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Ipswich Flood Defence Management Strategy Study Strategic Options

January 2003



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Our work includes tackling flooding and pollution incidents, reducing industry's impacts on the environment, cleaning up rivers, coastal waters and contaminated land, and improving wildlife habitats.

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Introduction

Ipswich is situated in Suffolk where the Rivers Orwell and Gipping meet as shown in Figure 1. The rivers run through the centre of the town, through the industrial and residential areas and the port.

The town is currently protected from flooding by a system of flood defences of varying age and condition. Some of the defences are in a state of disrepair and require renewal in the next 5 years.

The Environment Agency is developing a long term plan known as a *flood defence management strategy*. The aim of the strategy is to set out the policy and objectives for flood defence, which will promote efficient management of the whole defence system for the next 50 years.



Figure 1 Location of Ipswich

What is a flood defence management strategy?

The Environment Agency is responsible for flood defences in Ipswich. The Government encourages operating bodies such as the Environment Agency to consider flood defence in an integrated and sustainable way by looking at the whole river system rather than individual sections. A long term plan, known as a flood defence management strategy, is developed and sets out the policy and objectives for flood defence taking into account a broad range of local interests and issues. Within this framework we can make decisions about providing the most appropriate flood defences and this approach allows us to manage the whole flood defence system more effectively.

Ipswich is presently defended from flooding by a series of flood defences, some of which are coming to the end of their useful life. The Environment Agency, prompted by growing concern over several flood susceptible areas in Ipswich, commissioned the development of a flood defence strategy for Ipswich.

What is the approach to the selection of a flood defence management strategy?

Work on the selection of a preferred strategy begins with defining the risk of flooding from which Ipswich is presently defended and looking at the condition and sustainability of any flood defences already present. This includes structures such as sluices as well as the floodwalls that run alongside the river.

Once the risk has been defined, we look at several ways to manage the situation by identifying possible solutions, or options. Through consultation with the Steering Group (see 'Steering Group' section of this document), several strategic objectives have been identified and developed for the study. Each option is individually assessed against these objectives in order to measure their potential worth. The options are also assessed against:

- Technical, environmental and economic considerations
- The effect the option has on other parts of the study area

The options that are considered acceptable solutions for the Strategy are then developed in more detail with the aim of identifying preferred options.

What are the possible flood defence options?

The possible flood defence options are described below. These options may have the potential for a beneficial or adverse effect on the environment. The key issues associated with each option have also been included below. These issues will be considered in more detail during the next stage of the study.

Option 1 - Do nothing

This would involve letting all of the flood defences in Ipswich fall into a state of disrepair with no intervention. The defences would eventually fail and the areas currently protected from flooding would no longer be protected. This would happen gradually over a long period of time.

The existing control structures (sluices and weirs) would also be allowed to fail over a long period of time. This may alter the river levels both upstream and downstream of the structures.

This option must be considered as a base case against which the benefits of all other options will be assessed. The area currently protected from flooding is shown in Figure 2 opposite.

Option 2 - Hold the line

This would involve maintaining the existing defences and control structures in their present positions. The standard of protection against flooding offered by the existing defences may need to be increased in some areas. This will require the raising of existing defences or construction of new defences if the existing ones cannot be modified. The 'hold the line' option is shown on Figure 2 opposite.

The operation of the control structures could also be modified with the intention of reducing the risk of flooding downstream. The effects of such modifications will be investigated.

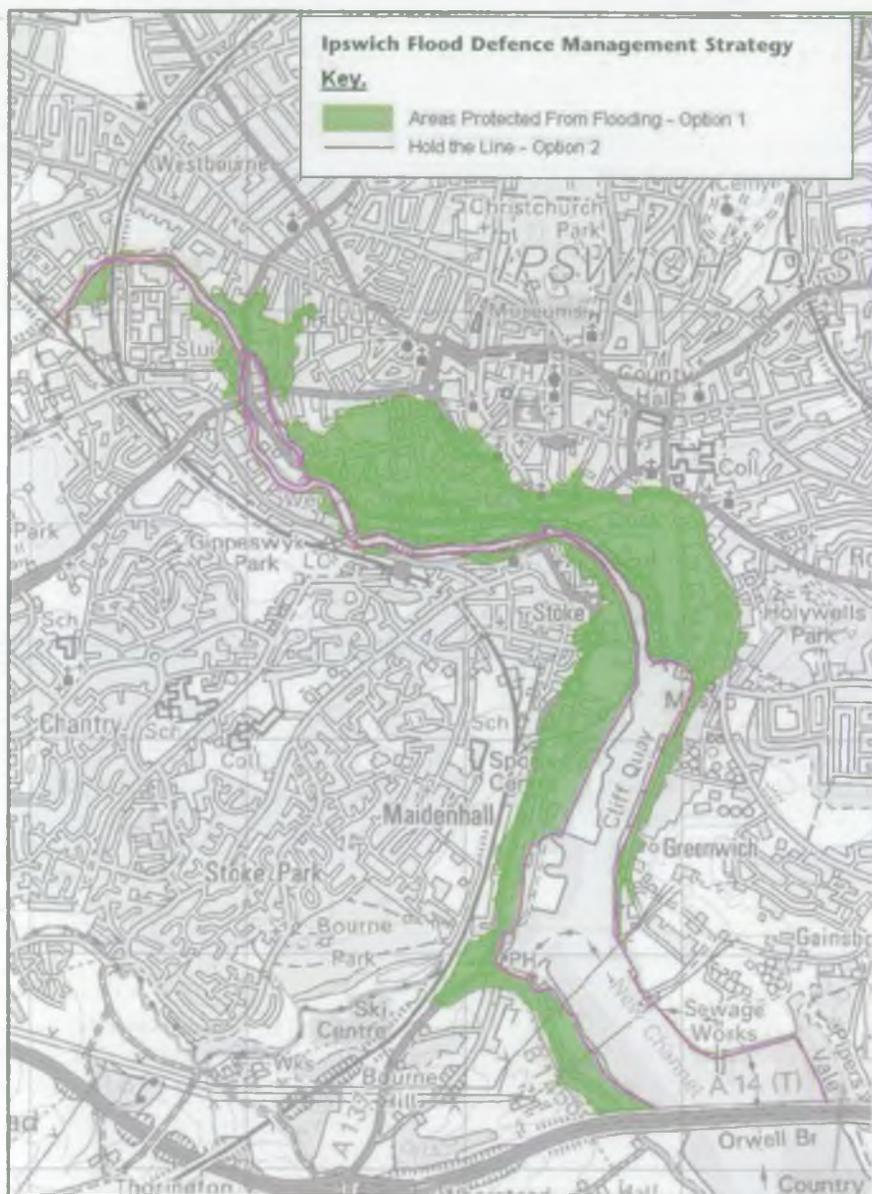


Figure 2 Location of Options 1 and 2

Option 3 - Retreat

The retreat option involves the placing of new defences inland of the existing defences, either leaving the existing defences to deteriorate, or removing them. To apply this to the whole of the study area would require the construction of an entirely new flood defence system, and leave many areas undefended. As Ipswich is an urban area, this option for the whole river is not viable

However, it may be possible to apply this principle to particular locations, in a process called 'managed realignment'. This process could be incorporated into other proposals to change land use adjacent to the Rivers Gipping and Orwell. Several 'managed realignment' options have been identified:

3a) The defences could be set back and reveted (sloped) along this section of the river as shown in Figure 3 below. This would coincide with a proposal to create parkland, in the predominantly urban area, behind the existing defences.

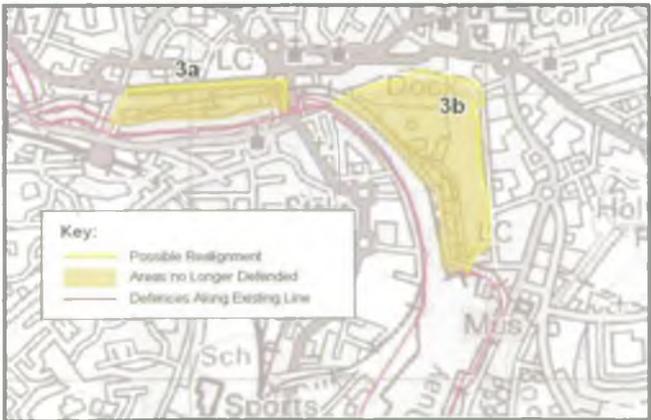


Figure 3 Location of Options 3a and 3b

3b) Defences positioned along the island where it meets the River Orwell currently protect it and the land behind from flooding. The position of the defences could be moved to the northern and eastern quays of the Wet Dock as shown in Figure 3. This would involve raising the quay walls at Wherry, Neptune and Orwell Quays and Neptune Wharf. The existing walls on the island would be allowed to fail over time causing the island area to become undefended and more vulnerable to flooding.

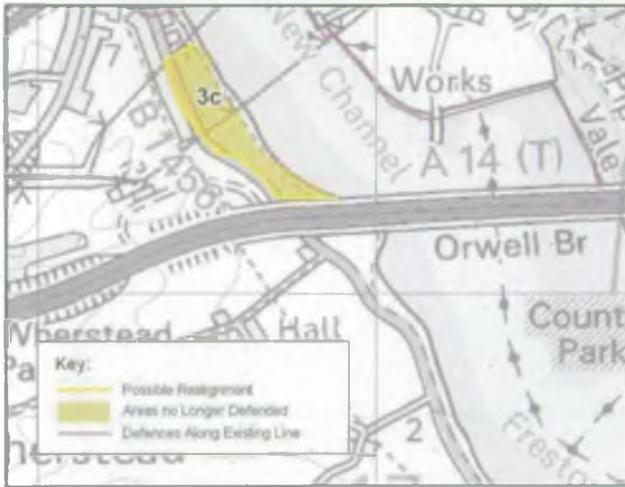


Figure 4 Location of Option 3c

3c) The flood defences can be set back at the downstream end of the study area, upstream of Orwell Bridge as shown in Figure 4.

There are currently two sets of defences along this section, both of which are earth embankments. One is approximately 60m riverward of the other. The position of the defences could be set back to the inland embankment allowing the area between to be converted to mudflats or salt marshes.

Option 4 - Advance the line

Generally, building new defences in front of existing defences is not considered an appropriate solution, since it narrows the width of the river, which can have implications for flooding.

However, it is possible to construct a barrier or barrage in the river channel to prevent tidal waters flooding areas upstream. Three locations have been identified as being suitable for such a structure, they are:

- 4a) At the Velocity Control Structure through the New Cut
- 4b) Upstream of the Port
- 4c) At the Orwell Bridge

These locations are shown on Figure 5 below.

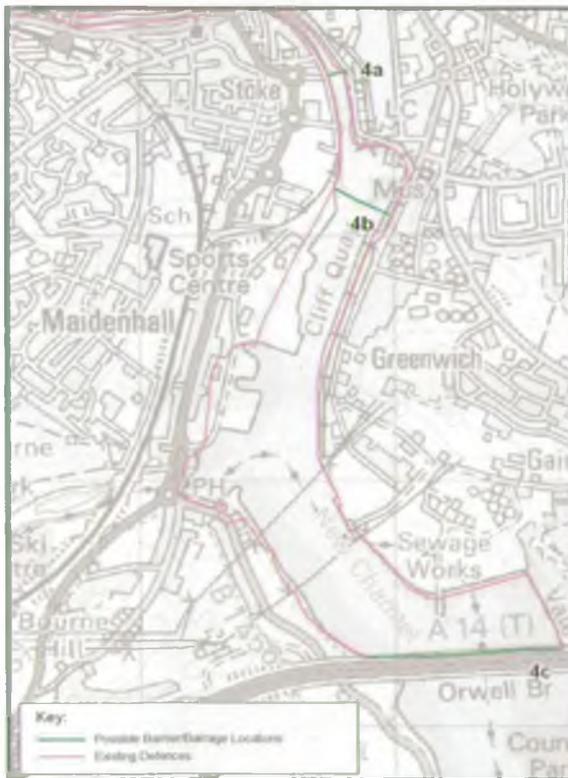


Figure 5 Indicative locations for barrage/barrier

Technical considerations

There are technical issues to consider when reviewing options. These are, generally:

- How the option will be built. This relates to both the construction of the option, and what is there at the moment.
- How the option will affect river flow, both in normal conditions and in times of flooding.
- How river flow will affect the option, both in normal conditions and in times of flooding.
- The sustainability of the option - whether the materials required to construct and maintain it will always be readily available at an acceptable economic and environmental cost, and how much maintenance it will need.
- How easy it would be to alter the structure in the future, if necessary.



Environmental considerations

There are a wide range of environmental issues that must be considered when reviewing options. Generally, these are how each option will affect:

- existing and future commercial, residential and leisure uses,
- areas designated for nature conservation and how the management of these areas will impact on the option,
- existing flora and fauna,
- river flow and flooding and how this will affect present land uses,
- water quality in the study area,
- navigable water courses and infrastructure,
- the existing landscape and visual amenity of the area,
- existing archaeological and heritage features.

There are a number of features of environmental interest and value specific to the study area. Some of these features are protected under European, national or local legislation or policy and include:

Nature conservation and ecology

- The Stour and Orwell Special Protection Area/Ramsar site/Site of Special Scientific Interest.
- River Gipping, River Orwell and Alderman Canal County Wildlife Sites.
- Alderman Canal Local Nature Reserve.
- Wherstead Mudflats.

Archaeology and heritage

- Ipswich Conservation Areas, including the Wet Docks.
- Ipswich Area of Archaeological Importance.
- Scheduled Monuments, Scheduled Monument Records and Listed Buildings within Ipswich.

Economic considerations

The Environment Agency is funded by national and local government. The development of flood defence works must meet the criteria set by the Treasury and Defra:

- The cost of damage caused by flooding if nothing is done must be defined (as in Option 1).
- The most cost-effective option, in relation to the benefit it provides, must be chosen, as long as it meets technical and environmental criteria.
- Partnerships must be sought with others (such as the Steering Group members) to make sure any potential for joint development is identified as well as any other opportunities.



Summary of considerations

The examination of environmental, technical and economic effects of all options, and the involvement of other interested bodies from the early stages of the project ensures that any flood defence works can be of maximum benefit to the community.

The study area is of critical importance to the regeneration of Ipswich. It is important to understand the effect that future developments in Ipswich will have on the Strategy. Therefore, the study of the assets to be protected in Ipswich includes both current land uses and plans for the future identified in Ipswich Borough Council's Local Plan.



Who will be consulted during the study?

The following groups will be contacted during the present and future consultations.

Anglian Water

Associated British Ports, Ipswich (ABP)

Babergh District Council

British Association for Shooting and Conservation

British Canoe Union

Countryside Agency

Department for the Environment Food and Rural Affairs (Defra)

Department for Transport

Eastern Sea Fisheries Joint Committee

East of England Development Agency (EEDA)

East of England Local Government Conference

English Heritage

English Nature

Environment Agency

Fox's Marina

General Public

Gipping Angling Preservation Society

Go East

Greenways Project

Inland Waterways Association

Ipswich Borough Council

Ipswich Canoe Club

Ipswich Village Team

Ipswich Waterfront Steering Group

Local Conservation Groups

Local Chamber of Commerce

Mid Suffolk Borough Council

National Grid

Neptune Marina

Office of the Deputy Prime Minister

Orwell Country Park

Persimmon Homes

Railtrack/Network Rail

River Action Group

RSPB

Suffolk Development Agency

Suffolk Wildlife Trust

Sustrans

Wetlands and Wildfowl Trust

How can you get involved?

The purpose of this document is to present the most suitable options to all parties likely to be affected by the Strategy.

We are keen to receive feedback on the options presented in this document, as well as any others that you feel may be appropriate, so they may be developed further.

The selection of the most sustainable option will only take place once all feedback on the proposed options has been considered and the merits of any new proposals assessed against the above criteria.

A consultation document will be published once the preferred flood defence strategy option has been identified. The consultation process is outlined in Table 1 below.

Table 1 | Summary of the consultation process

Purpose of Consultation	Proposed Consultation Document Issue Date
Introduction to the study	October 2002
Comment on potential strategy options	January 2003 - this document
Identify preferred strategy	March 2003
Conclusions of the study	August 2003

If you would like to provide feedback on the options presented in this document, please complete and return the enclosed comment form and submit it by the 21st February 2003.

Consultation contact

If you have any queries or issues you wish to discuss, please contact:

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Ipswich steering group

A Steering Group has been set up to provide guidance and information about local issues and initiatives. The Steering Group is made up of representatives of the Borough and County Councils, EEDA, ABP Ipswich, English Nature, Anglian Water and Defra. It is believed that this close working relationship will result in a Strategy that will benefit everyone affected by flood defence issues in Ipswich.



Cover photo courtesy of Associated British Ports

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