

AGENDA MANAGEMENT SHEET

Name of Committee Communities Overview and Scrutiny Committee

Date of Committee 15 March 2011

Report Title Rugby Western Relief Road

Summary Rugby Western Relief Road opened fully to traffic on 10th September. This report sets out the scheme history and outturn and invites members to comment.

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Would the recommended decision be contrary to the Budget and Policy Framework? No

Background Papers

CONSULTATION ALREADY UNDERTAKEN:- *Details to be specified*

Other Committees

Local Member(s)
(With brief comments, if appropriate)

Other Elected Members

Cabinet Member Councillor A Cockburn
(Reports to The Cabinet, to be cleared with appropriate Cabinet Member)

Chief Executive

Legal Ian Marriott

Finance Vicki Barnard and Chris Jukes

Other Chief Officers Dave Clarke – Resources
David Carter - Customers, Workforce and Governance.



- District Councils
- Health Authority
- Police
- Other Bodies/Individuals Strategic Directors Leadership Team

FINAL DECISION

YES (If 'No' complete Suggested Next Steps)

SUGGESTED NEXT STEPS :

Details to be specified

- Further consideration by this Committee
- To Council
- To Cabinet
- To an O & S Committee
- To an Area Committee
- Further Consultation

**Communities Overview and Scrutiny Committee –
15 March 2011**

Rugby Western Relief Road

**Report of the Strategic Director for
Environment and Economy**

Recommendation

That the committee considers the content of this report and if appropriate makes recommendations to Cabinet.

1. Background

- 1.1 Completion of the Rugby Western Relief Road (RWRR) has been a long held ambition of the County Council. The road is important to cater for traffic growth arising from recent housing and employment developments and to facilitate the future growth of Rugby. It was the culmination of many years perseverance when the road finally opened fully to traffic on 10 September 2010. Construction of the road is a very significant engineering achievement by the County Council. A summary of the development history of the road is contained in **Appendix A**.
- 1.2 Early indications from traffic counts in October are that the road has brought immediate traffic relief to the town. When compared to traffic flows before relief road construction began, traffic has reduced by up to 28% on main routes around the town centre. Positive feedback about the benefits of the road have been received from the public.
- 1.3 Despite the significant increase in cost since the contract for construction was let in 2007, the scheme still delivers very good value for money when assessed using the Government's major scheme appraisal methodology which compares scheme cost against scheme benefits. At the current predicted outturn cost the scheme cost-benefit ratio is 4.5 i.e. for every pound invested there is £4.50 worth of benefits.
- 1.4 However, the costs of this important project have increased considerably from an estimated £36.57m at the time the contact was awarded in July 2007 to an estimated final outturn cost of approximately £60M. The reasons for this need to be fully understood and explained. In particular the increase in the costs of the construction contract from an estimated £24.16m in 2007 to £39.75M has to be understood.

- 1.5 As a result of concern over rising costs which became apparent in summer 2008, a bid for additional funds was made to DfT and the Strategic Director for Environment and Economy sought and obtained reviews and input from both the Council's Internal Audit Team and the Resources Directorate starting in the Autumn of 2008. Following a considerable amount of work to review and predict expenditure on the project a confidential report went to Cabinet in October 2009. At that Cabinet meeting it was agreed that a Board of Members and Strategic Directors be established to oversee a review of the scheme and establish reasons for the increased costs. This Board met eight times and a summary of those meetings is contained in **Appendix D**.
- 1.6 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?
- 1.7 In October 2009, on the recommendation of the WCC Resources Directorate, Contractauditline (CAL), a specialist audit and contract consultant, was brought in to assist with the review. The consultant focussed on the questions described above. His report (attached as **Appendix C**) identified a number of issues and areas for improvement/action which form part of the lessons to be learnt by the Council.

2. The Procurement Process

- 2.1 The procurement process began in 2003, although work on the project itself was initiated a few years before this (as set out in **Appendix A**). Following advice from ARUP and Warwick Business School it was decided to adopt a target cost contract with early contractor involvement (ECI). The aim was to develop a partnering approach and innovative and cost saving solutions at design and development stage of the RWRR leading to a target cost, with the aim of these benefits being realised in the construction stage. Following a competitive tender process the contract for 'professional services' (ECI) was awarded to Mowlem in 2003. The contract contained an option (and expectation) to award Mowlem the construction contract, without the need for a further competitive tendering process, if the Council chose to do so and subject to agreement of an acceptable price.
- 2.2 This approach to the procurement was considered to be industry best practice at the time. As is the nature of major construction projects, various time consuming stages, including public inquiries and referrals to the Secretary of State, then took place as set out in **Appendix A**.
- 2.3 In 2006, Carillion acquired Mowlem and the Council continued with them under the professional services contract. Throughout this period the estimated cost had been increasing, largely due to significant nationwide construction inflation

and further development of the scheme. This was reported to Members. In 2007, following agreement on prices, the construction contract was awarded to Carillion without further competitive tendering (see 2.1 above).

- 2.4 It is the Strategic Director's view that following the construction contract award to Carillion, the nature of the relationship between the County Council and its contractor changed, although this is difficult to prove and the precise point in time when this happened is not clear. We originally procured a partnering style of contract with the aim of it providing added value to both parties and savings on costs. At some stage the relationship appears to have changed to a more traditional, adversarial, style of contract.
- 2.5 There is a case for saying that when Mowlem were taken over by Carillion, the Council should have reverted to a full tender process for the contractor to construct the RWRR, rather than continue with Carillion. The reason for not doing this appears to have been the pressure to get the construction work started as soon as possible and the fact that acceptable prices were agreed with Carillion. The Strategic Director understands that the pressure arose from a number of factors, primarily the time limits on the availability of external developer funding but also Members wanting quicker progress and loss of some ECI benefits if tendered. There was no identified risk at the time in continuing with Carillion due to the fact that key staff employed by Mowlem (e.g., the Director, Regional Director and Contract Manager) remained on the project under Carillion until the contract was awarded. An illustration of the pressure at that time is that Council approved a notice of motion in December 2006, expressing great concern at delays caused by the Secretary of State which had led to lack of progress on the Rugby Western Relief Road.
- 2.6 The Strategic Director suggests that if a similar takeover situation occurred in the future a detailed review should automatically take place before awarding the contract to ensure that none of the assumptions on which the choice of contractor was based have changed.

3. Was this the Right Contract?

- 3.1 The decision to utilise a target price contract was taken based on expert advice and followed industry practice at the time. The choice was made on the basis that the Council and contractor would both strive to achieve savings against the target and share any financial 'pain' or 'gain'. The form of contract was chosen with the clear expectation that there would be some 'gain' on the contract. However, the ongoing relationship of the parties to such a contract is key and it is a complex process.
- 3.2 This opportunity was lost over time as the contract moved to a more traditional (adversarial) style of contract. This has created significant problems in administering the contract, compounded by the need to deal with an extraordinary number of compensation events.
- 3.3 The experience of building a large and complicated project under a target price form of contract has demonstrated how difficult it is, without a real spirit of

partnership working, to administer such a contract in a way that maintains the incentives to keep costs down (see paragraph 5.6).

- 3.4 Our own experience with the RWRR has been repeated on other contracts and there has been considerable debate nationally about this form of contract. Cambridgeshire built a guided busway using a target price contract. It was reported in the New Civil Engineer magazine (NCE) on 7 September 2010 that the construction cost for this project has increased to £145M from an initial target cost of £87M. As a result Cambridgeshire has called for a Government funded public review of the NEC forms of contract. A further article in NCE on 21 October reports criticism of the NEC form of contract saying that it requires too much project management and generates too much paperwork.
- 3.5 If we were awarding this contract today, it is the view of the Strategic Director that a target cost contract in this form is unlikely to be recommended.

4. Could the Increased Costs Have Been Foreseen?

- 4.1 On major construction contracts there are always risks that costs will increase and they often do.
- 4.2 Unforeseen problems (e.g. unrecorded utilities, ground 'soft spots') are always a risk despite best efforts to identify them in advance. Costly delays can also be caused by events beyond the client's or the contractor's control (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, e.g. access to Network Rail's land, led to huge delays. The completion date of September 2010 is 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.
- 4.3 A problem illustrated by this contract is that bodies like Network Rail and Public Utilities can completely divest themselves of risks arising from their actions or omissions and therefore have an unqualified influence over works where their land or equipment is involved. This is a national rather than local problem. At a suitable point this may be worth taking up with Government, perhaps with the help of our local MPs.
- 4.4 Good practice is to identify, plan and cost for risks, although this is not an exact science. The CAL report is critical of the risk management process indicating it lacked sufficient structure and proactive development, i.e. there should have been a more dynamic process taking place and a more complete risk register.
- 4.5 However, staff in Environment and Economy involved with the project argue that there was a strong focus on risk management prior to work starting on site and that the response to risks throughout the contract was both proactive and reactive. For example, work was substantially reprogrammed to minimise the impact of delays caused by Network Rail in 2008.
- 4.6 It is the view of the Strategic Director that steps were taken to identify and manage risks throughout the project. However, the risk register itself could have been more dynamically managed and maintained to ensure all risks being

identified were logged, fully costed and dealt with. A more assiduous approach to maintaining the risk register would have helped provide evidence of the risk management that took place.

- 4.7 The presence of a structured approach to risk management is therefore an important future test for all projects across the council. The approach to risk management advocated by CAL would seem to be at a higher level than traditionally operated generally within the county council and it raises a question about whether the council (not just Environment and Economy) currently has sufficient levels of skill and knowledge for the kind of dynamic risk assessment (including the costing of risks) envisaged.
- 4.8 At the pre contract stage the project manager went through a structured process to arrive at an appropriate level of contingency which reflected the challenges and complexity known at the time. With hindsight, it is clear that a much higher amount should have been built into the initial (2007) budget for the project. CAL suggest an additional £2m-£3m should have been added but even this is small compared to the actual increase in cost. This clearly needs to be addressed more carefully for future major projects.

5. Are the Increased Costs Justified?

- 5.1 The contract is cost reimbursable with a target cost. This means that the contractor is entitled to be reimbursed for all of the costs he incurs less any costs that can be disallowed under the terms of the contract. The contract operates as an open book contract so we can check applications for payment are correct. If the final cost is above or below the target cost the payment to the contractor is adjusted for gain or pain in accordance with the terms of the contract.
- 5.2 As the contract progresses the contractor applies for reimbursement of costs incurred. Payments are therefore retrospective to cover costs already incurred. All applications for payment are scrutinised in detail by the ARUP commercial team on site to ensure they are justified.
- 5.3 Following a recommendation in the report by CAL an external specialist cost consultant (Stradia) was appointed in January 2010. The work by Stradia has not revealed any evidence that the Council has paid unjustifiable costs. Stradia has assisted in identifying the disallowed costs.
- 5.4 In a target cost contract the initial target cost for the contract is adjusted through compensation events as the contract progresses. The direct cost of the work associated with compensation events is paid as a reimbursable cost. The sole purpose of the target cost is to reflect the changed scope of the contract so that an appropriate revised target cost is used to determine the level of pain or gain.
- 5.5 There has been a very high number of compensation events (over 1400) which is indicative of the scale of unforeseen events, the changing relationship with the contractor and changes to the scheme that have occurred. Back in 2008, when it became clear that the volume of compensation events and costs were potentially escalating, quantity surveying resources were increased.

- 5.6 The intention of a target cost contract is that the contractor is incentivised to keep costs down since he is rewarded for keeping the cost below the target. Due to the sheer number of compensation events it was not possible to agree valuations of the compensation events quickly enough to maintain a current target cost. This has meant that an up to date target cost has not been available to incentivise the contractor.
- 5.7 Intense negotiations led to final agreement with Carillion just before Christmas 2010 on the total payment for the contract. Stradia assisted with those negotiations.
- 5.8 A detailed breakdown and commentary on the scheme out turn costs and a comparison with the estimated costs at the time the construction contract was let in 2007 is given in **Appendix B**.

6. Has the Project Management Been Robust Enough?

- 6.1 There is, understandably, much concern about the increase in costs and this has led to questions about the quality of project management on the scheme.
- 6.2 CAL are critical about some aspects of the project management process but, whilst there are arguments over whether or not the process was robust enough, it would be wrong to simply focus on this.
- 6.3 There is a question as to whether sufficient project management resources were provided during the early stages of the construction works to deal with design issues and compensation events. In 2008, as it became clear that costs were escalating and under the pressure of increasing numbers of compensation events, more resources were put on the project. The need to bring in additional resources was partly due to indications that the contract was becoming more adversarial and that compensation events were not being administered in accordance with the principles of the contract.
- 6.4 A Strategic Management Board (SMB), including the contractor's Regional Director and Senior Contract Manager, and WCC's Project Manager and the Head of Transport and Highways (Chair of Board) exists. Initially 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, meetings of the internal Warwickshire Engineering Board were taking place regularly which was maintaining governance.
- 6.5 CAL feel that when the Board did reconvene there were fewer formal reports presented than might have been expected for a project of this size. CAL have also expressed the view that the minutes lacked sufficient evidence to confirm that the quantum of the increasing costs were being reported until July 2008 or that the actions being taken to address them were being recorded. However, CAL also acknowledges that the extent of delays to the project were being reported with references to attempts to mitigate costs.

- 6.6 In 2008, focus on the escalating costs increased significantly and project management was enhanced. Support from Internal Audit was sought and the Head of Projects from the Resources Directorate provided an independent view and assurance on budget forecasts.
- 6.7 CAL raises concern about the relative lack of formal structure in parts of the project management. In contrast, the view of CAL is that the work done by the Project Manager throughout this period was very good. It is not possible to say whether a more formal approach to parts of the project management would have made a significant difference.
- 6.8 CAL raised concerns about the relative roles of the project manager and the Strategic Board. CAL's view is that the project was being driven more by the project manager than the Board and that it should have been the other way around. However, it is now normal practice in EED and the method envisaged by PRINCE2, that the project manager takes the lead in delivering a project with Governance and support from a Board. This has been a successful approach for projects such as Coleshill Parkway. It is the project manager not the Board who is in close daily contact with the project and therefore must control it. The role of the Board is to ensure the project manager has the necessary resources to deliver the project and to make decisions brought to it by the project manager. CAL have said that it is impossible, even with the benefit of hindsight, to link conclusively any of the problems that have been experienced on this project to what they consider to be weaknesses in control exercised by the SMB.
- 6.9 With hindsight, it is the view of the Strategic Director that it would have been beneficial to establish a Member/officer Board in 2007 to oversee the project and be able to challenge progress reports. This is becoming more common with major projects within WCC (e.g. the new Highway Maintenance Contract/Procurement and the transfer of concessionary fares). Such project boards would be appropriate for large capital projects and programmes in future.

7. The Design Process

- 7.1 In addition to the specific questions set by Cabinet there are other important matters to emerge from the review of the RWRR project.
- 7.2 The design of some elements of the project have had to be changed due to design deficiencies that became apparent during construction. In some cases the design changes had to be 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 more minor redesign. It is vital that projects have clear mechanisms for ensuring any mistakes are systematically analysed to ensure that they are dealt with in the quickest and most effective way and that lessons are learnt. These design deficiencies have been responsible for a relatively modest proportion of the scheme cost increase.
- 7.3 The design was carried out by a combination of Environment and Economy's internal design team, its partner design consultant ARUP and the construction

contractor under ECI. The Directorate has quite a large 'in house' design team, which has been supplemented with staff from ARUP who have worked alongside them and, where required, other external consultants with specialist skills. ARUP have also assisted through, for example, providing quantity surveyors to value works done by Carillion.

- 7.4 The Strategic Director is of the view that the combination of quite a large 'in house' design team working with an external firm of consultant designers on a major project carries the risk for the council that its client role becomes compromised by its role in the design of the project itself. There is an argument that retaining a strong 'in house' design team helps ensure a strong and sustainable 'intelligent client'. However, it is the view of the Strategic Director that on such a major contract, there is a strong case that the whole of the design work should have been contracted out.
- 7.5 An investigation into the design errors is currently underway to establish what action, if any, should be taken in relation to the design shortcomings.

8. Conclusions

- 8.1 Completion of the RWRR has brought significant traffic benefits to Rugby and it will facilitate future planned growth in the town. Even at the higher out turn cost it still delivers very good value for money when assessed using the Government's scheme appraisal methodology which compares scheme cost against benefits.
- 8.2 The RWRR is a large and complex project. All major road construction contracts carry risks that unforeseen costs will be incurred and much was done on this contract to manage risks and to mitigate the cost of problems that arose. Some of the cost increases can be attributed to causes that could and should have been avoided and mistakes were made with some elements of design. However, the majority of the cost increase relates to matters that could not have been foreseen and were outside the control of WCC and Carillion.
- 8.3 There is no evidence to suggest payments made to Carillion are not contractually justified. To ensure that the Council's commercial interests are protected a specialist consultant (Stradia) has been brought in to advise on and assist with commercial negotiations with Carillion. With the help of Stradia the Commercial negotiations led to resolution of the final account in December 2010.
- 8.4 Competent project and risk management was deployed on this contract without which costs and delays could have been significantly worse. However, there was some lack of structure and formality to some aspects of the process (e.g. risk management). In future the structure of project management and risk management needs to be more robust in projects of this nature and scale and there are important lessons to be learnt from this. Establishment of a Member/officer board to provide strategic governance should be considered for future major projects.

- 8.5 The anticipated benefits of an ECI and target price contract have not been realised on this project. Careful consideration is required to determine the best form of contract for major projects in the future. In order to assist with this evaluation Stradia have been asked to advise on lessons that should be learnt from this contract and they will in due course provide a detailed report on this. Outline advice from Stradia for future contracts is :
- Pay careful attention to pain/gain incentive mechanisms in contracts of this nature to ensure they are suitable for the individual contract.
 - Adopt improved risk mitigation techniques
 - Use of enhanced contract provisions relating to open book cost management and adopt improved methods for defining costs payable under the contract
 - Implement greater integration of contractor and client commercial teams
 - Try to reduce the amount of change during construction and pay close attention to risk created by design change.
 - Adopt more proactive cost management techniques
 - In target price contracts ensure a current target price is always present during the contract to maintain incentive for the contractor
- 8.6 The procurement process was robust and followed good practice. However, pressure to let the contract meant that some aspects of design were not complete at the time the contract was awarded. This led to some increase in cost and also meant that the target price was too low at the time the contract was let due to omission of costs that would have been identified if the design had been complete. The risks inherent in letting a construction contract without complete design and information are well known. However, the pressure to begin this contract was intense (see paragraph 2.5).
- 8.7 With hindsight, the level of contingency was much too low. Optimistic assumptions were made that ECI would lead to a more buildable scheme design with fewer difficulties and it had been anticipated that a financial gain would be made compared to the target cost, which would be shared with the contractor. These optimistic assumptions led to a lower than normal contingency. For future contracts it is vital that contingency sums built into contract estimates reflect the risks in those contracts. In this context Contractauditline suggest that a robust contingency sum for this contract would have been £2-3M. It is worth noting that the estimated cost of land and land compensation alone for this scheme has increased by £2M. The Strategic Director's view is that a more robust discussion and specific value needs to be put on risk in advance of contracts being let.
- 8.8 A substantial proportion of the cost increases in this contract were due to actions or omissions by NR and Public Utilities. The Council has no redress regarding these costs. This may be a matter that should be taken up at national level.
- 8.9 The mixture of in house staff and external staff who worked on the project all reported to a WCC project manager. This created a blurring of responsibilities and accountabilities and should be avoided in the future. To ensure clarity of responsibility for complex and large scale projects consideration should be given to the use only of external design consultants and/or design and build contracts in the future.

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21 February 2011

**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

Communities Overview and Scrutiny Committee – 29 November 2010

Rugby Western Relief Road

Cost Increases - Details and Comment

1. Summary of Costs and Funding

1.1 Table 1 below contains a comparison of the following cost estimates :-

- April 2007 - The last approved estimate prior to award of the contract to Carillion.
- October 2009 - The estimate approved by Council on 20 October 2009 which was prepared with the help of Resources Directorate and involved a great deal of work over Spring and Summer 2009 to review the project and predict expenditure
- December 2010 - The latest estimate approved by Council on 14th December 2010

Table 1 – Comparison of Cost Estimates			
Description	April 2007 £000	Oct 2009 £000	Dec 2010 £000
Works – Main contract (Carillion) (see note 1)	24,162	37,956	39,750
Works – Advance site clearance (note 2)	0	0	163
Works - Post completion (note 3)	0	0	100
Land and land compensation	2,746	3,156	4,718
Utilities and Network rail	4,110	6,387	6,845
Fees	5,020	7,501	8,919
Contingency (see note 4)	535	0	0
Total	36,573	55,000	60,495

Note 1 – Final total payment to Carillion of £39.75M was agreed in December 2010

Note 2 – The advanced site clearance was carried out by Carillion in early 2007 under a separate contract (see appendix A for more background).

Note 3 – This is work such as landscaping that will be carried out by other contractors now the main contract has finished. The work was originally included in the Carillion contract and the main estimate but has been removed from that contract to deliver better value.

Note 4 – Contingency was included as a separate allocation in the April 2007 estimate but was built into the works – main contract estimate in October 2009. There is no contingency built into the October 2010 estimate.

- 1.2 A detailed breakdown of estimated expenditure and funding approved by Council is given in Table 2.

Table 2- Income and Expenditure				
	2009-10 and earlier years (£000)	2010-11 (£000)	2011-12 and later years (£000)	Total (£000)
Expenditure	47,112	10,917	2,466	60,495
Income				
DfT major scheme funding	21,262			21,262
Developer funding	15,444			15,444
LTP Block Allocations	2,076	5,300	2249	9,625
Revenue	184	1200		1384
Capital receipts	733	2,176	217	3,126
Corporate Prudential Borrowing	2776	200		2976
Self-financed Prudential Borrowing	4637	2041		6678
Total	47,112	10,917	2,466	60,495

2. Cost Increase – Land and Land Compensation

- 2.1 The estimated cost of land acquisition and compensation for the effect of the scheme on the value of surrounding property (Part 1 – Land Compensation Act 1973) has increased by 72% from £2.746M to £4.718M. The bulk of this increase is due to recent advice from WCC advisors that their original estimate for Part 1 Land Compensation payments should be substantially increased.
- 2.2 This Part 1 Claim element of the scheme cost is the one that remains most uncertain. A Part 1 Claim for compensation can only be made 12 months after the road opens and may be made up to 6 years after opening.
- 2.3 The Part 1 Claims may be made due to physical factors as set out in the legislation e.g. noise. Very substantial mitigation works have been deployed along the sensitive lengths of the route so the level of claim should be minimised.
- 2.4 A noise report will be commissioned to ensure that the value of claims can be accurately assessed.

3. Cost Increase - Utilities and Network Rail

- 3.1 Public Utility diversion costs have increased by 78% from £3.468M to £6.169M.
- 3.2 As part of the scheme design detailed enquiries were made to all Public Utilities (PU) to determine how utilities would impact on the scheme and to determine the requirements for utility diversions. The presence of utilities can have great significance for the scheme design. For example the presence of major utilities adjacent to Sow Brook led to the decision during the early design phase to increase the span of the bridge to avoid the need to divert those utilities.

- 3.3 Legislation requires that the County Council must pay PUs to design and execute service diversions. WCC is reliant on the PUs for accurate information about the presence of services and the cost of diversions. PU estimates for works proved to be inaccurate which lead to an underestimate of costs in the April 2007 estimate. During construction difficulties with service diversions and inaccuracies in the PU records also led to increased costs in dealing with services. In addition to the direct costs paid to PUs these difficulties also caused delay and disruption to the main works contract which increased the cost of that contract.
- 3.5 Network Rail costs have increased by 5.5% from £641,000 to £676,000. These costs relate to diversion of a 25KV power cable and to the cost of Network Rail staff required to supervise the site during track possessions.

4. Cost Increase – Works (Main Contract)

- 4.1 The final account for the cost of the main works contract with Carillion has been agreed at £39.75M. This represents an increase of 64.5% from an initial target cost of £24.162M. There are many reasons for this cost increase, the principal reasons are given below to illustrate how cost increases have arisen.
- 4.2 Network Rail – Network Rail (NR) caused a substantial proportion of the 13 month delay and disruption to the main works contract due to problems with their own works on the West Coast Main Line, works by NR for RWRR and also due to their very protracted and delayed approval processes for works on or adjacent to the railway. The cost of this delay and disruption exceeds £5M.
- 4.3 Public Utilities –The presence of uncharted utilities and inaccuracies in the PU record drawings led to delay, disruption and extra work in the main works contract. It would be a major exercise to interrogate all of the compensation events to determine the full extra cost relating to utilities. However, the cost exceeds £0.5M.
- 4.4 Ground Conditions and Earthworks – Site investigation carried out during the design phase identified only one area of poor ground. In reality a number of areas of poor ground were encountered and one area of contaminated ground had to be dealt with. Due to more unsuitable material arising from the works and some changed design requirements relating to flood compensation area and balancing ponds a great deal more material than expected had to be removed to tip off site. It is estimated that the cost of dealing with unforeseen ground conditions and earthworks changes was £1.3M.
- 4.5 Parkfield Road – Various engineering difficulties were encountered in constructing the RWRR along the length of Parkfield Road between the quarries adjacent to the Cemex works. A tunnel connecting the quarries and large retaining walls had to be constructed in this area which is very constrained by the quarries each side. The area contained a high concentration of utilities in a tight space.

Substantial additional temporary works were required to facilitate construction of the tunnel and retaining walls. Temporary works are primarily the responsibility

of the contractor and it is disappointing that this aspect of construction did not benefit from Early Contractor Involvement (ECI). In addition the pressure to start construction (see paragraph 2.5 of the main report) meant that some elements of design for this part of the works were not complete at the time the contract was started. The final design which was completed during construction encountered complexities that led to costs that were higher than those assumed in the initial target price. All of these difficulties were compounded by the presence of congested services which meant even slight variances in type and location of services created great difficulties. The total additional cost of these works was £550,000 plus delay and disruption costs.

- 4.6 Design Issues – A number of design errors became apparent during the construction phase. Two roundabouts required substantial changes to their design after they were substantially constructed and one roundabout was replaced with a T junction after it had been partially constructed. The cost of these design errors is estimated at just under £800,000.
- 4.7 Street Lighting and Traffic Signs – The urgency to begin construction is described in paragraph 2.5 of this report. When construction began in August 2007 the traffic signs and street lighting had not been designed. Provisional sums were therefore included in the contract target price to cover these items. Once design was done the cost of lighting and signs was just over £1M more than allowed for in the provisional sums.
- 4.8 A wide variety of other factors led to costs that were higher than was assumed in the initial target price. Examples of these with approximate costs are :
- The need to remove asbestos found in the old railway embankment, removal of asbestos cement pipes left by Severn Trent and other unexpected additions to site clearance (£250,000)
 - Unforeseen additional landscaping costs and accommodation works such as hedges (£210,000)
 - Severn Trent Water were unable to carry out diversion of a 600mm diameter water main in the planned way and this added £370,000 to the cost of constructing Sow Brook Bridge.
 - A pumping station was required on Parkfield Road to pump highway drainage from the low spot under the railway bridge. Due to the pressure to begin work the design of the pumping station was not fully developed at the start of the contract and it had been assumed that a low voltage electricity supply would be used to power the pumping station. Completion of the design and the need for a high voltage cable to power the pumping station led to an increased cost of £148,000 compared to the amount allowed in the initial target price.
 - The retaining wall adjacent to the Paynes Lane industrial estate had to be redesigned and increased in height due to the risk of damage to an adjacent industrial building that became apparent once construction began. The changes led to an increase in cost of £320,000.
 - Weather - the severe winter of 2009-10 led to loss of production and delay which increased costs but it is not possible to quantify the cost.
 - A wide range of other minor unforeseen engineering difficulties were encountered which individually were not high costs but the number of them when added together adds significantly to the total. Many of these problems

could not have been foreseen but some were due to inadequate or incorrect information from a variety of sources.

- 4.9 Under the terms of the target price contract Carillion are paid a fee which is a percentage of the total works cost. The fee covers items such as head office costs, insurance etc. The increased cost of the works has meant that the final fee is approximately £860,000 more than that in the initial target price.

5. Cost Increase – WCC Fees

- 5.1 This fee comprises costs for WCC staff, ARUP staff and a range of other consultancy costs such as Stradia, topographical survey, ground surveys etc. The estimated cost of these fees has increased by 78% from £5.02M to £8.919M.
- 5.2 The percentage increase in the cost of fees is broadly in line with overall scheme cost increase. The increase is due to a combination of:
- A construction period that increased by 63% which meant staff resources were required for a longer period.
 - The scale of difficulties encountered on the project which led to a need for increased staff both to deal with engineering difficulties and to deal with the unforeseen scale of commercial management of the project.

6. Cost and Risk Management

- 6.1 Some of the cost increases described above can be attributed to causes that could and should have been avoided and mistakes were made with some elements of design. However, the majority of the cost increase relates to matters that could not have been foreseen and were outside the control of WCC. All major road construction contracts carry risks that unforeseen costs will be incurred. Much was done to manage risks and to mitigate the cost of problems that arose.
- 6.2 During the design stage a comprehensive risk evaluation exercise was undertaken jointly with the ECI Contractor prior to awarding the contract, as part of the value engineering process. Risk registers were developed for the design, construction and maintenance stages of the project and those risks that could not be mitigated were evaluated and costed. The intended benefit of ECI was that these risks and costs would be better managed by the contractor being involved at design stage.
- 6.3 Throughout the construction phase close attention was paid to risk management. Weekly risk reduction meetings were held with the Contractor to consider the Early Warning notices that were raised (by the Council or Contractor) which identify potential issues that might have an impact on the construction works. The intention was to adopt action plans or mitigation measures to ensure additional costs were minimised.
- 6.4 Fortnightly design reviews and programme planning meetings are held to ensure that all of the works information, method statements and risk assessments were in place to suit the construction programme, to minimise delay and disruption.

- 6.5 Throughout the construction contract site staff sought to drive down the actual costs of the works and to deliver the works at the earliest opportunity by re-engineering, re-programming and re-sequencing activities. Savings have been made without which the works costs would have been even higher. Cost reduction planning was adopted which identified ways to reduce costs.
- 6.6 The approach described above can be illustrated through two examples relating to NR and Public Utilities.
- (a) Forward planning of the railway bridge works with NR started in 2004 to agree the basic geometry of the bridge to ensure accordance with rail standards and to ensure track possessions would be available to facilitate its construction. Regular meetings ensued thereafter up to award of the contract in 2007 and NR were fully aware of Carillion's programme of works for the rail bridge. Unfortunately, frequent changes to the West Coast Main Line upgrade works programme and NR's protracted technical approvals process caused major disruption to the rail bridge and delay to the whole contract. The impact of these problems was mitigated by reprogramming the construction work to make construction of the bridge less critical to the overall programme.
 - (b) Extensive enquiries with Utilities were undertaken during the preliminary design stage to establish the location of the Utility companies' services along the line of the proposed RWRR. This information, together with the record drawings supplied by each Utility company, should have given an accurate picture to decide which services needed to be diverted or protected to accommodate the RWRR. However, these utility record drawings proved to be inaccurate or incomplete and a number of unknown services (both live and disused) were encountered, particularly STW sewers and electric cables. These had to be identified and either removed or diverted/protected causing delay and additional cost to the RWRR works. Wherever possible works were reprogrammed and other strategies were adopted to reduce the impact of these problems.
- 6.7 It was anticipated that the combination of ECI and a target price contract (which gives incentive to the contractor to deliver lower cost) would achieve lower risk of cost increases so a low contingency of 2% of the tendered construction target cost was built into scheme estimates. In the event there have been an abnormal number of problems on the contract and the intended benefits of ECI and a target price contract have not been forthcoming.

Rugby Western Relief Road

**Review of Contract and the
Circumstances Leading to the
Increased Costs**

Report
1st February 2010

*Public disclosure of this report would be prejudicial to
the Council's commercial interests.*

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1.0 Executive Summary

- 1.1 In July 2007, the Council entered into a contract with Carillion JM Ltd for the construction of the Rugby Western Relief Road. The value of the contract was based on a target price of £24.16M and works were to be completed by September 2009. Four months earlier, the Cabinet of the Council had approved a revised estimate of £36.57M that included services, fees, land and property costs, as well as the target price for the works.
- 1.2 In October 2009, Cabinet was advised that the estimated final target price for the works was £37.96M, an increase of £13.80M. This, together with increases in costs associated with other elements of the scheme, had caused the latest forecast to rise by £18.43M to £55.00M and delayed completion until October 2010 or February 2011.
- 1.3 The Cabinet agreed to the establishment of a Member and Officer Review Board to review the reasons for the increase in costs and, in particular, to consider the following questions: -
- Was the procurement process robust enough?
 - Was this the right contract for the scheme?
 - Could any of the increased costs have been foreseen?
 - Are the increased costs justified?
 - Has project management been robust enough? and
 - Are there any wider lessons for the Council for major contracts or projects?
- 1.4 CAL (Contractauditline) was appointed by the Board on the 16th October 2009 to assist in answering the above questions.
- 1.5 Our review concluded that the procurement processes that resulted in the selection of the form of contract and appointment of John Mowlem & Co plc in 2003 to be robust and fully in accordance with best practice. Project management arrangements were also sound and robust up to when work was suspended in 2004.

- 1.6 Following the recommencement of design work in 2006, the Strategic Management Board was not immediately reconvened, the development of a comprehensive risk register was not completed and a suitable monitoring and reporting framework was not established when construction work commenced in 2007. More robust project management during the period when the target cost and scheme budget were produced, and construction work commenced may have prompted a full assessment of the risks that were to be ultimately accepted by the Council and, consequently, marginally reduced the impact of some of the additional costs that have been incurred.
- 1.7 Current project management arrangements are significantly weakened due to the absence of a comprehensive risk register. Whilst 'risk reduction meetings' are held regularly, these consider future actions that can be taken to mitigate risks in respect of events that have happened in the past, rather than looking at ways to reduce the risk of those events that could possibly occur in the future. Consequently, our report recommends that a risk assessment be carried out on this project as a matter of urgency.
- 1.8 We concluded that the management of compensation events and the controlling of the associated costs are weak. Since the beginning of the construction works, costs associated with early warnings and project manager's instructions have not been resolved on a timely basis and a large backlog has continued to exist for almost the entire duration of the contract.
- 1.9 The estimate of outstanding compensation events (£8.76M) is based on figures provided by the contractor and therefore it can be presumed that final agreement is likely to be within this sum. However, due to the issues discussed above, we are unable to provide full assurance regarding the accuracy of the cost forecasts provided to Cabinet in October 2009. Further, due to the high number of outstanding compensation events and the general absence of cost computations, it has not been possible to analyse increased costs to determine the extent to which any of the events could have been foreseen and/or avoided.

- 1.10 We do feel, however, that the impact of the events may have been further mitigated had robust risk management arrangements continued to be in place following the recommencement of work in 2006.
- 1.11 During our review, we felt that while the Council is correctly attempting to operate the contract within the spirit of the original arrangements, the contractor appears to be trying to operate the project like a traditional contract rather than in accordance with the open book approach that was envisaged during the early contractor involvement process.
- 1.12 We noted that submissions from the contractor suggest that they consider that the final target price should be in the region of £50M, some £12M higher than that reported to the Cabinet in October 2009. We feel that long and hard negotiations may be needed if the Council is to achieve completion of this scheme within the extended programme and within the revised scheme budget.
- 1.13 In view of our conclusions regarding the current status of the contract, we feel that urgent action is necessary to safeguard the Council's financial and contractual position with the contractor. As well as undertaking a detailed risk assessment, we consider that urgent action is needed to resolve the large number of outstanding compensation events. Perhaps just as importantly however, is the need for the Council to reflect the contractor's apparent commercial approach to this scheme in its future dealings with them.
- 1.14 To assist in this process, we would suggest that the Council considers the appointment of a commercial contract manager to enforce the Council's contractual position and help it face the significant risks that we feel may lay ahead.
- 1.15 To reduce the risk of these events occurring on the Council's other major projects, we consider that policies and procedures need to be reviewed in order to ensure best practice project management is applied to all future major projects, particularly in respect of risk management and project governance.

2.0 Background

- 2.1 The contract is for the construction of 6km of a single carriageway road to the west of Rugby, from Potford's Dam on the A4071 to the Avon Mill roundabout at the junction of the B4112 Newbold Road and A426 Leicester Road. Wherever possible, the route of the relief road makes use of and widens existing roads and occupies some of a dismantled railway line in an attempt to reduce its environmental impact. The works include a new bridge across the River Avon and its flood plain, a bridleway overbridge (at Cawston), a bridge over Sow Brook, a quarry access tunnel for use by Cemex, and a railway bridge over the electrified West Coast Main Line at Parkfield Road.
- 2.2 Following feasibility studies, Cabinet approved a scheme in October 2001, which was amended slightly in April 2002 after completion of the necessary environmental assessments. After advertisement in the EU, competitive tenders were received from six firms in May 2003. In July 2003, Cabinet was advised of a scheme estimate of £20.3M, and approved the appointment of John Mowlem & Co PLC for the 'early contractor involvement' process.
- 2.3 Detailed design work commenced in November 2003 and Cabinet approved a revised capital allocation of £23.9M in January 2004. However, in February 2004, approval was obtained from the Secretary of State for only the Northern section of the scheme and design work was suspended pending outcome of the appeal process.
- 2.4 Following a public inquiry, the Secretary of State finally approved the scheme, subject to some minor modifications, in December 2005. Cabinet was advised in February 2006 that the scheme estimate was now £28.2M and Mowlem, having now been taken over by Carillion, was re-engaged to recommence the design work in April 2006.
- 2.5 In February 2007, Cabinet was advised that a target cost for the works had now been agreed and it approved a revised scheme estimate of £35.1M and the letting of the construction contract to Carillion LM Ltd.

- 2.6 On the 3rd April 2007, a scheme estimate of £36.6M was provided to the Department for Transport following its request for additional information to support the application for full approval of funding for this scheme. The Cabinet approved this revised estimate in March 2007 when Members were advised that if work commenced in May 2007, completion could be expected by the summer of 2009.
- 2.7 Construction work commenced in August 2007 with contract completion set as the end of August 2009. In June 2009, the contract period was extended to January 2010.
- 2.8 Cabinet was advised on the 15th October 2009, that the contractor's programme indicates completion of the works in February 2011 although officers are of the view that completion by October 2010 is achievable. Based on completion in October 2010, Cabinet is advised that the latest forecast cost of the scheme is £55.0M as follows: -

	£
Land	3,156,000
Works – Main Contract	37,956,000
Services/Network Rail	6,387,000
Design/Site Supervision	7,501,000
LATEST FORECAST COST OF SCHEME	£55,000,000

- 2.9 At the meeting in October 2009, Members agreed to the establishment of a Board to conduct fuller and more detailed reviews of circumstances leading to the increased costs and the lessons to be learnt.
- 2.10 Appendix 1 provides a detailed timeline of key events relating to this project; while Appendix 2 provides details of the estimate of £36.6M provided to the Department for Transport and approved by Cabinet in 2007.

3.0 Review Methodology

- 3.1 Our review examined the latest forecast cost of the scheme reported to Cabinet in October 2009 (£55.0M) and compared this with that approved in March 2007 (£36.6M). In particular, we focused on changes in the target price on which these figures were based.
- 3.2 As can be seen in Appendix 2, the scheme estimate of £36.6M approved by Cabinet in March 2007 is based on the original target price of £24,161,960. During our review, we examined cost information held on site in respect of month 26 (September 2009) and compiled a breakdown of the estimated final target price of £37,956,000 included in the figure of £55.0M reported to Cabinet in October 2009 (paragraph 2.8).
- 3.3 Appendix 3 provides a summary of our breakdown (totalling £37,960,248) highlighting the key areas of variation.
- 3.4 For the purposes of this review, we obtained copies of all reports that had been submitted to the Cabinet in respect of this scheme. We also examined the minutes of the Strategic Review Board.
- 3.5 We visited the site offices on several occasions and had various discussions with the current Project Manager, who was the Project Supervisor up to the time of the former Project Manager's retirement from the Council at the beginning of October 2009. We reviewed the detailed cost data held on site and examined samples of early warning notices, project manager's instructions and compensation events.
- 3.6 During our visits to the site, we were given a full tour and discussed relevant issues with various Council and Arup staff. We also reviewed correspondence files held on site pertaining to Network Rail. We subsequently met with the Project Manager at Shire Hall to review files and documents that were not available on site. On conclusion of the review, our findings were discussed with key officers in order to confirm the accuracy of our conclusions.

4.0 Audit Findings – Procurement Processes [2002-03]

- 4.1 We consider that the procurement processes that resulted in the selection of the procurement strategy for this project, and to the appointment of John Mowlem & Co plc in July 2003 to be robust and in accordance with best practice.

Procurement Strategy

- 4.2 From our examination of relevant documents, we confirmed that the Project Manager consulted widely and explored various procurement options, throughout 2002, before proposing a target cost contract with early contractor involvement (ECI). Consultations included the Office of Government Commerce, the Audit Commission and a number of major contractors within the industry (including John Mowlem) who had proven track records of project delivery through innovation, value engineering and partnering, as well as clear supply chain management structures.
- 4.3 He also consulted closely with the Council's partner, Arup, on the procurement options that would be the most suitable and sought advice from the Council's Treasurer's (Review Team) and Chief Executive's (Legal Services) Departments.
- 4.4 Early contractor involvement is a form of procurement pioneered by the Highways Agency as part of its drive to deliver better value and improved performance in the development of their road programme. The process typically involves selecting a contractor early in the design process, based on their ability to deliver value. The selected contractor then works with the client in developing the design and agreeing a lump sum or target cost with a view to driving costs down by value engineering and risk management. The selected contractor normally leads the design process, which caters for the full consideration of buildability issues, leading to shorter construction periods and reduced impacts during construction.

- 4.5 For this scheme, it is evident that the procurement plan envisaged the adoption of a partnering approach, including open book accounting with protected overheads and margins.
- 4.6 The design process was lead by in-house/Arup staff and the selected contractor was paid for their time in helping to finalise the design, manage risk and undertake value engineering. During this process, the contractor's proposals and ideas were translated and, where acceptable, incorporated into the Council's design solution.
- 4.7 In accordance with best practice, there was no guarantee that the firm would be awarded the construction contract, as this would be dependent on both parties agreeing an acceptable price for the construction works. In this respect, the procurement plan provided for a bill of quantities to be prepared, following development of the contractor's proposals, which could then be independently validated by the Council to ensure best value was to be achieved from the proposed target price. A decision would then be made as to whether or not to proceed with the construction.
- 4.8 If the target price was acceptable, the intention was to use the bill of quantities to compile an activity schedule, and appoint the contractor under the NEC ECC form of contract, using either option C (target cost with activity schedule) or option A (lump sum with activity schedule).

Appointment of John Mowlem & Co plc

- 4.9 We confirmed that the procurement processes that resulted in the appointment of John Mowlem & Co plc in July 2003 adhered to the EC Procurement Directives that were applicable at the time. In our opinion, the processes fully reflected best practice and incorporated current Industry initiatives with a view to securing best value for the Council.
- 4.10 We confirmed that the necessary EU Notices were issued and that an evaluation panel suitably assessed the expressions of interest subsequently received from 20 firms in 2003.

- 4.11 Tender invitation documents, including details of the feasibility design, were provided to each of the shortlisted six firms in May 2003. Completed tender submissions were subsequently assessed in accordance with best practice, on a quality/price basis. We noted that among the various quality issues assessed were value-engineering ideas, dealing with risks, experience and qualifications of key personnel, and proposals for integrating partnering down the supply chain.
- 4.12 A Tender Assessment Report was prepared in June 2003 recommending that the Professional Services Contract for Stage 1 development of the design and agreement of a target cost be awarded to John Mowlem & Co PLC (Northern Civil Engineering – Midlands Region). A contract was awarded accordingly to John Mowlem on the 25th July 2003.
- 4.13 We noted that after the appointment of John Mowlem, the project manager provided an opportunity to each of the unsuccessful firms to submit value engineering proposals and innovative ideas for maximising the value that could be fed into the value engineering process. It was envisaged that payment would be made to the firms based on a share of up to 25% of the savings that resulted. While we have not been able to confirm whether any of the firms concerned actually took advantage of this opportunity, we feel that this is one of several indications of the modern and innovative approach that was being taken by the project manager at that time.

5 Audit Findings – Project Management

- 5.1 The Strategic Management Board is responsible for the governance of this project, including cost monitoring and risk management. We concluded that the project management arrangements that were established in 2002/03 were sound and robust. However, following the recommencement of work in 2006, weaknesses developed in risk management that resulted in the scheme budget of £36.573M being understated, in our opinion, by around £2M to £3M due to an insufficient provision for contingencies.
- 5.2 In addition, work in developing a comprehensive risk register for the project did not continue, as we would have expected, beyond 2006 and throughout the construction phase of the contract. Such a register would have increased confidence in the accuracy of the level of the revised scheme budget of £55M notified to Cabinet in October 2009.
- 5.3 Further, the Board met infrequently following the recommencement of design work in April 2006 and regular monthly meetings were not re-established until November 2007, three months after construction work had commenced. A suitable monitoring and reporting framework was not established to regularly inform the Board of programme and costs, which in our opinion resulted in fewer formal progress reports being produced than we would have expected for a contract of this size.

Establishment of Project Management Arrangements

- 5.4 This project is part of the Council's ten-year Local Transport Plan for major highway schemes, formulated in 2000. A business case was prepared and approved accordingly by the Department for Transport. We confirmed that a detailed project plan was prepared at the outset, which was monitored regularly against cost, progress and the business case.

- 5.5 In accordance with best practice, a Strategic Management Board was established in August 2003, shortly after the appointment of John Mowlem and at the start of the early contractor involvement process. Board members included the contractor's Regional Director and Senior Contract Manager, the Project Manager, and the Head of Transport & Highways, Environment and Economy Directorate.
- 5.6 The Board met on a monthly basis and was responsible for project governance and for overseeing and controlling the project. Specific responsibilities included:-
- Controlling and monitoring costs;
 - Carrying out risk management to identify potential problems and to develop strategies to deal with them;
 - Ensuring sufficient resources are allocated to the project and that there is clear accountability at all levels; and
 - Establishing a monitoring framework to inform the Board of progress, slippage, the budget, specification and quality requirements.
- 5.7 An initial partnering workshop was held in August 2003, followed by workshops to discuss value engineering and risk management. A schedule of strategic risks that could affect the viability of the project was subsequently maintained during the rest of 2003 and into 2004.
- 5.8 Following the Secretary of State's recommendation to confirm Side Roads Orders for only the Northern section of the scheme, work on the detailed design was postponed in February 2004 and meetings of the Strategic Management Board suspended.
- 5.9 Following the recommencement of design work in April 2006, the Board met in July 2006 to discuss various issues, and in February and March 2007 to discuss progress towards agreeing the target price, budget and programme. However, regular monthly meetings of the Board did not recommence until November 2007, and a suitable monitoring and reporting framework was not established to regularly inform the Board of programme and costs.

5.10 We consider that had more robust project management arrangements been in place during late 2006 and 2007, then perhaps the risks associated with the appointment of the contractor for the construction work, after they had been taken over by Carillion, and the agreement of the scheme budget, may have been more closely considered. For example: -

- The extent to which Mowlem's staff who had been involved with the development of the design some two years before, were still involved with the project;
- The likelihood that such staff from Mowlem would continue to be involved throughout the construction phase, therefore ensuring that the full benefits of the early contractor involvement process (e.g. detailed design knowledge) would be obtained by the Council.
- Ensuring that risk management procedures continue to be satisfactory, and that the scheme budget includes sufficient contingencies.

5.11 During our review, we were advised that Carillion gradually brought in their own staff to replace those of Mowlem who had been closely involved with the design during the early contractor involvement process.

5.12 Although envisaged throughout the procurement process since 2002, a decision was made sometime in late 2006 / early 2007 that an activity schedule would not be prepared. Instead, the construction contract would now be based on the bill of quantities (BQ) that had recently been prepared, with amendments being made to the standard terms and conditions to enable the specified works to be completely remeasured during the course of the project.

5.13 One of the effects of this change was to transfer the risk of inaccuracies in the measured quantities stated in the BQ from the contractor to the Council. In this respect, we noted during our review that the financial impact of this change on the Council does not appear to be significant.

Risk Management

- 5.14 During 2003/04, a comprehensive risk register had been compiled covering the pre-construction, construction, and post construction stages. The register identified around 300 risk items, together with indications as to the likelihood of their occurrence, and potential impacts on the scheme objectives. The register also identified the individuals responsible for taking action to mitigate each risk.
- 5.15 Evidence suggests that the risk register continued to be reviewed for a period of only six months following the recommencement of the design work in April 2006, and was never fully completed. The latest version discovered during our review, dated October 2006, contains very little data as regards the residual costs of the risks identified.
- 5.16 We noted that the contractor's tender submission in July 2007 included a 'Tender Risk Register' (Ref TP1). Of the 17 risks identified, four were to be the responsibility of the contractor during the construction phase. The contractor's risks were bad weather (up to a 1in10 year event), flooding, additional possessions required from Network Rail due to the contractor's failure to plan activities, and difficulty in recruiting resources.
- 5.17 The remaining 13 risks accepted as being the responsibility of the Council, were those that are typically accepted by clients and included the three highest risks in the entire schedule as follows: -
- Quantities of work varying from those stated in the bill of quantities;
 - Compensation events (including unforeseen ground conditions, protestors, antiquities); and
 - Failure of statutory undertakers to perform
- 5.18 A total of £325,000 was included in the Target Price for the contractor's four risk items. Meanwhile, a contingency of only £379,000 was provided for the 13 client risk items in the scheme budget of £36.573M, together with a further contingency of £156,955 in respect of items in the bill of quantities that had yet to be measured.

- 5.19 We noted that the Tender Risk Register included the failure of Network Rail to make available the possessions necessary to complete the works. This was one of the highest ranked items in the October 2006 risk register, and was allocated a likelihood rating of 4 (on a scale of 1 to 5) and a severity rating of 5 (total 20). In the Tender Risk Register, as all necessary possessions had been agreed with Network Rail, the likelihood and severity ratings were reduced to 1 and 4 (total 4).
- 5.20 It would appear that the risks accepted by the Council on this project were never completely assessed or fully quantified.
- 5.21 In our experience, contingencies on a project of this size and nature are typically around 10% to 15% of the target price suggesting that the allowance could have been approximately £2M to £3M. However, even with the benefit of hindsight, it is no longer possible to state an accurate figure for what should have been included as client contingencies in the original budget.

Current Project Management Arrangements

- 5.22 As noted in paragraphs 5.14 and 5.15 a comprehensive risk register has not been maintained for the construction phase. Whilst 'Risk Reduction' meetings are held on site, these only consider future actions that are necessary to mitigate risks associated with the early warning notices and project manager's instructions that have already been issued. These meetings therefore only consider the mitigation of risks in respect of events that have already occurred, rather than those that could happen in the future.
- 5.23 Consequently, we recommend in Section 9 that a full risk assessment be carried out on this project as a matter of urgency.

- 5.24 Further, we noted that the minutes of the Strategic Management Board are prepared by the Project Manager and appear to consist of his reports regarding various issues including progress, costs, health and safety etc. The content of several areas within the minutes are repeated from one month to the next as the reports are 'updated'.
- 5.25 The minutes confirm that the Board was advised at each meeting of the extent of the delays being suffered, mainly due to Network Rail's works delaying the start of the Parkfield Road railway bridge. The minutes also contain several references to the attempts being made to mitigate the delays. However, although members were apparently aware that costs were increasing, no mention of the quantum of such costs was made in the minutes until July 2008, some eleven months into the construction period. At this point, while the Board is advised that additional costs have accrued totalling some £3.3M, the minutes do not contain any comments or actions to be taken.
- 5.26 By December 2008, the Board had been made aware that the increases in cost could be more than £12M. However, according to the minutes, the Council had been waiting for the contractor to produce a budget forecast for the outturn cost of the works. It appears that for the next eight months the budget forecasts were the subject of review and discussion between the Council and the contractor.
- 5.27 Section 9 contains our recommendations for placing the control of the agenda and minutes of the Board firmly with Head of Transport & Highways, Environment and Economy Directorate, and for enhancing cost reporting processes during the remaining period of this contract.

6 Audit Findings- Financial Projections

- 6.1 Cabinet was advised on the 15th October 2009 that the latest estimate for the scheme was £55M. This is stated as being based on a 'latest forecast' for the main contract works of £37,956,000. Appendix 3 provides a breakdown of the estimated final target price (totalling £37,960,248) which we compiled from the cost information held on site in respect of month 26 (September 2009).
- 6.2 During our review, we found the management of early warnings and compensation events, particularly during the first two years of the construction works, to be weak. An unusually high level of events has been recorded on this scheme and, since the beginning of the construction works in 2007, costs associated with early warnings and project manager's instructions have not been resolved on a timely basis.
- 6.3 Consequently, a backlog of outstanding compensation events has been in existence, and has been steadily increasing, for almost the entire duration of the contract. As a result, we are unable to provide any assurance regarding the accuracy of the figures included in the latest scheme estimate (£4,353,138; £8,764,060 and £600,000) in respect of implemented, outstanding and future compensation events.
- 6.4 In addition, we noted an error within the computations at site level, which, if corrected, would increase the estimated final cost reported to Cabinet in October by £0.291M.
- 6.5 Further, we noted a number of indications that suggest that the contractor is attempting to operate this project like a traditional contract rather than in accordance with the open book approach envisaged during the early contractor involvement process. While the Council is clearly still attempting to operate within the spirit of the original arrangements, care needs to be taken to ensure that this does not place it at a disadvantage should the need arise to enter into 'commercial negotiations' in order to reach a final settlement.

Volume of potential compensation events

- 6.6 We are concerned at both the high volume of early warning notices and project manager's instructions that have been issued for this project, and the high proportion that have yet to be resolved and costs agreed. We noted that the 'tracker' system maintained on site has details of more than 1,600 potential adjustments, while the commercial report for October 2009 indicates that 1,036 potential compensation events have been recorded so far on this contract (857 after excluding possible duplicates).
- 6.7 These numbers are far more than we would have expected for a contract of this nature. From a brief examination of the records, we suspect that this could be an indication of the contractor attempting to operate the contract in accordance with the traditional form of contract (e.g. ICE standard form 7th edition) rather than in the spirit of the 'open book' and partnering approach that was envisaged during the early contractor involvement process.
- 6.8 From our review of all the monthly reports prepared since construction work commenced we found that almost every month, costs have been agreed for fewer numbers of early warning notices and project manager's instructions than have been received or issued. Consequently, a backlog was created after just a few months, which has steadily grown over the last two years.
- 6.9 According to the commercial report for October 2009, 681 (79%) of the 857 potential compensation events have not yet been assessed. Of these, 255 are indicated as awaiting quotations from the contractor and 111 (including 84 for which quotations have been received from the contractor) are awaiting assessment by the Project Manager.
- 6.10 At the time of our review, the remaining 315 were being examined to determine whether the proper notification processes had been followed and, consequently, whether formal compensation events should now be issued.

- 6.11 We noted that a large proportion of the outstanding compensation events date back to 2007/08 and the situation has now been reached where the volume of outstanding events is likely to cause confusion, with many referring to the same event, making it extremely difficult to readily resolve the issue. Meanwhile, the delays in obtaining quotations from the contractor increase our suspicions that they are attempting to operate the contract in accordance with traditional means, basing their quotations on actual costs, rather than on the estimates that would be necessary under an 'open book' approach.
- 6.12 Our suspicions are further increased by the separate submissions (numbered 1 to 7) that have been received from the contractor which on first reading appear to be 'traditional' claims for extensions of time and loss and expense.
- 6.13 With around 100 new items being entered on the 'tracker' system every month, and the 'backlog' continually increasing it appears that urgent action is required to resolve this problem.

Implemented Compensation Events (CEs) [£4,353,138]

- 6.14 According to the 'tracker' system, compensation events to the value of only £368,701 have actually been agreed with the contractor. The remaining compensation events (£3,984,437) are indicated as being the result of project manager assessments.
- 6.15 It is acknowledged that the costs associated with these project manager assessments may be fixed and, contractually, the contractor may be unable to force the Council to accept any increases at this stage. However, we have not reviewed the documentation regarding these events in any detail, and if the contractor is attempting to take a traditional approach to this contract, we consider that there remains a risk that the stated costs may be exceeded.

Outstanding Compensation Events (CEs) [£8,764,060]

- 6.16 The total of the estimated values of outstanding compensation events in the 'tracker' system is actually £9,054,949. The difference being due to temporary works (£267,289) and 'kerbs and footways' (£23,600) not being carried forward to the breakdowns across the bill of quantities sections. If adjusted, this would increase the estimated final target price by £290,889.
- 6.17 Further, we were advised during our review that few records are available regarding the estimated cost of individual outstanding compensation events. We were subsequently advised that many (84no. £3,123,962) equate to the values of quotations received from the contractor that have yet to be assessed and agreed by the Project Manager. For the majority (597no. £5,930,987), we understand that the figures entered in the 'tracker' system originated from the contractor.
- 6.18 The current Project Manager believes at least some of the quotations and estimates provided by the contractor may, understandably, be overstated. This includes figures for the relatively few items estimated at £200,000 or more which together account for 51% (£4,626,298) of the costs under this heading (see Appendix 4).
- 6.19 As all the 'estimated costs' under this heading appear to originate from the contractor, it is reasonable to presume that they expect to ultimately agree lower figures. Consequently, while we found no evidence to suggest that the value advised to Cabinet of £8,764,060 is based on 'realistic estimates', we feel that final costs are likely to be agreed well within this sum. However, some concern remains that the contractor may be encouraged to pursue agreement to figures that are at least close to the estimates stated in the 'tracker' system, should they learn of the Council's agreement to the value of this element of the budget.

Contingency for future compensation events [£600,000]

6.20 With over 100 new items being entered on the 'tracker' system every month, and with more than twelve months of the construction period remaining, it is not possible to confirm whether this contingency is a reasonable allowance. As recommended earlier in this report, the level of this contingency should be reassessed following a complete risk assessment of the work outstanding.

Estimated Final Cost

6.21 The report to Cabinet in October 2009 advised members of an estimated final target price of £37.96M. However, the final cost ultimately paid by the Council will be based on the final value of the work, plus or minus the contractor's pain/gain share. In this respect, we noted that it was not until month 12 of the contract (July 2008) that cost records maintained on site started to indicate estimates of this figure.

6.22 The latest cost information held on site at the time of our review was for the end of September 2009. This indicates a final cost to the Council for the works of £38.65M as summarised in the table below

Price for Work Done to Date	£ 27,023,461	£
Estimated value of outstanding work	<u>11,708,322</u>	
Estimated final spend		38,731,783
Estimated final Target Price	37,960,248	
Estimated final spend	<u>38,731,783</u>	
Over spend	771,535	
Contractor's share of 'pain' (10% of £771,535)		77,154
Estimated final cost to Council		<u>£38,654,629</u>

6.23 The above is based on the contractor's programmed completion date of the 10th February 2011. As indicated in the report to Cabinet, council officers consider that completion by October 2010 is achievable, which could reduce costs by "around £0.7M". Therefore, Members were advised that the total works cost is predicted to be "about £38M".

7 Audit Findings- Analysis of Increased Costs

- 7.1 During our review, we intended to analyse compensation events in order to determine the extent to which the additional costs could have been foreseen and/or avoided. However, due to the vast number of compensation events, project manager instructions and early warning notices issued on this project, and the general absence of cost computations, this has not been possible.
- 7.2 We have, however, compiled a schedule of those compensation events that are currently assessed or estimated to add £200,000 or more to the cost of this project. Appendix 4 provides details of the 15 events concerned which together account for £7.9M (60%) of the £13.1M reported additional costs by way of compensation events (£4,353,138 plus £8,764,060).
- 7.3 It can be seen that the largest item of extra cost is the delay caused by Network Rail (item 1 in Appendix 4). While we accept that additional costs could not have been prevented, we consider that the impact on the budget would have been lessened had an appropriate provision been included in the risk register and, hence, contingency for this project. We also consider that stronger project management arrangements during the early stages of construction works may have prompted additional actions, over and above those that were already being taken, to reduce the additional costs that were ultimately incurred.
- 7.4 A number of events (items 2, 4, 6, 12, and 13 in Appendix 4) relate to the correction of apparent errors in drawings and schedules, and some benefit may be obtained from exploring these issues once more accurate costs have been established.
- 7.5 Two of the events (items 3 and 15 in Appendix 4) were due to delays caused by others outside of the control of the Council and the contractor. Clearly, these additional costs could not have been avoided, but the question remains of whether a higher allowance would have been included

in the client's contingencies had a detailed risk register continued to be in existence up to the time the construction work commenced.

7.6 We noted that the report to the Cabinet on the 15th October 2009 advises Members of the reasons for the delay. The reasons stated correlate to the events at Appendix 4 as follows: -

- Problems Network Rail have had with their line works in Rugby which impacted on the construction of the new railway bridge and has delayed the scheme by around 14 months [Item 1 in Appendix 4];
- Service diversion works by the utility companies which have proven to be far more expensive than first envisaged [Items 3 and 15];
- Problems encountered in building a stretch of Parkfield Road through Cemex's quarries, with a 15m drop on each side, within which a cut and cover tunnel and nine retaining walls are to be constructed. [Items 2, 12, 13 and 14]

7.7 We understand that the Strategic Management Board is currently overseeing meetings with the contractor with the objective of resolving the relatively few compensation events that account for around 80% of the increased costs. Consequently, we would suggest that once the series of meetings is concluded, and a clearer picture of the additional costs is available, that a more detailed examination of the compensation events on this project should be undertaken.

8 Answers to Questions asked by Review Board

8.1 Our brief was to seek answers to the following specific questions raised by the Member and Officer Review Board: -

- Was the procurement process robust enough?
- Was this the right contract for the scheme?
- Could any of the increased costs have been foreseen?
- Are the increased costs justified?
- Has project management been robust enough? and
- Are there any wider lessons for the Council for major contracts or projects?

8.2 During our initial meeting with the Board, it was confirmed that we would highlight any areas that may need to be further explored, if it was not possible to answer fully any of the above questions during the time of this exercise. The previous sections of this report explain the details of our findings, and the following attempts to summarise our views in respect of the questions that have been asked.

Was the procurement process robust enough?

8.3 As explained in section 4 of our report, we consider the procurement processes adopted for this project in 2002 and 2003 to be robust and fully reflect best practice. These processes resulted in the establishment of a firm foundation from which this project could be undertaken and deliver its objectives.

8.4 However, we feel that the Council may not have received the full benefits from the early contractor involvement, following the taking over of Mowlem by Carillion and the recommencement of the design work in February and April 2006 respectively. With the benefit of hindsight, perhaps more effort could have been made to ensure the partnering and 'open book' principles that had been accepted up to 2003, continued to be enshrined in working relationships after work commenced and throughout the construction period.

Was this the right contract for the scheme?

- 8.5 As indicated in section four of our report, the form of contract selected for this project followed considerable consultations by the Project Manager. The NEC ECC form of contract fully reflects the principles contained within the procurement strategy, and accords with best practice.
- 8.6 We consider that the right form of contract was used for this project. However, we do have some concern that following the takeover of Mowlem by Carillion, and late in the design process, a decision was taken to adopt option D of the NEC contract (target cost with bill of quantities), rather than options C (target cost with activity schedule) or A (lump sum with activity schedule). It is acknowledged, however, that this decision appears to have little impact on the costs of the project.
- 8.7 Further, it is widely known that more resources are required to administer projects based on the NEC ECC standard form (e.g. process early warning notices and compensation events). If the contract is properly administered, then the cost of these extra resources is normally more than compensated by less resources being required to deal with the cost of variation orders and contractual claims long after the construction works are finished.
- 8.8 During our review, we were not convinced that sufficient resources were provided by the Council, particularly during the early stages of construction, to deal with design issues and compensation events. If the Review Board considers it necessary, this issue could be further explored.

Could any of the increased costs have been foreseen?

- 8.9 As explained in section seven of this report, due to the vast number of compensation events and general absence of cost computations it has not been possible to fully analyse the increased costs on the project. However, we have identified at Appendix 4, the main 15 events that are responsible for 60% of the increased costs on this scheme.

8.10 We understand that the Strategic Management Board is currently overseeing meetings with the contractor with the objective of resolving the relatively few compensation events that account for around 80% of the increased costs. Consequently, we would suggest that once the series of meetings is concluded, and a clearer picture of the additional costs is available, that the question be explored further of whether any of the costs could have been foreseen and perhaps avoided.

Are the increased costs justified?

8.11 From our review, and brief examination of the 15 events that are responsible for 60% of the increased cost, we discovered no reason to suggest that any were not justified. A full audit of these items could, however, be carried out once the relevant costs have been finalised in order to provide the Review Board with assurance on this issue.

Has project management been robust enough?

8.12 As detailed in section 5 of our report, project management arrangements were robust up to the point in time when work was suspended in 2004.

8.13 Following the recommencement of work in April 2006 the Strategic Management Board, which was responsible for the governance of this project, did not meet frequently until the end of 2007 and after construction work had commenced. Our review also revealed weaknesses in risk management and cost reporting procedures that, in our opinion, resulted in an insufficient provision for contingencies and allowed a backlog of unresolved compensation events to occur.

8.14 Stronger project management, particularly during the period when Mowlem, having been taken over by Carillion, were re-engaged and construction work commenced, may have reduced the impact of some of the delays and additional costs suffered on this project.

Are there any wider lessons for the Council for major contracts or projects?

8.15 Our review identified a number of weaknesses in project management. We consider that the Council should review its policies and standard procedures relating to major schemes with a view to ensuring that best practice project management is applied to all future major projects.

8.16 In this respect, the following highlights the specific areas that need to be considered.

Risk Management

8.17 Thorough and effective risk management should be embedded within the processes for all major projects. These processes should include: -

- The establishment of 'risk management teams' that include client and stakeholder representatives and, through workshops, the identification of all events that could potentially prevent the project from achieving its desired objectives.
- The maintenance of risk registers that detail all identified risks. For each risk, the register should indicate the probability and consequences in accordance with a set scale. The register should clearly identify the actions to be taken to mitigate, avoid, eliminate or transfer each one.
- Once the Risk Schedule has been quantified, statistical techniques should be used to arrive at a total sum, which forms the basis for the allowance placed in the budget as a 'risk contingency'.
- The Risk Schedule must be re-run periodically throughout the duration of the project. Normally, the financial total of the updated risks should reduce as the project nears completion. The remaining budget contingency allowance can then be reviewed accordingly.

Project Governance

- 8.18 It should be standard practice for the Council to nominate a Project Sponsor on every major scheme. Project Sponsors should take responsibility for the client's role and for communications with the respective Project Teams.
- 8.19 Among the responsibilities of the Project Sponsors will be ensuring that: -
- Risk management arrangements are robust and that risk registers are established and maintained throughout the duration of the projects concerned; and
 - Comprehensive budgets are produced that include adequate contingency provision.
- 8.20 Project sponsors should chair project boards that meet every month to steer the projects towards the delivery of their objectives. Project boards should consist of around six to nine people representing the client, the project team and stakeholders. Minutes of meetings should be the responsibility of the respective project sponsor, which should indicate clearly the issues discussed and the agreed actions to be taken.
- 8.21 Project sponsors should ensure that progress reports are submitted by project teams to the respective project boards on a monthly basis. Such reports should be no longer than one or two pages and should clearly indicate the status of the project, concerning the main priorities of time, cost, and quality. In particular, monthly advice regarding the estimated final cost of the contracts and expected completion dates, together with suitable explanations of any significant variances.
- 8.22 Project boards should be required to provide quarterly progress reports, consisting of no more than one or two pages, to the Cabinet or committee of the Council, focusing on time, cost and quality issues. In particular, advice regarding the estimated final cost and expected completion dates, together with suitable explanations of any significant variances.

9 Recommendations

9.1 We recommend that the following actions be taken in order to protect the Council's position on this contract and to enable a more accurate assessment to be made of the current financial position.

9.2 The agenda and minutes of the Strategic Management Board should be firmly under the control of the Head of Transport & Highways, Environment and Economy Directorate. The minutes of each meeting should clearly indicate the issues discussed, together with the actions that were agreed to be taken.

9.3 The Board should ensure that: -

- Sufficient resources are deployed with a view to eradicating the backlog of early warnings, project manager's instructions and compensation events that are currently waiting to be assessed and agreed. Targets should be set against which progress can be suitably monitored. For example, the Board could aim to resolve the relatively few compensation events that account for around 80% of the increased costs, by the end of January 2010; with the remainder being settled by, say, the end of March 2010.
- A review is urgently undertaken of current procedures associated with the notification of early warnings and project manager's instructions with a view to ensuring that all future notifications are dealt with in accordance with the timescales stipulated in the terms of the contract.
- A risk assessment is carried out on this project as a matter of urgency. The assessment should identify all risks that could possibly prevent the scheme for achieving its objectives, including completing within the extended programme and within the revised budget. Action should be taken to mitigate the identified risks, and the resultant residual risks should be quantified and compared with the contingencies remaining in the revised budget.

- The risk assessment is reviewed at regular intervals (i.e. at least every six months) until completion of the works is achieved.

9.5 The Cabinet should request the following from the Board: -

- A brief progress report in February 2010 which advises members of: -
 - The extent to which the backlog of outstanding compensation events has been reduced;
 - The estimated final cost of the scheme, including the current value of the target price, the estimated value of outstanding compensation events, and the level of contingencies remaining; and
 - The estimated completion date of the scheme.
- Progress reports to be submitted every three months until construction work is complete, all outstanding issues have been resolved, and final costs have been agreed with the contractor.
- As soon as a reliable forecast of final cost has been produced, and no later than February 2010, a report that describes the main 15 to 20 events that resulted in increased costs being incurred on this project, together with explanations as to whether any of the events could have been foreseen and/or avoided.

9.6 To assist in controlling the above issues, and to reflect the contractor's apparent commercial approach to this project we also recommend that the Council considers the appointment of a commercial contract manager for the remaining period of this contract. In our view, this would significantly help to enforce the Council's contractual position, particularly when dealing with the actions of the contractor during the latter stages of this scheme (e.g. reluctance to submit quotations, lack of agreement to value of compensation events etc.).

APPENDIX 1

RUGBY WESTERN RELIEF ROAD: TIMELINE OF KEY EVENTS

DATE	EVENT
1995 to 1999	Feasibility studies undertaken to establish preferred route
1999	Planning approvals acquired for road constructed on the track bed of a dismantled railway. The scheme was to be entirely developer funded through contributions from the developers.
August 2000	Rugby Cement announced their intention to reopen the disused railway line as a freight only line between Rugby and Southam. The Council supported the proposal, as it would remove approximately 40,000 lorry movements a year from the local highway network. However, so as not to prejudice the proposal the route of the southern half of the scheme has to be altered to accommodate the reopening of the line.
February to December 2001	Feasibility design of the whole route, including structures undertaken by WCC officers. Consultation by WCC with relevant parties, including Railtrack, Rugby Cement, Environment Agency and all Service Authorities.
18 October 2001	Cabinet approves revised scheme, in order to allow Rugby Cement to reopen the disused railway line and agrees that a new planning application and associated Compulsory Purchase Order and Side Roads Order be made. Additional funds to be provided through the Local Transport Plan following provisional acceptance of the scheme by the DTLR.
24 January 2002	Cabinet asked to approve in principle the use of temporary borrowing to fund work in 2002-03 on the scheme
25 April 2002	Following environmental assessment and completion of preliminary design work, Cabinet approved minor revisions to the scheme it had approved in October 2001. Cabinet notes that revised planning application is to be submitted in May 2002 and new Compulsory Purchase Orders and Side Road Orders made in July 2002.
16 May 2002	Planning application submitted
May 2002	Public exhibitions held in Rugby

APPENDIX 1 Continued

RUGBY WESTERN RELIEF ROAD: TIMELINE OF KEY EVENTS

DATE	EVENT
June 2002	Following decision by Rugby Cement to abandon their plans for reopening the disused railway line, Council considers revising the scheme so as not to prejudice its reopening at some stage in the future. Referred to as a 'phased construction' it would involve building across the line, and at the same level of the disused railway at two points, rather than building bridges (phase 1). The intention being to safeguard the railway corridor in that the necessary bridges could always be built at some stage in the future (phase 2) to allow re-opening of the line if required.
9 July 2002	Cabinet advised that the scheme estimate could be reduced from £21.4M to £17.6M if the 'phased' approach was adopted. Cabinet defers its consideration of the proposal pending receipt of the views of Rugby Area Committee.
17 July 2002	Rugby Area Committee resolved that it does not support the 'phased' construction option.
July 2002	Draft procurement programme produced by Project Manager utilising a lump sum or target cost contract (NEC ECC Option A or C), with early contractor involvement (ECI).
5 September 2002	Cabinet considers the resolution of the Rugby Area Committee that it does not support the 'phased' construction' option. Despite this, it approves the scheme, and agrees to the submission of a new planning application and the making of a fresh Side Roads Order.
9 October 2002	Compulsory Purchase Orders and Side Roads Orders submitted.
17 December 2002	Prior Information Notice placed in EU Official Journal advising of the Council's intention to award a contract for the 'phased' scheme
24 January 2003	Contract Notice placed in the EU Official Journal inviting expressions of interest from suitably qualified contractors to be submitted by the 2 nd March 2003.
2 March 2003	Expressions of interest and completed pre qualification questionnaires received by the Council from 20 contractors

APPENDIX 1 Continued

RUGBY WESTERN RELIEF ROAD: TIMELINE OF KEY EVENTS

DATE	EVENT
3 April 2003	Planning permission granted (with conditions). This gives permission to build the 'phased' scheme (i.e. without the two bridges over the disused railway) and a 'second phase' to incorporate additional works to accommodate the re-opening of a railway (phase 2).
16 April 2003	Tenders invited from the six firms who had been shortlisted from the 20 who had submitted completed pre qualification questionnaires. For return by the 19 th May 2003
29 April to 2 May 2003	Public Inquiry regarding compulsory purchase orders and Side Road Orders held in Rugby. Decision expected in September 2003.
19 May 2003	Tenders received from six contractors opened.
20 June 2003	Following the assessment of tenders, Tender Assessment Report recommends the appointment of John Mowlem & Co PLC for stage 1 development of the design and agreement of a target cost.
17 July 2003	<p>Results of tender evaluation and selection process reported to Cabinet, together with explanation of intended early contractor involvement (ECI) process. Members advised of revised scheme estimate of £20.3M (up from the £17.6M indicated to Cabinet meeting on the 9th July 2002), intention to award professional services contract with Mowlem, and intention to use NEC ECC Option C Target Cost contract for the construction works.</p> <p>Cabinet approves the ECI process for the procurement of the works, and the letting of the first stage Professional Services contract to John Mowlem & Co PLC.</p>
25 July 2003	Professional Services Contracts signed and exchanged with John Mowlem for stage 1. Work commences on preliminary design, risk assessment and value engineering.
November 2003	Detailed design commenced by Council/Arup.

APPENDIX 1 Continued

RUGBY WESTERN RELIEF ROAD: TIMELINE OF KEY EVENTS

DATE	EVENT
8 January 2004	Cabinet approves capital allocations for major schemes, which include £23.9M for this project. Cabinet advised that while this is above that previously notified (£20.3M on 17 July 2003), it is hoped that this can be reduced through value engineering and that a further report will be submitted on the financing of the scheme once the final estimate and major scheme funding allocation from Government are known.
12 February 2004	Inspector recommends that the Secretary of State confirms Side Roads Orders for only the Northern section of the scheme and asks if the Council is willing to proceed on this basis. Work on detailed design stopped pending outcome.
26 February 2004	Cabinet notes Inspector's Report, and requests a further report be submitted following the seeking of views from the Rugby Area Committee.
25 th March 2004	Cabinet endorses the views of the Rugby Area Committee (meeting 17 March 2004), in that it was felt that the Inspector had not taken adequate consideration of various issues and that further evaluation of a number of areas was required.
31 st March 2004	Preliminary response submitted to Secretary of State, registering the Council's disquiet regarding the Inspector's conclusions, and advising that two or three months would be required to gather the information necessary to answer all the queries raised.
7 th June 2004	Report submitted to Rugby Area Committee considering the options available for delivering the scheme following completion of the feasibility study in order to provide a definitive response to the Secretary of State. The Committee resolved that the relief road be constructed in one stage (including the two rail bridges over the disused railway line).
24 th June 2004	Views of Rugby Area Committee considered by Cabinet which agrees that the Secretary of State should be urged to approve the building of the entire western relief road along the route proposed by the Orders. If the Secretary is unable to do this, then Cabinet agrees that the Council should call for the public inquiry to be re-convened.

APPENDIX 1 Continued

RUGBY WESTERN RELIEF ROAD: TIMELINE OF KEY EVENTS

DATE	EVENT
July 2004	Appeal submitted to Secretary of State regarding decision on Side Roads Orders.
September 2004	Secretary of State advises Council that public inquiry is to be re opened early in the new year to consider issues raised by the Council.
March to May 2005	Inquiry originally fixed for 15/18 March 2005. Re convened for 18/20 April 2005, subsequently adjourned to 10 May 2005.
15 December 2005	Decision on Orders received from Secretary of State, together with Inspector's Report. Secretary is prepared to approve the scheme almost in full, subject to some minor modifications in line with the Inspector's recommendations.
December 2005	Publicly reported that Mowlem is close to being acquired in a takeover bid from Carillion.
January 2006	Aware of the likely takeover of Mowlem by Carillion, the Project Manager seeks legal advice regarding the re-engagement of Mowlem to pick up the design and the Professional Services contract from where it was left off in February 2004.
11 January 2006	Rugby Area Committee considers Inspector's report of the 15 th December 2005 and prepares its views for submission to Cabinet.
23 February 2006	Carillion completes its acquisition of Mowlem plc.
23 February 2006	<p>Cabinet considers the views of the Rugby Area Committee (11 January 2006), approves the minor changes to the scheme requested by the Inspector and, noting that Mowlem have a very good understanding of the scope of the works, agrees to continue with the Early Contractor Involvement.</p> <p>Cabinet advised that current scheme cost is estimated to be £26.8M (at current prices) (£28.2M outturn cost in 2008) and is included in the capital programme although part of the funding still requires Government support.</p>
March 2006	Revised planning application and Side Road Orders submitted.

APPENDIX 1 Continued

RUGBY WESTERN RELIEF ROAD: TIMELINE OF KEY EVENTS

DATE	EVENT
1 April 2006	Mowlem re engaged under Professional Services Contract. Detailed design recommenced.
11 July 2006	Meeting between Project Manager and Carillion to discuss preparation of provisional target cost of works. [Based on agreed works information a detailed bill of quantities was to be prepared for the various items of work]
30 November 2006	Secretary of State confirms amended Side Roads Orders
14 December 2006	Statutory Orders and Notices published (each subject to a 'challenge period' of 6 weeks before they can be completed).
January 2007	Project Manager compiles estimated cost of scheme as £35.141M including £22.175M target price.
1 February 2007	<p>Cabinet advised of the agreed target cost for the works of £23.1M based on a construction period of 90 weeks, and that it is robust and has been independently evaluated. Cabinet advised that costs may come down when negotiating the final target price, prior to awarding the contract. Assuming a start in May 2007, members advised to expect completion by December 2008.</p> <p>Cabinet approves a revised scheme estimate of £35.146M at 2008 outturn prices. (Report to Cabinet refers to a figure of £30.528M having been previously approved in September 2006).</p> <p>Cabinet approves letting of construction contract once full approval for the scheme has been received from the Department of Transport and a revised planning permission has been granted.</p> <p>Cabinet also approves the letting of an advanced contract for site clearance.</p>
14 February 2007	Notices to Treat and Enter served following expiry of 'challenge period'.
1 March 2007	Conditional approval of funding (£17.083M) received from Department for Transport.

APPENDIX 1 Continued

RUGBY WESTERN RELIEF ROAD: TIMELINE OF KEY EVENTS

DATE	EVENT
29 March 2007	<p>Cabinet approves revised scheme estimate of £36.573M; based on a target cost of £24.161M and a construction period of 106 weeks. Members agree to the letting of the construction contract, once full approval of funding has been received from Department of Transport.</p> <p>Increase from the cost of £35.146M reported to Cabinet on 1st February 2007, reported as being due to extra cost of diverting high voltage cables at the proposed rail bridge and longer period now required for the works to be completed.</p> <p>Subject to securing funding by mid-April, Members advised that work could start towards the end of May 2007 and be completed by the summer of 2009.</p>
20 April 2007	Advanced works contract for site clearance, fencing, hedging and ecological works let to Carillion Regional Civil Engineering under a 'single tender procurement action'.
26 June 2007	<p>Cabinet reminded that the Council's preferred contractor Mowlem was selected in 2003 and was taken over by Carillion plc in May 2006 and is now operating as Carillion JM Ltd.</p> <p>Members advised that full funding for the scheme is now in place and there is an urgent need to start the construction work.</p>
26 July 2007	Carillion JM Ltd submit formal tender for construction works in the sum of £24,161,960.
9 August 2007	Contracts exchanged with Carillion JM Ltd for construction works, based on NEC3 ECC form of contract Option D target cost with bill of quantities. Contract sum £24,161,960. Completion of works to be within 106 weeks from starting work.
18 August 2007	Official contract start date for the construction works confirmed as the 20 th August 2007.
23 August 2007	Programme revision (P001 Rev A) indicates completion date of 1 st September 2009.

APPENDIX 1 Continued

RUGBY WESTERN RELIEF ROAD: TIMELINE OF KEY EVENTS

DATE	EVENT
15 October 2007	Programme revision (P002 Rev A), amends completion date to the 30 th November 2009.
3 December 2007	Programme (P003) issued. Completion date unaffected.
1 February 2008	Programme (P004) issued, with new completion date of 11 January 2010.
12 February 2008	Carillion completes acquisition of Alfred McAlpine.
13 March 2008	Programme (P005) issued. Completion date unaffected.
10 October 2008	Strategic Director for Environment and Economy Directorate, reports to SDLT/Cabinet that the outturn estimate had risen by £6.33M to £42.36M and that he had approached the region to allocate additional RFA funding for the scheme.
1 December 2008	Internal Audit report issued following their review of the budget, at the request of the Head of Transport and Highways, in order to provide an independent view on the accuracy of its make-up and the rationale for the identified cost increases.
February 2009	The Head of Projects from the Resources Directorate was asked to review the latest budget forecast in order to provide an independent view and assurance as to its robustness.
17 June 2009	Project Manager advises contractor that contract completion date was originally the 31 st August 2009 (i.e. 106 weeks from the starting date of the 20 th August 2007), and that through implemented compensation events the completion date has been extended by 19.2 weeks to the 12 January 2010.
29 September 2009	Contractor advised that project manager is now Steven Young, and supervisor is Ian Capewell
2 October 2009	Original project manager (Brian Follett) retires from Council.

APPENDIX 1 Continued

RUGBY WESTERN RELIEF ROAD: TIMELINE OF KEY EVENTS

DATE	EVENT
15 October 2009	<p data-bbox="400 434 1289 539">Cabinet advised of estimated cost of £55M (based on an estimated final target cost of £38M) and reasons for cost increases.</p> <p data-bbox="400 584 1366 730">Members agree the establishment of a Board to conduct fuller and more detailed review of circumstances leading to the increased costs and the lessons to be learnt. Outcome to be reported to a future meeting of the Cabinet.</p>

APPENDIX 2

SCHEME ESTIMATE 3 APRIL 2007

	£	£
Roadworks	10,924,187	
Structures	4,771,315	
Main Contract Work Sub Total		15,695,502
Preliminaries		5,028,205
Temporary Work		686,808
Carillion Risk Allowance		325,000
Allowance for Inflation (5%)		1,086,776
Fee 5.87%		1,339,669
TARGET PRICE		24,161,960
Land / Property Costs	2,746,000	
Services	3,468,770	
Fees	5,019,505	
Network Rail Costs (fees and possessions)	441,438	
Network Rail diversion of 25KV cables	200,000	
		11,875,713
Council's Risk Items: -		
Residual risks (ground conditions, weather, stat delays)	379,000	
Unmeasured items in Bill of Quantities [1% main contract works] [additional street lighting supply]	156,955	
		535,955
SCHEME ESTIMATE		£36,573,628

APPENDIX 3

ESTIMATED FINAL TARGET PRICE AS AT MONTH 26 [30 SEPTEMBER 2009]

	£	£
Contract Target Price		24,161,960
Implemented Compensation Events (CEs)		4,353,138
Remeasurement changes		-610,240
TARGET PRICE [1 Oct 2009]		27,904,858
Outstanding Compensation Events (CEs)	8,764,060	
Contingency for future CEs and remeasurements	625,701	
		9,389,761
ESTIMATED FINAL TARGET PRICE [as per monthly report]		37,294,619
Estimated remeasurement on drawing revisions	691,330	
Contingency for future CEs	600,000	
	1,291,330	
Less included in monthly report above	625,701	
		665,629
ESTIMATED FINAL TARGET PRICE [as per cost report summary]		£37,960,248

NB. Value of estimated final target price stated in monthly report varies from that indicated in the cost report summary.

APPENDIX 4

COMPENSATION EVENTS VALUED AT £200,000 OR MORE

	EVENT	TIME [weeks]	VALUE £	
			IMPLMNTD	OUTSTDG
1	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 wingwall at the Parkfield Road Rail Bridge. [EW149 7-Jul-08; CE173 17-Jul-09]	42.3	2,315,100 [PMA]	
2	Error in drawings regarding existing and proposed location of Cemex tunnel. [EW691 13-May-09; CE494]			900,000 [EST]
3	Reprogramming of work at Parkfield Road Rail Bridge, due to delays by Network Rail in the diversion of 25kv power supply and other apparatus. [EW13 10-Sep-07; CE30 12-Jun-08]	13.0	634,918 [PMA]	
4	Correction of error in traffic signs specified for the scheme (S-Tr143). [PMI379 9-Feb-09; CE216]			621,733 [CQ]
5	Sow Brook Bridge. Extra temporary works required for laying foundations and setting out. [PMI309 17-Nov-08; CE740]			545,476 [CQ]
6	Pavements S-Tr142. Design error resulting in extra setting out, drainage and traffic signage following remodelling of Cawston roundabout. [EW658; PM376/419; CE205]			400,000 [CQ]
7	Extra requirements regarding landscaping, hedgerows etc [PMI468 8-May-09; CE732]			375,716 [CQ]

APPENDIX 4 Continued
COMPENSATION EVENTS VALUED AT £200,000 OR MORE

	EVENT	TIME [weeks]	VALUE £	
			IMPLNTD.	OUTSTDG.
8	Increased allowance for removal of surplus excavated soil and multiple handling. [EW 790 Jul-09]			330,000 [EST]
9	Extra work, including design, following the introduction of the south west wing wall at Parkfield Road Rail Bridge, which required temporary works to facilitate construction. [EW28 14-Oct-07; PMI41 19-Feb-08; CE104 6-Feb-09]	6.2	324,400 [PMA]	
10	Increase in landfill tax from April 2008. [EW569; CE473]			300,000 [EST]
11	Temporary diversion of Lawford Road (extra over cost in bill of quantities). [PMI471 8-May-09; CE755]			253,373 [CQ]
12	Outline SEAF for retaining wall P following realignment of Cemex tunnel route. [PMI 407 9-Jun-09; CE560]			250,000 [EST]
13	Realignment of retaining wall N due to realignment of Cemex tunnel route. [PMI 540 29-Jun-09; CE628]			250,000 [EST]
14	Contractor's redesign of retaining wall F due to close proximity of businesses. [PMI421 26-Mar-09; CE181]			200,000 [EST]
15	Delay in completion of sewer diversion work at the Cemex tunnel by SevernTrent. [EW 571 6-Mar-09; CE553]			200,000 [EST]
	TOTALS		£3,274,418	£4,626,298
			£7,900,716	

Appendix D of Agenda No 2

Communities Overview and Scrutiny Committee – 29 November 2010

Rugby Western Relief Road

Summary of Member/Officer Board Meetings

1. Eight meetings of the Review Board have been held to date. The meetings were held on the following dates :-
 - 2009 - 15 October and 26 November
 - 2010 - 6 January, 30 March, 3 June, 13 July, 13 September and 19 October.
2. The core members of the Board at the time it was formed in October 2009 were:-
 - Portfolio Holder for Environment (Councillor A Cockburn)– Chair
 - Chair of the Overview and Scrutiny S Board (Councillor J Appleton)
 - Local member for Caldecott (Cllr David Wright)
 - Strategic Director for Environment and Economy (Paul Galland)
 - Strategic Director for Resources (David Clarke)
 - Strategic Director for Adult, Health and Community Services (Graeme Betts)
 - Secretarial Support – Andy McDarmaid
3. Others that have attended the Board are :-
 - Councillor H Walton (Conservative spokesperson for EED and Member of Rugby Area Committee).
 - David Carter (Strategic Director for Customers, Workforce and Governance).
 - Ian Marriott (Community and Environment Legal Services Manager).
 - Ken Odgers (Contractauditline)
 - Graeme Fitton (Head of Service for Transport for Warwickshire).
 - Roger Newham (County Transport Planner).
 - Nigel Barr (Stradia).
 - David Bowen (Stradia).
4. The business of the Board at each of its meetings is summarised below.
15 October 2009
 - Terms of Reference for the Board were agreed.
 - Appointment of Contractauditline (CAL) was agreed.
 - The Board received a briefing on the contract, the costs known at that time and staff resources deployed.

26 November 2009

- The draft CAL report was presented to the Board.
- The Board decided to appoint an external commercial advisor (Stradia were appointed in January 2010).
- A decision was taken to further boost the commercial staff resources to deal with the large volume of compensation events.

6 January 2010

- The Board received a progress report on commercial and engineering matters. A large difference (£10M) between WCC and Carillion on the target cost was reported. Based on the WCC view of costs the estimate of £55M approved by Cabinet in October was considered still valid. A completion date of November 2010 was predicted.

30 March 2010

- Paul Galland presented a report to the Board setting out his conclusions about the questions posed to the Board by Cabinet (see paragraph 1.5 of this report for those questions).
- A further progress report was given with a revised predicted completion date of October 2010 and opening of the southern half predicted for July 2010.
- It was decided that it would be inappropriate to have formal scrutiny whilst there remained significant construction and commercial issues to be resolved.

3 June 2010

- Progress report given. It was reported that completion was now possibly late September
- Stradia reported their findings to date on commercial matters.

13 July 2010

- Progress reports from WCC and Stradia

13 September 2010

- It was reported that the road opened fully to traffic on 10 September. Councillor Wright gave feedback that the road had quickly delivered relief to the town centre roads and was achieving the anticipated benefits.
- Progress report from Stradia on commercial negotiations.
- Proposals for Scrutiny and reporting to Cabinet/Council were discussed with provisional dates for Scrutiny and Cabinet/Council in late November and mid December respectively.

19 October 2010

- Progress report on commercial negotiations and discussion of possible settlement outcomes.
- Discussion about the Communities Overview and Scrutiny meeting planned for 29 November.