



Open Report on behalf of Andy Gutherson, Executive Director for Place

Report to:	Councillor M J Hill OBE, Leader of the Council (Executive Councillor: Resources, Communications and Commissioning)
Date:	06 – 12 December 2023
Subject:	Cross Keys Bridge - Improving Resilience
Decision Reference:	I030441
Key decision?	Yes

Summary:

This report requests authorisation for the carrying out of works in order to allow the conversion of the operation of Cross Keys Swing Bridge to be by electric motors. The estimated cost of the works is £1.68 million. The planned expenditure would include the £480,000 already allocated to overhaul the existing hydraulic and PLC systems.

Recommendation(s):

That the Leader of the Council (Executive Councillor: Resources, Communications and Commissioning):-

1. approves the carrying out of works to convert the operation of Cross Keys Swing Bridge to be by electric motors;
2. approves the capital scheme business case for the works; and
3. delegates to the Executive Director - Place in consultation with the Executive Councillor: Highways Environment and IT authority to determine the final form and the entering into of any contracts and the taking of any steps necessary to carry out the works.

Alternatives Considered:

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| 1. | Do not authorise the carrying out of the works and therefore continue with the already approved works to overhaul and upgrade the existing hydraulic and programmable logic controller (PLC) systems, without electrification. |
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Reasons for Recommendation:

The current situation presents a significant opportunity to improve the operation of Cross Keys Bridge, reduce the risks (especially disruption to road and river traffic, environmental, health and safety and other operational risks), and in doing so improve its overall resilience for the future.

1. Background

Cross Keys Bridge (the Bridge) is a swing bridge, originally built in 1897, which today carries A17 road traffic over the River Nene close to the boundary between Lincolnshire and Norfolk. The bridge opens several times a week to allow for river vessel traffic to pass between Wisbech and the North Sea.

The current risks to Lincolnshire County Council (LCC) in being the responsible authority for the management of the Bridge are significant. Its failure to operate would cause major disruption to road and / or river traffic, which would have significant local, regional and potentially national consequences. The latter would be due to the A17 over it being a key route for the agri-food industry based in Lincolnshire and Norfolk.

The Bridge is also governed by an Act of Parliament – The Lynn and Sutton Bridge Railway Act 1861 – by which it is unlawful for the Bridge to delay or detain shipping on the River Nene, unless caused through ‘unavoidable injury’ to the Bridge. Therefore, LCC could be subject to proceedings if a neglect of duty was identified and proved.

There has been significant additional use of the Bridge over recent years, with the full year of 2021 seeing an increase in openings of 65% compared with 2017. Although shipping levels dropped during the pandemic, they are expected to fully recover in coming years.

As a result, a project has already been initiated to overhaul/replace the programmable logic controller and hydraulic plant and machinery that currently operate the Bridge. This project recognises the need for work to be done to improve the resilience of the Bridge and address current operational pressures resulting from the current system.

Initial work commenced on the agreed project strands, which included research and engagement in order to identify specialist companies that would be best placed to specify and design the proposed works.

This included a number of visits to the Bridge by potential companies as well as virtual discussions. These have been at no direct cost to the authority and have been reality checked with LCC Structures team, the Bridge Supervisor and the term maintenance contractor for the Bridge term, who would be responsible for installing and subsequently maintaining any new and overhauled systems.

During this engagement, a completely alternative approach to the overhaul was proposed, which had not previously been considered. This would replace the existing hydraulic systems with a fully electric system, with the Bridge being operated via the use of electric motors. As well as the actual opening and closing of the Bridge being done via electric

motors, this would include the use of electric motors for the movement of the jacks and rest-blocks at either end of the Bridge.

This would bring the following significant advantages over the previously proposed continuation of a hydraulic system, albeit overhauled:

- Complete removal of the environmental risk of operating hydraulic systems over a waterway, which could cause a pollution incident.
- Overall reduction in plant and equipment and therefore the overall complexity of the system and so reduction in risk of small failures having significant impacts.
- Significantly reduced reliance on ageing elements of the Bridge, which would present an ongoing inherent risk of failure if their use remained.
- Whilst many existing mechanical parts of the historic structure would still move, they would not do so under load and so there would be a significant reduction in their wear and tear, leading to an overall longer life and improved preservation of the historic asset.
- Improved consistency of operation across all seasons, aligned with an overall more responsive system, through the introduction of a non-friction reliant method of braking the Bridge on closing.
- All equipment would be easier to access for maintenance, not only making it less costly to undertake, but also improving health and safety considerations for those undertaking maintenance activities.
- Increased ease of implementing the proposed overhaul, as an electric motor solution is more likely to be installed in parallel with the existing hydraulic system before this was removed. This significantly reduces the risk of the Bridge being out of action whilst the works take place.
- Reduction in general revenue maintenance costs, expected to be in the region of £40k per annum, which would not have been expected under the original proposal. Additional savings are also expected through reduced operator additional hours being required in responding to and investigating faults.
- Reduced reliance on spare equipment needing to be stored on site and also on specialist sub-contractors to the term contractor, also leading to further likely savings.
- Maintaining the advantages previously included in the agreed overhaul and upgrade of the hydraulic system (e.g., including built-in redundancy as per current best practice in such systems, bringing systems to current standards, general reduction in risk when operating the Bridge etc).

There are no significant disadvantages currently identified through the option of implementing this new proposal. The additional electricity costs of operating the proposed electric motors are expected to be more than offset by the savings made by not having to electrically heat the existing system's hydraulic oil, as is currently done in order to give confidence that the Bridge will operate as it should.

The total cost of the new proposal to convert the Bridge to full electric operation is £1.68 million, which would include the £480,000 previously allocated. However, the benefits

listed above – giving the further increase in resilience, reliability and risk reduction that they do – are considered to be such that the additional cost presents value for money.

It should be noted that whilst the proposal to convert to electric operation could be implemented at some point in the future, after an overhaul of the hydraulic systems has been implemented, this would to all intents and purposes mean the already committed £480,000 would be wasted when this was done, as the cost of the electric operation option would still be the full £1.68 million currently expected.

The risks of not implementing either the hydraulic overhaul or the conversion to electric operation, and so continuing with the current operating arrangements, are considered to be too significant for nothing to be done.

2. Legal Issues:

Equality Act 2010

Under section 149 of the Equality Act 2010, the Council must, in the exercise of its functions, have due regard to the need to:

- Eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under the Act.
- Advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it.
- Foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

The relevant protected characteristics are age; disability; gender reassignment; pregnancy and maternity; race; religion or belief; sex; and sexual orientation.

Having due regard to the need to advance equality of opportunity involves having due regard, in particular, to the need to:

- Remove or minimise disadvantages suffered by persons who share a relevant protected characteristic that are connected to that characteristic.
- Take steps to meet the needs of persons who share a relevant protected characteristic that are different from the needs of persons who do not share it.
- Encourage persons who share a relevant protected characteristic to participate in public life or in any other activity in which participation by such persons is disproportionately low.

The steps involved in meeting the needs of disabled persons that are different from the needs of persons who are not disabled include, in particular, steps to take account of disabled persons' disabilities.

Having due regard to the need to foster good relations between persons who share a relevant protected characteristic and persons who do not share it involves having due regard, in particular, to the need to tackle prejudice, and promote understanding.

Compliance with the duties in section 149 may involve treating some persons more favourably than others.

The duty cannot be delegated and must be discharged by the decision-maker. To discharge the statutory duty the decision-maker must analyse all the relevant material with the specific statutory obligations in mind. If a risk of adverse impact is identified consideration must be given to measures to avoid that impact as part of the decision-making process.

The Equality Duty has been considered and the proposals in the Report are considered to be neutral in their impacts as between people with a protected characteristic and those who do not share that characteristic.

Joint Strategic Needs Assessment (JSNA) and the Joint Health and Wellbeing Strategy (JHWS)

The Council must have regard to the Joint Strategic Needs Assessment (JSNA) and the Joint Health and Wellbeing Strategy (JHWS) in coming to a decision.

The proposal in the Report is not considered to have any implications for the JSNA or the JHWS.

Crime and Disorder

Under section 17 of the Crime and Disorder Act 1998, the Council must exercise its various functions with due regard to the likely effect of the exercise of those functions on, and the need to do all that it reasonably can to prevent crime and disorder in its area (including anti-social and other behaviour adversely affecting the local environment), the misuse of drugs, alcohol and other substances in its area and re-offending in its area.

The proposal in the Report is not considered to have any implications for the JSNA or the JHWS.

3. Conclusion

The Leader of the Council (Executive Councillor: Resources, Communications and Commissioning) is requested to consider and authorise the carrying out of works to improve the resilience of Cross Keys Swing Bridge by converting it to operation by electric motors.

4. Legal Comments:

The Council has the power to undertake the works proposed.

The decision is consistent with the Policy Framework and within the remit of the Leader of the Council

5. Resource Comments:

Funding for the proposed works has been identified as £0.48 million (already committed) from the New Developments Capital Contingency included in the Council's approved Capital Programme and a further £1.6 million from the capitalisation of income into Highways.

Although the primary objective of the works is to reduce risk and improve resilience of this infrastructure, as noted in the body of the report, it is expected that it will also result in ongoing savings in the revenue budget of £0.040 million per annum.

6. Consultation

a) Has Local Member Been Consulted?

No

b) Has Executive Councillor Been Consulted?

Yes

c) Scrutiny Comments

The decision is being considered by the Highways and Transport Scrutiny Committee on 30 October 2023 and the comments of the Committee will be reported to the Leader of the Council.

d) Risks and Impact Analysis

See the body of the Report.

7. Background Papers

No background papers within Section 100D of the Local Government Act 1972 were used in the preparation of this report.

This report was written by John Monk, Head of Highway Design Services who can be contacted on 01522 552934 or via e-mail at john.monk@lincolnshire.gov.uk.