Understanding the appraisal process.

Introduction

In 2018 we started to consider what options we had for updating the Lower Mole Flood Alleviation Scheme (FAS). Using the government's **Flood and Coastal Erosion Risk Management Appraisal Guidance** we have developed a number of options by carrying out technical and environmental assessments.

These options will ultimately be presented in a business case to obtain government funding.

Early options development

Projects are 'appraised' (assessed) in the early stages by looking at both the project objectives set by the project team and the appraisal criteria set out in government guidance. In 2018 we developed these project objectives:

1. **Flood risk**: ensuring a standard of protection of 1:100 annual probability (providing protection against predicted flood events of up to a 1:100 annual probability) is maintained for the next 100 years allowing for the expected impacts of climate change increasing river flows;
2. **Environmental enhancements**: seek opportunities to make enhancements for biodiversity/fisheries;
3. **Lower operation and maintenance costs**; and
4. **Reduce our carbon footprint**: As an organisation we want to be at the forefront of tackling the climate emergency by seeking to reduce our own carbon emissions while continuing to protect communities, with the goal of carbon net zero.

We also considered our **legal requirement to provide fish passage** within the FAS. The sluice structures in place within the current scheme prevent fish from travelling along the channel.

The appraisal criteria set out in government guidance includes these topics:

- Flood risk
- Health & safety
- Constructability
- Economics
- Environment
- Stakeholder considerations
- Sustainability

This then provides us with a framework to work within when developing our options.

Achieving funding

The appraisal guidance also sets out the criteria that our project must follow in order to be considered eligible for government funding. This makes sure that taxpayer's money is spent appropriately and that options are properly considered.

By following the appraisal guidance a business case is developed and put forward for government funding. Works to update the scheme will be at least part funded by central Government through the **Flood and Coastal Erosion Risk Management (FCERM) Grant-in-Aid (GiA)**.

The amount of funding a project is eligible for will be determined through the use of a funding calculator, which prioritises funding for projects which have the greatest benefit to people and the environment.

The appraisal process enables us to understand the costs and benefits of each of the options over the full lifetime of the scheme's design, as well as the costs associated with long-term maintenance. The economic aspect of our appraisals produces both a benefit cost ratio (BCR) and a partnership funding (PF) score. The BCR is the ratio of the benefits of a scheme option or proposal, expressed in monetary terms, relative to its costs, also expressed in monetary terms. We can use the BCR to compare the options against one another. The PF score determines the proportion of a project's costs which can be paid for using FCERM-GiA, with any shortfall in funding needing to be found from other sources. These other sources can include local authorities, water companies, private businesses and individual land or property owners.

Where we are in the appraisal process

The options identification and appraisal process is summarised below.

- **Step 1: Setting the baseline** – what is the current situation and what would happen if all maintenance works stopped.
- **Step 2: Identifying a long-list** - many different types and locations of options to manage flood risk.
- **Step 3: Creating an inital short-list -** rationalising the long-list to identify the most viable options. These are a combination of options at the key locations that work together to deliver the objectives of the project.
- **Step 4: Appraising the short-list of options -** using the flood risk modelling to see how this would work in practice, an economic assessment (costs and benefits) and considering technical, environmental and social factors.
- **Where we are now**
- **Step 5: Engaging** with affected parties; and,
- **Step 6: Identifying the preferred option.**

We are currently at Step 5. Once a preferred option is selected the project team will begin working on a detailed design.

How we have updated our options

The appraisal process also requires us to look at how the options at each sluice work together as a whole system. Since June 2019 we have moved on from looking at the sluices in isolation to investigating what would happen when we merged the range of initial options for each sluice structure into combinations of options to address the scheme as a whole.

The locations considered include: Molember, Island Barn, Viaduct, Zenith, Wilderness and Royal Mills Sluice and the engineered River Ember flood relief channel. A range of whole scheme approaches, which include all these locations, have then been developed and appraised.

Given the number of structures that make up the existing scheme there is potential for a considerable number of option combinations. It was not possible to assess all option combinations across the sluice structures given time and budget constraints. We have focused on our project objectives, the feedback from the local community and requirement to provide fish passage to produce the updated options. In addition, further investigation of the potential cost and carbon impacts of each option, plus the ecological and channel survey results, have also been included in the updated options presented on this website.