



Environment
Agency

tackling flood risk where you live

Upper Aire Flood Risk Management Strategy

Summary Consultation Document

May 2009

We are the Environment Agency. It's our job to look after your environment and make it a **better place** – for you, and for future generations.

We build and maintain the majority of flood defences in low-lying areas of England and Wales to reduce the risk to homes and businesses. We are also responsible for warning the public about flooding from rivers and the sea in England and Wales and raising awareness of flood risk.

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Climate change means that we are going to get wetter winters, frequent stormy weather conditions and rising sea levels. We cannot afford to ignore the threat of flooding. We all have a role to play in dealing with the causes and effects of climate change.

We consider climate change in everything we do and have a major role in limiting its impact by addressing its causes and adapting to change.

As part of this role we look at the causes of flooding and decide if anything can be done to reduce the risk to people and property.

But it's not just about building walls and embankments along rivers to hold back the water in times of heavy rain. Much more needs to be done to look at the best way of protecting people in the future.

You can make a difference and help combat the causes of climate change. To find out more go to our website at

www.environmentagency.gov.uk/climatechange

Flooding could get worse in years to come due to the predicted effects of climate change and rising sea level so it's important that we plan ahead for the future.



flooding and the future

In autumn 2000, major flooding caused upheaval to homes and businesses across Yorkshire and the Humber. Although many properties were damaged, the existing flood defences saved thousands of homes and millions of pounds worth of devastation.

Part of our role is to look at the causes of flooding and decide if anything can be done to reduce the risk to people and property, both now and in the future. That's why we are producing the Upper Aire Flood Risk Management Strategy, an important plan focusing on the upper River Aire and the rivers and streams which join it.

The strategy puts the spotlight on people, properties and land at risk from flooding along the River Aire in the reach from Gargrave to immediately downstream of Leeds.

We want your views on what we are recommending for managing flood risk along the upper River Aire over the next 100 years.

Please can we have your comments and feedback.

In this leaflet we'll be:

- describing the upper River Aire catchment and the issues we face in managing flood risk in the area;
- summarising the work done so far and what we have found;
- telling you what we want to do to manage flood risk in the catchment over the next 100 years;
- providing you with our contact details if you want to find out more, give us information you think might be important and tell us about any concerns you may have.

A full copy of the strategy is available on request or from our website www.environment-agency.gov.uk/consultations



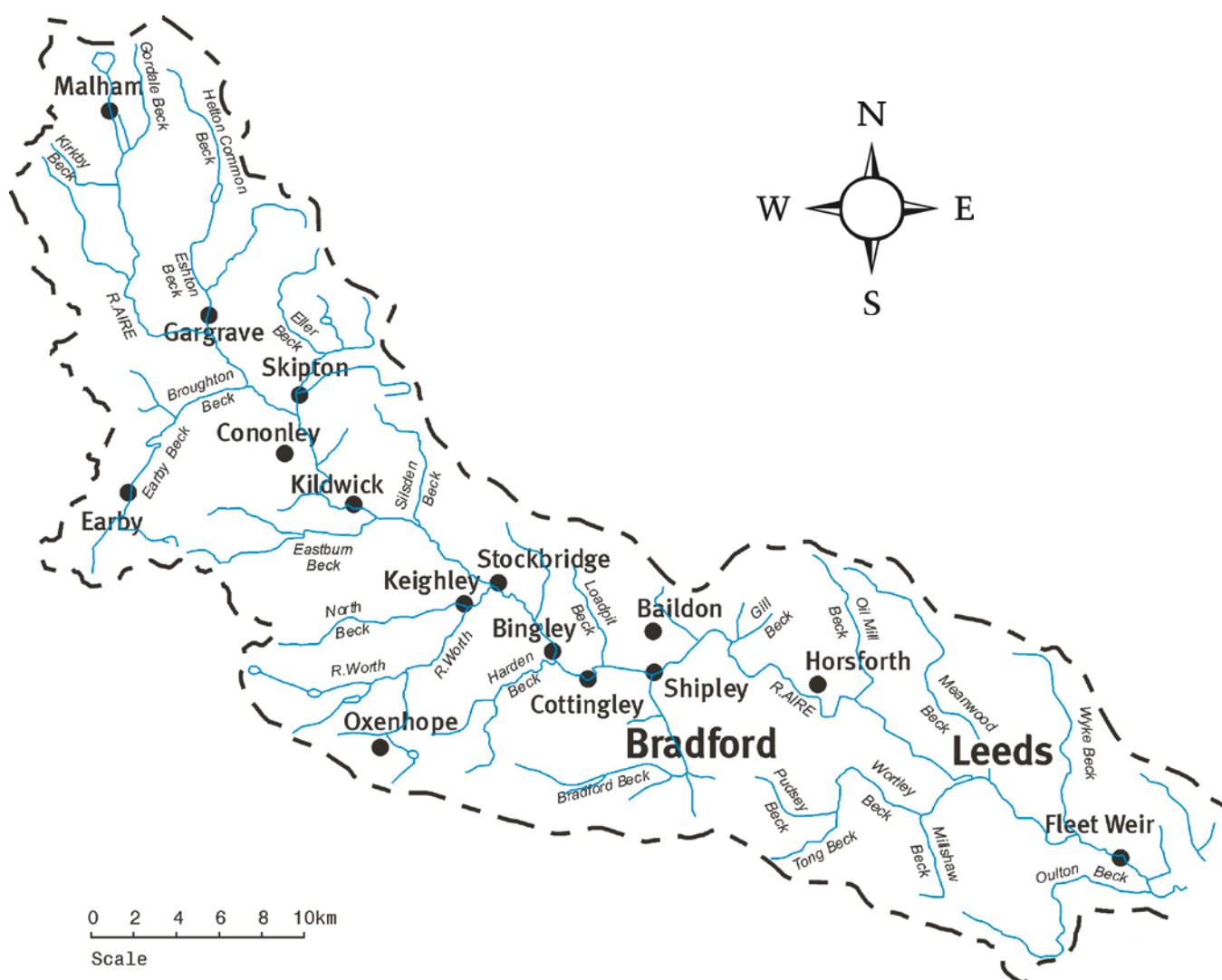
flood risk in the upper River Aire catchment

This strategy covers the River Aire between Gargrave in the Yorkshire Dales and Fleet Weir downstream of Leeds.

The study area covers very different landscapes; from the rural upper catchment around Gargrave and Skipton, to the urban areas of Keighley, Bradford and Leeds in the lower section.

There is a long history of flooding on the River Aire and its tributaries. We have records going as far back as 1616 of houses in Leeds being flooded by the River Aire. In addition to the river itself, over 15 tributaries join the River Aire in this reach and many of these are known to pose a significant risk of flooding.

The largest recorded flooding event in the study area was in November 1866. More recently, flooding occurred in parts of the study area in June 2000, October/ November 2000, February 2002, August 2002, August 2004, May 2005, June 2007 and January 2008.



what causes flooding in this area?

The main cause of flooding is high river flows due to severe rainfall over the catchment.

Some of the severe floods in the River Aire have been caused by a long period of rainfall that saturates the ground. This means that any further rainfall runs off the land and into the river instead of soaking into the ground.

Over 15 tributaries contribute to the River Aire in the study area. The size and timing of the River Aire flood peak depends upon the rain falling across the tributary catchments.

Between Gargrave and upstream of Keighley, the Aire floodplain is wide and flat. The River Aire frequently floods out onto this floodplain. We manage some of the floodplain as controlled washlands to hold flood water and prevent flooding of urban areas downstream.

In upland areas, rainfall runs straight off steep hillsides and causes flooding in towns and villages such as Skipton and Oxenhope.

Urban tributaries respond rapidly to storm rainfall which can result in flooding. Structures, such as bridges and screens that can block with debris, are also a common feature on these streams. This can lead to flooding in Keighley, Bradford and Leeds.

managing flood risk in the upper Aire

We operate controlled washlands in the upper valley to contain any floodwater and delay it reaching urban flood risk areas further downstream.

Our studies show there are few official flood defences in the upper Aire catchment. Many built up areas along the River Aire and its tributaries rely on informal flood defences such as the walls of riverside buildings. These were not built, nor are maintained, as flood defences and we cannot rely on them to protect people and property from flooding.

We have built and continue to maintain formal flood defences such as our Stockbridge scheme which has protected 341 properties from flood risk. It is important to remember that flood defences reduce the risk of flooding, but they can not always prevent it.

Our flood warning service operates around the clock to warn householders and businesses of the need to take action. Flood warnings can be received via local media, the internet, telephone, fax, e-mail, SMS text message and in some cases by loud hailer. We also have local flood wardens in Skipton, Glusburn, Earby and Stockbridge. You can find out more about flood warnings by calling our Floodline service on **0845 988 1188**.

how the strategy is put together

There are several stages involved in developing this strategy

Stage one – scoping stage

We looked at the flooding problem in detail, including the potential future impact of climate change. We drew up a first set of options which we evaluated to give a shorter list.

We talked to others to agree on the type of environmental issues that needed to be considered.

The options included:

- improving our flood warning service;
- raising or maintaining existing flood defences;
- creating new flood storage areas;
- improvements to existing flood storage areas;
- dredging or widening the river channel;
- changing the way people manage land to reduce the amount and speed of water running into the river;
- drainage systems which imitate the natural run-off of rain water;
- controlling building in the floodplain;
- building new defences to protect properties;
- modifying or removing structures such as weirs and bridges;
- diverting flood water away from flood risk areas;
- methods of protecting individual properties.

The options were investigated to assess:

- if they would be effective;
- their impact on the environment;
- if they are technically possible;
- if they will be economically justified.



Stage two – preferred strategy

This is where we are now. The preferred flood risk management strategy and environmental report are published for consultation.

This document highlights:

- recommendations for the first five years investment;
- recommendations for further studies/detailed appraisals;
- other recommendations, such as policy changes to achieve long term success in managing flood risk;
- assessment of the impact on the environment.



Stage three – the Aire strategy

Once we have received and considered responses from this consultation phase we will publish the final strategy for the Aire in autumn 2009. This will then guide our work and will be reviewed in the future.

what we propose to do

The draft strategy has been sent to a wide group of people and organisations we know are interested in, or could be affected by, how we manage flood risk in this area.

We propose to:

- Continue to maintain our existing flood defences that protect homes and businesses. Continue with our maintenance programme for river channels. Continue to issue flood warnings.
- Improve our flood warning coverage and your take-up of the service.
- Continue our policy of advising against inappropriate development in the floodplain. We also recommend that any new developments provide compensatory flood water storage, such as drainage systems, so as not to increase flood risk.
- Progress local flood risk management schemes where there is strong justification. In the **short term** (first five years) we recommend:
 - Flood defences for Leeds, Cottingley and Branksome Drive
 - Flap valves, which stop water from backing up from the river into the drainage system, at Kildwick Ings
 - Raised defences and flap valves downstream of Cross Hills
 - Investigating flood risk management measures on the following tributaries: Glusburn Beck, Wortley Beck and the Earby flood cell

In the **medium term** (next 15 years), we recommend:

- Flood defences and goit control at Kirkstall Mills
- Investigating flood risk management measures on the following tributaries: Waller Hill Beck, Ings Beck, Eller Beck, Cononley Beck, Silsden Beck, Providence Lane, the River Worth, Nab Wood Beck, Bradford Beck, Guiseley Beck, Bagley Beck, Farnley Wood Beck, Meanwood Beck and Wyke Beck

We know that land use and management in the upper part of the catchment will help provide the long-term solutions needed to reduce flood risk. However, as there is limited information on how this affects flooding we are carrying out further research to identify what can be achieved.

In the **longer term**, we recommend:

- Raised flood defences at Baildon
- Raised flood defences at Stockbridge and from Marley Bridge to Cottingley Bridge
- Raised flood defences at Bradley Ings and Cononley Business Park
- Raised flood defences at Apperley Bridge
- Works from Cottingley Bridge to Saltaire Weir
- Raised flood defences at Snaygill Industrial estate in Skipton
- Raised flood defences at Farnhill Ings
- Investigating flood risk management measures on the following tributaries: the Upper Aire extension, Broughton Beck, North Beck, Bridgehouse Beck, Carr Beck, Tyersal Beck, Adel Beck, Millshaw Beck and Hol Beck

Our strategy also aims to enhance the local environment where possible. More information on these plans can be found in our environmental report, published as part of the flood risk management strategy.



way forward

The draft strategy has been sent to a wide group of people and organisations we know are interested in, or could be affected by, how we manage flood risk in this area.

You can comment on the draft Upper Aire Flood Risk Management Strategy by contacting us at the address on the inside cover of this document.

We will consider all your comments before publishing a final version of the strategy. When the strategy is finalised we can seek permission for the work we want to do in the first five years. A full copy of the strategy is available on request or from our website:

www.environment-agency.gov.uk/consultations

Flood risk management plans are continually updated as we gather more information and understanding about flood risk. The final strategy will be reviewed at regular intervals, initially after five years, or sooner if important information becomes available.



Would you like to find out more about us, or about your environment?

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