

## Annex 1



# CITY OF YORK COUNCIL

**City of York Council**

## **Flood Risk Management Strategy**

This is a pre consultation draft of the strategy for consultation with internal and external partners.

On receipt, and review of comments a formal consultation document will be drafted

## Glossary and Terminology

Acronym	Definition
CFMP	Catchment Flood Management Plan
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
FMfSW	Flood Map for Surface Water
FWMA	Flood & Water Management Act 2010
IDB	Internal Drainage Board
LDF	Local Development Framework
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
LRF	Local Resilience Forum
NPPF	National Planning Policy Framework
PFRA	Preliminary Flood Risk Assessment
RBD	River Basin District
RMAs	Risk Management Authorities
SAB	SuDS Approving Body
SEA	Strategic Environment Assessment
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
YWS	Yorkshire Water Services
YRFCC	Yorkshire Regional Flood and Coastal Committee

Term	Definition
Annual Exceedance Probability (AEP)	The chance of a flood of a given size happening in any one year e.g. a flood with a 1% AEP will happen, on average, once every 100 years
Catchment	A catchment is the total area draining into a river or other drainage system
Chance of flooding	The chance of flooding is used to describe the frequency of a flood event occurring in any given year, e.g. there is a 1 in 100 chance of flooding in this location in any given year. This can also be described as an annual probability, e.g. a 1% annual probability of flooding in any given year. (See AEP)
Climate Change	A long term change in weather patterns, climate change is predicted to produce more frequent and severe rainfall events.
DG5 Register	A Water and Sewerage Company (WaSC) held register of properties which have experienced internal sewer flooding due to hydraulic overload, or properties which have a risk of flooding in the following categories:  once in every ten years twice or more in every ten years once in every twenty years
Exceedance flows	Excess flow that appears on the surface once the capacity

	of the underground drainage system is exceeded.
Floods Directive (2007)	The EU Floods Directive is designed to help Member States prevent and limit the impact of floods on people, property and the environment.
Flood Risk Regulations (2009)	Legislation that transposed the European Floods Directive into UK law in 2009.
Fluvial (River) Flooding	Flooding that occurs when a river or stream cannot cope with the water draining into it from the surrounding land – for example, when heavy rain falls on ground that is already waterlogged.
Groundwater flooding	Flooding that occurs when levels of water in the ground rise above the surface. It is most likely to happen in areas where the ground contains aquifers. These are permeable rocks that water can soak into or pass through.
Local Flood Risk	The risk of flooding arising from ordinary watercourses, surface water and groundwater.
Main River	Main Rivers are watercourses marked as such on a main river map. Generally main rivers are larger streams or rivers, but can be smaller watercourses in critical locations.
Ordinary watercourse	An ordinary watercourse is any other river, stream, ditch, cut, sluice, dyke or non-public sewer which is not a Main River. The local authority or IDB has powers to manage such watercourses.
Pluvial (surface water) flooding	Flooding that occurs when rainwater does not drain away through the normal drainage system or soak into the ground, but lies on or flows over the ground instead. This type of flooding can be difficult to predict and pinpoint, much more so than river or coastal flooding.
Riparian owners	A riparian owner is someone who owns land or property adjacent to a watercourse. Riparian owners have a duty to maintain the watercourse and allow flow to pass through their land freely.
Sewer flooding	Flooding that occurs when sewers are overwhelmed by heavy rainfall or when they become blocked. The chance of flooding depends on the capacity of the local sewerage system and amount of rain that falls. Land and property can be flooded with water contaminated with raw sewage as a result. Rivers can also become polluted by sewers that overflow.
Sustainable Drainage Systems (SuDS)	A sequence of management practices and control measures designed to mimic natural drainage processes by allowing rainfall to infiltrate and by attenuating and conveying surface water runoff slowly, compared to conventional drainage.
Water Framework Directive (2000)	The European Water Framework Directive (WFD) became part of UK law in December 2003. It requires member states to plan and deliver a better water environment, focussing on ecology. The WFD sets environmental and ecological objectives for all inland and coastal waters in the UK. The EA are the lead organisation for WFD.

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# Introduction

## 1.1 Background to the Strategy

1.1.1 Flood risk is predicted to increase due to climate change and development needs to be managed to ensure that risk is not increased. Flooding is a natural process and while it is not technically, economically or environmentally feasible to prevent all flooding, a risk based approach targets resources to those areas where they can have the most beneficial effect in reducing its impact. Several bodies have responsibility for flood risk management and historically it has been difficult to take a coordinated or strategic approach in its management, particularly at a local level.

1.1.2 Following the flooding of 2007, which affected over 55,000 homes and businesses across the UK and caused £3 billion worth of damage, the [Flood and Water Management Act 2010](#) (FWMA) was introduced to provide legislation for the management of risks associated with flooding and coastal erosion. This gives City of York Council major new responsibilities as the Lead Local Flood Authority (LLFA) for its area, with a range of new local flood risk management duties.

1.1.3 Section 9 of the FWMA requires LLFAs to “develop, maintain, apply and monitor a strategy for local flood risk management in its area”. Local flood risk is defined as flood risk from surface runoff, groundwater and ordinary watercourses flooding.

1.1.4 Responsibility for the management of flood risk from main rivers, the sea and reservoirs remains with the Environment Agency (EA). The EA has published its national flood risk management strategy for England, which outlines its responsibilities for the management of flood risk from these sources.

1.1.5 However, as the cause of flooding is often not straightforward, the Strategy deals with risks from all sources and the Council will work in partnership with the EA and other flood Risk Management Authorities (RMAs) in the delivery of the measures detailed in the Strategic Action Plan.

## 1.2 The National Strategy

1.2.1 The [National Strategy](#) sets out principles for how flood risk should be managed, providing strategic information about the various kinds of flood risk and the organisations responsible for their management.

The Strategy’s guiding principles are:

- Community focus and partnership working
- An approach based on catchment cells, working with neighbouring authorities

- Sustainability – taking into account potential future risks and remaining adaptable to climate change
- Proportionate, risk based approaches which allot resources where they have the greatest effect
- Added benefits including regeneration and socio-environmental benefits as well as reducing the risk to people and property
- Beneficiaries should be encouraged to invest in local risk management

The Flood and Water Management Act 2010 requires RMA's (local authorities, internal drainage boards, sewerage companies and highway authorities) to act consistently with the National Strategy in carrying out their flood and coastal erosion risk management functions. The York Local Flood Risk Management Strategy principles have been developed in line with the principles of the National Strategy.

### **1.3 The York Local Flood Risk Management Strategy**

#### 1.3.1 Principles of the Strategy

The principles which inform the Councils overall approach to flood risk management are:

1. Flooding is a natural process that will occur despite all efforts to prevent it. Therefore the most effective approach is risk management.
2. Improving the level of knowledge and maintaining an accurate database about flood risk is a vital process which needs to be continued.
3. As well as focussing on measures to protect from flooding it is important to manage the disruption when it does happen, and afterwards.
4. Effective flood risk management can reduce long-term flood damage costs and is a worthwhile investment for both the public and private sector.
5. Flood risk management can provide other environmental benefits, such as improving or creating new wildlife habitats.
6. Decisions on where local resources are focused should be evidence-based and made against clear criteria.
7. No single organisation can effectively manage flood risk alone and co-operation is needed from public agencies, the private sector and households, including via the planning process.
8. Flood risk management contributes to the Council's priorities for York.
9. An effective communications strategy will be required, raising public and business awareness of risks and potential remedies and opportunities.

### 1.3.2 Aim of the Strategy

The aim of the strategy is to understand flood risk from all sources in the city, reduce its likelihood and impact on residents and visitors and take the opportunity to improve the city environment. It is a living document which will provide an ongoing comprehensive framework for managing York's flood risk. As new technical information associated with flood risk management evolves, and real events occur, it will need to change to take this new information into account.

The strategy has drawn on existing plans and knowledge to form an understanding of the various flood risks in the City, what management is already in place and where risk remains a concern. As the principal document for managing York's flood risk it:

1. Explains current understanding of all flood risk affecting the Council's area.
2. Refers and links to key documents.
3. Outlines the legislative framework.
4. Specifies the responsibilities of the Risk Management Authorities in York and their functions.
5. Provides a basis for co-ordinating flood risk management activities.
6. Contributes to securing and prioritising investment.
7. Explains how flood risk management can contribute to environmental objectives.
8. Explains how flood risk management can contribute to the Council's priorities for York.

The strategy seeks to achieve this aim through the following objectives:

- 1) Ensure that there is an accurate, comprehensive and clearly documented understanding of flooding and flood risk in York
- 2) Work with our partners to identify the areas of focus and priority for flood risk management in York and communicate it to those at risk
- 3) Work to secure, prioritise and deliver investment in mitigating flood risk to deliver social, economic and environmental benefits
- 4) Ensure that planning decisions properly address all aspects of flood risk and that surface water flows are managed and controlled in a sustainable manner
- 5) Maintain drainage infrastructure and watercourses to ensure that their operation maximises effectiveness

The Strategic Action Plan details the measures required to deliver these objectives

### 1.3.3 Structure of the Strategy

The York Flood Risk Management Strategy comprises a collection of six guidance documents which aim to advise and direct the reader to further information to increase knowledge and understanding of flood risk management. These are bound together by the Policy Framework and Strategic Action Plan sections. The York Local Flood Risk Management Strategy comprises the following elements:

**Section 1 Policy Framework**

The need for and aspirations of our strategy

**Section 2 Strategic Action Plan**

The programme of actions and measures, for all Risk Management Authorities, that are required to deliver the aims of the strategy

**Section 3 York Flood Risk Overview**

A summary of the key flood risk issues in York

**Section 4 Incident Review Protocol**

The way in which we will investigate future flood events to identify effective solutions to reduce their impacts

**Section 5 Legislative Framework**

Summary of Flood Risk Management legislation and guidance

**Section 6 Risk Management Authorities and their Functions**

Overview of all Flood Risk Management Authorities and their key responsibilities and functions

**Section 7 Development Management**

An overview of the legislation and documentation which ensures that developments are built in a manner which is resilient and resistant to flooding

**Section 8 Community Action and Resilience**

Information on how individuals and communities can be prepared for flooding and take action to reduce its impacts

The strategy can be read as a complete document or the individual guidance document sections used individually as a resource.



## **1.4 Next Steps**

1.4.1 Following publication in 2015 the strategy will be fully reviewed in line with the six year Flood Risk Regulations cycle.

1.4.2 It is intended that changes and updates to the individual guidance notes (Sections 2-6) would be agreed and endorsed through the relevant committee, scrutiny or member decision making session, any changes or updates to the Policy Framework or Strategic Action Plan would be brought to Cabinet for approval.

1.4.3 All RMAs in the Council area work closely together as part of the North Yorkshire Flood Risk Partnership, the Strategy and its action plan will be monitored through the work of this group.

## 2. Strategic Action Plan

### 2.1 Aim

2.1.1 The aim of the strategy is to understand flood risk from all sources in the city, reduce its likelihood and impact on residents and visitors and take the opportunity to improve the city environment. It is a living document which will provide an ongoing comprehensive framework for managing York’s flood risk. As new information associated with flood risk management evolves, and real events occur, it will need to change to take this new information into account.

2.1.2 The Action plan will be reviewed annually with a full review carried out in parallel with the six year review cycle defined in the Flood Risk Regulations. The plan will also be revised in line with the investment plans and actions of all flood risk management authorities work in and around York. The North Yorkshire Flood Risk Partnership will provide a mechanism for all partners to monitor and review all strategies and plans.

<b>2.1 Objectives</b>	<p>To achieve this, the strategy has identified the following objectives:</p> <ol style="list-style-type: none"> <li>1. Work with our partners to identify the areas of focus and priority for flood risk management in York and communicate it to those at risk</li> <li>2. Work to secure, prioritise and deliver investment in mitigating flood risk to deliver social, economic and environmental benefits</li> <li>3. Ensure that planning decisions properly address all aspects of flood risk and that surface water flows are managed and controlled in a sustainable manner</li> <li>4. Maintain drainage infrastructure and watercourses to ensure that their operation maximises effectiveness</li> </ol>
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<b>2.1 Outcomes</b>	<p>This will result in:</p> <ul style="list-style-type: none"> <li>• A clear understanding of the actions and investment priorities needed to manage flood risk in York.</li> <li>• An understanding by those at risk.</li> <li>• Development that is sustainable and appropriate.</li> <li>• Drainage infrastructure that is properly maintained and fit for purpose.</li> </ul> <p>Progress towards meeting the targets in the York Council Plan.</p>
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## **2.2 Measures Proposed to achieve the Objectives**

2.2.1 This section sets out the actions that the Council has identified to achieve the objectives. This will be subject to consultation with internal and external partners and the public.

2.2.2 In proposing these actions, the following points have to be taken into account:

- There is an increased risk of flooding due to climate change, together with ever increasing financial pressures. This means that schemes and funding need to be looked at very critically, and different ways of working need to be investigated to maximise opportunities and value for money.
- Risk Management Authorities have permissive powers with regard to watercourse management, therefore there is no obligation for any organisation to provide flood defence or mitigation schemes to residents or businesses at risk of flooding. However where appropriate and suitable solutions are identified, and funding can be allocated, the Council will work with partners and local communities to achieve protection.
- New developments must be designed to be resilient to flooding and will not receive any government support for flood mitigation schemes in the future.

## **2.3 Action Plan**

2.3.1 With reference to the objectives identified above this section sets out:

- What we plan to do
- How we are planning to do it
- When action is likely to happen
- Who is likely to take the lead

Funding for individual programmes and schemes is likely to be from a variety of sources, Section 2.3.4 highlights potential funding mechanisms which may contribute to delivery of actions.

All actions are linked to the measures identified in the EU Floods Directive and the Flood Risk Regulations. This will ensure that all partners are developing actions that can be measured and monitored in their delivery of this primary flood risk legislation. It is similarly expected that an action plan, aligned with primary legislative drivers and objectives, will support a more effective investment bid for schemes and programmes within the action plan.

2.3.2 The following terms, from the EU Floods Directive, are used to group and describe the kind of actions that can be pursued:

- **Prevention of risk:** for example, by not building homes in areas that can be flooded we can prevent risks from arising in the first instance.
- **Protection from risk:** for example, by delivery of formal flood defences schemes or property level protection such as using water proof boards over doors and airbricks to protect properties from the damages of flood water.
- **Preparing for risk:** for example, by improving awareness of flood risk, or by providing warning and forecasting for floods, people can take precautions to safeguard themselves and their valuables.
- **Recovery and Review of risk:** for example, by improving access to tradesman and other services, recovery after flooding can be improved.

2.3.3 The actions will take varying timescales to achieve and are dependent on securing funding. The action plan will be reviewed as funding is secured, but the actions have initially been placed in one of the following three categories:

- Short term – up to two years
- Medium term – two to five years
- Long term – over five years

2.3.4 Potential sources of funding that have been identified are:

- City of York Council revenue
- City of York Council capital

The Flood Risk Management Team is funded to ensure essential investigation and maintenance of waterways and highways is carried out to prevent flooding. Strong funding cases are required to ensure the continued provision of revenue monies and capital schemes are, like all other schemes, supported where need is greatest within the funding available to the Council.

- Planning Gain - Community Infrastructure Levy (CiL), S106

Section 106 (S106) of the Town and Country Planning Act 1990 allows a Local Planning Authority (LPA) to enter into a legally-binding agreement or planning obligation with a landowner / developer in association with the granting of planning permission. The obligation is termed a Section 106

Agreement. These agreements are a way of delivering or addressing matters that are necessary to make a development acceptable in planning terms and often refer to off-site infrastructure works such as highway improvements or new facilities such as play areas or local education improvements.

The use of Section 106 agreements will largely be replaced by the Community Infrastructure Levy. This is a new tariff based system, depending on the scale of the development, which local authorities in England and Wales will charge on new developments in their area. The Council is currently developing its approach to CiL, which is due for consulting circa September 2014.

The Environment Agency monitors and administers the delivery of funding and overall programmes are developed and endorsed through the Yorkshire Flood and Coastal Committee and its sub area based Flood Risk Partnerships (York is part of the York & North Yorkshire Flood Risk Management Partnership).

The Yorkshire RFCC are the gatekeeper for all FDGiA and local levy in Yorkshire.

- Defra Partnership Funding

Partnership funding is a way of allocating capital funding to flood and coastal erosion risk management projects for all RMAs in the form of Flood Defence Grant in Aid (FDGiA). Partnership Funding allocates an element of FDGiA to all schemes according to their benefit realisation, where the FDGiA allocation can only part fund a scheme contributions need to be identified to allow it to progress. It is expected that all schemes, even where they can be 100% FDGiA funded, seek contributions to enable the oversubscribed national FDGiA funding to realise wider benefits.

Schemes are assessed according to the number of households receiving an improved standard of protection from flooding or coastal erosion, the overall economic benefits of the investment programme and important environmental outcomes, such as creating new habitats to compensate for those lost when defences are built to protect people and property.

- Yorkshire Regional Flood and Coastal Committee Local Levy

The c. £2M local levy money raised each year by direct levies on all 14 Lead Local Flood Authorities in Yorkshire is used as contributions to Partnership Funding schemes or to fully fund schemes that do not fit the criteria required to attract FDGiA Funding. Local levy funding allows some innovative and marginal schemes to be developed.

- Environment Agency Revenue

EA revenue funds the delivery of flood forecasting, warning and informing, development control and enforcement and the delivery of mapping, modelling and investigations to underpin future flood alleviation scheme delivery. EA revenue is essential in the delivery of all asset management practices from inspection, monitoring, operation and maintenance of existing defences and river channels and large scale replacement and renewal of key flood risk management assets. All EA revenue monies are allocated in a prioritised basis according to risk.

- Water Industry

YWS, as the water and sewage company in the Council area, works to five year funding cycles or Asset Management Plan periods. They have compiled a needs based assessment of all funding for the 2015-20 period and some flood risk management spending requirements were included. Sewer flooding events are categorised according to OFWAT DG5 register regulatory guidelines, in general those areas with a sewer flood risk of 1 in 20 year or greater are supported with funding to deliver interventions. Other funding is available to allow YWS to work with all RMA's to investigate, model and deliver flood risk management operations. There is little resource allocated to deal with sewage flooding external to properties.

- Internal Drainage Board (IDB) revenue and grant

IDB expenditure is predominantly funded by the local beneficiaries of the water level management work that they provide through collection of drainage rates. Each IDB sets a budget for its planned work in the forthcoming year and any investments it needs to make for wider projects. As a RMA, the IDB has to assess and mitigate flood risks within its area.

- Other

'Core' flood risk management funding is dependant on contributions as required by Partnership Funding, similarly funding available to RMAs can only be used to address flood risks to existing beneficiaries (where constructed prior to 2012 as there is a presumption that recent developments were built resilient and resistant to flooding) and regeneration economics cannot normally be considered.

Key funding streams from Local Enterprise Partnerships, EU Structural Investment Funds or other non 'core' funders are essential to enable flood risk management interventions to play a role in good place making and the facilitation of sustainable developments.

## 2.4 Monitoring Delivery

2.4.1 The action plan will be monitored by the North Yorkshire Flood Risk Partnership, all RMA's attend the partnership and the delivery of actions and investment needs will be measured through its work. The partnership is one of four across Yorkshire that identifies sub regional flood risk priorities and feeds them into the wider work and investment planning of the Yorkshire Regional Flood and Coastal Committee.

**The proposed measures in the following tables indicate those required, at this moment in time, to deliver against the identified need and funding is that which is required to deliver this.**

**All funding sources listed in section 2.3 require detailed assessments of costs and benefits to identify which needs based schemes can be approved for inclusion on future funding programmes. Further work is often then required to confirm formal approval of funding from the programme for the identified measures.**

The following colour coding is used to indicate the status of the funding needs indicated in section 2.3:

**Need Identified – but works not in a current funding program**

**Need Accepted – in a current funding programme but funding is not allocated**

**Need Supported – approved funding allocation / works in progress**

## 2.5 Proposed Measures

	Source	Local Flood Risk Strategy Objective (Section 2.1)	Action	Timescale	Lead Organisation	Support Organisation(s)	Estimated Cost
Prevention	Surface Water, Ground water and Fluvial (SW, GW, F)	2/3	<p>Ensure that planning decisions properly address all aspects of flood risk and that surface water flows are managed and controlled in a sustainable manner.</p> <p>Development of sustainable places better adapted to manage flood risk.</p> <p>Identification of planning gain opportunities to deliver support flood risk management infrastructure delivery – CiL, S106 etc</p>	Short Term / ongoing	CYC - Local Planning Authority	Environment Agency (EA), Internal Drainage Boards (IDB), Yorkshire Water Services (YWS)	<p>Core part of delivery with no capital cost, may require periodic capital costs to develop detail and understanding</p> <p>£5k - £10k per study</p>
	SW, GW, F	2/3	<p>Input into strategic planning and strategic development sites to identify sustainable flood risk and drainage solutions.</p> <p>Input into the emerging Local Plan, development of policies – FR1Flood Risk, FR2 Sustainable Drainage</p>	Short Term	CYC - Local Planning Authority	EA, IDB, YWS	£5k - £10k per study



	Source	Local Flood Risk Strategy Objective (Section 2.1)	Action	Timescale	Lead Organisation	Support Organisation(s)	Estimated Cost
Prevention	SW	2/3	Develop processes and guidance to deliver Schedule 3 of the Flood and Water Management Act following commencement by Defra. All new developments will incorporate sustainable drainage systems unless exemptions apply.	Short Now likely in 2015	CYC	EA, IDB, YWS	£100k per annum
	SW/F	2/3	Working with Local Enterprise Partnership and EU funders to identify strategic sites where flood prevention work can act as an enabler to regeneration and development.  York Central site has identified support from the Local Growth Fund and work continues to identify European Structural and Investment Funds opportunities.	Short / ongoing  Short	CYC	EA, IDB, YWS, Network Rail  EA, IDB, YWS, Network Rail	Site dependant £25-£100k  £85k study 14/15  £2.5M capital costs 15/16
	SW/F	1/2	Flood Risk Management Partners will work together to create integrated sub catchment models based on principal watercourses and drainage network (YWS Drainage Area Plans).  Opportunities for habitat and ecology improvements will be sought in line with Water Framework Directive (WFD) and the Local Plan  The Council will work with the EA to attract funding for studies through the Local Levy and Flood Defence Grant in Aid and with wider partners such as the LEP for wider funding (i.e.	Short	CYC	EA, IDB, YWS	£50-£100k per study  £500k for full YWS Drainage Area Plan review in York

			York Central / Holgate Beck study).				
	Source	Local Flood Risk Strategy Objective (Section 2.1)	Action	Timescale	Lead Organisation	Support Organisation(s)	Estimated Cost
Protection	SW/GW/ F	2	Develop, maintain and review a prioritised programme (6 year) of projects, to include Local Levy, for submission and consideration by the Yorkshire Regional Flood and Coastal Committee (RFCC)  Contributions from stakeholders and beneficiaries will be sought in line with Defra Partnership Funding requirements	Ongoing / annual	CYC	EA, RFCC, North Yorkshire Flood Risk Partnership	£25k
	SW/GW/ F	1/2	Deliver a programme of flood risk management projects to reduce the impacts of local flooding	Ongoing	CYC	EA, IDB, YWS	TBC following catchment modelling work
	F	1/2	City of York Flood Defence Improvement Strategy and works arising to all existing defences  Close working between EA and CYC, likely need for similar levels of funding in contributions to enable works to progress	Short – strategy  Medium / long -  Delivery	EA	CYC	£250k  £25M - £5M p.a. from 2016
	F	1/2	Foss Barrier Upgrade	Short	EA	CYC, IDB	£2M
	F	1/2	Burdyke / Holgate Pumping Station appraisal and Replacements	Short	EA	CYC	£3.5M
	F	1/2	Clifton Ings Barrier Bank Restoration	Short	EA	CYC	£1.5M

	Source	Local Flood Risk Strategy Objective (Section 2.1)	Action	Timescale	Lead Organisation	Support Organisation(s)	Estimated Cost
Protection	F	1/2	<p>Develop and deliver a range of measures to reduce the impacts of flooding in the unprotected areas of York – Bishopthorpe, Acaster Malbis, Fulford, Clementhorpe, Naburn, Kings Staith/Tower Street, Nether Poppleton</p> <p>Close working and coordination is require between EA and CYC, property level resilience measures are likely to be the optimal solution. Work with residents and businesses to deliver collectively funded protected measures.</p>	<p>Short – Medium – long</p> <p>Dependant on issue, solution and funding</p>	EA	CYC, YWS	£5M
	F	4	<p>Delivery of EA maintenance programme to ensure optimal, safe and effective operation of all defences and Main River watercourses and assets in the CYC area and upstream management in the NYCC area</p> <p>Review and scrutiny by the North Yorkshire Flood Risk Partnership and the RFCC, lobbying and pressure from CYC officers and members</p>	Ongoing - annual	EA	CYC, IDB	<p>£476k p.a.</p> <p>Needs based assessment, actual approved budgets may be less</p>
	F	4	<p>Delivery of IDB maintenance programme to ensure optimal, safe and effective operation of all IDB managed watercourses and assets in the CYC area</p> <p>Review and scrutiny by the North Yorkshire Flood Risk Partnership and the RFCC, lobbying and pressure from CYC officers and members</p>	Ongoing - annual	IDB	CYC, EA	<p>£670k</p> <p>Council paid Special Levy to support IDB flood risk works in our area</p>

	Source	Local Flood Risk Strategy Objective (Section 2.1)	Action	Timescale	Lead Organisation	Support Organisation(s)	Estimated Cost
<b>Protection</b>	SW, GW, F	4	<p>Delivery of CYC maintenance programme to ensure optimal, safe and effective operation of all CYC managed watercourses in the CYC area</p> <p>The CYC Surface Water Management Plan identified that a minimum of £5M of investment was required to investigate and remedy defective drainage and highways issues across the CYC area. Ongoing investigations and maintenance of wider watercourses and drainage networks are required to satisfy the CYC role as a Lead Local Flood Authority</p>	Ongoing - annual	CYC	EA, YWS, IDB	<p>£200k p.a. highways investigation / remediation</p> <p>£100k p.a. watercourse maintenance</p> <p>£25k p.a. reservoir management</p>

	Source	Local Flood Risk Strategy Objective (Section 2.1)	Action	Timescale	Lead Organisation	Support Organisation(s)	Estimated Cost
<b>Preparedness</b>	SW, GW, F	1/2	Create Management Catchment Plans for Flood Risk Regulations – providing a high level assessment of flood risk and risk management actions/measures for each catchment within CYC and neighbouring NYCC authority area	Short	EA	CYC, NYCC	£50k
	SW, GW, F	1/2	Work with neighbouring LLFAs to provide input to Management Catchment Plans for those catchments which cross into other authority areas – NYCC to ensure collaborative upstream actions and ERYC regarding the River Derwent	Short	CYC, NYCC	EA, IDB, YWS	£20k

	Source	Local Flood Risk Strategy Objective (Section 2.1)	Action	Timescale	Lead Organisation	Support Organisation(s)	Estimated Cost
Preparedness	SW, GW, F	1/4	Work with the North Yorkshire Local Resilience Forum (NYLRF) and CYC Emergency Planning Unit to support community resilience work such as creation of Community Emergency Plans and public education programmes as set out in the Community Resilience Action Plan, increase flood warning uptake and input into the CYC River Flood Emergency Plan	Ongoing	CYC Emergency Planning Unit	CYC, all professional partners	
	F, SW, GW	1	Work with residents, businesses and insurance providers in the city and lobby Government to ensure affordable and effective flood risk cover is attainable  Delivery of workshops with key stakeholders and insurance providers in the Council area	Short	CYC	EA	£10k
	F, SW, GW	1	Develop, improve and maintain the CYC website flood pages to provide an effective resource for residents and businesses wanting information of flood risk management.	Short	CYC		£2k p.a.
	F, SW, GW	1	Develop a communications strategy to ensure the delivery of effective media messages and campaigns to enable residents and businesses to become more resilient to flood risk	Short - ongoing	CYC		

	Source	Local Flood Risk Strategy Objective (Section 2.1)	Action	Timescale	Lead Organisation	Support Organisation(s)	Estimated Cost
Recovery & Review	SW, GW, F	1/4	<p>Deliver investigations in accordance with Section 19 of the Flood &amp; Water Management Act and deliver all necessary post flood remedial works and actions</p> <p>Working with public &amp; businesses to raise awareness of flood risks and to identify community led solutions</p>	Short - ongoing	CYC	EA, IDB, YWS, all professional partners	£100k p.a.
	SW, GW, F	1/2/4	Develop and improve existing Flood Risk Geographical Information Systems data and databases.	Short	CYC	EA	£5k
			Install a localised network of rain gauges to monitor current events and support event investigations.	Short / Medium	CYC	EA, NYCC, ERYC, YWS  (links will be formed with others existing networks)	<p>£30k</p> <p>Installation</p> <p>£5k p.a.</p> <p>Maintenance</p>
	SW, GW, F	1/2/4	Develop remote access and input capabilities for flood risk management usage and data entry in the field to support drainage investigation work, SuDS Approving Body role and flood response actions	Short	CYC	EA	<p>£25k</p> <p>£2k p.a. licences</p>

## **3. Flood Risk in York**

### **3.1 Introduction**

3.1.1 The city of York is located in the Vale of York on the confluence of the rivers Ouse and Foss. Centred on this urban core, the administrative area extends to include villages of varying sizes and largely rural land with the River Derwent forming the eastern boundary. While these main rivers drain two separate catchments they are both included in the area covered by the EA's River [Humber Basin Management Plan](#).

3.1.2 The York Local Flood Risk Management Strategy takes a catchment wide approach to addressing the risks of flooding for the York area. The strategy covers the risk of flooding from the Rivers Ouse, Foss and Derwent as well local flood risk from minor watercourses and surface water.

3.1.3 Predictions indicate that the country will experience warmer, wetter winters and hotter, drier summers resulting in more extreme rainfall events. As a result, flooding of greater magnitude and frequency from all sources is expected.

3.1.4 This section provides an overview of the sources of flood risk affecting the council's area, based on the range of documents that have been produced both by the Environment Agency and the Council.

### **3.2 Flood Risk from Rivers**

#### **Flood Risk from Main Rivers**

3.2.1 Being on the confluence of the Rivers Ouse and Foss, York is well known for flooding from those rivers, with approximately 3400 homes and businesses at risk. The EA leads in the management of flood risk from this source.

3.2.2 Although the upstream Yorkshire Dales rivers Swale, Ure and Nidd, which form the Ouse, rise and fall rapidly, by the time the flows reach York the river is meandering and slower flowing. The EA's well established catchment wide monitoring enables warnings for York to be issued approximately 14 hours ahead of the peak flood level through the city. River flood events are therefore predictable, and rises in river levels are relatively slow and always affect the same areas. This allows a consistent and effective multi-agency response to be provided in accordance with the Council's Emergency Flood Plan and also a post event recovery operation targeted at known areas.

3.2.3 Many areas in the City benefit from flood defences constructed following flooding in 1978. This event triggered a defence building programme and the first scheme to be constructed, protecting the Leeman Road area, was completed in the early 1980's. This successfully protected many of the 225 properties flooded in 1978 against flooding in March 1982, the highest since 1947 but significant wave action on

Clifton Ings required the defences to be raised. Subsequent defences were built to protect other areas of the City and now a total of approximately 1,000 properties are defended to the same standard. Although originally designed for a 1% or 1 in 100 year event, the current standard of protection has now fallen to 2% or 1 in 50. It is widely accepted that this standard of protection will further reduce over time due to increases in flood risk from climate change.

3.2.4 The EA is responsible for the flood walls, gates, embankments and River Foss Barrier flood defences.

The City's flood defences include:

- The Foss Barrier, built in 1986/7, a gate which when lowered in place, cuts the Foss off from the Ouse stopping water from passing back upstream. Flow from the Foss is pumped through the barrier into the Ouse.
- North Street: a series of flood gates and walls installed in 1992/3,
- Lower Ebor Street: concrete flood walls with valves to isolate sewage,
- Holgate Beck: Upstream tributaries of the beck were diverted to empty directly into the Ouse, and a pumping station was installed to pump flows into the Ouse,
- Lower Bootham: a 650m earth flood bank and 280m concrete flood wall,
- Acomb Landing: a reinforced retaining wall was added to existing embankments after the 1982 floods to protect York's drinking water abstraction at this point,
- Clifton Ings: modified natural flood-plain which can hold 2.3 million cubic metres of water - impounding within raised flood banks can lower the peak flood level in the city by almost six inches.
- Leeman Road: A flood bank was built in the early 1980's, following the 1978 floods, and raised in 1982, following further floods. The defences have now been upgraded again in a £4 million project that has included raising the banks further and adding a flood wall at Water End.

3.2.5 Further significant floods occurred in 2000, and 2012 in September, November and December. The September level equalled that reached in 1982. The defences performed successfully with no property flooding directly from the cities rivers within the defended areas, but approximately 50 – 60 properties in unprotected areas were affected. Several areas were affected from linked drainage systems which had compromised capacity and discharges due to high river levels.



3.2.6 All of the areas protected from the Rivers Ouse and Foss are susceptible to floodwater by-passing the defences, both through the sewerage system via combined sewage overflows working in reverse, and by surface water outfalls. To manage this, each protected area has a pumping station on the sewerage system, and penstocks to close off the flows from the river. These are closed as the river rises, and the stations are switched on, pumping flows forward to a point outside the protected area. These are owned and operated by YWS.

3.2.7 The protection of these areas is reliant on co-ordinated action by the Council, EA and YWS as the river rises.

3.2.8 The eastern boundary of the Council's area is formed by the River Derwent which drains the North York Moors. It is also a slow rising and falling river, and the village of Elvington is the only significant settlement in the City of York Council boundary which can be affected by this river. Works carried out in 2009 provide protection to a standard of 1 in 100 (1%). This includes a pumping station, operated by the Ouse and Derwent IDB, which pumps flows from the Elvington Beck catchment to the River Derwent at times of high level.

3.2.9 The urbanised lengths of Blue Beck, Burdyke and Holgate Beck, tributaries of the River Ouse, and Tang Hall Beck and Osbaldwick Beck, tributaries of the River Foss, are also main rivers. Holgate Beck and Burdyke have pumping stations, owned and operated by the EA, near their confluences with the River Ouse, which prevent the river flooding areas remote from the river in Holgate and Clifton.

### **Flood Risk from Ordinary Watercourses**

3.2.10 The majority of ordinary watercourses in the Council's area are in the management of four Internal Drainage Boards which have responsibility for a defined network of watercourses within their districts, all of which extend well beyond the CYC boundary into adjoining authority areas. These are:

- [Ainsty \(2008\) IDB](#) covering the west and south west of York, extending into the Harrogate Borough and Selby District Council areas, with the River Ouse as its eastern boundary. It includes Holgate Beck upstream of the length designated as main river.
- [Foss \(2008\) IDB](#) covering an area centred on the River Foss north of York extending into the East Riding of Yorkshire area. It includes Tang Hall and Osbaldwick Becks upstream of the lengths designated as main river, and also non-main river watercourses Westfield Beck and part of South Beck.
- [Kyle and Upper Ouse IDB](#) covering the north west of York extending into the Hambleton District Council area with the River Ouse as its western boundary. It includes Burdyke and Blue Beck upstream of the lengths designated as main river.

- [Ouse and Derwent IDB](#) covering an area south and east of York extending into the Selby District Council area with the River Ouse forming its western boundary and the River Derwent its eastern boundary. It includes non-main river watercourses Elvington Beck, Germany Beck and Tunnel Drain.

3.2.11 The Council is the land drainage authority for the areas not in IDB districts. Although the EA has powers to maintain the main rivers within this and IDB districts, its routine maintenance regime only includes the cleaning of trash screens at culvert inlets. Responsibility for any watercourse remains that of the riparian owners to ensure that flows are not obstructed. This remains largely the Council's responsibility as the majority owner of land through which these watercourses pass.

3.2.12 The risk of flooding from ordinary watercourses is not currently well understood. However, there is not considered to be any spare capacity for runoff from future development and individual catchment surface water management plans are required to increase understanding and inform future development.

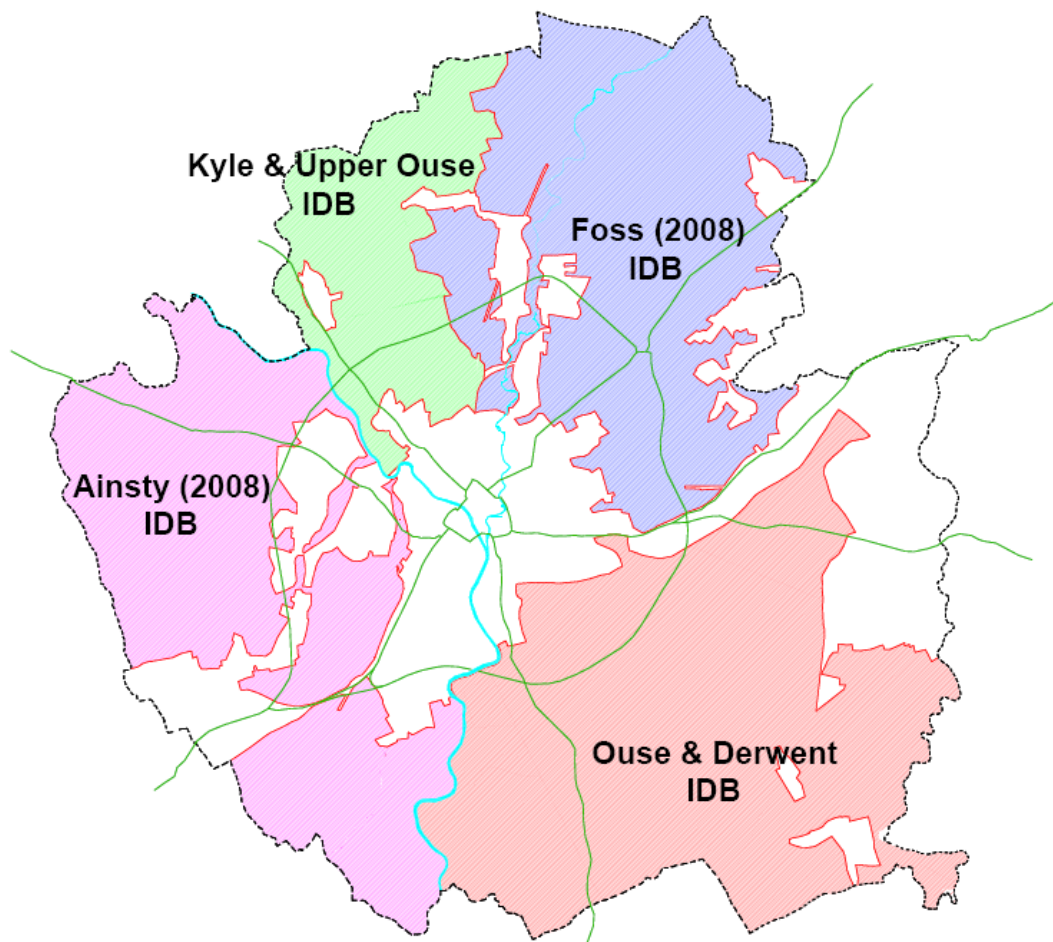


Figure 3.1: Internal Drainage Boards Districts Within York Boundary

### **3.3 Flood Risk from Local Sources**

3.3.1 Local flood risk is defined as flooding from ordinary watercourses, surface water and groundwater. The Council, as LLFA, is responsible for the management of flood risk from these sources.

3.3.2 The York [Preliminary Flood Risk Assessment](#) (PFRA) was the first assessment of this, undertaken in 2011 in response to the Flood Risk Regulations 2009. It is a high level screening exercise to compile information on 'nationally significant' local flood risk from past and predicted future floods using available information about historic flooding, and the Flood Map for Surface Water (FMfSW) mapping provided by the EA for potential future flooding from these sources. It concluded that York does not exceed the nationally defined flood risk threshold and therefore has no local flood risk area for further investigation under the regulations.

3.3.3 On the basis of past flooding data, the PFRA also concluded that no historical local flood events are considered to have had "significant harmful consequences" (following the definition laid down in the EU Floods Directive). Future events will be added to the existing database to support future PFRAs and this Strategy.

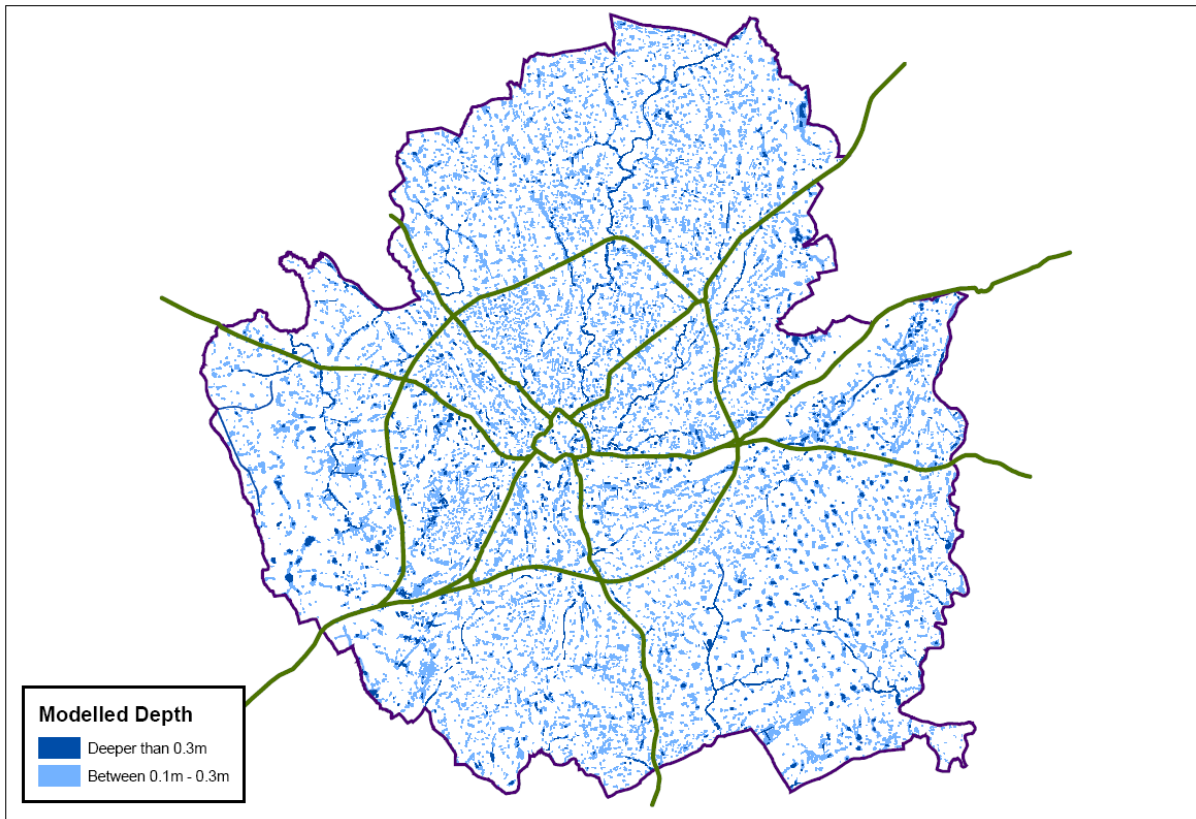
3.3.4 The PFRA also concluded that the FMfSW provides the best available overview of the future flood risk from surface water across York, and is considered to be the most appropriate source of information for this purpose.

#### **Flood risk from Surface Water**

3.3.5 Surface water flooding occurs when rainfall exceeds the capacity of piped systems or cannot soak into the ground. It typically occurs as a result of high intensity rainfall and can be aggravated by pipe or channel blockage.

3.3.6 Detailed knowledge of the effects of surface water flooding in York is limited. Such flooding is difficult to predict and record due to its very localised effects and usually brief duration. The effect of events that have been recorded, notably in the summer of 2007, 2012 and 2013, are of localised flooding at various locations, different on each occasion, across the city. This pattern is typical in the Council's area as a whole and is considered to be due to the flat topography which does not cause rapid runoff on a large scale.

3.3.7 The EA produced the Flood Map for Surface Water (FMfSW) to assist LLFAs in assessing surface water flood risk for their PFRAs. This shows modelled predicted flood effects of two events (1 in 30 annual chance and 1 in 200 annual chance) and two depth bandings (greater than 0.1m and greater than 0.3m). The mapping shows no areas of concentrated flood risk in any specific area.



**Figure 3.2: Flood Map for Surface Water 1 in 200 Year Event**

3.3.8 Using the FMfSW, the number of properties at risk of surface water flooding in the York area has been estimated by the EA. For a rainfall event with a 1 in 200 annual chance of occurring, 11,500 properties, dispersed throughout the area, are estimated to be at risk from flooding to a depth of 0.1m and 1,700, again dispersed throughout the area, are at a risk of flooding to a depth of 0.3m. It is extremely unlikely that this number of properties would be affected simultaneously as the rainfall that causes this type of flooding is usually very localised. Similarly, the likelihood of a 1 in 200 year storm occurring anywhere in the Council area is very limited. On the basis of observed events, it has been found that the FMfSW is a reliable indicator of surface water flood risk locations.

3.3.9 The Council's [Surface Water Management Plan](#) (SWMP) is the key evidence base document underpinning the Strategy. Analysing information from investigations at known flood locations, the EA mapping and site specific modelling, it established that there is a lack of knowledge of the location, extent and condition of surface water drainage infrastructure throughout the Council's area. It identified that minimal maintenance has resulted in major problems with blocked drains, compounded by the adverse effect of development on natural flow paths and the flatness of the Council's area, all of which increases local surface water flood risk. It also concluded that the areas that have been affected by surface water are unconnected with those suffering fluvial flooding and that, throughout the Council's area, there is not

considered to be a link between the two types of event. Surface water flooding in 2012 and 2013 further confirmed this conclusion.

3.3.10 The site specific modelling carried out for the SWMP has enabled the accuracy of the FMfSW to be checked. It is considered that, while it indicates potential locations of surface water flooding, the mapping may currently over-estimate the number of properties at risk. However, this will be reviewed as further editions of the mapping are published and understanding is improved. It is not currently proposed to carry out any further site specific modelling but as extreme rainfall events occur in the future the effects will be recorded and modelled if it is considered to be of benefit in understanding the cause.

### **Flood Risk from Sewers**

3.3.11 Rainwater falling on impermeable surfaces in developed areas drains into either surface water or combined sewers (which convey both surface water and sewage). Until approximately eighty years ago the use of combined sewers was standard practice, with excess flow in times of storm discharged through combined sewer overflows to an adjacent watercourse. A large part of the central core of the city of York is drained in this way. Post 1930s development is largely drained by separate sewerage systems with surface water sewers ultimately discharging to local watercourses. Flooding can result when the sewers are overwhelmed by intense rainfall and this can be aggravated by inadequate capacity or blockage.

3.3.12 Yorkshire Water Services (YWS) is the water and sewerage company serving the York area. Overall the sewerage system has remained largely unchanged over the years, but at some locations schemes have been implemented to address local flooding issues. An example of this is the storage tank at Union Terrace where a number of properties have experienced flooding from the combined sewer network during times of extreme rainfall. A 15 metre diameter storage tank has been built between 83 and 93 Union Terrace to store flows which is pumped back into the sewerage system when there is sufficient capacity.

3.3.13 Reduced hydraulic capacity from siltation is a particular problem in York due to the flatness of the area and the difficulty in designing sewerage systems that are self cleansing i.e. provides sewer flow velocities sufficient to pick up and disperse solids. This is also the case with piped and open systems in other ownerships and has been highlighted in the SWMP.

### **Flood Risk from Groundwater**

3.3.14 Groundwater flooding occurs as a result of water rising up from the underlying aquifer or from water flowing from abnormal springs. This tends to occur after long periods of sustained high rainfall, and the areas at most risk are often low-lying where the water table is more likely to be at shallow depth. Groundwater flooding is

known to occur in areas underlain by major aquifers, although increasingly it is also being associated with more localised floodplain sands and gravels.

3.3.15 The EA has produced mapping of Areas Susceptible to Groundwater Flooding which suggests that there may be a potential for groundwater flooding in the south of the Council's area, as noted in the PFRA. However, there is no experience of flooding from this source and it is considered to be a very low risk.

3.3.16 Due to the predominance of clay across the area, drainage of land is often very poor, and there are many areas where standing water is evident after prolonged rainfall. This is not groundwater flooding, but a characteristic of the geology of the area where water cannot soak into the ground from above.

## 4. Investigation of Flooding Incidents

### 4.1 Overview

4.1.1 CYC as the LLFA has a responsibility to record and report flood incidents as detailed within Section 19 of the FWMA:

Section 19

**(1)** On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate:

(a) which risk management authorities have relevant flood risk management functions, and

(b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.

**(2)** Where an authority carries out an investigation under subsection (1) it must:

(a) publish the results of its investigation, and

(b) notify any relevant risk management authorities.

### 4.2 Section 19 Investigation Triggers

4.2.1 The decision as to whether a flood event is significant and merits a formal investigation or not is at the discretion of the LLFA. Following reports of flooding, an initial response will highlight the issues and where the following two criteria are met a formal investigation will be initiated under these powers:

- The incident resulted in internal flooding of the habitable area of a property or of a business premises
- There is ambiguity surrounding the source or responsibility of the flood.

The investigation will bring all relevant information together to identify those authorities with relevant flood risk management functions and what actions they have taken and propose to take.

The report will provide the details of the conditions leading to the flooding, the impacts of the flooding, and the roles and responsibilities of all operating authorities in the area. Recommendations and conclusions will be given in full cooperation with all relevant risk management authorities and other partners.

4.2.2 Following approval by the Council the report on the investigation will be published on our website.

The Section 19 report does not compel all involved to take action and is no guarantee that similar issues will not occur again in future. All recommendations will be subject to funding and priority consideration by each responsible authority. It is recommended that the reports are considered by the North Yorkshire Flood Risk Partnership to enable recommendations to be included in formal funding programmes as necessary.

4.2.3 Two previous S.19 reports have been produced and published at:

- Badger Hill / Hull Road
- Leeman Road

### **4.3 Informal Investigations**

4.3.1 Many drainage problems and minor flood events will be of a localised nature or they may be of a recurring nature from a well known source of flood risk. In such cases the Section 19 report trigger may not be relevant and a formal report may not be initiated.

4.3.2 The day to day work of the CYC Flood Risk Management team and the flood risk management functions of all Risk Management Authorities will be called upon in such situations to assess the impacts of an event and to ensure the issues are understood, prioritised and acted upon as necessary.



## **5. Legislative Framework and Context of the Strategy**

### **5.1 Introduction**

5.1.1 This section provides a guide to the legislative context of the strategy and how it fits in the Council's corporate strategy.

### **The Legal and Regulatory Framework**

#### **5.2 The Pitt Flooding Review (June 2008)**

5.2.1 In June 2008, Sir Michael Pitt published his report "Learning Lessons from the 2007 Floods", which called for urgent and fundamental changes in the way the country is adapting to the increased risk of flooding. The report includes 92 recommendations, of which 21 are specifically designated to local authorities.

5.2.2 The report identified that there were significant gaps in the powers held by various bodies in trying to reduce and respond to the risk of flooding. The Government response to the Pitt Review was the [Flood and Water Management Act 2010](#) which is the principal legislation overseeing flood risk management in England.

#### **5.3 The Flood and Water Management Act 2010**

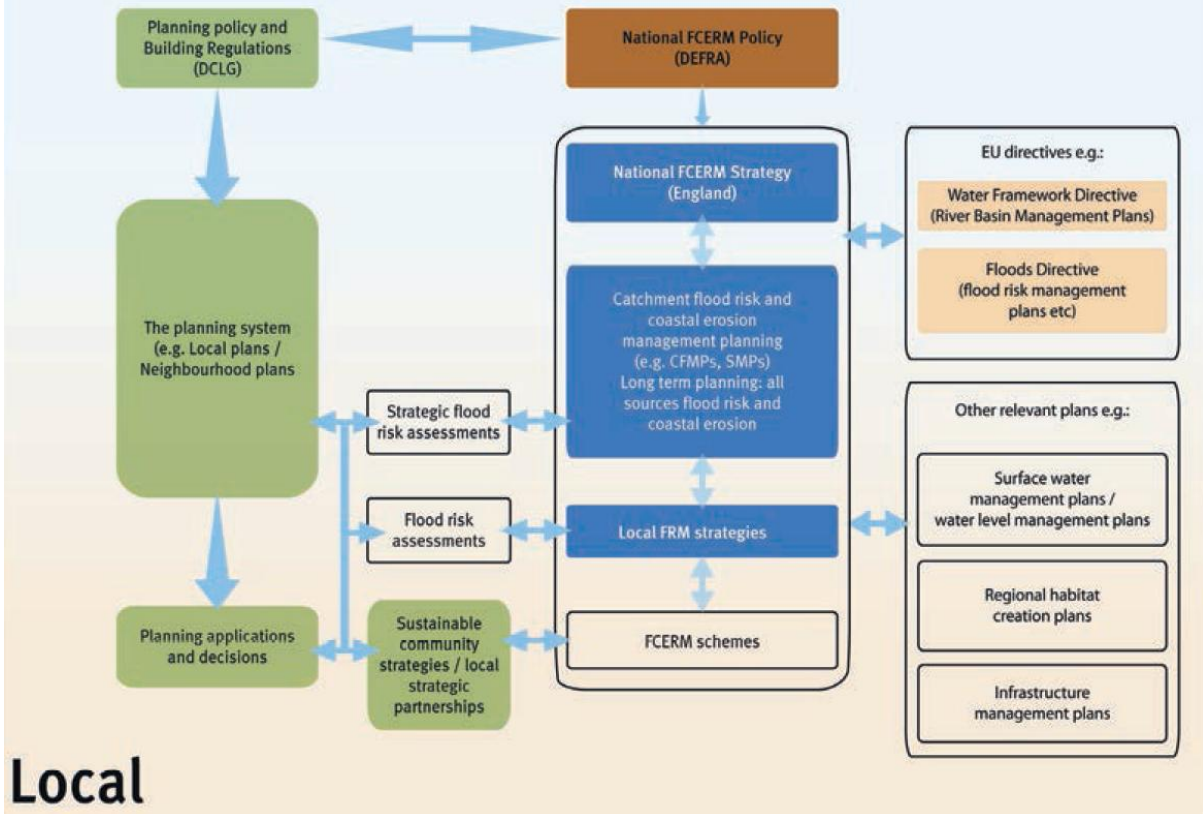
5.3.1 The Flood and Water Management Act 2010 (FWMA) requires flood risk to be managed by a National Strategy for England and Wales, prepared by the EA, with Local Strategies prepared by LLFAs.

5.3.2 LLFAs have significant new roles and responsibilities to manage and reduce flood risk in a co-ordinated way by:

- Defining who is responsible for managing the various sources of flood risk.
- Enabling effective partnerships to be formed.
- Encouraging more sustainable forms of drainage in new development.

5.3.3 The Relationship between the various laws, directives, regulations, assessments and plans is shown in the following diagram.

# National



# Local

## 5.4 The National Flood Risk Management Strategy for England (2011)

5.4.1 The FWMA requires the EA to “develop, maintain, apply and monitor a strategy for flood and coastal erosion risk management in England”. Accordingly the Agency has published the [National Flood and Coastal Erosion Risk Management Strategy for England 2011](#) (The National Strategy).

5.4.2 The National Strategy sets out strategic aims and objectives for managing flood and coastal erosion risks and the measures proposed to achieve them. It states that Government will work with individuals, communities and organisations to reduce the threat of flooding and coastal erosion by:

- Understanding the risks of flooding and coastal erosion, working together to put in place long-term plans to manage these risks and making sure that other plans take account of them
- Avoiding inappropriate development in areas of flood and coastal erosion risk and being careful to manage land elsewhere to avoid increasing risks

- Building, maintaining and improving flood and coastal erosion management infrastructure and systems to reduce the likelihood of harm to people and damage to the economy, environment and society
- Increasing public awareness of the risk that remains and engaging with people at risk to make their property more resilient
- Improving the detection, forecasting and issue of warnings of flooding, planning for and co-ordinating a rapid response to flood emergencies and promoting faster recovery from flooding

5.4.3 The FWMA requires Local Strategies to be consistent with the National Strategy. Principally, this refers to consistency with the overall aims and objectives, and in particular with the six “guiding principles” :

- Community focus and partnership working
- A catchment cell approach working with neighbouring authorities
- Sustainability, taking into account potential future risks and remaining adaptable to climate change
- Proportionate, risk-based approaches which allot resources to where they will be most effective
- Helping deliver broader benefits by working with natural processes where possible and seeking to provide environmental benefit.
- Beneficiaries should be encouraged to invest in local risk management

5.4.4 The FWMA also requires risk management authorities (local authorities, IDBs, water and sewerage companies and highway authorities) to act consistently with the National Strategy in carrying out their flood and coastal risk management functions.

## **5.5 Local Flood Risk Management Strategies**

5.5.1 The FWMA designates CYC as the Lead Local Flood Authority (LLFA) for its area. This gives it duties and powers to lead the co-ordination of flood risk management as well as the specific role of managing flood risk from local sources, which are identified as:

- Surface water
- Ordinary watercourses
- Groundwater

5.5.2 The EA is responsible for managing the risk of flooding from the main rivers and reservoirs. YW owns and manages the public sewer network and is responsible

for managing its flood risk. Ainsty (2008), Foss (2008), Kyle and Upper Ouse, and Ouse and Derwent IDBs are responsible for managing flood risk within their defined districts. Further information is in Sections 3 and 6.

5.5.3 The FWMA places a duty on all risk management authorities to act in accordance with the relevant local flood risk management strategy when carrying out their flood risk management functions. These functions are subject to scrutiny in accordance with the LLFA's democratic processes.

5.5.4 The FWMA gives CYC new responsibilities as a LLFA:

- Maintain a register of drainage and flood assets
- Investigate flooding incidents
- Prepare a local flood risk management strategy
- Establish an approval body for sustainable drainage systems (SuDS)
- Power to designate flood risk management structures
- Power to undertake works
- Consenting to works on ordinary watercourses

5.5.5 The powers are permissive and can be used at the discretion of the LLFA.

## **5.6 The EU Floods Directive and the Flood Risk Regulations 2009**

5.6.1 The Flood Risk Regulations 2009 came into force on 10 December 2009, transposing the EU Floods Directive into UK law. They require the EA to assess, map and manage flood risk from the sea, main rivers and reservoirs, and require LLFAs to do so for other flood risks. The key provisions of the regulations are:

- to give responsibility to the EA to prepare Directive deliverables – preliminary flood risk assessments, maps and plans - for floods from the sea, main river and reservoirs
- to give responsibility to lead local flood authorities (unitary and county councils) to do the same for all other forms of flooding (excluding sewer flooding which is not caused by precipitation)
- preliminary flood risk assessments (PFRAs) identifying areas of significant flood risk to be prepared by the Environment Agency and LLFAs by December 2011.
- flood hazard and risk maps to be prepared by 22 December 2013 for identified areas of significant flood risk

- flood risk management plans to be prepared by 22 December 2015 for the same areas
- all assessments, maps and plans to be reviewed and updated every six years

5.6.2 The PFRA is a high level screening exercise bringing together information on past and future significant local flood risk based on readily available information, it identifies significant flood risk areas. The Council's [PFRA](#) concludes that York does not exceed the national local flood risk threshold and therefore no further action is required in the current cycle.

5.6.3 The EA are preparing Flood Risk Management Plans for main rivers and the sea as part of the requirements of the Flood Risk Regulations. The Council is cooperating with the EA in the preparation of plans for the Humber River Basin District to ensure flood risks from local sources are included in the plans. Shared action plans will be developed and early actions from the Flood Risk Management Plan have been included in the Strategic Action Plan in Section 2 of this report. The consultation phase of the Flood Risk Management Plan will align with the consultation phase of this plan, the finalised plans will be further aligned before publication in 2015.

## **5.7 National Planning Policy Framework**

5.7.1 The [National Planning Policy Framework](#) (NPPF) was introduced in 2012 by the government to make the planning system less complex and more accessible. It has simplified the number of policy pages about planning, but requirements relating to flood risk remain virtually unchanged from the earlier Planning Policy Statement 25. Further detail on flood risk management requirement in planning policy and delivery can be found in Section 7: Development Management.

## **5.8 Emergency Flood Planning**

5.8.1 Emergency planning and incident management are vital to reduce the impact of flooding on people and property. Appropriate and timely action can minimise its consequences and can have a positive effect on the wellbeing of individuals and the resilience of communities.

5.8.2 The Civil Contingencies Act 2004 is the main piece of legislation governing emergency planning which includes flooding. It formalises duties on local authorities, the emergency services and other organisations.

5.8.3 The Council River Flood Emergency Plan provides a co-ordinated multi-agency response to river flooding with the aim of minimising its impact on the public and key infrastructure. It is prepared, maintained and updated by the Council's Emergency Planning Unit and is updated annually.

5.8.4 This plan does not cover surface water flooding, as it is not possible to plan action due to the unpredictable nature of such events.

## **Land Drainage and Water Quality**

### **5.9 Land Drainage Law and Regulation**

5.9.1 The Land Drainage Acts 1991 and 1994 give CYC permissive powers to maintain the flow in ordinary watercourses within the City boundary and to ensure they are free from obstruction. The Council can require landowners to carry out work to remove obstructions and maintain flow. It can also carry out works on ordinary watercourses and undertake works on private land to prevent flooding. The IDB has similar powers within its districts in York. The EA also has similar powers in respect of ordinary watercourses and main rivers.

5.9.2 Although CYC and the EA have permissive powers relating to the maintenance of flow in watercourses they are only legally responsible for the physical maintenance of the watercourses where they themselves are the landowner.

### **5.10 Riparian Ownership**

5.10.1 Owners of land or buildings next to a watercourse, or with a watercourse running through their land or buildings are defined as riparian owners under common law. The EA's publication "[Living on the Edge](#)" provides guidance to riparian owners' responsibilities and rights. In summary, these responsibilities relate to the upkeep of watercourses and allowing water to flow unhindered and free from pollution.

5.10.2 RMA's will seek to ensure riparian owners carry out appropriate works to ensure they deliver their responsibilities, however, there will be times where this is not possible and in such occasions permissive powers may be used where risks justify action. This will be addressed on an individual case by case basis.

### **5.11 The Water Framework Directive 2000**

5.11.1 The EU Water Framework Directive (WFD) came into effect in 2000 and was transposed into law in England and Wales by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. Member States must aim to reach good chemical and ecological status in inland and coastal waters by 2015.

5.11.2 The Water Framework Directive establishes new and better ways of protecting and improving rivers, lakes, groundwater, transitional (where freshwater and sea water mix) and coastal waters. It is designed to:

- prevent deterioration in the classification status of aquatic ecosystems, protect them and improve the ecological condition of waters;
- achieve at least good status for all waters. Where this is not possible, good status should be achieved by 2021 or 2027;

- promote sustainable use of water as a natural resource;
- conserve habitats and species that depend directly on water;
- progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
- progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and
- contribute to mitigating the effects of floods and droughts.

5.11.3 To deliver this the EA, as the responsible authority, has embarked on River Basin Management planning to develop new and better ways of protecting and improving the water environment. York is located in the Humber River catchment and is part of the Swale, Ure, Nidd and Upper Ouse sub-catchment with the Yorkshire Derwent sub-catchment forming its eastern boundary.

5.11.4 It is important that measures to manage local flood risk do not cause deterioration of water bodies and the activities of all of the RMAs can contribute to achieving WFD targets and objectives. Opportunities for this should be considered as an integral part of any flood risk management activities, and examples of these are:

- Consenting works on watercourses
- Maintaining flow in watercourses
- Promoting the use of SuDS with developers and the highway authority
- Approving, and when required adopting, SuDS which comply with agreed standards of design and construction
- Planning policies relating to environmental issues
- Exclusion of foul sewage from watercourses and surface water drains and sewers

## **5.12 Flood Risk Management Plans and Assessments**

5.12.1 The Strategy is the definitive document for managing flood risk in York, bringing together all available plans and assessments to improve understanding and enable recommendations to be made for addressing the key flood risk issues. This table summarises the documents relating to the York area, outlining their purpose and recommendations.

Title	Body	Date	Context	Purpose	Key Recommendations, Conclusions and Outputs
Strategic Flood Risk Assessment 2 <sup>nd</sup> revision	CYC	2013	Fluvial main river flood risk	Informs spatial and planning policy on flood risk in accordance with NPPF	<p>Planning advice on flood risk management</p> <p>Guidance on application of sequential and exception tests and development management</p>
Preliminary Flood Risk Assessment	CYC	2011	Local flood risk	<p>Prepared in accordance with the Flood Risk Regulations 2009.</p> <p>High level screening exercise compiling information on significant local flood risk from past and future floods.</p>	<p>Does not identify a significant local flood risk area for the purpose of taking further action under the Flood Risk Regulations</p> <p>Future local flood risk is estimated to be low on basis of recorded incidents and modelling</p>
Surface Water Management Plan	CYC	2012	Local flood risk	Increased understanding of local flood risk from surface water and ordinary watercourses	Confirms that local flood risk is low. Recommends that backlog of maintenance is addressed to optimise performance of existing infrastructure and that risk is managed through planning development control.
Humber River Basin Management Plan	EA	2009	Pressures facing the Water Environment in the Humber River Basin District	Prepared under the Water Framework Directive the plan gives targets and key actions for the improvement of surface water bodies relating to water quality and physical modification	<p>York is within the Swale, Ure, Nidd and Upper Ouse catchment with the Yorkshire Derwent catchment on its eastern side.</p> <p>Water bodies in the York area are generally moderate ecological quality and fair chemical quality, with the predicted qualities in 2015 to be moderate and good respectively.</p>
Ouse Catchment Flood Management Plan	EA	2010	All sources of flood risk in the York policy unit	<p>Helps to understand current and future flood risk</p> <p>Provides a high level, long term plan for sustainable flood risk management</p> <p>Identifies flood risk management policies to assist key decision makers in the catchment</p>	<p>Policy Option 5 has been selected for this sub-area - to reduce existing flood risk. It recommends multiple approaches to manage flooding including:</p> <ul style="list-style-type: none"> <li>-Partnership working</li> <li>-Asset management</li> <li>-Surface water flooding reduction</li> <li>-Review Holgate and Burdyke pumping stations</li> </ul>
Derwent Catchment Flood Management Plan	EA	2010	All sources of flood risk in the Lower Derwent policy unit		Policy Option 3 has been selected for this sub-area - to continue with existing or alternate actions to manage flood risk at the current level (inc Climate Change)



## 5.13 York Council Plan

5.13.1 The Council has set out its programme for the years 2011 to 2015. The targets it is committed to meet are in five priority areas:

- Create jobs and grow the economy.
- Get York moving.
- Build strong communities.
- Protect vulnerable people.
- Protect the environment

5.13.2 The Strategy will be delivered within the context of the corporate plan contributing, where possible, to the achievement of its outcomes in the following ways:

- Create jobs and grow the economy – managing the impact of flooding and guide development away from flood risk areas.
- Get York moving – helps to protect critical infrastructure from flooding.
- Protect vulnerable people – identifying flood risk areas and potential protection.
- Protect the environment – ensure that development takes flood risk into account.

5.13.3 The Strategy will be updated in line with revised corporate plans. Flood risk management interventions are well placed to facilitate, safeguard and enhance many features of the current plan and are likely to be key contributors to the aspirations of future Council plans.

## **6. Risk Management Authorities and their Functions**

### **6.1 Partnership Working and the Functions of Risk Management Authorities**

6.1.1 The FWMA defines certain organisations as risk management authorities (RMAs) to work with the LLFA in managing flood risk. In York these are

- The LLFA (City of York Council)
- The Highways Authority (City of York Council)
- The Highways Agency (A64)
- The Environment Agency
- Yorkshire Water Services as sewerage undertaker
- Ainsty (2008), Foss (2008), Kyle and Upper Ouse, and Ouse and Derwent Internal Drainage Boards as bodies responsible for land drainage in their respective districts
- Adjacent LLFAs – North Yorkshire County Council (NYCC) and East Riding of Yorkshire Council (ERYC)

6.1.2 As well as having specific responsibilities and functions relating to flooding, the RMAs have shared duties and powers under the Act, which are:

- A duty to act consistently with the Local Flood Risk Management Strategy when carrying out their flood risk management functions
- A duty to work in partnership to manage flood risk in the York area and to co-ordinate flood risk management activities
- A duty to share information and data relating to their flood risk management activities
- A duty to be subject to the scrutiny of the LLFA's democratic processes in respect of their flood risk functions
- The power to delegate flood risk management functions to other RMAs, subject to mutual agreement

### **6.2 City of York Council as Lead Local Flood Authority**

6.2.1 CYC has an important role as LLFA in delivering local flood risk management in its area and in co-ordinating the activities of the relevant agencies. As well as this general responsibility, the LLFA has specific management functions relating to local flood risk. This is defined as flooding from surface water, groundwater and ordinary watercourses.

6.2.2 Risk management functions are expressed as duties or permissive powers. A duty is a legal obligation, and the use of a power is discretionary.

6.2.3 CYC's risk management duties under the FWMA are:

- To develop, maintain and apply a Local Flood Risk Management Strategy
- To develop and maintain information on flooding from surface water, ordinary watercourses and groundwater
- To investigate incidents of flooding in its area where appropriate and necessary and to publish reports
- To maintain a register of structures and features which have a significant effect on flood risk
- To establish and operate an approval body for sustainable drainage systems (SuDS) serving new development of more than one property

6.2.4 CYC's permissive powers are:

- To designate any structure or feature that affects flooding
- To decide whether third party works on ordinary watercourses can take place and, where appropriate, grant consent to the works
- To carry out works to manage flood risk from surface water and groundwater

6.2.5 In addition to this CYC has powers under the Land Drainage Act 1991 to:

- Maintain and improve ordinary watercourses and build new works
- Serve notice on any person or body requiring them to carry out necessary works to maintain flow in ordinary watercourses

6.2.6 Although CYC has powers to work in Ordinary watercourses it is only responsible for the maintenance of watercourses where it is the riparian owner.

### **6.3 Investigation of Flooding Incidents**

6.3.1 As LLFA, the Council has a responsibility to investigate any significant flood event and publish a report. This is to determine:

- which risk management authorities have relevant flood risk management functions, and
- whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.

6.3.2 The decision as to whether a flood event is significant or not is at the discretion of the LLFA. The Council approach to flood risk management investigations is detail in Section 4: Incident Review Protocol.

#### **6.4 Maintaining a Register of Assets**

6.4.1 The register of assets will contain details of structures and features which have a significant impact on flood risk. This will include information on its ownership and state of repair. The register will include assets which are primary defences against flooding such as embankments and flood walls, and features such as watercourses and culverts which are critical to the conveyance of water. This register will be available for public inspection.

6.4.2 The purpose of the register is to:

- Raise awareness of the important flood risk structures and features
- Help identify suitable maintenance regimes
- Inform investigations into flooding incidents

#### **6.5 Approval Body for Sustainable Drainage Systems (SuDS)**

6.5.1 Following commencement of Schedule 3 of the Flood & Water Management Act, the Council will become a SuDS approval body (SAB) with a responsibility for approving, and adopting, new surface water infrastructure. No development can be lawfully commenced until the requirements and standards of the SAB are met. The emphasis will be on more natural forms of drainage with surface water managed within development sites. No date for commencement is currently known and the process has been much delayed. The Council is working with other RMA's to develop guidance and protocols in advance of commencement and a separate section on SuDS/SAB will be developed for the Strategy when available.

6.5.2 For several years, CYC has taken a proactive approach to SuDS in accordance with guidance in its SFRA and endeavours to ensure that developers' drainage proposals are sustainable and achievable. It will build on this to develop its role as the SAB.

#### **6.6 The Council as Highway Authority**

6.6.1 CYC has a duty to maintain the public highway network, the only exception being the A64 which is a trunk road. It has a responsibility under the Highways Act 1980 to drain the highway of surface water and maintain highway drainage systems. The Highway Authority may undertake works on the highway or adjoining the land for the purpose of draining the highway, or to prevent surface water flowing on to it and causing flooding.

6.6.2 Highway gully locations are recorded on the CYC Highway Management System, but there is often no record of the drainage system serving them or details of connectivity. The YWS statutory sewer records provide some guidance where public sewers may serve the gullies, but there is no information in many areas of the City regarding the location of any highway drainage network. The SWMP established that a large number of major arterial roads around York have no records of drainage infrastructure and this data needs to be improved to enable effective maintenance to be carried out.

## **6.7 The Council as Planning Authority**

6.7.1 When approved, the City of York Council Local Plan will set out:

- At a strategic level what is going to happen where, and how it is going to happen
- The preferred and acceptable uses for land in the Council's area
- Criteria and policies for determining planning applications

6.7.2 The role of the planning authority in flood risk management is:

- To avoid inappropriate development in areas at risk of flooding
- To mitigate the impacts of surface water runoff from new development

6.7.3 CYC takes a risk based approach when determining planning applications in accordance with the National Planning Policy Framework. This assesses both the vulnerability to flooding and the risk of causing flooding. The SFRA contains guidelines for developers and planners.

## **6.8 The Council as Riparian Owner**

6.8.1 As a landowner, CYC is the riparian owner of main river and ordinary watercourses passing through its land. Its duties as a riparian owner are:

- To let water flow over its land without any obstruction, pollution or diversion which would affect the rights of others
- To accept flood flows through its land, even if these are caused by inadequate capacity downstream
- To maintain the bed and banks of the watercourse free of obstructions which may affect the flow of water

## **6.9 The Environment Agency**

6.9.1 The Environment Agency (EA) and the Department of the Environment and Rural Affairs (DEFRA) have jointly developed and implemented a National Flood and Coastal Erosion Risk Management Strategy for England. The EA has a

strategic overview role for all sources of flooding as well as an operational role in managing flood risk from main rivers and reservoirs.

6.9.2 The National Strategy outlines the EA's strategic functions as:

- Ensuring that Catchment Flood Management Plans (CFMPs) are in place and are monitored to assess progress. These set out high level and current and future risk management measures across catchments
- Publishing and regularly updating its programme for implementing new risk management schemes and maintaining existing assets
- Supporting risk management authorities' understanding of local flood risk by commissioning studies and sharing information and data
- Supporting the development of local plans and ensuring their consistency with strategic plans
- Managing and supporting Regional Flood and Coastal Committees and allocating funding

## **6.10 The Environment Agency's Operational Role**

6.10.1 The EA's operational functions are:

- Risk based management of flooding from main rivers – the Ouse, Foss and Derwent together with lengths of Burdyke, Blue Beck, Holgate Beck, Tang Hall Beck and Osbaldwick Beck. This includes permissive powers to carry out works including flood defences
- Regulation of works in main rivers through the consenting process
- Regulation of reservoirs with a capacity exceeding 25,000m<sup>3</sup>
- Emergency planning, working with the Met Office to provide forecasts and warnings of flooding from main rivers
- The maintenance and operational management of main river assets including flood defences throughout the Ouse, Derwent and Foss catchments in the city through the management of critical infrastructure such as raised flood defence walls, banks and pumping stations.
- Statutory consultee to the development planning process
- The power to serve notice on any person or body requiring them to carry out necessary works to maintain the flow in main rivers.

## **6.11 Yorkshire Water**

6.11.1 Yorkshire Water is one of ten water companies responsible for water supply and disposal in England and Wales. Their activities are regulated by OFWAT through the Water Industry Acts 1991 and 1999, and the Water Act 2003 to ensure that consumers' interests are protected. Their flood risk management responsibilities relate to their operations as sewerage undertakers, reservoir owners and providers of infrastructure to new development.

## **6.12 Yorkshire Water Sewerage Services and their Flood Risk Management Functions**

6.12.1 Most rainwater falling onto properties and roads drains into the public sewer system, which in York is owned by Yorkshire Water Services. It enters either:

- The combined sewer networks and on to sewage treatment works, or
- Surface water sewer networks and discharged to rivers and streams

As the sewerage undertaker for York, YWS are the risk management authority under the FWMA, responsible for managing the risk of flooding due to storm water from its sewers.

6.12.2 YWS have the following risk management functions in relation to its sewerage services:

- To operate, maintain and upgrade the sewer system to agreed standards advised by Ofwat and DEFRA
- To assess the vulnerability of assets to flooding and prioritise investment
- To maintain a register of properties affected by, or at risk of flooding, known as the DG5 Register
- To enhance the sewer system in accordance with asset management plans approved by Ofwat
- To respond to flooding from sewers
- To co-operate with the LLFA in investigating significant flooding incidents
- To adopt private sewers
- To be subject to scrutiny from LLFAs as part of their democratic process
- To act consistently with the national flood risk management strategy and have regard to the local strategy

6.12.3 YWS have an important role to play in the drainage of new development. These will usually drain, with discharge rates controlled, to separate surface water

sewers either constructed or adopted by YWS in accordance with powers under the Water Industry Act 1991.

6.12.4 The government is expected to introduce new requirements for managing surface water from new development with the creation of the SuDS approval Bodies and YWS will be a statutory consultee in the approval process.

### **6.13 Internal Drainage Boards**

6.13.1 Internal Drainage Boards (IDBs) manage land drainage and flood risk in their defined districts. They have a duty to exercise general supervision over all matters relating to the drainage of land, and their powers are set out in their byelaws which are approved by Defra.

6.13.2 Membership and financial matters are covered by Land Drainage Act 1991. They are funded by landowners as direct ratepayers and local authorities who pay a special levy in respect of non-agricultural land.

### **6.14 Internal Drainage Boards and their Flood Risk Management functions**

6.14.1 Internal Drainage Board functions include the supervision of land drainage and flood defence works on ordinary watercourses or other flood sources as requested by local authorities or the Environment Agency.

6.14.2 Each IDB has permissive powers to undertake work to provide water level management within their Internal Drainage District (IDD), undertaking works to reduce flood risk to people and property and manage water levels for local needs. Much of their work involves the maintenance of rivers, drainage channels, outfalls and pumping stations, facilitating drainage of new developments and advising on planning applications. They also have statutory duties with regard to the environment and recreation when exercising their permissive powers.

6.14.3 There are four IDBs which overlap into the CYC area, their boundaries can be seen in figure 3.1:

- Ainsty (2008) Internal Drainage Board
- Foss (2008) Internal Drainage Board
- Kyle and Upper Ouse Internal Drainage Board
- Ouse and Derwent Internal Drainage Board

### **6.15 Adjacent LLFAs**

6.15.1 The two adjacent LLFAs, North Yorkshire County Council (NYCC) and East Riding of Yorkshire Council (ERYC), have the same duties and responsibilities as the Council.



6.15.2 With the River Derwent forming the boundary between ourselves and ERYC, we work closely with themselves and the EA to ensure the effective management of this watercourse. The development of a rain gauge network in the city will be carried out in a way in which we can share information with the wider ERYC network to allow a wider overview of rainfall events to benchmark our flood risk management work.

6.15.3 Our links, partnerships and joint working with NYCC is fundamental to an effective delivery of our Flood Risk Management service. Both authorities and other RMAs need to understand the impact of upstream management practices on communities downstream. This is essential not just for York with NYCC or EA activities on the River Swale, Ure or Nidd catchments, but also for the Selby DC area downstream of York.

6.15.4 These relationships are strong and we share views and approaches to strategic flood risk management. Our Local Flood Risk Management Strategies have been aligned and will be monitored through the North Yorkshire Flood Risk Partnership.

## **6.16 Yorkshire Regional Flood and Coastal Committee**

6.16.1 The Yorkshire RFCC comprises appointed members from the 14 Lead Local Flood Authorities in the Yorkshire area with 5 independent members from the wider industry or academia. The committee has three main purposes:

- to ensure there are coherent plans for identifying, communicating and managing flood and coastal erosion risks across catchments and shorelines
- to encourage efficient, targeted and risk-based investment in flood and coastal erosion risk management that represents value for money and benefits local communities
- to provide a link between the Environment Agency, LLFAs, other risk management authorities, and other relevant bodies to build understanding of flood and coastal erosion risks in its area

## **6.17 North Yorkshire Flood Risk Partnership**

6.17.1 The Yorkshire RFCC area represents a wide range of geographic, social and environmental challenges, similarly the type and extent of flood risks across the area change significantly. Four flood risk partnerships have been set up based on the sub-regional pattern. CYC sits on the North Yorkshire Flood Risk Partnership with North Yorkshire County Council, Internal Drainage Boards, Yorkshire Water Services and the Environment Agency.

6.17.2 The two LLFA's alternate the chairing of the meeting and all RMA's contribute to the make up and content of the meetings. One of the key outcomes from the meeting is a locally prioritised programme of flood risk management works which are used to influence and develop the regional programme developed by the RFCC.

## 7. Development Management

### 7.1 National Planning Policy Framework

7.1.1 The [National Planning Policy Framework](#) (NPPF) was introduced in 2012 by the government to make the planning system less complex and more accessible. It has simplified the number of policy pages about planning, but requirements relating to flood risk remain virtually unchanged from the earlier Planning Policy Statement 25. Further detail on flood risk management requirement in planning policy and delivery can be found in Section 7: Development Management.

7.1.2 The York [Strategic Flood Risk Assessment](#) provides more detailed information on the main rivers and associated flood risk. It supports the management of flood risk in future development and was produced in response to the NPPF which is current Government policy on planning for flood risk. It assesses the different levels of fluvial flood risk in the York area and maps these to assist with statutory land use planning.

7.1.3 The NPPF policy on flood risk states that:

“Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. Local Plans should be supported by Strategic Flood Risk Assessment and develop policies to manage flood risk from all sources, taking account of advice from the Environment Agency and other relevant flood risk management bodies, such as lead local flood authorities and internal drainage boards. Local Plans should apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change, by:

- applying the Sequential Test;
- if necessary, applying the Exception Test;
- safeguarding land from development that is required for current and future flood management;
- using opportunities offered by new development to reduce the causes and impacts of flooding; and
- where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to facilitate the relocation of development, including housing, to more sustainable locations”.

7.1.4 The government requires that the NPPF is taken into account in the preparation of local plans and is a material consideration in planning decisions. In

positive approach that reflects the presumption in favour of sustainable development in accordance with this, when considering development proposals, CYC will take full consideration of the SFRA requirements.

## **7.2 Local Plan (currently under development)**

7.2.1 The Local Plan is the development plan for CYC drawn up in accordance with Section 20 of the Planning and Compulsory Purchase Act 2004 (as amended) and the NPPF. It addresses the spatial implications of economic, social and environmental change and set out the opportunities for development and clear policies on what will or will not be permitted and where.

7.2.2 Much of the evidence base was built up during the previous Local Development Framework (LDF) process, and comprehensive consultation has been undertaken to progress the Plan. However, there has also been the opportunity to revisit certain policy areas to reflect the NPPF. This includes a revised approach to delivering more sustainable economic growth, prosperity and housing at a local level. Whilst the previous Core Strategy followed a more cautious approach to housing growth and identifying land, the new Local Plan for York has been based on the city's ambitious economic, housing growth and social and environmental sustainability agendas.

7.2.3 The Sustainability Appraisal carried out for the Local Plan meets the requirements of the European Directive on strategic environmental assessment. Section 19 of the draft preferred options document covers flood risk management.

7.2.4 Two proposed policies detail with flood risk and drainage:

- **FR1 Flood Risk**

Underpins the requirement for new developments to assess and understand flood risk from all sources and ensure the development is delivered in a way that minimises the risks to the end users and all neighbouring developments. The usage of site specific Flood Risk assessments are key in achieving this.

- **FR2 Sustainable Drainage**

Our Surface Water Management Plan has concluded that the network of rivers, becks, drains and sewers in the City should be considered as 'at capacity' for the purposes of development management. We therefore use the same approaches to advise on all relevant planning applications, as evidenced by our Strategic Flood Risk Assessment and the wording will be used in FR2:

'Sufficient attenuation and long term storage should be provided to accommodate at least a 1 in 30 year storm. Any design should also ensure that storm water resulting from a 1 in 100 year event, plus 30% to account for climate change, and surcharging the drainage system can be stored on the

site without risk to people or property and without overflowing into a watercourse or adjacent areas'

In essence, any new development should deliver no net increase in peak rainfall inputs into the receiving system and in most cases a 30% betterment is expected. Sustainable Drainage Systems (SuDS) will be encouraged in all cases.

- 7.2.5 In the interim, the Council assesses planning applications against the 2005 (draft) Local Plan Development Management Policies. However, because of their age, they are afforded little weight and none where in conflict with the NPPF (which takes precedence).

### **7.3 SuDS Approval Body**

7.3.1 Schedule 3 of the Flood and Water Management Act 2010 sets out a duty on Local Authorities to approve, adopt and maintain SuDS (if serving more than one property) through SuDS Approving Bodies. The benefits of SuDS are well known in their delivery of flood risk management, water quality and place making enhancements. SuDS aim to reduce the risk of surface water flooding by mimicking natural drainage systems as closely as possible through techniques such as swales, rain gardens, ponds, green roofs and other methods to slow, attenuate and reduce the amount of surface water flow from developments. In essence SuDS techniques aim to bring water 'to the surface' which can often free up capacity in existing underground drainage systems.

7.3.2 Applications for SuDS approval will be independent of planning applications, and, the SAB will be a technical process in the same way as building control though planning approval (when required) will be conditional on a SAB approval.

7.3.3 Schedule 3 of the Flood and Water Management Act has been delayed in its implementation, implementation is expected in 2015, this section of the Strategy will be re-written and published following its implementation.

## 8 Community Action and Resilience

### 8.1 Community Resilience

8.1.1 We cannot always prevent floods from happening. It is therefore essential that our communities have an understanding of their flood risk so that they can prepare and take appropriate action before, during and after a flood. This action, along with any action of the Council can help to minimise the impacts of flooding. City of York Council, as the Lead Local Flood Authority and all supporting RMAs will aim to build knowledge of flood risk in the Council area through the delivery of the Strategy.

8.1.2 A wide range of information is available to inform residents and businesses what can be done to prepare for flooding and other emergencies. This is predominantly managed through the work of the [North Yorkshire Local Resilience Forum](#) (NYLRF) and the City of York Council Emergency Planning Unit.

8.1.3 Communities are encouraged to engage with the risk management authorities by reporting flood incidents or blocked drains/watercourses, this helps RMAs to respond to incidents before problems arise and to learn from flood events to develop interventions to reduce their future impacts.

8.1.4 There are a number of preparations and actions that individuals and communities can take to make themselves more resilient:

#### 8.1.5 Personal and Community Emergency Plans

It is recommended that both personal and community emergency plans are prepared. Creating a plan enables families and communities to identify their risks and actions they may need to take should certain criteria be met. Simply by creating plans, people automatically become more aware of risk. Parish/Ward Councils usually take on the responsibility of creating a community emergency plan, however any community group can create one should they wish to do so.

For more information on emergency plans, communities should contact the Emergency Planning team. Templates and information are also available on the NYLRF website

<http://www.emergencynorthyorks.gov.uk/index.aspx?articleid=11782>

#### 8.1.6 Grab Bags

Along with an emergency plan, it is recommended that a Grab Bag is created. Preparing a few essential items such as water and a torch, along with copies of important documents such as house insurance can reduce a lot of stress and time wasted should people need to be evacuated from their property.

Further information is available here

<http://www.emergencynorthyorks.gov.uk/index.aspx?articleid=11874>

### **8.1.7 Flood and Weather Warnings**

The EA have a Flood warning system that is available for the public to sign up to receive by phone, text or email. This is an advance warning system which warns people of rising risks and river levels.

Details of the EA Flood Warnings Direct service and how to sign up can be found here: <https://www.gov.uk/sign-up-for-flood-warnings> The EA website also has a page where river levels can be monitored in real time (updated every 15 minutes in a flood): <http://apps.environment-agency.gov.uk/river-and-sea-levels/default.aspx>

The Met Office provide severe weather warnings for the public. They can either be accessed via their website, via an app or via email if they sign up for the alerts. These warnings cover a range of weather types, not just rain and storms. Details of the Met Office weather warnings and how to sign up for them can be found here: <http://www.metoffice.gov.uk/>

### **8.1.8 Property Level Protection**

A range of flood resilience products are available to prevent water from entering properties and reduce its impacts. A range of door barriers and airbrick covers prevent flood water access into the fabric of the building and sewer pipe valves and bungs can prevent sewerage 'backing up'. More complex arrangements of pumps or the 'tanking' of basements to prevent groundwater penetration can be carried out where the flood water sources are more difficult to manage. It is important to understand the type of flood risk that properties face and the limitations and advantages of using property level resilience measures, the EA provides a wide range of information in this respect and, whilst advice can be sought from the Council, recommendations or endorsement of any specific product can not be offered .

It is ultimately the responsibility of the home or premise owner to consider the ways in which they can make their property more resilient to flooding. The National Flood Forum 'Blue Pages' has advice and suggested supplies of property protection products <http://www.bluepages.org.uk/>

### **8.1.9 Flood Wardens**

York has a small number of flood wardens who work with the EA to report any flooding issues in their area. They are also asked to report any issues which may cause a flood risk e.g. blocked drains, culverts or trash screens.

Flood wardens are recruited and trained by the EA in conjunction with the local authority.

## York Local Flood Risk Management Strategy Consultation Summary Report

### Consultation Overview

The York Flood Risk Management Strategy was made available for public consultation from Wednesday 5<sup>th</sup> November 2014 for six weeks with the consultation closing on Wednesday 17<sup>th</sup> December 2014. A publication draft of the full strategy, an accompanying summary leaflet and a set of frequently asked questions were produced in cooperation with the CYC Communications and Media team following a pre-determined communications strategy.

The consultation documents were developed in close coordination with all other flood risk management authorities in the area – Environment Agency (EA), North Yorkshire County Council (NYCC), Yorkshire Water and Internal Drainage Boards. The documents were structured according to the requirements of the Flood Risk Regulations (2009) and are consistent with the aims and objectives of the EA and NYCC as the major partners in the North Yorkshire Flood Risk Partnership. It was therefore anticipated that the pre-publication draft would have a good strategic fit with all of our partners flood risk management approaches.

A questionnaire was developed with NYCC to allow for a consistent set of responses to aid wider regional assessment of flood risk priorities and needs and this was made available in hard copy and electronic formats (via the Survey Monkey website).

The document was made available in a variety of ways on the council website, libraries and Explore Centres and several interviews were held with print and broadcast media and a double page feature was printed in the York Press to advertise the consultation process. The number of responses received are detailed below:

By post – 1

To the [FRM@york.gov.uk](mailto:FRM@york.gov.uk) email address – 4

On-line Survey Monkey questionnaire – 35

An overview of the questionnaire responses is given below in table 1 and a breakdown of the demographic details of those responding is given in table 2.

It can be concluded from the responses in table 1 that the respondents support the council in its role as a Lead Local Flood Authority and the majority understand the need for an overview on all flood risks and that this should be delivered on a prioritised basis.

Table 1

<b>Do you agree or disagree that the council should be working to help communities take a greater role in managing flood risk?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Strongly agree	55.0%	22
Agree	27.5%	11
Neither agree nor disagree	17.5%	7
Disagree	0.0%	0
Strongly disagree	0.0%	0
<i>answered question</i>		<b>40</b>
<i>skipped question</i>		<b>0</b>
<b>Do you agree or disagree that the council should take a key role in increasing the knowledge and understanding of flood risk in our communities?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Strongly agree	65.0%	26
Agree	17.5%	7
Neither agree nor disagree	17.5%	7
Disagree	0.0%	0
Strongly disagree	0.0%	0
<i>answered question</i>		<b>40</b>
<i>skipped question</i>		<b>0</b>
<b>Do you agree or disagree that our local strategy should cover all types of flooding rather than just flooding from surface water, ground water and ordinary watercourses?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Agree	95.0%	38
Disagree	5.0%	2
<i>answered question</i>		<b>40</b>
<i>skipped question</i>		<b>0</b>
<b>The action plan in section 2 has been put together in a way that helps to link our plans to the national flood risk management plans that are due to be published shortly. Do you feel that this format is clear?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	77.5%	31
No	22.5%	9
<i>answered question</i>		<b>40</b>
<i>skipped question</i>		<b>0</b>
<b>Given that we need to use our resources as efficiently as possible, do you agree or disagree with the way we intend to prioritise the investigation and review of flood incidents set out in section 3?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Agree	82.5%	33
Disagree	17.5%	7
<i>answered question</i>		<b>40</b>
<i>skipped question</i>		<b>0</b>



Table 2

Which of the following statements best describes you?			
Answer Options		Response Percent	Response Count
I am a resident who has experienced flooding		27.5%	11
I am a resident who has not experienced flooding		45.0%	18
I am representing a business that has experienced flooding		2.5%	1
I am representing a business that has experienced flooding		2.5%	1
I am representing a risk management authority		5.0%	2
I am another flood risk professional		17.5%	7
What is your gender?		Response Percent	Response Count
Answer Options			
Male		52.6%	20
Female		13.2%	5
Prefer not to say		34.2%	13
Which age category are you in?		Response Percent	Response Count
Answer Options			
16-19	16-19	0.0%	0
20-29	20-29	7.9%	3
30-39	30-39	5.3%	2
40-49	40-49	10.5%	4
50-64	50-64	21.1%	8
65-74	65-74	18.4%	7
75-84	75-84	0.0%	0
85+	85+	0.0%	0
Prefer not to say	Prefer not to say	36.8%	14
What is your ethnic group?		Response Percent	Response Count
Answer Options			
White		57.9%	22
Mixed / multiple ethnic groups		0.0%	0
Asian		0.0%	0
Black / African / Caribbean / Black British		0.0%	0
Other ethnic group (please write below)		0.0%	0
Prefer not to say		42.1%	16
Other ethnic group (please specify)		0.0%	0
Do you consider yourself to be a disabled person or to have a long-term, limiting condition?			
Answer Options		Response Percent	Response Count
Yes		5.3%	2
No		47.4%	18
Prefer not to say		47.4%	18

### Consultation Feedback and Changes to the Strategy

All individual consultation comments are detailed below along with the CYC response, the vast majority of responses were of an operational nature concerning maintenance activities of various flood risk authorities, where specific these have been made available to individual authorities for consideration.

Given the content of the responses and the strategic and overarching nature of the York Local Flood Risk Management Strategy the pre consultation draft version of the document has not been subject to many post consultation changes. The action plan at section 2 has been amended to reinforce the need for wider catchment and upland management approaches to manage flood risks and to further support the linkages with biodiversity and ecological improvements. The Frequently Asked Questions document will be updated and enhanced to cover the more operational questions that have been raised.

### **Individual Respondents Comments and CYC Responses**

'The Board fully recognise and appreciate the very strong partnership ethic reflected within the document and would confirm that this ethic is very much evidenced on a practical day to day basis through our works with the Flood Risk Management Team and other stakeholders. The Board broadly supports the aims and aspirations of the document and see this as an integral part of a structured and thorough policy framework within the City of York to address issues of Flood Risk Management as effectively as possible. There is an identifiable need to consolidate the strategic policy background and in particular address the issue of creeping development and larger scale householder type applications especially within areas with specific vulnerabilities. As current planning policy does not dovetail with the NPPF and SFRA the Board would see this policy and its 'live' nature as a basis for future influence in policy development improved co-ordination.'

- *City of York Council as a Lead Local Flood Authority will continue to work closely with all Risk Management Authorities, the Local Flood Risk Strategy is the key document to underpin this work and it is welcome that it is supported by partners*

'The easy thing is to comment on major schemes, raising embankments, dredging waterways. It is essential though to address standard maintenance procedure and especially river bank maintenance. As owner of property with river bank frontage I have seen in 50 years the proliferation of willow growth where none used to exist. Willow now, allowed to grow unattended, are of such an age, that they sag into the river in dense masses. This slows the water flow. Keeping the river banks clear is just as important as dredging. The growth of willow that we have now, will have to be attacked at some stage every year it is left, the task will become much greater and more serious.'

- *The Strategic Action plan details the maintenance and operations funding for all Risk Management Authorities, the individual works delivered by these budgets are determined by specific operational assessments and works programmes that are not considered within this high level strategy. The individual concerns identified by this respondent have been passed onto the Environment Agency for consideration*

'Have radio info, tweet info when floods are about to start road close what to do and like other company's have some one manning it to respond. Have Twitter use for flood days so when you can get good info out quicker but also can ask u questions

and respond. Radio York like travel up dates have flood updates and info what to do. Have like neighborhood watch a flood watch.'

- *During flood events all partners work closely with all media outlets, we will continue to evolve this service and will pass on the respondents recommendations*

'Some gullies are too compact with debris or mud for the gully cleaning vehicle and require to be dug out by hand and are passed on for more detailed actions and investigations. Also I see no direct reference (although I may have missed them) to dredging the length of the Ouse and/or Foss in the strategy, which would increase the rate of flow and minimise duration of flood events. I would like to see clarity around the role of the Knavesmire in the strategy - in recent years since 2000 it seems to have been prone to further localised flooding - is this naturally occurring groundwater, or the result of an intervention to prevent flooding elsewhere? If naturally occurring, is there an understanding of the cause(s) and are the homes likely to be affected in the plans for flood defence? This is clearly an important issue - it is therefore a shame that it has been so poorly communicated to the residents of the city. I only found out about it the day before closure by seeing an article in the local Press.'

- *The key highway routes under our control have gullies proactively cleansed once a year, all other gulley assets are cleansed reactively. We are currently developing a new programme that will ensure key highway routes, surface water flooding hotspots and all other gulley assets are cleansed in a prioritised proactive programme. Dredging is considered alongside other flood risk management operational and capital measures and where effective the Environment Agency will utilise this approach. The Strategy does not detail these approaches and more information can be found in individual works programmes. We are currently delivering an appraisal project looking at all aspect of flood risk management in the Holgate Beck catchment. A diversion culvert exists from Hob Moor to the Ouse and its use and interactions with the Holgate Beck catchment will form part of the studies outputs*

'Comments such as unable to predict surface water flooding is difficult are false, certain areas flood consistently. What is going to be done about the flooding in the Sitwell grove and surrounding area as questionnaire recently endorsed by yourselves with a big response from residents. After years of neglect in regard to gulley's and constant reference to national decisions what is the local council to do regarding consistent flooding in the Sitwell Grove area.'

- *We are working with residents to understand the wider issues in the area, a range of localised works have already been carried out to improve drainage assets and reduce the impacts of surface water flooding. Close working will be required with the internal drainage board and Yorkshire Water to look at the wider issues in the catchment, funding has been obtained from the*

*Regional Flood Defence Committee and partners will work together to identify wider funding opportunities. Further works will be identified following the current investigations*

'Fortunately for York we only have the Swale, Ure, Nidd and Foss to work about. the trouble is that we tend to look at the issues locally rather than take a catchment wide approach. Look at the uplands and seek to slow the run off from the moorland, this could mean blocking the old "grips". Look at conveyance of water, should there be more onus on riverside landowners to manage trees and vegetation to improve the flood flows? Manage surface water run off better through the planning system, and stop building in flood plain. Get the planning better as it is much cheaper than having to go back and defend. If in doubt (about the flood risk) stay out.'

- *We work closely with all other risk management authorities, we will consider a full range of catchment management techniques with North Yorkshire County Council and the Environment Agency to manage flood flows at source*

'You've cut the annual gully cleaning programme and rely on people reporting blocked drains. In some areas of York the weed removal seems to have stopped - as it turns colder this will all die back to rot it the gutter and then choke the drains following the next downpour. Surface water flooding will become an increasing issue as intense rainfall becomes more frequent with climate change. Never mind snow wardens we will need a 'Dad's Army' or drain clearers!'

- *The key highway routes under our control have gullies proactively cleansed once a year, all other gulley assets are cleansed reactively. We are currently developing a new programme that will ensure key highway routes, surface water flooding hotspots and all other gulley assets are cleansed in a prioritised proactive programme*

'I have read both the Local Flood Risk Management Strategy and the Surface Water Management Plan. Overall, the fluvial analysis of risk is well understood and the measures proposed appear effective. The documents both suffer from constantly intertwining pluvial and fluvial risks. As mentioned in the report, surface water flooding is not correlated with fluvial flooding. To mix apples and pears in this way is confusing. It also increases the risk of errors, focus and the possible misallocation of funds. Your strategy document mentions "Community focus and partnership working" and the principles of Improving the Level of Knowledge, being Evidence Based and Householder Cooperation. Fine ideals in practice, but no one I have interviewed in this risk area has experienced this. Note that your document even states in 2.1 – 1 "Communicate to those at risk". Also "2.1 - 4 Maintenance of infrastructure," yet gully cleaning for the past 2 years has not been carried out here. The only reason I became aware of a surface flooding risk was after my insurance company raised my household premium. Local consensus is that the surface water flood map is highly inaccurate. This is based on anecdotal evidence I have collected going back 50 years for this small area. There is some surface water flooding in exceptional downpours, but this is confined. Now this risk not only is raising premiums, but it also appears on deed documents if a house in the area is sold. This is blight and expense caused by EA and modelling errors. Your own report refers to a possible total of 7 incidents in York caused by surface water flooding. Compare

this to the damage caused by fluvial flooding, and you can appreciate my concerns. In Flood Risk from Surface Water 3.2.18 you refer to “Limited knowledge” yet conclude you have “Reliable Knowledge”. Climate change is a fact. Whether human activity causes of climate change is what is disputed. All the scientific predictions of Global Warming have been wildly incorrect to date, and let us hope they remain so. The first report of the IPCC has been completely discredited by factual evidence (sea level rise, glacier retreat etc.) Time will tell if the current one will suffer the same fate. We are in interglacial warming period. Only 10,000 years ago York was under a lake. Sea levels were so low one could happily walk to Holland. So I suggest you remove the impact climate change from this report unless you can produce some direct and applicable proof from the past 30 years of working predictive techniques. In conclusion, my personal investigations have left me with little confidence in the SWFR predictions by the EA for my immediate area. It appears as though you’re trying to make a problem out of nothing instead of focusing on the important task at hand, namely efficient maintenance of the urban drainage infrastructure.’

- *The Strategy deals with all sources of flood risk to ensure the reader is aware of all potential flooding impacts in the city, many have commented on the structure and approach taken in the report and these comments will similarly be considered. Separate approaches to surface/pluvial and fluvial flooding are taken and this is evidenced in the strategic action plan. The key highway routes under our control have gullies proactively cleansed once a year, all other gulley assets are cleansed reactively. We are currently developing a new programme that will ensure key highway routes, surface water flooding hotspots and all other gulley assets are cleansed in a prioritised proactive programme. The Strategy is the first stage in developing communications with those at risk and further work will reinforce this. All appraisals and strategic documents need to look into future climate change scenarios to manage long term risks this will continue to be the case until any changes in overarching guidance suggest otherwise*

‘why not dig a new culvert around York like they have done in Valencia divert the river and make the river bed into a park wending through the city with a smaller river at its base! leave all bridges etc intact, put in a cycle track through the parks and you have a big part of the solution to transport in York even better run a ski lift style transport system along it from the park and rides and rid the roads of most of the big smelly busses that clog up York travelling from North to South and vice versa think outside of the box!!’

- *All flood defences in the city will be appraised in 2015-16 and works will be identified to improve, renew or replace these assets to manage long term risks. All options will be considered and these often include diversion channel type approaches. However, such options are often very costly and hard to justify*

‘There should be more encouragement to parish councils, community groups and wards to develop and maintain local resilience plans that link to emergency planning and flood protection. The Flood Wardens network needs to be promoted more and

supported with annual refresher training and recruitment in the same way that the Snow Wardens scheme operates. Proposed Measures for prevention should give more emphasis to working with partners on tree planting and run-off reduction in the Ouse catchment and upland areas beyond the city. Consideration needs to be given to identifying funding for stormwater storage projects (as conducted at union terrace) in areas where there is a record of sewage discharge in flood conditions. Prevention of surface water flooding should include a review of paving policy and highways work to introduce a presumption that as with development control there should be no increase in stormwater runoff. Sustainable urban drainage should also be introduced to strategic sites where planning permission has already been granted if it will have a significant impact on reducing storm run-off. All business premises in flood risk areas should be encouraged to have a prevention, damage limitation and evacuation plan with advice on resilient design where there is ongoing flood risk. Funding for the £5m of investment identified as a minimum to investigate and remedy defective drainage and highways issues should be identified from the capital programme ahead of any further cosmetic projects for the city centre. See above! Short simple guides to the strategy with essential numbers like the flood line, environment agency and emergency planning need to be produced and distributed to households in areas at risk (in a self closing plastic bag??!)

- *The CYC Emergency Planning team is looking for ways in which to develop community level resilience plans and approaches to manage the impacts of flooding locally, the details of this response will be passed onto them. An engineer from the Flood Risk Management team works permanently with the planning department to comment on strategic and development planning issues. All work is steered by our Strategic Flood Risk Assessment. Section 7 of the Strategy discusses this in detail*

'It really amazes me why they can't pump flood water from underground specialty located pipes to reservoirs eliminating drought conditions when long period heatwaves.'

- *This will be passed onto the Environment Agency for wider consideration*

'There are instances where planners continue to grant planning approval to developers for housing developments on small sites designated as Open Space and previously Amenity Space in High Flood Risk Areas - despite Objections from a significant cohort of local residents - who are left with the impression that their views, their concerns [regarding Flood Risk; regarding local infrastructure for drainage sewerage; regarding vehicular access; regarding increasing traffic congestion and increasing air pollution] are really of no import, where the considerations of Business/Property Development Business/Council Tax Income seem to rule and be paramount. There are examples of this DESPITE EXISTING RISK DESIGNATION and where although called for - planning approval has been granted to developers WITHOUT - in fact - A FULL AND SATISFACTORY INPUT FROM YORKSHIRE WATER/Environment Agency. Developments of marginal merit and which increase Flood Risk in any way - and, for example, which are in/near City Centre - should surely be treated with due circumspection and such as Open Spaces within/on the immediate outskirts of the City Centre regarded as a

resource to be conserved for the well being of future generations e.g. with regard to reduced flood risk, improved air quality, reduced traffic congestion and the promotion of amenity to existing residents? Climate Change and significant trends for increased acute rainfall, and poor practices including building on flood plains, the reduction in soft drainage areas within towns and cities, poor land and poor river course management etc - all contribute to Flood Risk i.e. increased risk of flooding. Local Planners should surely NOT grant approval for building on plots in Designated Flood Risk Areas - where there is any potential increase in that risk by the building, where ALL the appropriate DATA/EVIDENCE/INPUT has been gathered and assessed for any potential increase in risk - AND - where it may well be - IN REALITY - that where Conditions are attached to the PA, the Developers rely that the Council/Planners will NOT effectively enforce the Conditions and rely on precedent which teaches that that Council/Planners do not have the resources for effective enforcement. Open Spaces - and especially in/near City Centres provide the opportunity for Amenity and for Soft Ground for surface water drainage and for Planting (e.g. trees) as a measure to monitor and reduce air pollution. Positive Conservation should be the principal operated and the business opportunity resisted where there are opportunities for developers to conduct development business elsewhere. York Local Flood Risk Management Strategy should surely have a significant, meaningful and effective input into Local Planning - such as proposed building of housing on sites (i) in/near City Centre (ii) in High Risk Flood Areas (iii) where the existing risk of flooding is increased (iv) where the area of effective soft ground for surface water drainage is in any way effectively, or could be, reduced?'

- *An engineer from the Flood Risk Management team works permanently with the planning department to comment on strategic and development planning issues. All work is steered by our Strategic Flood Risk Assessment. Section 7 of the Strategy discusses this in detail*

'York council should work along side Morrisons in Acomb to resolve the drainage in the car park.'

- *The Flood Risk Management team has carried out investigation and maintenance works following the August 2014 flood event*

'The article in the Press asked for ideas to protect York from flooding. Before spending huge amounts of money on upgrading flood defences I think it would be a good idea to dredge the rivers and flush the drains regularly. It will always flood in parts of York but surely it would be better if the water flowed down clear drains and into rivers which had been dredged. Routine maintenance may not make the headlines in the same way as new building projects but it is more cost effective in the long run. Flood defences do need upgrading but a lot could be achieved with basic 'housekeeping'.'

- *We are currently developing a new programme that will ensure key highway routes, surface water flooding hotspots and all other gully assets are cleansed in a prioritised proactive programme*

'An assistance to relieving flood problems would be regular clearing of roadside grates'

- *We are currently developing a new programme that will ensure key highway routes, surface water flooding hotspots and all other gulley assets are cleansed in a prioritised proactive programme*

'Find it bizarre that they say £5 million in the medium term but have no idea what this will include did they just get the figure from fresh air! Also river Ouse needs clearing out and dredging to improve the flow. There are hundreds of dead trees and other blockages in the middle of the river.'

- *All funding programmes require an advance valuation of possible works, the actual scheme requirements and costs will be confirmed through appraisal studies. The Environment Agency consider dredging alongside all other maintenance activities, this will be passed onto the Environment Agency for wider consideration*

'On behalf of the Friends of Rawcliffe Meadows -on page 18 of the Action Plan there is single line regarding the Clifton Ings Barrier Bank Restoration with a cost of £1.5M against it. According to a recent FoI Act request upon the Environment Agency there has been no option appraisal or environmental assessment completed, so the figure of £1.5 million is meaningless! The works would impact on a site of national nature conservation importance (Clifton Ings & Rawcliffe Meadows SSSI) and a popular cycle-pedestrian path as well as features of historic interest. Therefore it is likely that adequate mitigation and compensation would be costly and would require careful planning well in advance of any works (e.g. compensatory habitat creation and harvesting of seed for site restoration would require a lead-in time of 2 years or more). We are concerned that allocating a budget before any assessment work is completed will constrain and effectively pre-judge the options available, especially within the stated short timescale.'

- *All funding programmes require an advance valuation of possible works, the actual scheme requirements and costs - including all environmental assessment and mitigation requirements - will be confirmed through appraisal studies. The Environment Agency have confirmed that the works will fully consider all environmental issues.*

'The Strategy does not include river dredging which is needed in York. There is no rolling programme to clean the road gullies and drains and this needs to be implemented. Why cannot river dredging which used to be a regular sight in the past be restarted. Can Clementhorpe have a permanent barrier installed which can then be raised in case of need rather than the deposit of large sand bags. Is the council able to help with house insurance problems as the insurance companies will not quote for high risk properties. The scheme of Flood Re is supposed to help but this is completely ineffectual. Could the City Council raise this subject with Local and Central Government with a view to requiring the Insurance Companies to devise a comprehensive scheme of insurance for high risk areas.'

- *We are currently developing a new programme that will ensure key highway routes, surface water flooding hotspots and all other gulley assets are*



*cleansed in a prioritised proactive programme. The Environment Agency consider dredging alongside all other maintenance activities, this will be passed onto the Environment Agency for wider consideration, however, it is considered that although dredging may reduce some risks it is an ineffective approach to manage the larger flood event that we have experienced in York. The council are represented on a range of regional and national flood risk groups and will use these opportunities to raise any concerns regarding the emerging Flood Re scheme*

'I don't really disagree with the strategy, but it appears to be wholly reactive and does not appear to consider the catchment areas, upstream, which impact on York. Where is the discussion, and investment, in upland planting and in reducing run-off from farm-land which has been channelled into the rivers which feed The Ouse and The Foss? I would want to see, in addition to the massive capital programmes to build more barriers, some plans to plant tens of thousands of trees and other vegetation to capture water upland and reduce run-off. Please investigate this more thoroughly and include something in the final documents.'

- *The Strategy details how we work closely with all partners, we consider wider catchment management approaches through our work with NYCC and the EA. Some detail will be added to the Strategy to reinforce this*

'It needs to be comprehensive, but it takes a long time to get to the action plan, whereas the leaflet is at the opposite extreme. The strategy itself appears logical and sensible. Dredge the Ouse through York - increases volume of water the Ouse can accommodate before flooding, speeds river flow. Build reservoirs which are only filled when the Ouse threatens to flood. I note that, in your document, the Clifton Ings modified flood plain can itself reduce flood levels by 6 inches. How much more could deep reservoirs achieve? An Ouse/Derwent link. Tunnel? Canal? (Expensive!) The two rivers tend to flood at different times because of the directional sources of rain which falls on the Pennines/Moors. Water could be diverted from one to the other when one of them floods. Underspensing and under engineering only result in failure and constant updating. eg. York ring road - out of date from the moment it opened. Permanent catch up and still does not work as it should.'

- *All flood defences in the city will be appraised in 2015-16 and works will be identified to improve, renew or replace these assets to manage long term risks, the existing flood storage assets upstream of the city will be included in this assessment. All options will be considered and these often include wider approaches. However, such options are often very costly and hard to justify*

'This plan is asking for trouble. It is 51 pages of rhetoric and superficial advice and reads as a perfunctory exercise. You need to identify specific works or purchases you can make to reduce the flood risk. There is plenty of reflection in the document but not enough action.'

- *The Strategic Action plan in section 2 details a range of specific costed approaches and interventions to reduce flood risk*

'I have a particular concern with regard to surface water in our locality. Flooding from sewage and surface water has become a problem. It would appear that this may well be a consequence of the continual over-development and increased surface water run off without any provision for this water to drain from the village. Residents are extremely worried that additional development in the village will lead to catastrophic flooding of low lying areas. It is vitally important that the issues of sewage and surface water flooding in our area are tackled immediately. In August our street was flooded with sewage. The sight of young children wading in sewage is a public health scandal and should be an embarrassment for the City of York Council. It is also something that presents a terrible image for the City of York.'

- *Investigations into the specific issues raised by the respondent are already in progress and we are working with Yorkshire Water on this issue. An engineer from the Flood Risk Management team works permanently with the planning department to comment on strategic and development planning issues. All work is steered by our Strategic Flood Risk Assessment. Section 7 of the Strategy discusses this in detail*

'We can cope with the flooding but would like the Government to help with insurance problems'

'Any improved understanding of flood risk these strategies may provide, should feed into local authority Strategic Flood Risk Assessments which should, in turn, inform and influence proposed development. Likewise, if these strategies propose infrastructure on which future development may depend, or whose delivery might depend on contributions from developments, this should inform local authority Infrastructure Delivery Plans and Community Infrastructure Levy proposals. Many watercourses in the district have been physically changed by land drainage and flood risk management activities which can reduce their amenity value and harm their ecology. Land use and agricultural practices can also impact upon the ecology of the rivers as well as increase flood risk. The Action Plan should include measures to mitigate the impact of flood protection structures in York and include Catchment Sensitive Farming initiatives where feasible. The Council should look for opportunities to re-naturalise watercourses by removing engineering works or reducing their impact. Any new physical changes to watercourse in the district should be avoided unless there are compelling grounds for doing so and all alternative options have been considered. Where the council owns any weirs or sluices on a watercourse, opportunities should be sought to reduce their ecological impact particularly in restricting the movement of fish and eels. Sustainable drainage techniques should be considered for all new development to reduce diffuse pollution. Where the council carries out maintenance and flood defence work on watercourses this should be carried out to minimise ecological damage and prevent water pollution, including releasing silt. When working or undertaking maintenance activities in or near water courses the council should ensure it adheres to best practice such as with the timing and location of the works and if in doubt seek advice from the Environment Agency. As a DEFRA backed and funded initiative, we would

welcome reference to the Catchment Based Approach and to the Catchment Partnerships. We would encourage the Council to work with the Derwent Catchment Partnership and the Dale to Vale Rivers Network, hosted by the Yorkshire Dales Rivers Trust for the Rivers Ouse and Foss. Agree with the groundwater flooding analysis. We agree that the risk of groundwater flooding is low in the York area, as the Sherwood Sandstone principal aquifer is overlain by thick superficial deposits comprising mainly of clay preventing the water table within the major aquifer from rising.'

- *We are already working closely with the Environment Agency and other stakeholders to identify and deliver Water framework Directive and other environmental improvements as part of our flood risk role, this will be reinforced within the action plan in the Strategy. The Strategy will be used to inform and guide our planning policy and Strategic Flood Risk Assessment as detailed in section 7 of the Strategy*

'Westfield Beck which is considered at capacity and comes close to overtopping in heavy rain has not been included in any improvements to reduce flood risk.'

- *We are working closely with the Internal Drainage Board to ensure we understand any current or future issues on Westfield Beck, we will discuss this comment further with them*

'Our house was flooded in 2012 from the river Ouse in Naburn. We had to move out of our home for a year while work was carried out to our house. We have spent money trying to make our house as flood proof as possible, so when the river rises to the levels seen in 2000 and 2012, we should be able to remain in our home. I feel Naburn is sometimes forgotten in the Councils desire to protect houses in York city centre. Any funding to help protect Naburn and other villages downstream would be very welcome.'

- *All flood defences in the city will be appraised in 2015-16 and works will be identified to improve, renew or replace these assets to manage long term risks. Any potential works to reduce the impact of flooding in Naburn will be considered as part of this assessment*

'There is a greater need to explore what can be done at the upper reaches of these catchments to reduce the flow rates from the uplands. Addressing this coupled with proper flow balancing from future developments should reduce peak flows and the need to continue raising defences. A strategic approach is required for larger development areas and should be led by the local Council so that infrastructure for the whole development site is in place before piecemeal development commences. It is unrealistic to balance flows from individual smaller developments thus the LLFA should ensure the entire run off from the development area is addressed first. Be wary of giving others false hope, some of the areas at risk of flooding highlighted in this report are not financially viable to defend due to topography and other limitations. If you are investigating the viability of developing the Holgate & Burdyke catchment, why not get the developer to do the study to demonstrate they are not going to add to flooding problems. Use planning agreements and contributions to

get these pumps uprated or replaced, not the public purse. Seek contributions from the insurance companies toward improving defences as they are key beneficiaries, aren't they as the risk to them is reduced?'

- *The Action plan is a needs based assessment and will include some schemes that are difficult to finance and deliver due to funding rules or the technical nature of their delivery. However, there are opportunities to find contributions from elsewhere and inclusion of the projects in the action plan shows that they are key projects for York and will support us in taking them further towards delivery. We are working closely with the Local Enterprise Partnership in projects such as York Central and through our work with the planning section look to identify opportunities for planning gain to deliver essential flood risk and drainage works*

'Measures based on a granular rather than holistic approach meaning areas with relatively low habitation (including my own, Clementhorpe) are likely to not only miss out but potentially experience greater flooding risk because of other defenses. - Feels very much like a fait accompli given dependency on Defra funding. - No talk of innovation or novel funding approaches. Whilst the EA contend that the impact may only be 'millimetres' that could well be the difference between ingress and not. On this basis alone it is grossly unfair. I note that Clementhorpe has development sites that could be sold/exploited (eg The Maltings building) and indeed the Parkside sell-off has allegedly raised 400k. I don't think it unreasonable that this might be re-channeled into protecting the residents of the area. Also with the ongoing uncertainty in the insurance market around comprehensive buildings cover we could conceivably be faced with uninsurable properties in a flood context, which would have a huge impact on property value. I believe the Council is duty bound to protect its residents and a failure to protect the Clementhorpe area will be a gross dereliction of this duty.'

- *Flood risk in the area occurs in the highest order flood events and Clementhorpe is partly defended by existing permanent defences and the implementation of temporary defences. All flood defences in the city will be appraised in 2015-16 and works will be identified to improve, renew or replace these assets to manage long term risks, Clementhorpe will be included in this assessment. We will look to wider opportunities to fund any schemes and a variety of approaches are detailed in section 2 of the Strategy*

'Given the apocalyptic vision of the future that the IPCC has now published, one that, once you have factored in the 800Gt of CO<sub>2</sub>e emissions locked in by present buildings, power stations etc over their lifetime, pretty much guarantees a 2C rise by 2100 (in fact some qualified scientists are leaning towards 3-4C rise by 2100 ), a vision that predicts more and more local severe flooding events, do you think its sensible to build further flood defences while not tackling the causes? CoYC's ambition if increasing tourism is akin to playing Russian roulette with our children's future. Tourism is a huge CO<sub>2</sub>e contributor. if you are going to build more flood defences: a) plan for 50 years from, using the IPCC guidelines b) complete the circle, and stop relying in tourism, people are already suffering the consequences of

climate change ( droughts in china, famine warnings in central America etc etc), while we build bigger dykes and welcome more and more tourists utter madness. ‘

- *All flood risk management appraisals incorporate climate change scenarios to ensure defences are built to manage future rainfall and river flow conditions. We are working with all partners to identify wider catchment scale interventions to manage flows at source but due to the position of York in the lower part of a significant river catchment such measures are always likely to include direct defence approaches*

‘Overall the Yorkshire Wildlife Trust is supportive of the above document but would like to see all possible opportunities taken for incorporating sustainable drainage options which also support biodiversity. Rivers, small waterbodies and ditches can all be important wildlife corridors and reducing flood risk can also support biodiversity and increase habitat connectivity. If plans to reduce surface water runoff were included with road maintenance or road improvement projects this could provide possibilities to divert runoff to rain gardens etc rather than into the sewer system. Biodiversity improvements can be very valuable and can reduce flood risk. These need to be planned from the outset into new developments to obtain maximum benefit for wildlife. For example green roofs and walls, swales, wildlife ponds and rain gardens. It will be necessary to consider the recently designated SSSI at Clifton Ings and Rawcliffe Meadows if the flood banks at Clifton are to be repaired. Is there any opportunity to work with upstream authorities to look at "slowing the flow" type approaches to reduce peaks and provide more upstream water storage? Wet woodland creation buffer strips etc. It would be possible to explore and promote a wide range of opportunities to support biodiversity. For example by improving water vole habitat, removing invasive species and improving the connection of watercourses with their floodplains where this can retain flood water and create habitat. As York is known nationally as being vulnerable to flooding it could be useful for the authority to put on pressure nationally to speed the process for local authorities to become SuDS approval bodies. Opportunities for providing ecosystem services and protecting biodiversity are being lost due to SuDS not being approved in new developments due to uncertainty as to the approval process. Long term SuDS be considerably cheaper than traditional flood prevention and drainage systems and provide gains for biodiversity. There may also be opportunities to encourage residents not to convert front gardens to impermeable parking areas as has been done in parts of London.’

- *We are already working closely with the Environment Agency and other stakeholders to identify and deliver Water framework Directive and other environmental improvements as part of our flood risk role, this will be reinforced within the action plan in the Strategy. The individual comments will be incorporated into the final version of the Strategy. Sustainable drainage approaches and biodiversity opportunities form parts of our strategic flood risk assessment. The role of the council as a SuDS approving body has recently been confirmed as being part of the local planning authority process and we will look to implement SuDS approaches through this route when it is formalised in April 2015*

'Not clear who will take the lead position in formulating a possible outcome for the implementation of recommendations and be responsible for the adopted policy and outcome. Presumably the City of York Council would lead only on localised flooding incidents and ensure action being taken to prevent any reoccurrences by the appraise authority concerned. It would appear that asset maintenance is not high on the agenda for funding as recent incidents have revealed so it surely has to be included in the flood risk strategy that whatever is proposed has to include for its future maintenance by the appropriate authority with their responsibilities stated. It is of no surprise that localised flooding does occur in an increasing frequency when consideration is given to property developments. Such may involve conservatories, hard surfaced garden areas as patios or front garden car park areas etc. All may be sources of surface water run off entering a piped drainage system. The introduction of the current practice of sustainable drainage systems should reduce or eliminate such sources of flood risk as outlined above. The statement made on page 13 that schemes are assessed according to the number of households receiving an increased standard of protection from flooding etc without any reference to a cost/benefit analysis seems to be a departure from the past practice of scheme appraisals. After all households can show a wide variation from a single bedsit to a multi room mansion and consequent range of flood drainage.'

- *The Strategy details the work, responsibilities and action plans of all risk management authorities, as the Lead Local Flood Authority we aim to ensure that the work of all partners is understood and coordinated irrespective of who takes the lead. The maintenance plans and activities of all partners are detailed within their individual maintenance plans and practices, the action plan at section 2 details the funding made available in the strategy area for these practices. An engineer from the Flood Risk Management team works permanently with the planning department to comment on strategic and development planning issues. All work is steered by our Strategic Flood Risk Assessment. Section 7 of the Strategy discusses this in detail. Section 2 details the current approach to allocating funding, this is prioritised according to the outcome measures that are achieved - primarily households and properties protected - a key part of the approach is a benefit cost assessment*