

2012

# A Summary of the Kirklees Local Flood Risk Management Strategy

A summary of the strategy which defines the Councils approach to the management of flood risk from local sources with proposals for measures and actions which will help to manage the risk



# Kirklees Local Flood Risk Management Strategy (Summary)

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### Use of the Information in the Report

As Lead Local Flood Authority (LLFA), Kirklees Council has a duty to develop, maintain, apply and monitor a strategy for local flood risk management. The local strategy will complement and support the national strategy, published by the Environment Agency, which outlines a national framework for flood and coastal risk management, balancing the needs of communities, the economy and the environment. The LLFA must specify objectives to manage flood risk and suggest measures to achieve those objectives. The LLFA has a responsibility to consider the flood risk management functions that it may exercise to reduce risk.

In support of the aim of a general reduction of flood risk across the district, the Council will prioritise investigations and works identified in this Strategy to the best of its abilities, based on perceived and evidenced risk and within limited resources.

The indications of flood risk in the report are high level and based on incomplete information. A level of subjectivity has been used in assessing relative flood risk and the results will be used to prioritise future, more robust, investigations and assessments which will, hopefully, lead to reliable measures of risk. Consequently, it is not appropriate to apply the information and recommendations in this report at a local, property level.

The Strategy assumes that the new SuDS duties and responsibilities have been implemented in line with the processes indicated in Schedule 3 of the Flood and Water Management Act 2010. However, at the date of publication of the Strategy, Schedule 3 has still to be formally implemented and, therefore, the SuDS responsibilities outlined in the Strategy are not yet in force.

**Note:** This Summary of the Strategy provides an overview of the flood risk that exists in Kirklees and the approach the Council will take, with limited resources, to manage the risk. The full Strategy describes in detail the size and location of the flood risk in the district, the wide range of initiatives and measures that will be implemented to manage the risk and the resources and timescales required to deliver the measures.

## Kirklees Local Flood Risk Management Strategy (Summary)

### Contents

1	Introduction .....	6
	The Scale and Type of Flood Risk in Kirklees.....	6
	Characteristics of the Area .....	6
	Flooding Characteristics.....	6
	The Size of Flood Risk in the District .....	8
	What will the Strategy do? .....	8
2	Responsibilities .....	9
	Roles, Responsibilities and Functions .....	9
	The Powers and Duties of Kirklees Council .....	9
	As Lead Local Flood Authority .....	9
	As a Category 1 Responder (Emergency Planning) .....	10
	As Highway Authority .....	10
	As Planning Authority.....	10
	As SuDS Approval Body (SAB).....	10
	As a Riparian Owner .....	10
3	The Objectives for Managing Local Flood Risk .....	11
	Public Expectations from Flood Risk Management.....	11
	The Objectives of the Strategy .....	12
4	The Measures Proposed to Achieve the Objectives .....	13
5	Proposals, Timescales and Funding to Implement the Measures.....	14
	Affordability and Funding of the Measures.....	14
	Delivery of the Measures .....	14
6	What is the Flood Risk in Kirklees? .....	15
	Areas at Risk from Future Flooding (Fluvial and Surface Water) .....	15
	Explanation of the Risk.....	16
7	How and When will we Review the Strategy? .....	17
8	A Sustainable Approach – Balancing Social, Economic and Environmental Needs.....	18
9	Consistency with the National Strategy .....	19

## 1 Introduction

The risk of flooding in England is predicted to increase due to climate change and new development in areas at risk. It is not possible to prevent all flooding but there are actions that can be taken to manage these risks and reduce the impacts on communities. This flood management strategy for Kirklees aims to use a variety of techniques, measures and initiatives to provide a co-ordinated mitigation plan that balances the needs of communities, the economy and the environment.

### The Scale and Type of Flood Risk in Kirklees

#### Characteristics of the Area

Kirklees is a unitary council in West Yorkshire bounded by Calderdale, Bradford, Leeds, Wakefield, Barnsley, Derbyshire and Oldham. In terms of size, it is the 11<sup>th</sup> largest district council out of 348 (Population of around 400,000) and 3<sup>rd</sup> largest metropolitan council in area (400km<sup>2</sup>). The main population centres are Huddersfield (125,000), Dewsbury (57,000) and Batley (45,000), with a further 10, or so, small towns (5-20,000). Around 40% of the area is heavily urbanised with 60% rural in character, of which half is in the Pennine hills. <sup>1</sup>

With respect to water resources, Kirklees has 27 large reservoirs in the Pennines, operated by the local Water and Sewerage Company, Yorkshire Water, with the associated emergency planning aspects managed by the Environment Agency. There are approximately 100km of enmained river, managed by the Environment Agency, and unrecorded, but substantial, lengths of culverted and open minor watercourses. The main rivers in the district are the rivers Colne and Calder flowing to the river Aire, which drains around 85% of the area, and the river Dearne flowing to the river Don, draining the remaining 15%. Average annual rainfall figures for the district range from 1800mm at the Pennine headwaters to 800mm in Huddersfield, compared with an average across England of 950mm.<sup>2</sup>

#### Flooding Characteristics

##### *Fluvial Flooding from Designated Main Rivers*

Kirklees is dominated by 2 main river systems, the River Calder to the North of the district and the River Dearne to the South, both rivers having their headwaters in the Pennines and both ultimately flowing to the Humber estuary.

In the upper reaches of the **Calder's** tributaries, valleys are generally narrow and steep-sided and consequently, flood zones are narrow. Existing development is mostly housing, commercial or small areas of light industry.

In the downstream catchment between Huddersfield and Dewsbury, the floodplain broadens and land-use includes large areas of heavy industry and housing within the high flood risk zone. Substantial lengths of main river tributaries to the River Calder, such as Grimescar Dyke, Batley Beck and Chickenley Beck are culverted through urban areas

<sup>1</sup> Kirklees Council, *Factsheets 2010*,  
<http://www.kirklees.gov.uk/community/statistics/factsheets/factsheets.shtml>

<sup>2</sup> Environment Agency, *Calder Catchment Flood Management Plan July 2010*, page 54

## Kirklees Local Flood Risk Management Strategy (Summary)

The upper reaches of the **Dearne** above Clayton West are fairly steep and respond quickly to rainfall. The industrial textile heritage of the area, resulting in recent residential conversions of riverside mills, and the general high density of residential development in the valley bottom leave a sizeable part of the local community at risk of flooding.

The Environment Agency has powers for managing the flood risk from main rivers.

### ***Minor Watercourse Flooding***

Many thousand km's of minor watercourses drain surface water across the district. The condition and capacity of the open watercourses has not historically been recorded and only limited information is available on the sections which have been culverted.

### ***Surface Water Flooding***

Surface water flooding is generally more prevalent in the hillier, rural, less developed south side of the district. The settlements along the Dearne, Holme, Colne and Woodsome Valleys are concentrated along the rivers and suffer the consequences of rapid surface water runoff from the uplands and fields on the steep valley sides.

The large settlements to the centre and north of the district, Huddersfield, Dewsbury and Batley, have significant networks of public sewers, owned and maintained by Yorkshire Water, with less evidence of smaller culverted watercourses remaining in those areas.

### ***Groundwater Flooding***

Groundwater flooding occurs as a result of water rising to the surface from underlying ground or abnormal springs, usually as a result of sustained increased rainfall raising natural groundwater levels. In Kirklees, it is very unusual to see groundwater breaking through the surface of the ground but the high number of basements in older properties in Kirklees, a product of its industrial heritage, means that groundwater flooding to "below ground" rooms is increasingly common.

### ***Sewer Flooding***

Yorkshire Water owns much of the combined and surface water sewers in the region. There are some known sewer related flooding issues within the Kirklees area. However, overall sewer performance is satisfactory.

### ***The interactions between different sources of flooding***

The general public, understandably, care little where the floodwater comes from but the LLFA has a responsibility to determine, where possible, which risk management authority is responsible. Where there are complicated interactions of different sources, the LLFA will take a lead to ensure that investigation, assessment and appropriate mitigation measures are carried out.

### ***Public Perception of Flood Risk***

Households and businesses which have suffered from disruptive and damaging flooding generally understand the risks involved but many still rely on the various agencies and organisations to manage future risks. Agencies, particularly the newly created LLFAs, have a role to play but an important outcome from this strategy will be a programme of awareness-raising with affected property owners to give them the knowledge and tools to take measures to protect themselves.

## Kirklees Local Flood Risk Management Strategy (Summary)

### The Size of Flood Risk in the District

Presenting a simple indication of the risk from flooding in the district is difficult. The risk comes from many sources and there are many methods of calculating predicted risk. A variety of studies and calculations have been made in the past 5 years which contribute to an understanding of the size of the flood risk in Kirklees.

#### Comparison across other Councils/LLFAs

Kirklees ranks **55<sup>th</sup> out of 150** LLFAs in England, in terms of general flood risk.

Excluding larger Counties and London Boroughs, **Kirklees ranks 7<sup>th</sup> behind Hull, Birmingham, Brighton, Doncaster, Leeds and Leicester.**

#### Number of properties at risk from flooding

If a rainfall event with a 0.5% chance of happening in any year occurred in Kirklees the number of properties at risk of flooding are:

12,000 from river flooding, and

15,000 from other local sources (surface water, minor streams and groundwater)

**ie a total of 27,000 properties or 15% of households in the district**

### What will the Strategy do?

Flood risk in Kirklees **will** increase in the future as a result of climate change and new development pressures.

The Kirklees Local Flood Risk Management Strategy will explain how the Council, as Lead Local Flood Authority, will determine the location and size of flood risk, develop a co-ordinated, resourced and diverse action plan to mitigate the risk, presenting the objectives and measures in an understandable and accessible way.

#### The general principles of the Strategy are that:

- Flooding will always occur. It is uneconomic to totally prevent it and flood management will always be a balance of preventing flooding and managing the consequences of flooding.
- Flood risk management will be a compromise between managing today's problems and reducing the risk from future, larger, catastrophic flooding.
- More and better information on drainage systems and flood risk will result in more effective schemes and initiatives.
- Various authorities have flood risk management responsibilities but, ultimately, householders and businesses are best placed to protect their own properties.
- New developments offer the best opportunity to reverse the mistakes made by previous generations in building developments in high flood risk locations.
- The Strategy will pay due regard to the local, natural environment maximising opportunities for enhancement.

## 2 Responsibilities

### Roles, Responsibilities and Functions

The Risk Management Authorities (RMA's) in the district have a variety of roles, responsibilities and functions to be exercised, including the following:

#### The Environment Agency

- Strategic overview of all forms of flooding
- Risk-based management of flooding from “main rivers”
- Regulation of the safety of higher-risk reservoirs

#### The Water Company

- A duty to effectually drain their area
- A duty to register all reservoirs with a capacity greater than 10,000m<sup>3</sup> with the Environment Agency
- An agreement with Ofwat to maintain a register of properties at risk from hydraulic overloading in the public sewerage system (DG5 register).

#### The Lead Local Flood Authority

Duties described below

#### The Highway Authority

Duties described below

In addition to the role of RMA's, individual landowners owning land adjacent to watercourses, known as **riparian owners**, have important rights and responsibilities relating to flood risk management from natural watercourses. They have

- A right to receive flow in its natural quantity and quality. Water may only be abstracted from a watercourse with the formal approval of the Environment Agency.
- A right to protect their land and property from flooding and erosion.
- A responsibility to allow water to flow through their land without obstruction, diversion or pollution.
- A responsibility to receive flood flows through their land
- A responsibility to keep the watercourse bed and banks free of litter and debris.

### The Powers and Duties of Kirklees Council

The Flood and Water Management Act 2010 identified Kirklees Council as the Lead Local Flood Authority for the district.

The Council's powers and duties relating to the management of local flood risk are:

#### As Lead Local Flood Authority

- A duty to produce a local flood risk management strategy
- A duty to co-operate with other risk management authorities

## Kirklees Local Flood Risk Management Strategy (Summary)

- A power to arrange for a flood risk management function to be transferred to another risk management authority
- A power to request information in connection with its flood management functions from another person
- A duty to investigate flooding
- A duty to maintain a register of drainage assets/ features
- A power to designate features that affect flood risk
- A power to formally consent works within Ordinary Watercourses
- A duty to promote and manage Sustainable Drainage

### As a Category 1 Responder (Emergency Planning)

- A duty to put in place emergency plans

### As Highway Authority

- A duty to maintain the public highway network (excluding motorways)
- A duty to adopt and maintain SuDS draining new roads

### As Planning Authority

- A responsibility to consider flood risk in Local Plans
- A responsibility to consider flood risk when assessing applications for development

### As SuDS Approval Body (SAB)

- A duty to establish a SuDS Approval Body (SAB)
- A duty to receive applications for, and approve all construction work associated with, construction work which has drainage implications
- A duty to adopt SuDS which serve more than one property
- A duty to maintain adopted SuDS

### As a Riparian Owner

- A duty to pass on flow in a watercourse without obstruction, pollution or diversion affecting the rights of others
- A duty to accept flow
- A duty to maintain the bed and banks of the watercourse

### 3 The Objectives for Managing Local Flood Risk

Objectives will be strategic in nature but it is important that the process, measures and actions to achieve the outcomes are pragmatic, deliverable and supported by both partners and stakeholders.

The Strategy sets out objectives which delivers statutory requirements and supports complementary objectives from other plans and strategies.

#### Public Expectations from Flood Risk Management

A two stage consultation exercise with the general public was carried out to inform the Strategy.

##### General views expressed as a result of the first public questionnaire

- The availability of house insurance is already a serious concern for households who have been flooded before
- The public are keen to see something more than a “Do minimum” approach in the Strategy. Most favour initiatives which address existing flooding problems but many support work to avoid flooding from future, more severe rainfall
- There is a clear indication that flooding to properties and businesses should be prioritised over flooding to “amenity” land
- There is a strong feeling that new development activity will provide opportunities to reduce flood risk to the “occupiers” and adjacent properties
- There is little appetite from the public to contribute financially to flood mitigation works
- The public are keen to understand more about the location, type and, in particular, the size of the flood risk they might face

##### General views expressed as a result of the second public questionnaire

- The risk management authorities for the area are identified and their roles are clear
- It is not clear how the Council will fund the actions identified in the Strategy
- The Strategy offers a clear direction for the Council
- There is a preference for addressing existing flooding problems ahead of future, predicted flooding
- There is a preference for maintenance of existing drainage systems ahead of increasing the capacity of those systems
- There is a preference for working closely with private landowners rather than carrying out works on private land
- There is support to persuade developers to carry out additional flood mitigation and drainage works outside the development site area
- The general public consider maintenance and improvement of drainage systems to be the most important general action, ahead of the management of new development

## Kirklees Local Flood Risk Management Strategy (Summary)

### The Objectives of the Strategy

The Strategy needs to provide a clear vision as to how local flood risk will be managed by the Council and its partners.

The objectives are:

- Improve the level of understanding of local flood risk within the LLFA
- Improve the level of understanding of local flood risk amongst partners and stakeholders
- Ensure that local communities understand their responsibilities in relation to local flood risk management
- Maximise the benefits from partnership working with flood risk partners and our stakeholders
- Actively manage flood risk associated with new development proposals
- Take a sustainable approach to FRM, balancing economic, environmental and social benefits from policies and programmes
- Improve/ maintain the capacity of existing drainage systems by targeted maintenance
- Encourage proactive, responsible maintenance of privately-owned flood defence and drainage assets
- Influence planning policies in Local Plans to take account of flood risk
- Maximise opportunities to reduce surface water run-off from the upper catchments
- Identify projects and programmes which are affordable, maximising capital funding from external sources
- Ensure local FRM knowledge is aligned with the Councils emergency planning procedures

## 4 The Measures Proposed to Achieve the Objectives

The Strategy objectives and the measures required to achieve them are as follows:

	Objective Reference	Objective	Measures
Information and Communication	1	<b>Improve the level of understanding of local flood risk within the LLFA</b>	1.1. Record drainage and flood assets 1.2. Maintain a public asset register 1.3. Designating flood/ drainage assets 1.4. Recording/ mapping flood incidents 1.5. Carry out flood investigations 1.6. Assessment of high flood risk locations in SWMP 1.7. Improve skills and knowledge of FRM officers 1.8. Information from stakeholder engagement
	2	<b>Improve the level of understanding of local flood risk amongst partners and stakeholders</b>	2.1. Publish a clear strategy and communicate it 2.2. Develop information strategy to improve partner and stakeholder knowledge 2.3. Improve and maintain the Councils FRM web pages
	3	<b>Ensure that local communities understand their responsibilities in relation to local flood risk management</b>	3.1. Publish and distribute information explaining responsibilities, local flood risk, property protection/resilience etc 3.2. Involve local communities in local initiatives and schemes
	4	<b>Maximise the benefits from partnership working with flood risk partners and our stakeholders</b>	4.1. Continue to develop the Kirklees Flood Partnership and contribute to the Yorkshire LLFA Liaison Group and Yorkshire Action and Learning Alliance 4.2. Ensure that policies and programmes promoted through the Strategy complement and support works across the rest of the Calder and Don catchments
Policies and Programmes	5	<b>Actively manage flood risk associated with new development proposals</b>	5.1. Develop and apply a robust local policy on FRM and drainage solutions on new development sites 5.2. Develop a process with the Planning Department to create clear advice and direction to developers on FRM and Drainage 5.3. Establish the SuDS Approval Body (SAB)
	6	<b>Take a sustainable approach to FRM, balancing economic, environmental and social benefits from policies and programmes</b>	6.1. Ensure the environmental consequences of implementing the LFRMS are considered against the technical, economic and social benefits 6.2. Work with the Environment Agency to embed policies from local River Basin Management Plans, local environmental policies and "European " protected sites into FRM procedures and programmes
	7	<b>Improve and/or maintain the capacity of existing drainage systems by targeted maintenance</b>	7.1. Identify highest risk open and culverted watercourses, highway drains and other drainage/flood features 7.2. Develop an affordable cyclical maintenance regime based on risk 7.3. Implement a responsive, reactive maintenance regime based on risk
	8	<b>Encourage proactive, responsible maintenance of privately-owned flood defence and drainage assets</b>	8.1. Identify highest risk private flood defence and drainage assets 8.2. Develop technical advice for owners to guide them in preparing local maintenance plans 8.3. Establish risk-based consenting and designation processes
	9	<b>Establish a robust policy on water management and use available information on flood risk to assess the suitability of the allocation of sites for different land uses through the Local Development Framework process.</b>	9.1. Use available information on flood risk to identify appropriate development potential
	10	<b>Maximise opportunities to reduce surface water run-off from the upper catchments</b>	10.1. Develop proposals to engage with significant landowners to employ land management techniques and initiatives which help to reduce the rate of surface water run-off
	11	<b>Identify projects and programmes which are affordable, maximising capital funding from external sources</b>	11.1. Develop a pragmatic programme of schemes and initiatives which are likely to be funded through the National Programme or Local Levy 11.2. Develop and implement a policy on de-culverting, using evidence in the SWMP and RBMP to aid prioritisation 11.3. Determine all other funding sources, Council, partners and other external, and maximise "match-funding"
	12	<b>Ensure local FRM knowledge is aligned with the Councils emergency planning procedures</b>	12.1. Embed the LFRMS into flood response and recovery plans and use developing knowledge on flood risk to "tune" emergency procedures

### 5 Proposals, Timescales and Funding to Implement the Measures

Some of the measures outlined in the previous section have been core activities for the Council for a number of years and processes are in place to deliver those measures. Other measures, however, relate to new responsibilities or activities, often requiring a new set of skills and experience that may take some time to develop or acquire.

#### Affordability and Funding of the Measures

The Government commits significant funding every year to flood management activities across the country. Funding for investigation, co-ordination and local management of flood risk issues has been allocated to LLFA's with a long term commitment to support this foundation work. Capital funding for mitigation works (such as flood defences, property resilience schemes, flood storage etc) is generally allocated on the basis of risk and, inevitably, areas where high density populations co-exist with high risk from river flooding tend to attract much of the available funding. However, a more-flexible funding arrangement has recently been introduced which encourages community and business contributions to the funding of schemes which improves their chance of being supported through the national funding allocation.

#### Delivery of the Measures

Each measure outlined in Section 4 has been developed into a set of activities, policies and procedures which are described in more detail in the full Strategy document. Funding is critical to the delivery of the strategy and whilst the Council has a legal responsibility to deliver many of the actions required to deliver the measures, the funding made available to do so is limited. **The delivery timescales indicated in the Strategy reflect current levels of funding, existing commitments and preferences expressed through the consultation process for the Strategy.**

### 6 What is the Flood Risk in Kirklees?

It is imperative that the Strategy explains in simple terms the source and size of flood risk in Kirklees. An increasing amount of evidence is available to explain the general levels of risk from a variety of sources, some of which are managed by the Council and some by others.

The calculation of future flood risk is complex and approximate. However, it is reasonable to assume that **a minimum of 20 - 25,000 properties in Kirklees are at risk of flooding from a rainfall event with a 0.5% annual chance of occurring.** Other infrastructure such as roads, bridges and public utility buildings would also be affected. **With a conservative estimate of £25,000 recovery/repair costs per property, such a rainfall event could cost the local economy in excess of £700million.** In reality, the more realistic scenario is that a severe rainfall event would affect only part of the district. **However, an event affecting 10% of the district could still cause £70million of damage.**

The broad geographical areas of concern are listed in the following section.

#### Areas at Risk from Future Flooding (Fluvial and Surface Water)

Using the evidence from previous flood incidents and predicted future flooding, the areas which are most at risk are as follows:

Area	Area Description	Main Sources of Flooding	Estimated No. of Properties Affected (0.5% AEP)
Huddersfield	Leeds Road Corridor (Between Bradley Mills Rd and Whitacre St)	River Colne, Surface Water	5000
Huddersfield	Aspley (Wakefield Rd/ Firth St)	River Colne, Surface Water	1800
Huddersfield	Dalton, Fenay Bridge (Waterloo Rd to Albany Rd)	Fenay Beck, Surface Water	500
Holme Valley	Holmfirth, Honley, Brockholes, New Mill (Most centres near to River Holme and New Mill Dyke)	River Holme, Surface Water	2500
Dearne Valley	Denby Dale, Scissett, Clayton West (Adjacent to River Dearne and Clayton Dyke)	River Dearne, Surface Water	600
Batley	Bradford Road Corridor (Batley Beck)	Batley Beck, Surface Water	1600
Marsden	Town Centre	River Calder, Surface Water	700
Dewsbury	Ravensthorpe (Huddersfield Rd)	River Calder, River Spen	2000
Dewsbury	Savile Town, (Savile Rd + commercial props)	River Calder, Surface Water	500
Thornhill	Thornhill Lees (Victoria Rd area)	Surface Water	400
Thornhill	Thornhill Rd	River Calder	300

## Kirklees Local Flood Risk Management Strategy (Summary)

Spen Valley	Liversedge, Cleckheaton, Oakenshaw	River Spen, Surface Water	3000
Mirfield	Lower Hopton	River Calder, Surface Water	500
Kirkburton	Town Centre, Penistone Road	Dean Bottom Dike, Surface Water	200
Meltham	Town Centre	Meltham Dike, Surface Water	200
Slaithwaite	Town Centre	River Colne, Crimble Clough, Surface Water	200
		<b>Total No. of Properties Affected in the Main Settlements</b>	<b>20000</b>

### Explanation of the Risk

Numerical calculation of flood risk is important if resources are to be prioritised for those locations where the risk of flooding to properties is highest. The Environment Agency also expect risk calculations to support bids for capital funding for FRM projects, providing evidence for the benefits from the proposed works. However, risk probabilities do not easily convey the uncertainties around flooding and the vulnerability property owners and communities might face. **Measure 2.2 outlined in Section 4** will develop simpler definitions of “the chance of flooding” which are easily understood by the general public and highlight but don’t unnecessarily exaggerate the risk.

### 7 How and When will we Review the Strategy?

The Strategy will provide the framework for the Council's delivery of its flood risk management responsibilities. It has been formally approved by the Council's cabinet and adopted as a Council strategy. The strategy will be monitored by officers at the regular **Kirklees Flood Partnership Meetings** and progress against the measures assessed by local members through an annual report to the Council's **Development and Environment Overview and Scrutiny Panel**. The Strategy has been developed to deliver a short to medium term (3-5 years) improvement plan to establish a sound evidence and knowledge base to develop a longer-term investment programme for FRM measures across the district.

### **8 A Sustainable Approach – Balancing Social, Economic and Environmental Needs**

The focus on the Kirklees LFRMS is to reduce flood risk from local sources where it threatens private property and public infrastructure. The Council is also committed to maximising opportunities to carry out sustainable flood risk reduction in ways which complement national and council environmental priorities, are affordable and recognise social demographic differences across the district, delivering flood risk reduction across all its vulnerable communities.

### **9 Consistency with the National Strategy**

Recent legislation implies strong partnership working as a prerequisite in delivering more effective flood risk management. The National Strategy sets out the Environment Agency's priorities and it is vital that the Kirklees LFRMS supports those aspirations with complementary measures. Section 5 of the strategy references the main policies and measures suggested in the National Strategy ensuring that they are included within the general objectives for the Local Strategy.

The Environment Agency is represented on the steering group for the Kirklees LFRMS and is a statutory consultee. Following the approval and adoption of the Strategy as a Council plan it is intended to check continuing adherence of the LFRMS with the National Strategy at the regular Kirklees Flood partnership meetings.