

Decision Pathway – Report

PURPOSE: Key decision

MEETING: Cabinet

DATE: 14 December 2021

TITLE	Urgent works to the Underfall Yard Sluices	
Ward(s)	Hotwells and Harbourside	
Author: Thomas Pawley	Job title: Principle Docks Engineer	
Cabinet lead: Mayor Marvin Rees	Executive Director lead: Stephen Peacock, Executive Director Growth and Regeneration	
Proposal origin: BCC Staff		
Decision maker: Cabinet Decision forum: Cabinet		
Purpose of Report:		
<ol style="list-style-type: none"> 1. To advise Cabinet on the condition of the Underfall Yard Sluices. 2. To inform Cabinet of the work which is currently being progressed. 3. To provide Cabinet of a cost estimate for the likely financial impact including seeking approval for the submission of a bid and if successful to accept and spend potential funding from the Environment Agency. 		
Evidence Base:		
<ol style="list-style-type: none"> 1. The sluices at Underfall Yard have been providing the City of Bristol with a means of regulating the water levels within the harbour since 1840. Due to the tidal nature of the River Avon and the high levels of water which flows downstream from the River Avon and other main water courses (inc. the River Frome), the sluices provide the city with a critical flood defence measure. 2. Some of the Underfall Yard Sluice infrastructure is over 100 years old. The last major body of works to the sluices was in the 1990s when the main sluice paddles were replaced following a failure. Since then, none of the other major components have been replaced and due to an historical lack of investment over many years they are now in a critical state. 3. The failure of the sluices would leave the Harbour Authority without the ability to control the harbour level, which could have the following worse case scenarios: <ol style="list-style-type: none"> 1) Sluice gates fail in an open position causing the harbour to lose its water causing the harbour walls to collapse, vessels to be out at risk and businesses affected. 2) Sluice gates fail in a closed position, causing the harbour authority to be unable to control the harbour level resulting in flooding. 4. There are two sets of sluices, plus an additional sluice. The two sets are the main sluice gates which are in 'A' Block by Cumberland Road and the emergency sluice gates on the harbour side. There is a further sluice in the New Cut for the deep sluice (No. 3). 5. The main sluices are: No. 1 & No. 2 which are used to control the harbour level, No. 3 (the deep sluice) which was previously used for dredging but use of this sluice ceased in 2000 when BCC removed the in-house dredging team and No. 4 which has not been operational for several years. 6. The emergency sluices are: No. 1 & No. 2, which are operational, and No. 4 which is currently not operational. For No. 3 there is a blanking plate instead of a sluice gate in front of the culvert, which restricts the flow of water when No. 3 main sluice is opened. It should be noted that if either main sluice No. 1 or No. 2 failed open, both emergency sluices No. 1 & No. 2 would need to be shut as the culverts (tunnels underneath Underfall Yard linking the Harbour to the New Cut) combine. 		

7. The actuator (device which controls the sluice gate) on main sluice No. 2 failed on the Tuesday 11th March, which left Bristol with only one operational sluice gate to control the harbour level. This was subsequently repaired in July, following a lengthy lead time for the required components to repair it. During this period, we only had main sluice No. 1 operational to control the harbour level. Maintenance work is also required on the actuator for main sluice gate No. 1, which would cause No. 1 to be out of action for a period of time.
8. The harbour has numerous aging assets which have not had sufficient investment over an extended period, which includes the Underfall Yard Sluices. These aging assets are having to deal with more common and extreme weather and flood events than ever before.
9. BCC commissioned an inspection report to look at the Underfall Yard Sluices which showed that the system requires an investment of over £0.5m to address various infrastructure issues.
10. The inspections carried out were visual and tactile examinations of what was accessible at the time. The culverts between the sluices were not inspected nor was the structural integrity of the gates examined, as thickness readings could not reliably be taken.
11. The report also did not investigate different solutions, and just looked at repairing what was currently in place. For example, it did not look at replacing the actuators on the main sluice gates, which are prone to overheating and becoming stuck, with a hydraulic system. Nor did it look at adding a new emergency sluice gate for No. 3 Sluice (the deep sluice), to provide more protection to the harbour.
12. It is therefore believed that the value of the works will exceed the estimate provided in the report.
13. Kaymac Marine are on contract to conduct a further inspection of the 8 off sluice gates and the 4 off culverts. This was conducted on the 16th-18th November 2021, with the report due early December 2021.
14. If, however, any work is required to the culverts, this would form part of a separate repair task. This is due to the current funding timeframe (see Point 17) and the complexity of repairing the culverts.
15. The BCC Flood Risk Team (Matthew Sugden) have been engaged with to explore the possibilities of funding through the Environment Agency (EA).
16. Initial estimates of grant eligibility from the EA are in the region of £0.3m to £0.6m.
17. Following a conversation with the EA on 22nd October we are advised that we could access Flood Defence Grant in Aid (FDGiA) this financial year. Receiving funding next financial year would however be more challenging as FDGiA funds have already been allocated for the next financial year.
18. The EA have initially advised us that they would support an application for funding, in the region of £0.3m. We are however in conversation with the EA in the hope to increase this amount.
19. Any funding received from the EA will need to be spent by July 2022. We are in discussions with the EA about this being extended, due to the complex nature of the works and short timescale.
20. BCC is currently in the process of gaining a full picture of the extent of the works and the costs associated with this. The value to repair all defects with the sluices though has been estimated to be in the region of £0.75m to £1.25m. This estimate will include a contingency sum should anything unforeseen works occur.
21. It should be noted that this does not take the culverts into consideration and assumes that the sluice paddles do not need replacing.
22. This will require BCC contribution. We are currently looking at capital funding and how funds can be prioritised for this work over current, less urgent, projects.
23. The current level of risk with the Underfall Yard Sluices is not tenable and urgent action is required.
24. Due to this we are going at risk and are beginning to progress the design work and procurement process.
25. We are currently liaising with KGAL Consulting Engineers Ltd to conduct a Hazard & Operability Analysis (HAZOP) on the Sluices and produce an optioneering report based on this.
26. We are additionally looking to get confirmation from the EA that any funding from them can be retrospectively granted and have had reassurance that for this work, we should be able to.

Cabinet Member / Officer Recommendations:

That Cabinet:

1. Note the position in relation to the condition and potential works required to the Underfall Yard sluices.
2. Approve the spend of up to £1.25m for works to the Underfall Yard sluices as outlined in this report.
3. Authorise the Executive Director Growth and Regeneration in consultation with the Mayor to submit a funding application to the Environment Agency for up to £1.25m.
4. Authorise the Executive Director, Growth and Regeneration, to accept and spend the funding to undertake works to the Underfall Yard sluices as outlined in this report, to include the procurement and award of contracts up to the value of the funding received and to include decisions above the key decision threshold.
5. Approve the reallocation of up to £0.7m Capital expenditure funding from the existing Highways capital budget.

Corporate Strategy alignment:

1. The floating harbour is a quintessential part of the city, of which the Underfall Yard sluices are one of the key components. Ensuring that the sluices are in their best possible condition is critical for us to deliver our corporate strategy.

City Benefits:

1. Significantly reduce the flood risk to the city and protect the harbour from losing water, which could cause the harbour walls to collapse.
2. Safeguard businesses and residents who depend on the harbour for their livelihood and accommodation.
3. Safeguard the council from reputational damage locally and nationally.
4. Mitigate the two worse case scenarios.

Consultation Details:

1. We are in engagement with the EA and BCC Flood Management Team.
2. We are in engagement with local suppliers to provide cost estimates for the required works.
3. We are in engagement with Kaymac Marine Ltd to conduct a further inspection of the 8 off sluice gates and the 4 off culverts.
4. We are in engagement with KGAL Consulting Engineers Ltd to conduct a HAZOP and produce an optioneering report.

Background Documents:

1. Underfall Yard MEICA Inspection Report. Mott Macdonald.
2. Underfall Sluices modelling. ARUP.

Revenue Cost	£0	Source of Revenue Funding	None
Capital Cost	Up to £1.25m	Source of Capital Funding	EA, BCC Capital programme
One off cost <input checked="" type="checkbox"/>	Ongoing cost <input type="checkbox"/>	Saving Proposal <input type="checkbox"/>	Income generation proposal <input type="checkbox"/>

Required information to be completed by Financial/Legal/ICT/ HR partners:**1. Finance Advice:**

- 1) The docks sluices at Underfall Yard are not operating correctly and are in need of investment to repair and prevent potential flooding, damage to the dock's infrastructure and local businesses. A previous inspection suggested around £0.5m of investment was required, but the report wasn't a full detailed inspection, so current estimates suggest expenditure of between £0.75m and £1.25m. This includes a contingency allowance of £0.25m (20%).
- 2) An inspection is currently underway to determine the full extent of the work and costs, expected to be completed by 18th November 2021 and the team are already liaising with an engineering consultancy company on the design and engineering work requirements due to the urgency and risks involved – this work is funded from existing docks engineering budgets.
- 3) There is potential for Environment Agency (EA) funding to cover the total costs of the works estimated to be up to £1.25m using Flood Defence Grant in Aid (FDGIA) funding. Discussions are continuing with the Environment Agency to try and secure a higher level of funding, but the project will likely involve a contribution from the Council.
- 4) The balance of funding is expected to come from a combination of existing uncommitted Harbour capital expenditure budgets as well as a reprioritisation of existing Highway's capital expenditure budgets. Table 1 outlines the relevant budgets in Highways:

Table 1

Project - Reprioritisation	2021-22
Park St	£141,671
St Peters Rise	£320,849
Cumberland Road	£200,000
TOTAL	£662,520

- 5) The project will have a number of risks, including:
 - The report on the extent of the work and costs associated is still to be determined and completed, so full knowledge of the required expenditure is unknown.
 - The risk that unforeseen work and additional costs could be uncovered once work on the site commences.
 - The EA funding that has been identified is only for 2021-22 financial year and we are already over halfway through the year, so the timescales to utilise the funding is tight.
 - The risk of obtaining the specialist materials and parts needed to complete the project in the timescale.
 - Damage to the docks, surrounding infrastructure and businesses, if the sluice gates fail and flooding occurs.
 - Reputation damage to the Council, potential legal and insurance costs associated.
- 6) These risks will need to be managed closely by the Service. The issue on funding sources will need to be resolved and may require further Cabinet approval. Project delivery will also require strong contract management to ensure materials, timescales and funds are maximised leading to less risk of physical and reputational damage and the associated costs of this.

Finance Business Partner: Kayode Olagundoye, Interim Finance Business Partner, Growth and Regeneration, 16th November 2021.

2. Legal Advice: The submission of a bid for funding does not raise any specific legal implications. Legal Services will advise and assist in relation to the contractual arrangements for acceptance of the funding.

Legal Team Leader: Husinara Jones, Team Leader/Solicitor, 4th November 2021.

3. Implications on IT: We would need a Solution Architect involved as early as possible to ensure the new technology aligns with our internal systems and strategy. Where support is needed, IT Service Transition will need to be involved.

IT Team Leader: Iain Godding, Head of Enterprise Architecture, 22nd November 2021.

4. HR Advice: There are no HR implications evident.

HR Partner: Celia Williams, 4th November 2021.

EDM Sign-off	Stephen Peacock, Executive Director Growth and Regeneration	12 th October 2021
Cabinet Member sign-off	Mayor's Office	21 st October 2021
For Key Decisions - Mayor's Office sign-off	Mayor's Office	15 th November 2021

Appendix A – Further essential background / detail on the proposal 1. Underfall Yard MEICA Inspection Report. Mott Macdonald. 2. Underfall Sluices modelling. ARUP.	Yes
Appendix B – Details of consultation carried out - internal and external	No
Appendix C – Summary of any engagement with scrutiny	No
Appendix D – Risk assessment	Yes
Appendix E – Equalities screening / impact assessment of proposal	Yes
Appendix F – Eco-impact screening/ impact assessment of proposal	Yes
Appendix G – Financial Advice	No
Appendix H – Legal Advice	No
Appendix I – Exempt Information	No
Appendix J – HR advice	No
Appendix K – ICT	No
Appendix L – Procurement	No