

## MANAGING FLOOD RISK IN BATH: INFORMATION NOTE

**NOVEMBER 2021** (Bath – Wera Hobhouse MP)



1960's flooding in Bath

### Background

Bath is at risk from river and surface water flooding. Following significant flooding in the 1960's the Bath Flood Alleviation Scheme was completed in 1974 to reduce the risk of flooding to the city.

Twerton and Pulteney gates form part of the 1974 Bath scheme and as they are now over 40 years old, they require significant (and increasing) investment to keep them operating reliably.

The introduction of this scheme in the 1970s, significantly reduced the risk of flooding to 1350 properties, but there are still over 500 properties with a 1% chance of flooding in any one year. With the impact of future climate change, this risk is predicted to increase to between 1500 and 2000 properties. To see areas currently at risk, follow this link to the gov.uk website:

<https://www.gov.uk/check-long-term-flood-risk>

### Bath River Avon Options Appraisal

The Environment Agency and Bath and North East Somerset Council commissioned a high level study in 2016 to consider the best long term sustainable solution for managing flood risk in Bath. The River Avon Options Appraisal Report identified potential actions at a strategic level, including replacement of Twerton and Pulteney gates and constructing new or improved flood walls.

To quantify the flood risk benefits and costs of each option and therefore identify where further work is best directed, hydraulic modelling and high level cost estimates were undertaken.



Pulteney Weir and Gate

### ***Potential options: Twerton Gate***

Failure of Twerton gate in the closed position could cause flooding of around 773 additional properties in an extreme flood event.

Failure in the open position could result in the river level dropping, making the riverside look unsightly, inaccessible and impacting on wildlife habitats as well as potential damage to the foundations of historic buildings adjacent to the river.

The study identified several options for Twerton gates. These ranged from simple refurbishment, to a different gate arrangement and flood relief channel. These options have varying benefits and are estimated to cost between £4 million and £16 million.



Twerton Gates

### **Potential Options: Pulteney Gate**

The hydraulic modelling shows that failure of Pulteney gate in the closed position would have a minimal impact on flood risk.

Failure in the open position presents a risk of damage to the foundations of historic buildings due to a drop in river levels. The risk is greater here than at Twerton due to its central location and poor access which could hinder mitigation works.



Pulteney Gate

The study identified various options to replace or refurbish the gate. Some of these options would also improve the amenity value of this key location in the centre of Bath. No decision has been made on the preferred option. Estimated construction costs range between £2 million and £5 million.

### **Potential Options: Additional Flood Walls**

The cost of building additional flood walls through Bath, as identified in the River Avon Options Appraisal Report has been estimated at over £30 million. As the existing flood alleviation scheme mitigates significant flooding in frequent flood events, construction of walls would attract limited government funding under current spending rules. The viability of additional flood walls would also be affected by their visually intrusive nature and resulting environmental and heritage impacts.

### **Funding**

The current estimated cost of implementing all of the potential improvements would be approximately £50 million, with the possibility of attracting around £10 million from central government funding. Progression of all improvements would therefore only be possible with additional funding of around £40 million.

### **Next Steps**

At the present time, neither the Environment Agency or Bath and North East Somerset Council have the funding available to progress all potential schemes; nor are there other sources of funding currently able to cover this large amount. We have therefore focused our work on securing funding to refurbish or replace the gates as the priority.

A detailed condition assessment of Pulteney and Twerton gates was completed in 2016. This gave us an estimated remaining life of the gates, and a more detailed understanding of the state of the materials and component parts.

Since then we have an approved business case to replace/refurbish the gates at Twerton. This investment will maintain the current standard of protection and manage the risk of gate failure. In the summer and autumn of 2021, the Environment Agency undertook maintenance of the existing radial gate. The refurbishment of the vertical gate is due to commence spring 2022, with full replacement of the radial gate expected in 2023.

At Pulteney, we are developing a proposal to replace the existing gate with an alternative solution that will benefit the local area, improve fish passage and will not impact on flood risk. We will engage further once we have more information and will continue to work in partnership to deliver any project.

Bath and North East Somerset Council and the Environment Agency have been working closely together on this project and will continue to work together to identify opportunities to reduce flood risk.

### **Siltation**

Since the Bath scheme was constructed we have assessed any changes to the channel shape and area through Bath. This has shown a minimal change in area with no significant siltation occurring. This assessment did identify a localised area (at Victoria Bridge) where debris had entered the channel and an exercise was completed in April 2015 to remove a number of cars, bicycles and trolleys from the river.

Survey work upstream of Pulteney Weir has also demonstrated that there is minimal siltation within

the channel, with the flow area remaining stable over time. The river channel through Bath is 'self cleansing' which means that almost all sediment entering the river upstream of Bath passes through the city without being deposited on the bed of the river. Based on analysis of historic surveys this was also the case prior to the Bath scheme being constructed.

The lack of any significant siltation through the city means that flood risk from the River Avon in Bath is not increasing over time.

### **Other activities**

The Bath Quays Waterside Flood Conveyance Scheme is now substantially complete – see the Council's webpage for further details: <http://www.bathnes.gov.uk/services/planning-and-building-control/major-projects/bath-quays-waterside-reconnecting-bath-its>

Bath and North East Somerset Council together with partners are developing the 'Bath River Line' Project, to create a new linear riverside park along the banks of the River Avon, stretching 10km from Newbridge to Batheaston. The Bath River Line is a WECA funded project and a full business case for the first phase, between Newbridge and Green Park, is currently being developed. Further information is available here: <https://bathriverline.co.uk>

Upstream storage options continue to be explored to reduce flood risk within Bath, led by the Bristol Avon Catchment Partnership.

Both the Council and the Environment Agency continue to work with developers to manage flood risk on development sites along the River Avon.

### **Preparation for Flooding**

Flooding is a natural phenomenon that can still occur where flood alleviation is in place. The Environment Agency and Bath and North East Somerset Council work in partnership with

emergency services and communities to prepare for flooding.

To find out if you are at risk of flooding please visit our website link: <https://www.gov.uk/check-long-term-flood-risk>

Communities, residents and businesses are encouraged to register for the EA's Flood Warning service and to consider the community and personal flood plan guidance that is available on the EA's website.

Flood Warning registration link:  
<https://www.gov.uk/sign-up-for-flood-warnings>

Community Plan guidance link:  
<https://www.gov.uk/government/publications/flood-plan-guidance-for-communities-and-groups>

Personal Flood Plan guidance link:  
<https://www.gov.uk/government/publications/personal-flood-plan>