on suggested improvement ideas in different areas which is commendable. However, we did not find evidence of a unified improvement strategy that co-ordinated suggested improvement ideas and their implementation across the project.

2. Background to this Report

At the time of commencing the procurement process for the RWRR project (2002/3), the Council wished to adopt a strategy that would deliver the best value for money for the taxpayer.

The Council was satisfied (through recommendations and advice it received from Warwick Business School, the Office of Government Commerce (OGC) and other leading authorities on construction best practice techniques) that the use of a collaborative form of contract incorporating a cost reimbursable payment mechanism linked to a performance related target would assist in achieving its value for money objectives.

The aim was to develop a partnering approach to promote innovative and cost saving solutions at the design and development stage of the RWRR project that would lead to an efficient and cost effective project outcome.

The form of contract which formed the basis of the legal relationship between the Council and the Contractor was the NEC3 (Option D) commonly known as a target cost contract.

Under this form of contract the Council was required to reimburse the Contractor all its demonstrable costs incurred in the delivery of the project; the total of which was to be measured against a pre-determined target. Any savings or over-spend measured against the target are then shared in the proportions stated in the contract thereby creating a mutual incentive for achieving cost efficiency. The Appendix to this report provides a more comprehensive explanation of a target cost contract.

The procedures required for the successful management of a target cost contract are recognised by experienced practitioners in the construction industry to be demanding and therefore require appropriate expertise, skills and resources. The NEC3 form of contract also relies heavily on a collaborative working arrangement between the Employer (the Council) and the Contractor to drive efficiency benefits. These key areas go to the root of several of the problems which the Council has experienced in the delivery of the project.

The target price for the original scheme design was approximately **£24M** with an associated contract period of **2 years**.

2. Background to this Report

In the summer of 2008 (approximately 1 year after commencement on site) the first significant increase in programme time and consequential construction costs were brought to the attention of both the Council and its Cabinet.

At the same time the difficulties in operating the contract in accordance with NEC3 principles were becoming apparent and it had become clear that resources on site were inadequate to properly administer the contract.

Although the NEC3 is a collaborative form of contract, at some point the nature of the working arrangements between the Council and the Contractor appear to have shifted to a more traditional adversarial approach. This had a consequential change in emphasis on the commercial management of the project by moving the focus away from cost efficiency and savings to attempting to control more than 1400 contractual changes (compensation events).

The project was completed in late September 2010 (approximately 1 year later than originally planned) and the final account was settled in December 2010 at **£39.75M** (approximately £15M above the original target price).

In administering the commercial processes independently of each other the Council and Contractor differed significantly in their respective assessments of amounts payable under the terms of the contract. This included, inter alia, assessments of Defined Cost, the Price of Work Done to Date and the Total of the Prices (the target).

Stradia was appointed by the Council in January 2010 to provide commercial management advice and support services in connection with the RWRR project.

Over a period of approximately 12 months Stradia worked closely with the Council and the Contractor to agree a definition of cost, improve commercial procedures on the site and to resolve matters of interpretation over the terms of the contract. Stradia's instructions from the Council were to ensure that the cost payable to the Contractor was properly incurred in accordance with the terms of the contract including the resolution of any commercial differences in the best interests of the taxpayer.

2. Background to this Report

At the time Stradia was appointed the Council's commercial advisors (ARUP) had assessed the final target price to be approximately £36M and the Contractor's assessment was approximately £48.5M. This had resulted in a difficult adversarial working relationship developing with the possible threat of formal dispute resolution proceedings to resolve the significant differences.

We extend our thanks to people who were kind enough to give up their time and share their views to assist in this review process.

3. Purpose of the Review

The primary purpose of the project review process is to capture and share knowledge and experiences from both a positive and negative perspective. The intention of the review is to enhance the Council's project processes.

Assistance with Corporate Governance

Robust corporate governance is critical to the success of any public body responsible for investing taxpayer's money. The recommendations made in this review should assist in providing a well-defined structure for administering and executing a consistent approach enabling the Council to optimise future project management decision making.

This is particularly so in the current economic climate where cost efficiency has become of paramount importance. The capture and understanding of experiences (positive and negative) can be viewed as key components in the success of future projects as it is recognised that employees are inclined to turn to lessons learned for guidance.

The experiences and lessons learned on the RWRR project will assist in the continued growth of corporate intelligence and assist in ensuring:

- More effective contract procurement strategies
- Improved taxpayer and customer value for money
- Increased efficiency in project delivery when using the NEC3 form of contract through the use of clearer processes
- Improved design quality

4. Project Achievements

In the course of Stradia's research into areas for improvements several achievements in the delivery of the project were noted which are set out below as a point of reference, but by no means represent an exhaustive list as this was not part of our Brief.

4.1 Completion within a Reasonable Time

Although the project clearly overran against the original programme and budget the Contractor completed the works within a reasonable timescale given the significant changes it had to deal with (in excess of 1400 compensation events)

This was evidenced by actual completion being certified before the Project Manager's assessed planned completion date. The Council managed the programme in an efficient manner and time did not become an issue in dispute with the Contractor. A lot of good work was done by the ARUP consultant responsible who worked with the Contractors planner.

4.2 Good Quality Construction

The quality of the as built works on the RWRR project was good. This was evidenced by the limited number of defects and minor snagging notified by the Project Manager at or before the completion date.

4.3 Reduced Demobilisation Costs

The Council omitted minor works such as outstanding landscaping works in order to be in a position to issue a Completion certificate as quickly as possible and thereby avoid any ongoing liability to the Contractor for ongoing demobilisation costs.

4. Project Achievements

4.4 Prompt Settlement of the Final Account

The Council secured a favourable settlement of the final account within 3 months which resulted in it:

- Not having to pay the Contractor a gain share, the Contractor would have potentially have pursued a target of £48.487M.

- Avoiding a dispute – the legal fees for the Council to pursue costs through adjudication may have been in the order of £500k.

4.5 Relationships with the Local Community

Good relations with the local community were fundamental during construction of the RWRR project. Regular meetings were held with community representatives to brief them on the progress and consult on any issues of concern.

5. Learning Outcomes

This section of the report sets out lessons to be learnt and recommendations that for completeness provides comprehensive advice for future projects, some of which is likely to already be in use in the Council generally and was used on the RWRR project.

5.1 Contract Negotiations Prior to Award

The Council elected to adopt a procurement process involving what is known as Early Contractor Involvement (ECI), which was a relatively recent initiative in 2002/3, aimed at using the contractor's expertise to manage and reduce risk, ensure buildability in the design, identify value engineering opportunities and reduce overall timescales by obtaining early familiarity with the project and securing key resources.

Following a competitive tender process the contract for *professional services,* the first stage (of a two-stage ECI approach), was awarded to a company called Mowlem Ltd (Mowlem) in 2003. Mowlem was later taken over by Carillion Civil Engineering Ltd (the Contractor) in 2006. The contract contained an option (and there was an expectation) to award the construction contract to Mowlem, without the need for a further competitive tendering process. The Council would only elect to enter into a construction contract with the Contractor if an acceptable price representing good value for money could be agreed

The Council continued with the Contractor under the *professional services* contract to execution of the construction contract in July 2007.

During the ECI process the project delivery team (Council and the Contractor) identified and managed several key project delivery risks that would potentially threaten the target price and programme. The risks identified included:

- Strengthening of existing bridges
- Industrial contaminants on land formerly owned by Cemex
- Working alongside operational commercial plant and equipment owed by Cemex and other local businesses
- Working alongside schools
- Maintaining traffic flows on existing roads
- Moving and working around existing services
- Accessing Network Rail's property

5. Learning Outcomes

5.1 Contract Negotiations Prior to Award - continued

Stradia has not investigated in detail how the financial impact of these risks was evaluated or calculated in either the target price or as part of any Council held budget. The risk allowance included in the agreed target price at commencement of the project was £325,000 (1.35% of the target price) In addition the risk contingency held by the Council for risks not transferred to the Contractor was £536,000 (2.2% of the contract target price). The combined contingency was therefore £861,000 (3.5% of the contract target price).

It later became evident that many key risks had not been identified or allowed for in the risk allowance.

No comment is offered in this review on the basis of the calculations for the provisions made against the project risks save to say that they later proved to be inadequate.

In addition to the key risks listed above the estimated cost had been increasing throughout the design development period, largely due to significant nationwide construction inflation and the further development of the project design. It is noted that this increasing cost was reported at the time to the Council.

Taking all these factors into account, the Council concluded contract negotiations on what it believed to be the optimum commercial terms which were in the best interests of the taxpayer and the local community.

The contract terms comprised:

Contractual Feature	Agreed Term
Target Price	£24,161,959.91
Fee (Contractor's off-site overhead and profit)	5.77%

5. Learning Outcomes

5.1 Contract Negotiations Prior to Award - continued

Contractual Feature	Agreed Term	
Incentive arrangements	▪ Saving greater than 80% of the target price	Contactor's Share – 0% Council' s Share – 100%
	▪ Saving between 80 – 90% of the target price	Contactor's Share – 25% Council' s Share – 75%
	▪ Saving between 90 – 100% of the target price	Contactor's Share – 50% Council' s Share – 50%
	▪ Overspend between 100 – 110% of the target price	Contactor's Share – 10% Council' s Share – 90%
	▪ Overspend between 110 – 120% of the target price	Contactor's Share – 50% Council' s Share – 50%
	▪ Overspend over 120% of the target price	Contactor's Share – 100% Council' s Share – 0%

The project originally consisted of:

- 6.3km of single carriageway
- 6 Major structures
- 6 Roundabouts
- 2 Signal controlled junctions

Construction of the road began in August 2007 with completion programmed for the end of 2009.

5. Learning Outcomes

5.1 Contract Negotiations Prior to Award - continued

Potential Benefits and Pitfalls of ECI

The potential benefits of ECI are considered to be to:

- Allow the incorporation of the Contractor's experience into the project designs and thereby minimise design change
- Improve integration of the project team, obtain familiarisation with the project and improve advanced planning and buildability
- Allow the Contractor additional time to secure key resources
- Provide a basis for a reduction in delivery timescales and costs
- Assist in identifying additional cost during design development phase

If ECI is to be an effective process there must be an acceptance of:

- A two-stage approach to the tendering process which will result in negotiated target price rather than lowest price
- An open approach to setting the target including risk identification, sharing and pricing

The risks of ECI are considered to be:

- It does not eliminate all of the cost and performance risk inherent in large, complex, projects or programmes of work as it is dependent upon the expertise of the respective parties personnel
- The parties do not adopt an honest, open and collaborative approach to developing a target price – this may not become apparent until after commencement of the project.
- The Contractor may not declare all the efficiencies prior to setting the target price which could lead to a *soft* target
- If the incentive mechanism (pain/gain share) is skewed in favour of the Contractor the behaviour it creates may not be in the best interests of the Council
- Requires a comprehensive risk register and a clear strategy for making cost provision within either the target price and/or the client's budget

5. Learning Outcomes

5.1 Contract Negotiations Prior to Award - continued

Area for Improvements 1 – Risk Identification and Mitigation

NEC3 contracts enable clients to identify, allocate and manage risk more effectively than traditional forms of construction contract. When times are tough and there is increasing uncertainty, focusing attention on construction risk and managing it sensibly can significantly increase predictability in cost and programme time.

The initial stages of an ECI process are critical. A comprehensive risk register needs to be established collaboratively and involve key representatives of the supply chain (Council, Contractor, Sub-contractors, Consultants, Suppliers, etc)

Failure to properly identify, evaluate, allocate and manage risk will result in increased and unmanageable uncertainty.

It is all too easy simply to pass the *risk parcel* and allocate risk 100% to one party or the other. Negotiating and agreeing the target price is not the time to ignore or start dumping risk as it will be paid for through delays and/or increased costs. This is often what happens in a traditional priced contract. Adopting a sensible approach to risk management is even more important in depressed market conditions.

Recommendations

The Council should apply rigour in the identification and mitigation of risk. This will require clear and consistent processes to be applied on all projects (particularly target contracts) prior to commencement when setting budgets and agreeing contract terms.

5. Learning Outcomes

5.1 Contract Negotiations Prior to Award - continued

Areas for Improvement 1 – Risk Identification and Mitigation – continued

Recommendations – continued

Once key risks have been identified the Council is recommended to explore risk response strategies for the high risk items identified in the risk register. The process should identify and assign individuals to take responsibility for each risk response. This will ensure that each risk requiring a mitigation plan has an owner. The owner of the risk could be a planner, engineer, project manager, etc, depending on the point in project development, or it could be the private sector contractor or partner, depending on the contracting method and risk allocation.

Risk identification, mitigation and planning efforts require the Council to set policies, procedures, goals, and responsibility standards. Formalising risk mitigation and planning throughout the Council will help establish a risk culture that should result in better cost management. Risk planning throughout the ECI and construction process and clear allocation of project risks will deliver better value for money.

5.2 Contract Selection and Award

For the reasons stated earlier the Council selected the NEC3 (Option D) form of contract commonly known as a target cost contract.

Although the promoters of the NEC are keen to portray the contract as the panacea to all time and expense issues, in truth Contractors and Employers are slow to change.

The use of this form contract has been proven to deliver significant benefits in experienced hands. From a Client's perspective, NEC3 introduces a range of options for risk management and incentivisation. It remains the most flexible and proactive suite of contracts amongst the standard forms of contract currently in

5. Learning Outcomes

5.2 Contract Selection and Award – continued

use and it contains robust processes for management of time and cost.

Target Price contracts such as NEC3 Options C and D combined with good open-book accounting provide Clients with visibility of what they are going to pay and when they are going to pay it. For example, if there is low inflation and even deflation, they will only pay for goods at current market rates.

With good open-book accounting there should be no nasty surprises with claims appearing out of thin air. No one can try to charge more for something under NEC3 contracts because there is a robust audit trail and clients can rely on provisions in the contract for disallowed cost.

However, the requirement to keep up to date with changes and issues as they occur requires both the Contractor and Client to work effectively and honestly in accordance with the contract methodology. Also both Contractor and Client must supply sufficient and competent resources in terms of commercial managers (quantity surveyors), administrators, engineers and field staff, and any failure by the contractor or Project Manager to operate rigorously to the contract may lead to a backlog of compensation events and programme issues. This will result in the target mechanism being spoiled and the contract being reduced to a cost reimbursable arrangement with no means of assessing cost efficiency.

Contract Execution

The contract contained specific terms, conditions and amendments that proved to detrimental to the Council. Weaknesses in the contract drafting significantly increased the Council's exposure to administrative problems risk. Several of the risks that were allocated to the Council would have been better shared or owned by the Contractor. These included the following:

5. Learning Outcomes

5.2 Contract Selection and Award – continued

Contract Execution - continued

(a) Incentives

The pain/gain share arrangement proved ineffective as it was heavily skewed towards the Contractor (Contract Data (Part 1)). Once the target had been exceeded there was little or no incentive for cost reduction strategies to be deployed by the Contractor until after 110% of the adjusted target. This is perhaps the most significant misjudgement in the award of the contract. The Contactor tendered the incentive arrangement and Council accepted it as part of the offer.

(b) Cost Management

The contract (Works Information) did not make adequate provision for open book cost management requirements (e.g. details of accounts and records to be provided by the Contractor and where is information to be kept) The Council were therefore unable to insist that the Contractor maintained records to its satisfaction as it was not a requirement of the contract.

(c) Contract Amendments

In attempting to put the Council in a stronger position poorly drafted amendments to the standard terms of contract proved damaging to administration of the contract.

(d) Contractor's Fee

The Contractors Fee (Off-site overheads and profit) of 5.87% was not properly audited. For example, the Council did not obtain a list of the regional or head office staff provided by the Contractor.

5. Learning Outcomes

5.2 Contract Selection and Award – continued

Contract Execution - continued

(e) Risk Register

The risk register prepared during the contract negotiations was not incorporated into the contract documentation. It is now clear that the risk register did not provide a realistic assessment of the risk at the time the contract was executed (refer to paragraph 5.1).

Areas for Improvement 2 – Contract Selection

Recommendation

If the Council intends to use the NEC3 suite of contracts again it needs to think carefully about which procurement options to use: whether to employ the Fixed Price forms of contract Options A or B, Target Price Option C or D. Although generally considered unattractive a cost reimbursable contract is also available - Option E.

Option A would provide the greatest degree of certainly and should be used, if limited cost management resources are available. Option C is more suitable where design is not yet at a sufficiently advanced stage to allow a Fixed Price to be tendered.

The NEC3 has various mechanisms to assist in creating strong working relationships between the parties. It has, for example, a Partnering Option (X12) which provides for the use of KPIs which provide early goals for contractors to achieve. It also provides a team structure and communication strategy which can greatly assist in resolving the type of problems which tend to take place when the market hardens.

5. Learning Outcomes

5.2 Contract Selection and Award – continued

Contract Execution - continued

Areas for Improvement 2 – Contract Selection - continued

Recommendations - continued

Setting the pain/gain shares at commercial levels is also recommended. However, an over-reliance on the share of savings to achieve performance has proved ineffective, and strict cost management throughout the contract will need to be a feature of any successful use of Option C and D.

The Council requires a much deeper understanding of collaborative procurement strategy and it is recommended that training is provided within the organisation to ensure that its officers responsible for contract selection are fully aware of the implications of the choices they make.

5.3 Contract Administration

The cost on the RWRR project increased due to numerous changes including difficulties which could not accurately be assessed or were beyond the control of the Council and the Contractor.

The NEC3 creates a set of project management tools which must be complied with and which are identified up front in the main Contract conditions. The Council and its advisors were arguably under resourced (skills and experience) to adequately cope with the demands of the NEC3 requirements, particularly in the area of commercial management.

5. Learning Outcomes

5.3 Contract Administration – continued

It is unclear as to roles, responsibilities and accountability between the Council and its commercial advisors. There was evidence that there were some failings in following areas:

- Management of early warnings to mitigate the effects of changes
- Assessment of the Contactor's entitlement to time and cost for compensation events at the time that they occurred
- The Contractor proving that costs were properly incurred and payable by the Council through the use of the Schedule of Cost Components and the requirement to keep accounts and records up to date
- Proactively managing the cost of compensation events through early warnings and agreeing a price for the work in advance of it being undertaken. The target (and revised target) should always be ahead of the work being carried out. In order for this process to work the Contractor should have submitted quotations of its forecast cost in a timely manner which rarely happened. There were over 1400 compensation events and most related to changes to the Works Information The price for each change could not be agreed promptly and in advance with the Contractor. This resulted in:
    - The Contractor being able to adopt a claims mindset and submitting large volumes of notified compensation events, regardless of true entitlement
    - The Contractor being slow in obtaining quotations from its subcontractors and preferring to wait until the work is in progress before submitting invoices for incurred cost in place of quotations. The work then proceeded on a cost reimbursable basis
    - Inadequate control and agreement of records, reporting systems and storage/ location of information
    - Poor and unsatisfactory cost management and reporting

These difficulties and shortcomings became more difficult to resolve as the RWRR project progressed and inevitably resulted in global time and expense claims being submitted by the Contractor coupled with dissatisfaction and problems coordinating the Contractor and sub-contractors on site.

5. Learning Outcomes

5.3 Contract Administration - continued

Area for Improvement 3 –Contract Administration

Recommendations

The NEC3 contains significant project management tools as outlined above, and these require decisive (and unpopular) action to be taken quickly. The early warnings process requires the Project Manager and Contractor to work collaboratively to identify and mitigate issues and this collaboration requires strong leadership and direction from the Project Manager.

The Project Manager needs to ensure that he has sufficient and competent resources in terms of commercial managers, administrators and engineers.

The need to assess compensation events on an actual cost rather than a fair valuation basis needs to be fully understood.

Brain-storming sessions on all of these issues amongst prospective managers, cost accountants and programmers would be beneficial prior to setting any processes in stone.

The Council requires a much deeper understanding of use of the NEC3 in practice and it is recommended that if the Council intends to continue using the contract a training programme should be undertaken within organisation.

It is also recommended that the Council develops a contract management protocol to ensure that its officers who are responsible for contract strategy and selecting forms of contract are fully aware of the implications of the choices they make

5. Learning Outcomes

5.4 Design Development

There were over 1400 compensation events and most related to changes to the Works Information As reported in paragraph 4.1 of this review the risk register prepared during the first stage of the ECI process did not identify some potential problem areas.

It is accepted that costly delays can also be caused by events which both the Council or the Contractor may not be able to avoid (e.g. gaining access to land). There is no doubt that a significant amount of the increased costs on the RWRR are as a result of such factors. The completion date of September 2010 was 13 months later than the date envisaged at the start of the construction in August 2007 and this delay is responsible for a substantial part of the cost increase.

However, some of these compensation events were required as a result of inadequate design or design errors resulting from incomplete or incorrect information such as the late change at the intersection of Parkfield Road which changed from a round-about into a T Junction.

If the design is incomplete at the commencement of construction of a complex project, the Council runs the risk of claims by the Contractor for compensation event (variation) costs and extensions of time for each design adjustment or clarification.

ECI two-stage tendering has become a common procurement route, although it is beginning to become less popular in the current difficult market conditions, where contractors are now increasingly invited to enter into single-stage, lump-sum tenders.

While the two-stage approach promises programme acceleration and greater collaboration between designer and Contractor, the reality on many projects is that clients can go to market with incomplete design information. They also incur extra costs associated with negotiation premiums and additional risk allowances when agreeing the second stage and, if the design continues to develop while the contractor finalises his price, may continue to hold the financial risk of design changes.

5. Learning Outcomes

5.4 Design Development – continued

Under conventional two-stage procurement, problems also occur because insufficient integration takes place between the design and construction teams or if there is a lack of transparency in the Contractor's pricing.

Furthermore, specialist subcontractors may only become directly involved in finalising some aspects of the design once the contract is won. These issues and others can breed mistrust which can undermine the collaborative approach such as was experienced on the RWRR project. This did not achieve the trust the Council was seeking to encourage.

The OGC has a series of Gateways which have been devised to increase the likelihood that a project such as the RWRR project is completed to time and budget (These Gateways are mandatory for all Central Government projects).

Area for Improvement 4 – Design Development
Recommendations

It is recommended that the Council adopts a procurement route that combines elements of develop and construct, two-stage tendering and partnering with a carefully managed design development, risk reduction and project procurement process. The close collaboration between the Council and its contractors that this method can promote would greatly assist in reducing potential design errors.

If this is coupled with a Gateway process in line with the OGC recommendations the likelihood of cost and time overruns due to incomplete poor design would be reduced further

Stradia has used this method and projects have been delivered to budget and on time which shows two-stage tendering can combine high project performance with a fair allocation of risk.

5. Learning Outcomes

5.4 Design Development – continued

Area for Improvement 4 – Design Development - continued

Recommendations - continued

The procurement process is known as a develop and construct approach in which the design team is, in most cases, novated to the main contractor before the fixed price is agreed. Specialist sub-contractors are formally involved in design development and pricing before the fixed price is agreed.

The preferred contract is NEC3 Engineering and Construction Contract Option A: Priced contract with activity schedule.

The main benefits associated with the approach are as follows:

- Effective management underpinning a fair allocation of design, performance and construction risk
- Full integration of design and construction through collaborative working
- Overlapping of design and procurement without risk of un-priced design development
- Reduced need for an additional shadow design team, where the original team is novated
- Progressive co-ordination of the work of specialist sub-contractors.

5. Learning Outcomes

5.5 Open Book Accounting

Regardless of the existence of a target or other performance incentives, the NEC3 Option D contract is, in essence, a cost reimbursable contract. Even under Option A (lump sum) the frequent failure to implement a compensation event in advance of costs being incurred, means that large parts of the works may proceed on a reimbursable basis.

As stated earlier there was a very high number of compensation events (over 1400) which illustrates the scale of the commercial administration involved in the project. When it became clear that the volume of compensation events was rapidly increasing both the Contractor and the Council deployed additional commercial management resources on site – but the backlog by this stage proved too difficult to resolve. This shift in the relationship with the Contractor was in part a result of the difficulty in managing the huge volume of changes and a lack of commitment to collaborative working by the contractor.

The only way to control costs under such circumstance, therefore, is to pay close attention to the Contractor's and sub-contractor's invoices, and to allow only those costs which are properly reimbursable by the Council. Costs must be supported by reference to detailed wage sheets, invoices, timesheets, receipts, etc. The NEC does not allow for a fair valuation to be made in the absence of this information.

In order for this process to work, the contract must operate on a truly open book basis so that the Council (Project Manager) can check and properly assess compensation events, forecast cost and check applications for payments.

The Project Manager must also assess whether the final cost is above or below the target price to evaluate and operate the gain or pain in accordance with the terms of the contract.

5. Learning Outcomes

5.5 Open Book Accounting - continued

All applications for payment were scrutinised in detail by the Council's commercial management team (ARUP) on site (on behalf of the Project Manager) to ensure they were justified. The Contractor was not entitled to recover costs which were:

- Contractor's mismanagement of Sub-contractors
- Unsupported by Accounts and Records
- Attributable to errors or work not in accordance with the Works Information
- Caused by inefficient use of Labour, Plant and Equipment
- Not market tested of prices. For example "internal" company owned equipment and plant used without competition in the market

However, in common with the other issues covered in this report, there appears to have been some reluctance to take decisions early in the contract and to disallow costs which later became the subject of a disagreement. As a result Contractor inefficiencies were not challenged effectively as they should have been. This was a major concern for the Council in respect of increased contractor staffing costs.

In order to identify and disallow these costs in a timely manner, the Project Manager required experienced and sufficient resources in terms of cost managers, contract administrators and engineers and it was necessary to ensure effective communication at all levels. The level of resource that ARUP were asked to supply was seemingly insufficient to meet the criteria required to adequately manage the rigorous requirements of the NEC3. Work not in accordance with the contract and inefficient working must not only be managed at a site level, but must be reported to the contract administration team for appropriate disallowances to be made.

In our view other good practice open book tools and techniques in managing project cost could have been used to greater effect on the project. These included:

- Collaborative procurement of subcontract packages before contracts were placed. Key strategic subcontractors and or suppliers could have been procured on a "back to back" basis using a target with appropriate incentive

5. Learning Outcomes

5.5 Open Book Accounting - continued

- Agree a process for recording staff time using a timesheet system in conjunction with the Project Manager to validate precisely what the Contractor's staff are doing on site

- Deal with rebates obtained by the Contractor i.e. challenge the Contractor in respect of national agreements with its suppliers

Costs may be disallowed at a later stage (a task undertaken by Stradia) but this can prove difficult. The RWRR project was heading towards a dispute between the Council and Contractor as the Contractor argued that disallowing costs at a late stage gave no opportunity to improve its performance in relation to the disallowed costs. However, it should be noted that there is an obligation on the contractor to work efficiently.

Area for Improvement 5 – Open Book Accounting

Open book accounting works best when there is a long term relationship between organisations that have a common ambition to collaborate with the aim of generating mutual efficiencies. Organisations contracting to deliver a construction project or service (including key members of the supply chain) must be willing to provide access to relevant accounting information in recognition of the full benefits that can be generated.

Used effectively, target contracts should provide an incentive to deliver a project or service on time and to budget. However, if project or service costs become out of control through poor cost management and reporting systems and processes, the contractor may take the opportunity to seek to increase the target price by constantly seeking variations. In this case, a greater burden of cost overrun risk may transfer to the client than had been intended.

Recommendations

It is vital that if the Council intends to use target contracts in the future it ensures that it has adequate resources with appropriate skills and expertise.

5. Learning Outcomes

5.5 Open Book Accounting - continued

Area for Improvement 5 – Open Book Accounting- continued

Recommendations – continued

The processes of successful open book accounting require at least:-

- A clear definition of actual cost
- What constitutes a disallowed cost
- The range of data which is needed - arrangements for access to cost data should be clear
- Regular cost reports and forecasts which are prepared and agreed jointly by the client, contractor and supply chain partners
- Clear targets with frequent performance reviews. Figures that are presented for interpretation and debate by management will always require the rationale behind them. This allows a full discussion between client and contractor and may lead to other suggestions or innovative ideas. It is this ability to discuss contractual issues in a consensual manner that helps set open book accounting apart from more adversarial forms of project management and monitoring
- Clarity on roles and responsibilities of the client, contractor and supply chain partner's respective commercial teams - it will be necessary to define who should be involved in the process.
- A culture of open and honest communication which will underpin the trust that is required for the process to be successful

The Council should review its existing selection procedures for appointing consultants. Ensure any criteria used for assessment is devised to test the skills and experience of potential organisations using appropriate criteria and weightings. Consultants should be able to demonstrate a detailed understanding of the commercial management of the particular type of contract to be used.

5. Learning Outcomes

5.6 <u>Risk Management</u>

Good practice is to identify, plan and cost for risks, although this is not an exact science. Traditional contracts with fixed risk mechanisms pass more of the risk onto the contractor but in the end it is the client that pays. Collaborative working using NEC3 Options C and D requires a comprehensive risk management process to be in place which is linked to cost management and reporting.

During the early stages of the RWRR project the Council did not implement procedures that were sufficient enough for the effective management and mitigation of risk. Although there was a project risk register and some identification of risk during the construction period, the process did not deal with all risk, evaluate the full impact on cost and provide for effective mitigation.

A problem illustrated by this contract is that bodies like Network Rail and Public Utilities are divested by statute or national agreements of risks arising from their acts or omissions and therefore have an unqualified influence over works where their land or other of its assets impacting on the RWRR project. This risk was always known to both the Council and the Contractor and significant effort was put into mitigating this risk prior to the start of construction. What was not known however was the extent to which this risk would impact on the project.

A mitigate plan for dealing with Network Rail and Public Utilities risks was not evident from looking at the risk register although it is understood that substantial work went into managing the interface with Network Rail and utilities during the design preparation stage. Also work was substantially reprogrammed in 2008 to minimise the impact of delays caused by Network Rail.

Risk management is a dynamic process which should be managed and maintained at all times to ensure all risks are actively being reviewed with any cost implications being linked to regular cost reports.

The risk management processes were overhauled and much improved during the last 12 months of the RWRR project. The Council and the Contractor started to work better as a team to address its exposure to risk. This included:

5. Learning Outcomes

5.6 Risk Management – continued

- Agreeing a definition of cost
- Validating the cost to be paid to the Contractor
- Improved commercial management procedures on site
- Resolved many matters of interpretation over the terms of the contract

Area for Improvement 6 – Risk Management

Recommendations

In a market that can be highly volatile, coupled with the notoriously risky business of construction activity, it should be the objective of clients, contractors and their supply chain partners to jointly eliminate or reduce as much risk as possible.

Effective risk management is an important tool in the use of target contracts and open book accounting. Too often, risk management is not used consistently – simply because it is not fully understood.

When working with target contracts, partner organisations must adopt a rigorous process for managing risk which should include the following key elements:

- Risk identification and assessment:
  - Understanding the objectives and vision for the project or framework agreement
  - Establishing a common understanding of the risks that may threaten the objectives and how they can be managed
  - Establishing a technique for assessing and prioritising risk (Likelihood, impact and consequence)
  - Agreeing mitigation action plans
  - Identifying risk owners

5. Learning Outcomes

5.6 <u>Risk Management – continued</u>

Area for Improvement 6 – Risk Management - continued

Recommendations - continued

- A joint risk register provides a good basis for making risks visible to all partners and gives the opportunity for agreed judgements, allocation of responsibility for action and trigger monitoring information. A shared risk register ensures better understanding of the risks which threaten a project or framework in both its implementation and any ongoing service delivery. It enables a joint approach to managing risks and provides clarity of who is responsible for, and manages, which risks.

6. Summary

The report summarises all of the key recommendations which have arisen out of Stradia's study of the project management of the RWRR project.

In addition to the recommendations made in this report Stradia has also made a number of technical recommendations relating to the detailed operation of the NEC3 which are to be provided in a separate report and which will be aimed at operational personnel such as project managers, quantity surveyors, engineers, etc

Appendix – Target Contracts