

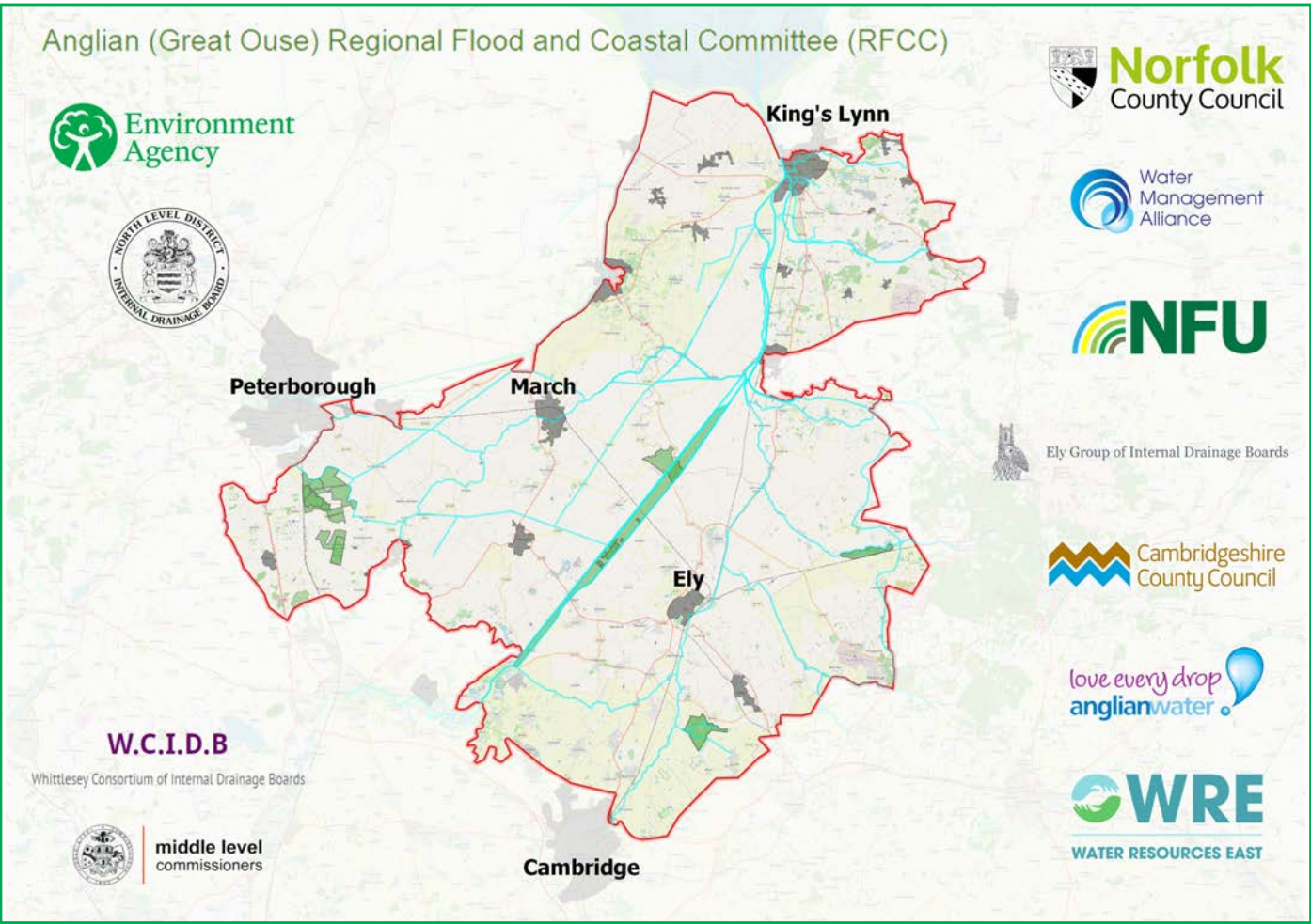
An aerial photograph showing a vast, flat landscape under a cloudy sky. A wide, straight road or railway line runs horizontally across the middle of the image. To the left of the road, a large area of land is submerged in water, with several small islands of trees and vegetation. To the right of the road, the land is mostly dry but shows signs of flooding, with some water pools and submerged trees. The overall scene depicts a significant flood event in a rural or semi-rural area.

# Future Fens Flood Risk Management

Planning together for a  
sustainable flood risk future  
Summary Document



# Future Fens - Flood Risk management



# What is Future Fens - Flood Risk management?

'Future Fens - Flood Risk Management' is a project to consider what the future flood risk management choices for the Great Ouse Fens might look like. We are currently in the first phase of this project.

Organisations with flood risk assets in the project area are represented by members of the project's Technical Group (TG), as shown on the plan opposite. The two most important outcomes for phase 1 are for the TG to have a **shared understanding** of the current situation and the challenges for managing future flood risk in the Great Ouse Fens, and to have **shared ownership** for taking action to overcome these challenges.

The TG has **worked together to set out all available data** about flood risk in the area to calculate:

- Whole life costs to sustain the existing flood risk management assets
- Benefits of the existing flood risk management assets
- Total available Flood Risk Management Grant in Aid (Government funding)

This information has been used to highlight the difference between the **funding required** and the **available funding**.

This study is the first of three main phases in an ambitious programme that will develop options and then deliver the future flood and drainage infrastructure that will provide flood resilience in and around the Fens for future generations. Future phases will need to be developed in collaboration with other major infrastructure investment programmes in housing, water resources, transport and energy in order to identify and unlock opportunities to integrate and provide best value for money. This will also enable us all to maximise the environmental and social wellbeing value that investment in flood resilience provides.

## Timescale





# Summary of Flood Risk Management Benefits



Old Bedford Counter Drain

The River Great Ouse is the fourth longest river in the United Kingdom, with an overall length of 230km. The catchment area for the river extends over 8,500 km2 and is home to around 1.7 million people. The Great Ouse Fens area considered here covers 2,178km2 of Cambridgeshire and Norfolk adjacent to the lower reach of the Great Ouse River from Earith to The Wash.

The Great Ouse Fens comprises approximately 217,800 hectares of rural lowland, much of which is below sea level. It contains 131,000 households and 13,200 industrial and commercial properties, and 185,000 hectares of agricultural land.

Flood risk is managed through an extensive and complex network of assets including 138 pumping stations, 24 sets of sluice gates, 95km of coastal defences and 405km of fluvial embankments. Much of this infrastructure is nearing the end of its design life and will soon require significant investment.

The project dashboard opposite shows the findings of phase 1 for the Great Ouse Fens area. It identifies £17.1 billion worth of benefits from the current flood risk management measures, with a further £5.3 billion of benefits to the local economy. The total investment needed over the next 100 years to sustain the current standard of service of flood risk management assets is £1.8 billion. There is an additional funding requirement from partners between £611million and £946million with between £722million and £1.1billion of Grant Aid (Government funding) required.



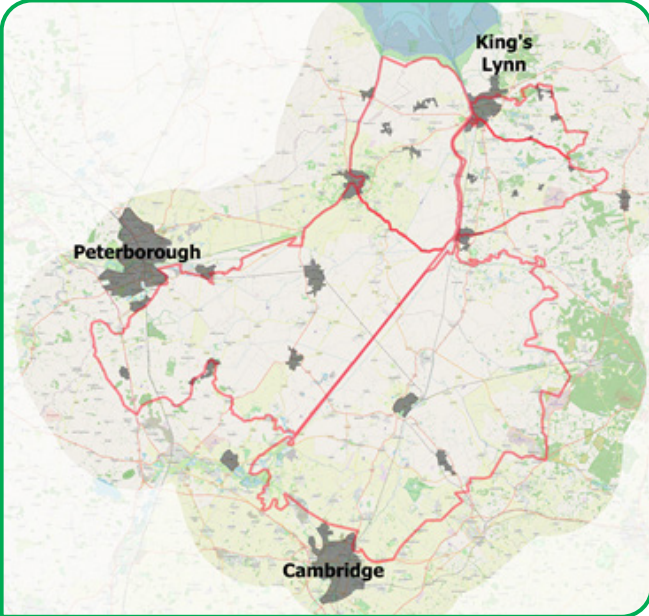
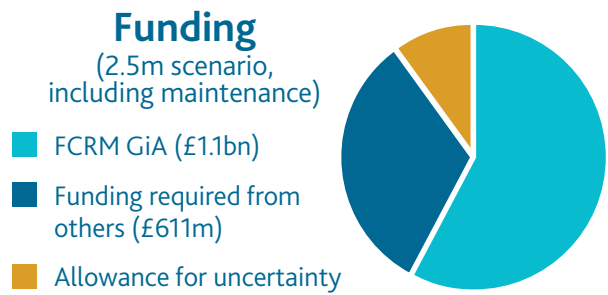
Typical agriculture crops



Middle Level Barrier Bank

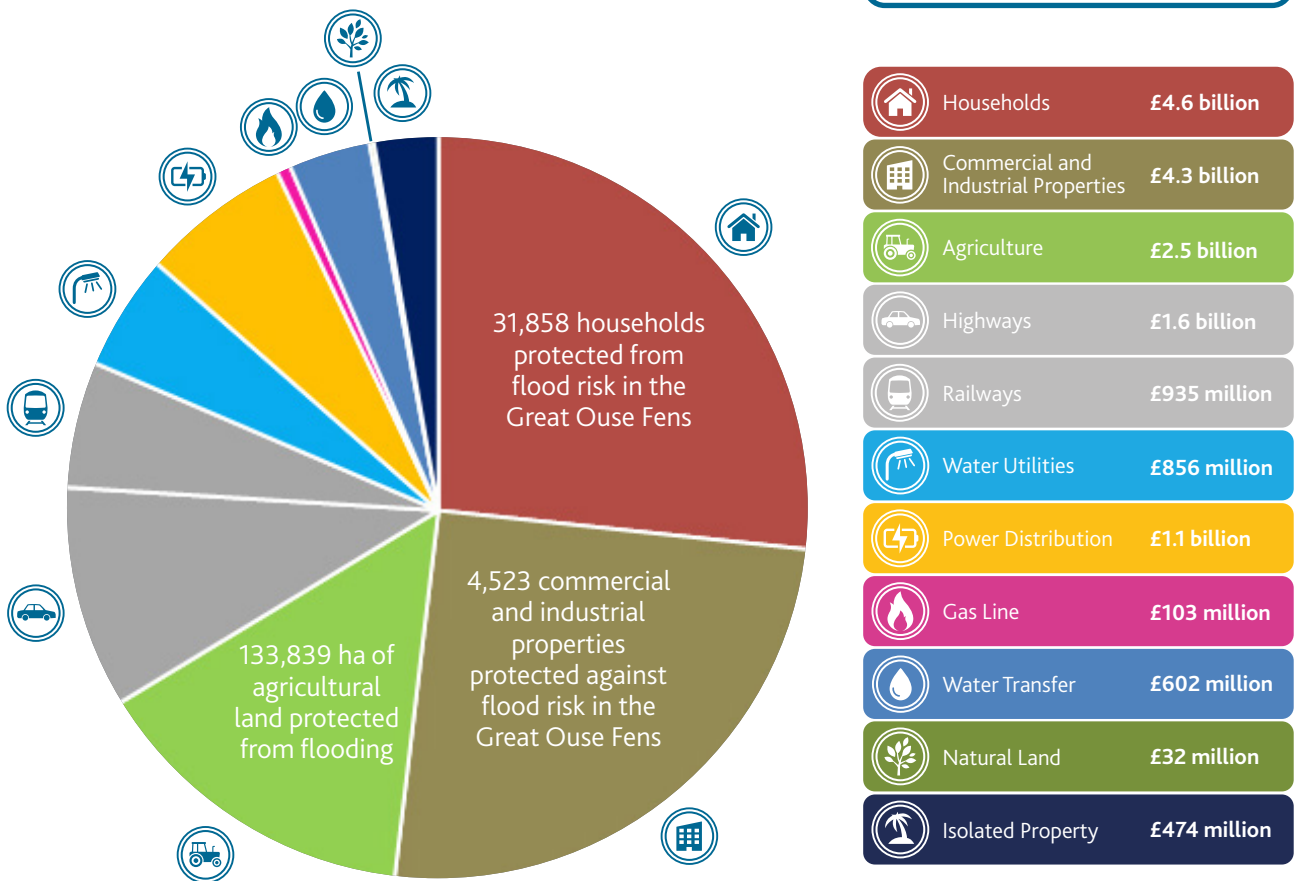
## Future Fens - Flood Risk Great Ouse Fens

Total Investment needed: **£1.8 billion**



## Flood Risk Management Benefits

**Total: £17.1 billion**



**£5.3bn**  
Gross Value Added to the local economy by jobs protected through FRM in the next ten years

**£270m**  
Ongoing operation and maintenance costs for assets across the Great Ouse Fens in the next 100 years

**£1.6bn**  
Capital costs for asset refurbishment and replacement across the Great Ouse Fens in the next 100 years



# The Future Fens: Flood Risk Management Study Area

## West of Ouse

Situated on the Tidal River, north of the A1122 and bounded at its western extent by the River Nene, the catchment is over 29,000 hectares and includes over 170km of watercourses.

Its largest settlements are Terrington St. Clement, Emneth and Clenchwarton. It also covers part of Wisbech.

St Germans Pumping Station is in this area as well as Islington Pumping Station and Salters Lode Lock. Additional flood risk management assets include the Tidal River embankments and hard defences.

The area to the west of the Tidal River is liable to coastal flooding and is protected by sea banks.



St Germans Pumping Station

## Middle Level

An area of low-lying land between the River Nene and the Great Ouse, the Middle Level was reclaimed by drainage during the mid-17th Century, it covers an area of 72,800 hectares with over 190 km of watercourses, 160 km of which are navigable.

The largest conurbations in the area are Wisbech, March and Whittlesey.



Tail Sluice

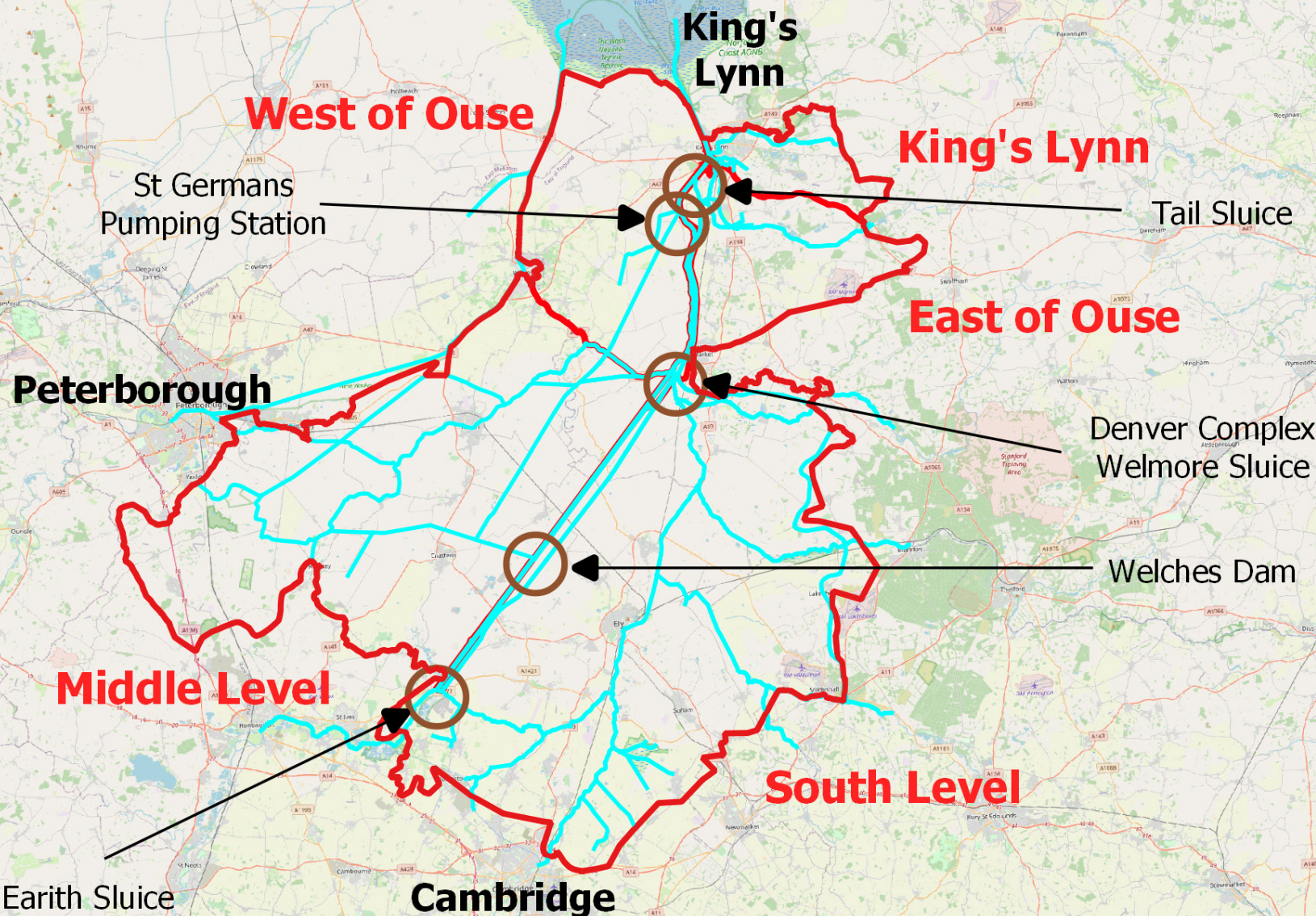


Upstream from Earith

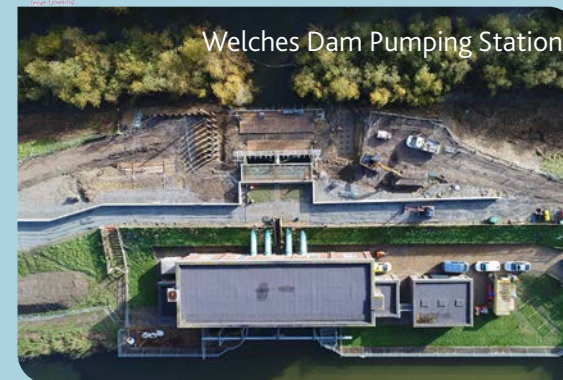
## South Level

An area of low-lying land to the south of the Ouse Washes. It was reclaimed by drainage during the mid-17th Century. The South Level is over 91,000 hectares and has over 300 km of watercourse.

Ely is its largest urban area, situated on the highest land in the Great Ouse Fens, and protected from fluvial flooding by a series of river embankments. Soham and part of Downham Market are also within the South Level.



Middle Level Barrier Bank works



Welches Dam Pumping Station



King's Lynn South Quay

## Kings Lynn

Located between the A47 and the A148 the area covers over 7,300 hectares, and includes around 50km of watercourse.

The primary flood risk management assets are the Tidal River embankments and assets located in King's Lynn town.

## East of Ouse

Lying to the east of the Tidal River, north of the A1122 and south of the A47. It covers over 17,000 hectares and contains over 88km of watercourse.

The largest settlements falling entirely within the area are Marham, West Winch and Watlington. The area also includes parts of Downham Market and King's Lynn.

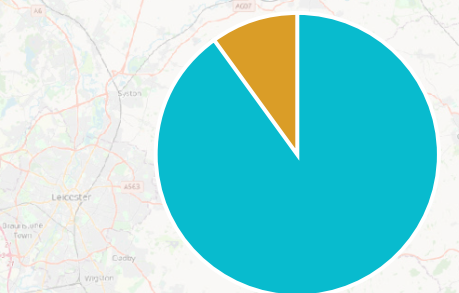


Tidal River at Stowbridge



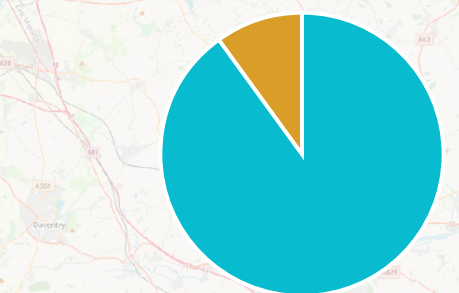
## Cost of maintaining what we have now

### West of Ouse Funding



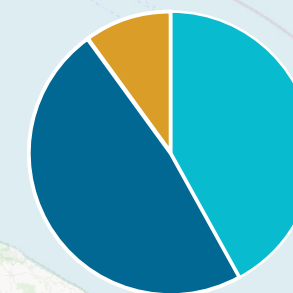
FCRM GiA (£222m)  
Funding required from others (£0m)  
Allowance for uncertainty

### Middle Level Funding



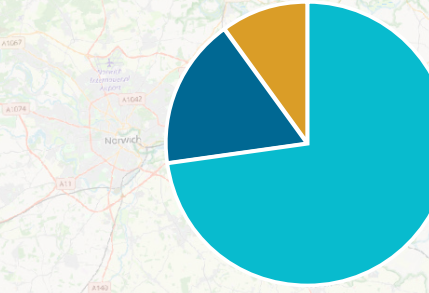
FCRM GiA (£468m)  
Funding required from others (£0m)  
Allowance for uncertainty

### King's Lynn Funding



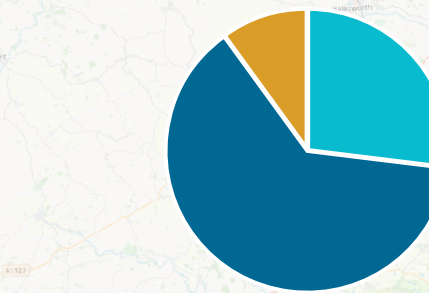
FCRM GiA (£42m)  
Funding required from others (£49m)  
Allowance for uncertainty

### East of Ouse Funding



FCRM GiA (£33m)  
Funding required from others (£8m)  
Allowance for uncertainty

### South Level Funding



FCRM GiA (£350m)  
Funding required from others (£811m)  
Allowance for uncertainty



**£5.3bn**

Gross Value Added to the local economy by jobs protected through FRM in the next ten years

**£270m**

Ongoing operation and maintenance costs for assets across the Great Ouse Fens in the next 100 years

**£1.6bn**

Capital costs for asset refurbishment and replacement across the Great Ouse Fens in the next 100 years

- The figures reported here are discounted to **Present Value (PV)**. Full details and an explanation of PV are included in the main Baseline Report document.
- The investment needs reported here are those required **to sustain the current Standard of Service** of flood risk management assets only, and does not account for any future improvement in protection.
- The figures used in the pie charts are for **capital works only**, and do not include ongoing operation and maintenance Costs – further details around total investment needs are included in the main Baseline Report document.



# What happens next?

## The next phase

Flood and land drainage infrastructure in the Fens is not only crucial in enabling surrounding agricultural land, businesses and communities to prosper, it also plays a crucial role as enabling infrastructure within the wider Great Ouse catchment. The catchment faces some of the most ambitious housing and transport infrastructure growth plans in the country over the next 30-years.

The Baseline Report does not outline the long term choices for flood and drainage infrastructure in the Great Ouse Fens. It is however an important base-lining step to get us all to the 'starting blocks' so over the next decade or so we can stimulate debate about what communities, society and business would like from this landscape over the next 100 years. Collaboratively we can then explore the options, choices, benefits and costs that both engineered and more natural water management infrastructure and techniques can play moving forward. This will inform local, regional and national funders and decision makers.

The final elements of Phase 1 will be some visualisation work to help us all engage others in helping develop the scope for Phase 2. Phase 2 will be a long term adaptive plan for flood infrastructure in the Fens, which will build on the approaches outlined within the National FCERM Strategy and appraise the flood infrastructure choices available to decision makers and prospective funders.

Under a range of different future climate, growth, and land use scenarios, this plan will need to consider the Fens, including the Nene, Welland, Witham and coastal lowlands. It will need to consider flood infrastructure in the context of the multiple services these assets provide (e.g. for navigation, irrigation, amenity, biodiversity, water resources) as well as the wide range of benefits, for example, to land, people, property and businesses, that are afforded a level of flood protection.

Whilst looking at the Fens as a whole creates a complexity that is arguably unparalleled, it will enable more creative and ambitious thinking that we likely haven't seen locally since the Ely Ouse Flood Protection scheme was developed 60-70 years ago.

A catchment led approach to managing the flow of water is needed to ensure flood risk management and water resource pressures are resilient to a changing climate, sea level rise, population growth and economic growth. We need innovative, co-ordinated and sustainable solutions from landowners, businesses, planning authorities, communities and risk management authorities, to manage this landscape for the long-term.



Watercourses and banks support diverse habitats  
Photo - Counterdrain



Ouse Entering the Wash - [www.klmagazine.co.uk](http://www.klmagazine.co.uk)

## The challenge ahead

The infrastructure complexity, flood and coastal risk and water resources needs all have interdependencies and all need to be considered within a variety of future climate and growth scenarios. An adaptive approach is needed to manage this catchment to balance the needs of people, the environment and agriculture, to ensure we create the right legacy for the next 100 years. This approach will identify which decisions need to be taken now and which will need to be taken in the future. This could include a variety of long-term agreements between farmers, land managers and supermarkets about the future of the Fens and the contribution that investment flood risk management could play in sustaining agriculture and future growth.

## What happens in the meantime?

Whilst the next phase of this project seeks to develop a long term strategy, a set of tactical plans have been developed separately to look at the management of assets over the next 15 years, and ensure the continued operation and maintenance of flood risk management assets whilst maintaining the current Standard of Service.

## Why can't government money pay for all flood risk management work?

Government funding is limited so we need to ensure that it is used in the most effective way to protect as many communities, properties and jobs as possible while also protecting the environment and supporting sustainable growth. By understanding the funding available and additional funding required, we can start to address funding issues with partner organisations now, so it doesn't come as a surprise later.

## Can I comment on your plans?

Yes. We will involve stakeholders and communities over the development of the Strategy. We will also carry out detailed consultations with the local community and anyone else who might be affected before we go ahead with our proposals for a particular defence.

More information about managing flood risk can be obtained by following the link to 'Prepare for flooding' on our website at

[www.environment-agency.gov.uk/subjects/flood](http://www.environment-agency.gov.uk/subjects/flood)



St Germans Pumping Station



Summertime flooding in the Ouse Washes





## Getting in contact

We are keen to answer your questions on the Future Fens. If you require any further information you can email us at:

[fensfloodrisk@environment-agency.gov.uk](mailto:fensfloodrisk@environment-agency.gov.uk)