

REPORT TO: EXECUTIVE COMMITTEE
Date of Meeting: January 14th 2020

REPORT TO: FULL COUNCIL
Date of Meeting: January 21st 2020

Report of: Director, Environment and City Management
Title: Structural Inspection Programme of Exeter City Council Bridges

Is this a Key Decision?

No

Is this an Executive or Council Function?

Council

1 What is the report about?

- 1.1 Seeking funding to carry out an accelerated programme of Principal Inspections of all City Council owned bridges, and to subsequently maintain a continuous programme of General and Principal Inspections for all City Council owned bridges in the future.

2 Recommendations:

- 2.1 That Executive recommends and Council approve an additional budget of £150,000 to span the financial years 20-21 and 21-22 to complete the programme of Principal Inspections on all City Council owned bridges.
- 2.2 That Executive recommends and Council approve an additional ongoing annual budget of £40,000 commencing in FY 22-23, to fund a rolling programme of regular bridge inspections and maintain this in perpetuity. In line with Design Manual for Roads and Bridges, this will involve Principal (6-yearly intervals) and General (2-yearly intervals) Inspections.

3 Reasons for the recommendation:

- 3.1 Exeter City Council owns 27 bridges, managed by the Public Realm and Corporate Property teams. As an asset owner, the City Council has a duty to ensure that all of its bridges are safe both for the users and for any traffic passing beneath them.
- 3.2 Historically, these bridges were subject to periodic visual structural inspections by a suitable qualified and experienced engineer, however following cuts to local authority budgets a decision was made to reduce these inspections whilst seeking to protect front-line services. The inspections have now effectively ceased, with only simple visual inspections being carried out by the engineering team. These visual inspections are not sufficient to allow a judgement to be made on the structural condition of the bridge, to allow a safety assessment nor to recommend remedial works.
- 3.3 Regular inspections of the bridges' conditions allows unsafe structures to be repaired or closed before they pose a significant risk to the public. Additionally, these inspections allow early, preventative repair and maintenance work to be carried out. These works are typically far less disruptive and far cheaper in the long run than reactive repair works, and help to prolong the life of the structure delaying the ultimate removal or replacement of the structure.
- 3.4 Recent findings from inspections on several of our bridges (Mallison Bridge, Kings Arms Bridge, Salmonpool Bridge and North Street Bridge) have identified significant structural

issues that have resulted in closure or major works being required. Had routine inspections been carried out, these issues would have been identified earlier and could potentially have been addressed sooner, and the necessary works better planned to minimise disruption and reputational damage to the council.

- 3.5 Regular inspections allow the degradation rate of the structure to be assessed, allowing identification of potential future issues and forward planning of major works and replacements. Again, this allows disruption to be minimised and for more cost-effective decisions to be made, and allows time for funding applications to be made to partnering authorities which can reduce cost to the City Council.
- 3.6 Whilst our insurers do not recommend a set frequency for inspections, our insurance policy expects us to take reasonable precautions to prevent a loss. A routine programme of inspections provides proof that the council is taking reasonable precautions to prevent loss. Furthermore, if these inspections are carried out in line with current guidance on inspection frequency and nature they could provide an important defence for the council in the event of a claim being made by a member of the public.

4 What are the resource implications including non-financial resources:

- 4.1 It is important to note that the recommendation is for a programme of inspections, and the resource implications discussed below do not include an allowance for any necessary remediation works to the bridges as a result of the inspections. It is not possible to estimate the resource need for works to the bridges without these inspections. Following the inspections, findings and recommendations will be reported to Senior Management Board and capital funding requests will be made to address all necessary works to keep the bridges safe. These will be covered in future committee reports.
- 4.2 Exeter City Council currently has no defined budgets allocated to the inspection and maintenance of bridges, other than for simple visual inspections which are carried out by the engineering team as part of their wider public realm inspection regime. We therefore currently have no resources to carry out routine Principal and General Inspections other than as additional tasks within identified capital works on or near the bridge structure.
- 4.3 Exeter City Council has no internal resource to carry out structural inspections on bridges, nor to interrogate the inspection findings. A suitably qualified bridge engineer will therefore need to be contracted to carry out the inspections and provide recommendations on further investigations and / or remedial works required to keep the bridge operational and safe. A number of engineering contractors with offices in Exeter have the capability to carry out these inspections.

Principal Inspection Catch-up programme (2 years)

- 4.4 The initial catch-up project will be tendered as a single contract to carry out 23 Principal Inspections over 2 years, with high risk bridges inspected in year 1 and lower risk bridges in year 2. Cricklepit Bridge is currently being tendered separately, as this is the responsibility of Exeter Canal and Quay Trust (ECQT) who are paying for the inspection but this will be managed by ECC.
- 4.5 An ECC engineer will oversee the specification of works and management of the inspection programme, with tender support from the procurement team.
 - 4.5.1 Production of the specification and tender will take approximately 10 person days of an engineer's time, plus around 3 person days for a member of the procurement team.
 - 4.5.2 Tender evaluation and award will take approximately 5 person days for the engineering team and 2 days of procurement team.
 - 4.5.3 Management of the project will take approximately 3 days per month for a member of the engineering team, for the duration of the project.

- 4.6 Budgets costs for Principal inspections have been provided by engineering consultant Jacobs, who manage and carry out Principal Inspections for the Environment Agency across the South West. A number of assumptions have been made to enable these estimates to be made, and some costs such as Network Rail permissions were not included. A risk allowance has therefore been added to the estimated costs, to account for uncertainties in the budget costs.
- 4.7 The cost of the initial catch-up programme is estimated to be £120,000 - £150,000 and it is recommended that the upper estimate of £150,000 be made available for the project to provide a risk allowance. The estimated spend is £110,000 in year 1 and £40,000 in year 2

Rolling Inspection Programme (6-year cycle)

- 4.8 An indicative programme has been drawn up for the inspections based on the 2-year and 6-year intervals recommended. It is estimated that an average annual budget of around £40,000, increasing in line with inflation, will be required to keep bridge inspections up-to date.
- 4.9 At this time we do not foresee that the necessary expertise will be brought in-house to enable ECC to carry out these inspections, and so inspections will need to be carried out by external contractors. It is anticipated that inspections will be managed as part of a 3-year contract, awarded to a single contractor, with the contract re-tendered every 3-year to ensure value-for-money.
- 4.10 An ECC engineer will oversee the specification of works and management of the inspection programme, with tender support from the procurement team.
- 4.10.1 Production of the specification and tender will take approximately 10 person days of an engineer's time, plus around 3 person days for a member of the procurement team.
- 4.10.2 Tender evaluation and award will take approximately 5 person days for the engineering team and 2 days of procurement team.
- 4.10.3 Management of the inspection programme will take approximately 3 days per month for a member of the engineering team, for the duration of the project.

5 Section 151 Officer comments:

- 5.1 It is essential that the Council provides an adequate inspection process to protect against potential insurance claims. If approved, the one off £150,000 can be funded from General Fund reserves. The ongoing £40,000 will be require reductions elsewhere to fund and therefore will be added to the reductions required to be identified in the medium term financial plan.

6 What are the legal aspects?

- 6.1 As an owner of public infrastructure, the City Council has a duty to ensure that this infrastructure is adequately maintained and is safe for use by the public. In the event of a bridge failing, the City Council would need to demonstrate that it had taken reasonable steps to ensure the safety of the bridge, or else it could be considered to have been negligent and could be liable to substantial damage claims from third parties.
- 6.2 Furthermore, in the event of a serious injury or fatality associated with a bridge failure where an inspection had not been carried out, the Council's Directors and some elected members could be found criminally liable if it was felt that insufficient funding had been provided to maintain the safety of the bridge.

7 Monitoring Officer Comments:

Any issues of concern will be raised at the meeting.

8 Report details:

- 8.1 Exeter City Council currently owns 27 bridges, comprising a mix of pedestrian and vehicle bridges and crossing railways, highways and watercourses.
- 8.2 As a bridge owner, the City Council has a duty to ensure the safety of these structures throughout their lifetime. Regular structural Inspections by a competent engineer are one way of ensuring this safety, as they identify structural safety defects which could be critical to the bridge structure.
- 8.3 Historically these inspections have been carried out, however in the face of budgetary pressures since 2010, decisions were made to reduce these inspections to protect front-line services. Subsequently, these routine inspections have effectively ceased and now only visual safety inspections are carried out by ECC staff.
- 8.4 A full inspection regime for ECCs bridges is recommended. This should be based on the Department for Transport's Design Manual for Roads and Bridges (DMRB), which whilst written for highways structures is considered to be the most relevant guidance available and is considered to be the current best practice in the industry.
- 8.5 The DMRB sets out five types of maintenance inspections, however the three routine inspections are:
 - a. Safety Inspection - to identify obvious deficiencies which represent, or might lead to, a danger to the public and, therefore, require immediate or urgent attention. Risk-based approach to setting inspection frequency.
 - b. General Inspection - to provide information on the physical condition of all visible elements on a structure. These are carried out on a 2-yearly schedule.
 - c. Principal Inspection - to provide information on the physical condition of all inspectable parts of a structure, with close examination at touching distance. A Principal Inspection is more comprehensive and provides more detailed information than a General Inspection. These are carried out on a 6-yearly schedule.

Each of these inspections involves an assessment of the bridge's condition, plus recommendations for further studies or maintenance works as required to maintain the safety of the bridge.

- 8.6 The current programme of visual inspections carried out by the ECC engineering team meets the requirements of the Safety Inspections. The frequency of inspections varies between bridges, dependent on the level of use and the level of risk with the structure, but all structures currently have a safety inspection at least once per year.
- 8.7 There are currently 23 outstanding Principal Inspections which need to be completed on city council bridges. The remaining three bridges do not require inspections because:
 - 8.7.1 North Street Footbridge had a Principal Inspection in 2019, carried out in advance of planned repair works to the bridge deck.
 - 8.7.2 Kings Arms Bridge has been recently replaced, so does not currently require an inspection.
 - 8.7.3 Mallison Bridge has been closed and is soon to be dismantled and removed.
 - 8.7.4 Cricklepit Bridge is owned by Exeter Canal & Quay Trust, but ECC provides support and manage the inspections of this bridge. Inspection of this bridge is currently out to tender and expected to be carried out in Spring 2020.
- 8.8 It is recommended that the Principal Inspections be brought up-to-date as quickly as reasonably practicable. It is suggested that this be done over a 2 year period, with higher footfall and higher risk structures completed in the first year and lower risk structures in the second year. A suggested programme for the catch-up period is shown below:

Bridge	FY 19-20	FY 20-21	FY 21-22
Canal Basin Swing Bridge		PI	
Burnet Patch (Cathedral Close) Bridge			PI
Cricklepit Suspension Bridge	PI		GI
Cathedral & Quay Carpark cycle bridge		PI	
Ducke's Marsh (over Mill Race)			PI
Exhibition Way Road Bridge (over rail)		PI	
Exminster Marsh Footbridge			PI
Footbridge at Countess Wear Mill			PI
Harlequins Footbridge		PI	
King William Street footbridge		PI	
King's Arms Swing Bridge	Rebuild		GI
Leypark Road Footbridge (over rail)		PI	
Ludwell Valley Park Footbridge			PI
Mallison Bridge	CLOSED	CLOSED	Rebuild
Medieval Exe Bridge			PI
Mill House Arch Countess Wear			PI
Mill House Slab Countess Wear			PI
North Street (Mary Arches car park footbridge)	PI		
Northbrook Park footbridge			PI
Northbrook Park Bridge			PI
Paul Street Car Park Ramp		PI	
Salmon Pool Swing Bridge (over canal)		PI	
St James Leat footbridge over weir (FP24)			PI
Topsham Lock Footbridge		PI	
Topsham Lock Swing Bridge		PI	
Yaroslavl Bridge (Western Way)		PI	
Double Locks Overflow Footbridge		PI	

PI: Principal Inspection GI: General Inspection

- 8.9 Following the receipt of each inspection, the City Council engineer overseeing the inspections will review the findings and recommendations of the report. Each report will include a list of recommended immediate, short term, medium term and long term actions and these should be addressed within the recommended timeframes in the reports. Where critical works are required, these will be immediately escalated to Senior Management with a view to selecting a course of actions (i.e. carry out recommended works, closure, removal or replacement) and securing funding to carry out these actions as quickly as reasonably practicable.
- 8.10 For remaining non-critical recommendations, where there would be substantial efficiency in carrying out non-urgent works alongside critical works it will be recommended that these be done simultaneously. However, if there is no significant efficiency offered or there are no critical works recommended, the recommended works will be entered into a programme of works across all of the City Council's bridges to seek efficiencies through grouping similar works or works in similar locations. As with the critical works, the potential for closure, removal or replacement of the bridge will be considered as these options may offer better value for the Council.
- 8.11 As there is currently no specific budget for bridge maintenance, funding applications will need to be made to cover the cost of any required bridge works arising from the inspections.

- 8.12 Once the Principal Inspections are brought up-to-date, a continuous programme of inspections should be maintained in perpetuity. In line with the guidance set out in the Design Manual for Roads and Bridges, Principal Inspections are recommended at 6-year intervals and General Inspections at 2-year intervals. Where General and Principal Inspections would be scheduled in the same year, only the Principal Inspection will be required in that year.
- 8.13 An outline 6-yearly inspection programme has been produced, which looks to achieve a fairly even annual spend on inspections and also groups bridges by locations / type. This is expected to offer efficiency savings in terms of procuring the works, and in the event that significant issues are identified will allow capital bid so be submitted for a programme of works rather than individual structures which could be more efficiently delivered.

Bridge	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Canal Basin Swing Bridge		GI		GI		PI
Burnet Patch (Cathedral Close) Bridge	PI		GI		GI	
Cricklepit Suspension Bridge		GI		PI		GI
Cathedral & Quay Carpark cycle bridge	GI		PI		GI	
Ducke's Marsh (over Mill Race)	PI		GI		GI	
Exhibition Way Road Bridge (over rail)		GI		PI		GI
Exminster Marsh Footbridge		GI		GI		PI
Footbridge at Countess Wear Mill	PI		GI		GI	
Harlequins Footbridge	GI		PI		GI	
King William Street footbridge	GI		PI		GI	
King's Arms Swing Bridge		GI		GI		PI
Leypark Road Footbridge (over rail)	GI		GI		PI	
Ludwell Valley Park Footbridge	PI		GI		GI	
Mallison Bridge		GI		GI		PI
Medieval Exe Bridge		PI		GI		GI
Mill House Arch Countess Wear	PI		GI		GI	
Mill House Slab Countess Wear	PI		GI		GI	
North Street (Mary Arches car park footbridge)	GI		PI		GI	
Northbrook Park footbridge	PI		GI		GI	
Northbrook Park Bridge	PI		GI		GI	
Paul Street Car Park Ramp	GI		PI		GI	
Salmon Pool Swing Bridge (over canal)		GI		GI		PI
St James Leat footbridge over weir (FP24)	PI		GI		GI	
Topsham Lock Footbridge		GI		GI		PI
Topsham Lock Swing Bridge		GI		GI		PI
Yaroslavl Bridge (Western Way)		PI		GI		GI
Double Locks Overflow Footbridge		GI		GI		PI

PI: Principal Inspection GI: General Inspection

- 8.14 It should be noted that there will need to be a transitional period from the 2 year accelerated programme to the 6 year routine programme in order to generate the more even annual spend, with some Principal Inspections carried out before the 6 year deadline and some lower risk structures being delayed to a 7 year interval for the first routine inspection. General inspections

will still be carried out on a 2 year interval during this transition period to provide a constant level of oversight.

- 8.15 As with the accelerated programme of inspections, the City Council engineer overseeing the inspections will review the findings and recommendations of each report upon receipt. Any critical works required will be escalated to SMB, whilst non-critical works will be entered into a programme of works subject to future capital bids.

9 How does the decision contribute to the Council's Corporate Plan?

- 9.1 The Corporate Plan sets out a priority of promoting active & healthy lifestyles and tackling congestion & accessibility. Many of the council's bridges are on popular pedestrian and cycle routes, and continued inspections of our bridges means that these can be kept open and safe for users, reducing the likelihood of them using private cars to get around the city. A closure or loss of one of these bridges could have a significant impact on accessibility around the city, and the result could be a reduction in people walking or cycling around the city.
- 9.2 The plan also sets out a priority of providing value for money services, through improving the management of our built assets. Whilst there is a cost implication associated with the inspections, they will enable the improved management of our bridges. This will mean that we catch issues early and therefore carry out smaller repairs, reducing the overall cost of operating the structure, and can improve the longevity of the structures meaning that significant renewals and replacements are required less frequently. Over the lifetime of the structure, total costs should be reduced by implementing a regular inspection programme.
- 9.3 Procuring the contracts as a larger programme of works, and grouping together similar bridge types into each year's inspections, is expected to result in better value for money as it offers consultants a certainty of workload so can plan this work around their other demands to offer best value.
- 9.4 The proposed programme of inspections will support the council's priority of leading a well-run council through managing risks and using data to inform decisions and priorities. The inspections will help the council to manage risks, by identifying issues in our built assets and allowing these to be addressed before they generate significant risk to the council. The findings from the inspections will be used to direct investment in our built assets and make decisions regarding their future (i.e. repair / remove / replace), decisions that cannot reasonably be made without the results of these inspections.

10 What risks are there and how can they be reduced?

- 10.1 We have sought indicative budget costs from a local consultant, who carry out these types of surveys for the Environment Agency, to enable a cost estimate to be derived. A number of assumptions remain in these costs, and so a contingency has been applied to these budget costs for the purpose of this report.
- 10.2 It is important that all of the Principal inspections are carried out within the recommended 2 year period. There is however a risk that the selected consultant will not be able to resource all of the inspections within this period. To minimise this risk, during the tender process the successful consultant will be expected to confirm that they have sufficient capacity before they are awarded the contract and to provide a programme of inspections. As part of the tender, a second 'reserve' consultant will be selected to provide extra capacity if the preferred contractor is found to be unable to fully resource the required inspections.

11 Equality Act 2010 (The Act)

- 11.1 Under the Act's Public Sector Equalities Duty, decision makers are required to consider the need to:

- eliminate discrimination, harassment, victimisation and any other prohibited conduct;
- advance equality by encouraging participation, removing disadvantage, taking account of disabilities and meeting people's needs; and
- foster good relations between people by tackling prejudice and promoting understanding.

11.2 In order to comply with the general duty authorities must assess the impact on equality of decisions, policies and practices. These duties do not prevent the authority from reducing services where necessary, but they offer a way of developing proposals that consider the impacts on all members of the community.

11.3 In making decisions the authority must take into account the potential impact of that decision in relation to age, disability, race/ethnicity (includes Gypsies and Travellers), sex and gender, gender identity, religion and belief, sexual orientation, pregnant women and new and breastfeeding mothers, marriage and civil partnership status in coming to a decision.

11.4 In recommending this proposal no potential impact has been identified on people with protected characteristics as determined by the Act because:

11.4.1 Investment is aimed at structures rather than directly at people, and all structures will be included in the inspection so there is no preferential selection of structures.

11.4.2 Not acting to inspect the bridges could detrimentally impact on disabled or elderly persons, in the event that a bridge had to be closed due to

11.4.3 There is no impact of this decision in relation to race/ethnicity (includes Gypsies and Travellers), sex and gender, gender identity, religion and belief, sexual orientation, pregnant women and new and breastfeeding mothers, marriage and civil partnership status.

12 Are there any other options?

12.1 It is considered necessary to carry out the Principal and General Inspections for all bridges which are to remain open to the public in the future or which cross over roads and railways, to ensure that the safety of the bridges is sufficiently understood and maintained. The suggested timescale of two years is considered to be a reasonable timescale over which to do this, balancing the risk from continued missing inspections with the resourcing implications.

12.2 It is possible to extend the period over which the initial inspections are done, however with this comes an increased risk of significant issues arising on a bridge which may then need be closed leading to disruption and potential costs to the council. Also in the event of an insurance claim made regarding any ECC bridge, either by ECC or a member of the public, our insurers could decide that continued lack of inspection does not constitute the Council taking reasonable precautions to prevent a loss.

12.3 Similarly, the interval between routine inspections could be increased to decrease the annual cost of inspections, however we would strongly recommend against this as it contradicts the best available industry guidance. The age of many of the city's bridges means that they are likely to be in a state of deterioration, and reduced inspection frequency significantly increases the risk of significant safety defects being missed and subsequently increases the risk of a bridge failure. In the event of a claim relating to a bridge, the City Council's defence may be significantly compromised if inspections are not carried out at the recommended frequency.

12.4 An alternative option is available for some bridges, to close and / or remove bridges which have not received a Principal Inspection for a substantial length of time. This currently applies to nearly all of the City Council's bridges, which have not had a structural inspection for at least ten years and many of which have no record of ever having never had a Principal Inspection. To do this, an assessment would need to be made on the likely impact of closing the bridge on users, plus the residual risk in the event of a bridge failure based on what the bridge is crossing. There would be an ongoing cost associated with bridge closure, as the methods of closure would need to be regularly inspected, and a capital cost associated with removal of a bridge.

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Local Government (Access to Information) Act 1972 (as amended)

13 Background papers used in compiling this report:-

None

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