

A605 KINGS DYKE LEVEL CROSSING CLOSURE

To: Economy and Environment Committee

Meeting Date: 11th October 2018

From: Graham Hughes, Executive Director, Place & Economy.

Electoral division(s): Whittlesey North & Whittlesey South

Forward Plan ref: 2018/038 **Key decision:** Yes

Purpose: To inform the Committee of the total budget now required for the Kings Dyke scheme, following the detailed design phase and seek approval for the commencement of the construction phase and land acquisition, subject to securing the necessary increase in funding.

Recommendation: The Economy and Environment Committee is recommended to:

a) Note the design development and increase in budget now required to deliver the scheme, along with the independent review of the construction target cost.

b) Note the revised Benefit Cost Ratio (BCR) for the scheme remains high, indicating that the scheme delivers excellent value for money, despite the required budget increase.

c) Approve the award of the stage 2 construction contract to Kier and complete purchase of the required land, subject to the approval of the additional funding by the Cambridgeshire & Peterborough Combined Authority.

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1. BACKGROUND

- 1.1 The A605 between Whittlesey and Peterborough carries over 12,000 vehicles per day and there are some 120 daily train movements across the level crossing that crosses the road. The resulting closure of the King's Dyke level crossing barrier causes significant delay to traffic. Future plans by the rail industry to increase the number of trains along the route will further increase delays.
- 1.2 The situation is exacerbated during the winter months, when local flooding often closes the North Bank, an alternative route between Whittlesey and Peterborough, for long periods of time. Some additional 5,000 vehicles a day displaced by this closure use the level crossing, doubling the average delay per vehicle.
- 1.3 The delays have an impact on local businesses and commuters travelling between Whittlesey and Peterborough.
- 1.4 Three options were considered and the County Council's Economy and Environment Committee agreed to progress the preferred option that was identified through public consultation.
- 1.5 Very early estimates indicated a scheme cost of £13.6m and it was subsequently reported at the Economy and Environment Committee on 3rd February 2015 that the budget required could be almost £17m. It was noted therefore that additional funding may be required, but that the final total budget required would need to be informed by the detailed design stage.
- 1.6 Based on an outline design and modelled traffic impact, the preferred option demonstrated high value for money, with a Benefit Cost Ratio (BCR) of 2.43 at an estimated cost of £16.9m. This represented good value for money when considered against the Department for Transport (DfT) assessment framework.
- 1.7 The use of a competitive tender process within the Eastern Highways Framework contract (EHF2) was also approved. This was based on a two stage design and construct contract, with a clear contractual break between the two stages. Following the procurement process, approval was given to appoint Kier to carry out the detailed design stage and develop a full target construction cost, with potential for the construction stage to follow without further procurement. This would be subject to agreeing an acceptable target construction cost, evidence of good performance and being within the available overall budget.
- 1.8 The detailed design is now nearing completion and the more significant engineering requirements identified mean the overall budget required to commence the construction phase of this scheme is considerably higher than originally estimated. Additional funding to construct this scheme will therefore be required.
- 1.9 Considerable work has been undertaken to secure the land for the scheme through negotiation and contracts are now ready to be exchanged. The exchange and completion of the land must take place in advance of construction starting on site.

- 1.10 As the budget required is now much higher than previously reported, the acquisition of the required land has been placed on hold until the additional funding has been determine.

2. MAIN ISSUES

Scheme Budget

- 2.1 The design contract for stage 1 was awarded to Kier on 30th October 2017, with Skanska appointed under the Highways Service Contract, to undertake the NEC contract project management. The contract was to complete a full detailed design in order to determine a target cost for construction.
- 2.2 Whilst there is provision in the contract for the scheme to be delivered as a single package (i.e a smooth transition from design to construction), this is not guaranteed. It is conditional on satisfactory performance and agreement of a construction target price that demonstrates market value.
- 2.3 As the detailed design has progressed the amount of work required in construction has shown to have increased, resulting in a considerably higher target construction cost than that priced at the stage 1 tender stage.
- 2.4 There have been a number of significant changes in the design that have become necessary as the detailed design has progressed and more information gathered. These principally relate to increased ground improvement requirements and additional stabilisation work at the disused clay extraction pit (Star Pit), identified from further investigation. More earth moving, structural requirements at the railway bridge to comply with Network Rail requirements and accommodation works required by land owners as a result of land negotiation (large long-term businesses).
- 2.5 The preferred road alignment option at public consultation was through a constrained site and led to the road needing to be positioned close to a disused clay extraction pit, known as Star Pit. The close proximity of the pit to the road embankment meant that the potential amount of work required to stabilise the road was identified as one of the key risks for this scheme.
- 2.6 Ground investigation information was available at the preliminary design stage, however, this is traditionally limited at this stage to determine buildability, with detailed investigation and design solutions forming part of the stage 1 detailed design contract. Therefore a nominal risk allowance for ground improvement was included in the stage 1 estimate.
- 2.7 The further detailed ground investigation undertaken during stage 1 has now shown that much more extensive ground improvement will be necessary, to eliminate risk of settlement of the embankment and to stabilise the adjacent pit, adding considerable cost to the scheme.

- 2.8 Value engineering exercises have been regularly undertaken throughout the detailed design stage. The design itself is therefore functional and in no way elaborate. It reflects basic land constraints, safety and stability requirements. There is therefore very limited opportunity to reduce the scope of the design to reduce the overall budget required.
- 2.9 A target construction price has been submitted by the Contractor based on 90% detailed design completion, and this price has been independently checked by external consultants. Any uncompleted elements of the design have, where necessary, been accounted for in the risk allocated in the risk register. The cost review has included an analysis of the quantities, contractor's rates and sub-contractors' prices and the Contractor's allocation of risk.
- 2.10 The review work has indicated that the target construction price provided is within normal market rates and that initial estimates throughout the early stages of the scheme have under assessed its complexity. The full report can be found in the confidential appendix to this report, as it includes commercially sensitive information.
- 2.11 Alongside an increase in target construction cost, the detailed design and emerging programme have allowed better forecast costs for other areas of work affected by the more complex design and construction methodology. These include; additional supervision and contract management, a clearer understanding of statutory undertakers' requirements for protecting and diverting plant, revised estimates for Network Rail approval and process costs, and increased fees for land and procurement processes and these are included in the revised scheme budget.
- 2.12 A priced risk register has also been included which has been built up jointly with the contractor. The optimism bias has been reduced to 3%, as recommended by the Department for Transport, due to the design development stage the scheme has now reached.
- 2.13 Taking all of the above into account, a total scheme budget of £29.98m is now required to allow the construction phase to commence. A detailed breakdown of this budget can be found below.

	Oct 18 Committee			Aug 2017 Committee
	Total Spent to Date	Anticipated Remaining Spend	Total Expected Spend	Total Expected Spend
Kier Stage 1 Contract	£722,025	£320,873	£1,042,898	£945,641
Kier Stage 2 Target	£0	£15,850,034	£15,850,034	£7,871,960
Land acquisitions	£425,454	£3,509,211	£3,934,665	£3,683,403
Statutory Undertakers	£890,887	£285,224	£1,176,110	£329,883
Network Rail Costs Estimate	£36,500	£550,680	£587,180	£118,500
Management & Supervision	£1,105,127	£1,377,837	£2,482,964	£1,426,904
Risk		£4,127,000	£4,127,000	£400,000
Optimism Bias	OB @3%	£780,626	£780,626	£2,088,749
Total Scheme Estimate	£3,179,993	£26,801,485	£29,981,478	£16,865,040

Funding

- 2.14 The current £13.6m agreed funding identified in the County Council's Business Plan consists of £8m from the Growth Deal Funding, £3.5m from residual unallocated capital funds, and £2.1m from County Council borrowing. Whilst a funding gap was always envisaged, it was thought, as reported to E and E Committee, that the final required budget would be in the region of £16.9m.
- 2.15 With the detailed design almost complete and the target construction price now known, it has provided much greater certainty of the overall cost for the scheme and subsequent funding gap of £16.4m.
- 2.16 During the development of the scheme, the Cambridgeshire and Peterborough Combined Authority (CPCA) has been established and is now the responsible transport authority, with overall responsibility for strategic transport schemes. As the increased scheme cost has emerged, discussions over additional funding with the CPCA have taken place and the CPCA Executive Board will be considering taking on responsibility for the scheme and meeting the funding gap at its meeting on 31st October.
- 2.17 Other sources of funding have already been explored, including Fenland District Council, Peterborough City Council and Network Rail. At this stage, no funding contributions have been forthcoming.

- 2.18 If the scheme is not supported by the CPCA, then the Council will need to consider alternative funding options, which will add considerable delay to the project. It may also need to decide whether the project is able to continue.

Business Case

- 2.19 In accordance with DfT guidance, the Business Case has now been re-assessed, with the increased certainty of design and cost. The benefits have also been re-assessed and appear far greater than previously calculated. The initial Business Case used delay times at the level crossing calculated using accepted observation and modelling methods. However recent comparisons from other schemes indicated that these methods do not capture the full extent of delays caused at heavily used level crossings. Actual delays have therefore been re-surveyed rather than theoretically modelled and the associated delays have been shown to be much greater. This includes over 200 vehicles queueing at peak times with delays of up to 13 minutes per vehicle on top of a free flowing journey time. Expected journey times following completion of the scheme have also been re-considered, and as a result of changes during detailed design such as improved geometry of the roundabouts, these are now expected to be considerably better than originally envisaged and this has also improved the business case..
- 2.20 The updated BCR has also been calculated taking into account annual average closure of North Bank, increasing vehicles using the level crossing as an alternative route.
- 2.21 By using this new data, the calculated increase in benefits has outweighed the cost increases and the scheme now has an improved BCR of 8.37. This revised Major Scheme Business Case (MSBC) is currently going through an assurance review by an independent external consultant, as required by the Growth Deal fund.
- 2.22 The DfT assessment framework places any scheme with a BCR of 2 or more in the high value for money category. The above BCR shows that the scheme continues to provide extremely high value for money, along with the significant wider benefits to the community and local economy, which will unlock both housing and business development potential in the Whittlesey area and along the A605 corridor.

Land Acquisition

- 2.23 As agreed at previous E&E Committee meetings, the land acquisition process has been by agreement rather than through Compulsory Purchase Order (CPO) powers. This is following an update in the guidance issued by the Department for Communities and Local Government in October 2015 requiring CPO to be used only as a last resort. Agreement has been reached with all the landowners and the legal conveyancing work is reaching a conclusion.
- 2.24 At the 10th August 2017 E and E Committee it was agreed to acquire the land prior to award of the stage 2 contract and as soon as possible. However, the cost of the land represents a significant proportion of the overall costs and given the funding shortfall there is substantial risk that the County Council would be left with an asset it can

make little use of it if it were to acquire the land ahead of confirming funding availability.

- 2.25 Whilst land deals are in a position to be concluded, it is not recommended that contracts are completed until the additional funding requirements are approved.

Programme

- 2.26 The current timeline for project completion is as follows, subject to successfully securing additional funding in late October:

October 2018	Stage 1 - Detailed design complete
November 2018	Stage 2 – Construction contract award
Dec/Jan 2019	Commence Utility diversions
February/March 2019	Construction commences
Late 2020	Construction complete; Scheme opens

- 2.27 It should be noted that there are risks that could potentially impact on this timeline, with the key risks outlined below:

- Delay in securing the additional funding required to sign the Stage 2 contract.
- Delay in completing land acquisition, resulting in landowners wishing to renegotiate land prices.
- Final agreement of construction contract terms reflecting a later start date and the target construction cost for stage 2.
- Completion of utility diversions. Ideally need to be carried out before construction commences. (May be carried out alongside construction but this brings some risk).
- Agreement of Network Rail possessions. Need to be coordinated with the construction programme.
- Significant adverse weather and/or unforeseen ground conditions.
- Delay in completing Ecology surveys preventing construction starting in that area due to survey windows being missed.

3. ALIGNMENT WITH CORPORATE PRIORITIES

3.1 Developing the local economy for the benefit of all

The following bullet points set out details of implications identified by officers:

- The current layout at the level crossing causes significant congestion, which makes the area unattractive for development and adds costs to commuters and businesses. The scheme will support plans for improvements and economic growth in the area.

3.2 Helping people live healthy and independent lives

There are no significant implications for this priority.

3.3 Supporting and protecting vulnerable people

There are no significant implications for this priority.

4. SIGNIFICANT IMPLICATIONS

4.1 Resource Implications

- The overall cost for the scheme is significantly greater than the previously reported amounts owing to the increase in construction cost now based on a detailed design. As noted above, officers will work with the contractor to reduce this where possible.
- See items 2.11 – 2.14 for details of available funding.
- The current scheme estimate includes a rate of Optimism Bias of 3% to reflect the increase of cost certainty based on the contractor's detailed design and stage 2 tendered price.
- Whilst the cost has increased substantially over earlier estimates, the costs have been reviewed by an external consultant to ensure that they remain competitive, are commensurate with the work being undertaken and deliver value for money.
- This is a Target Cost Contract, so actual costs will be paid, but subject to a pain/gain mechanism. The Target Price can vary to reflect any increase or decrease in the scope of the work required. In construction projects where unpredictable issues may arise, costs will almost certainly vary from the agreed Target Cost. At the end of the contract, any variance between the final target price and actual cost is apportioned between the contractor and the employer, allowing the contractor to share any savings made or to contribute towards overspend. This mechanism incentivises all parties to work collaboratively to deliver the project as economically as possible as underspends (gain) or overspends (pain) are shared in agreed proportion.
- The contract is being managed and supervised in accordance with contractual (New Engineering Contract) requirements. All claimed costs and adjustments to the target price will be assessed by the NEC Project Manager with the project team, including specialist consultants, in negotiation with the contractor to ensure that they are justified and evidenced and provide value for money. This ensures that all work undertaken is necessary and is delivered in the most economical way.

4.2 Procurement/Contractual/Council Contract Procedure Rules Implications

- The current design contract with Kier is due to complete at the end of October 2018. The construction contract will be an NEC ECC option C. This will be subject to agreement of the construction target price and terms.

4.3 Statutory, Legal and Risk Implications

- The key risks are detailed in a scheme Risk Register which has been reviewed and updated by the contractor and officers during the design period.
- Delay in completing land purchase could lead to land owners seeking to renegotiate increased land prices
- Identified key risks include coordinating work with Network Rail and statutory undertakers, dealing with unforeseen poor ground conditions, presence of contaminated material, construction in Star Pit and cost control. Mitigation actions are agreed with the contractor, 3rd parties and are being monitored.
- Health and Safety on the scheme will be managed in accordance with all relevant legislation, including the Construction Design and Management Regulations 2015 and all other relevant legislation.
- The risk of completing land acquisition ahead of agreement of a target cost was highlighted. With the increased construction cost, this risk is more significant and completion on the land is only recommended when additional funds are confirmed and the scheme is certain to proceed
- The BCR at 8.37 represents one of the most significant investments that could be made in the area by the Cambridgeshire and Peterborough Combined Authority and County Council. To not progress would impact heavily on the drive for economic growth, a key remit of both. Additionally this could damage the understanding of any future prioritisation process if the BCR is not considered one of the key factors.

4.4 Equality and Diversity Implications

There are no significant implications within this category

4.5 Engagement and Communications Implications

- Public consultation has been a key factor in the identifying a recommendation for a preferred option.
- Further public consultation and community engagement has been undertaken as part of the planning process.
- Updates for stakeholders and the public will be provided throughout the scheme.
- The Project Board draws upon local members for steering the project, local knowledge of issues and feeding back to the local community
- A communication plan is in place for Stage 2
- A pre-construction event will be held and regular newsletters issued during the construction phase.

4.6 Localism and Local Member Involvement

- Local County and District members are engaged in the project as members of the Project Board.

4.7 Public Health Implications

There are no significant implications within this category.

Implications	Officer Clearance
Have the resource implications been cleared by Finance?	Sarah Heywood
Have the procurement/contractual/ Council Contract Procedure Rules implications been cleared by Finance?	Paul White
Has the impact on statutory, legal and risk implications been cleared by LGSS Law?	Debbie Carter-Hughes
Have the equality and diversity implications been cleared by your Service Contact?	Elsa Evans
Have any engagement and communication implications been cleared by Communications?	Joanna Shilton
Have any localism and Local Member involvement issues been cleared by your Service Contact?	Andrew Preston
Have any Public Health implications been cleared by Public Health	Tess Campbell

Source Documents	Location
Economy and Environment Committee Reports <ul style="list-style-type: none"> 16th September 2014 3rd February 2015 19th April 2016 10th August 2017 	https://cmis.cambridgeshire.gov.uk/ccc_live/Committees/tabid/62/ctl/ViewCMIS_CommitteeDetails/mid/381/id/5/Default.aspx

Major Scheme Business Case

Options Appraisal

<https://www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/transport-projects/kings-dyke-crossing/>