Annex 1

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
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 (catchment)
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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York Consortium of Drainage Boards

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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 watercourse 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.

York is at risk from a range of flood sources - almost 4000 properties from our rivers and severe storms can cause significant disruption to our travel networks, properties and businesses.

We have experienced a wide range of flood events from our rivers - major flooding in 1982 and 2000 and flooding has occurred in recent years from severe storms and surface runoff.

Flood defences protect the vast majority of sites from flooding on the Ouse, Foss and their tributaries but further work is needed to ensure their effectiveness following climatic change. A residual risk remains behind flood defences where drainage networks can be overwhelmed and action from all partners during flood events is vital – such operations avoided flooding behind defences in 2012.

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, 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

1.4 Next Steps

1.4.1 This is a draft strategy for consultation with internal and external partners prior to public consultation. Public consultation documents will be compiled following review of all comments and a period of public consultation events will follow.

1.4.2 It is proposed to publish the final strategy in 2015 and it will be fully reviewed in line with the six year Flood Risk Regulations cycle.

1.4.3 It is intended that changes and updates to the individual guidance notes (Sections 3-8) 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.

1.4.4 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.

1.5 Structure of the Strategy

1.5.1 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.

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.

2.1 Objectives	To achieve this, the strategy has identified the following objectives: 1. Work with partners to identify areas of focus and priority for flood risk management in York and communicate it to those at risk 2. Work to secure, prioritise and deliver investment in mitigating flood risk to deliver social, economic and environmental benefits 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 4. Maintain drainage infrastructure and watercourses to ensure that their operation maximises effectiveness
2.1 Outcomes	This will result in: • A clear understanding of the actions and investment priorities needed to manage flood risk in York. • An understanding by those at risk. • Development that is sustainable and appropriate. • Drainage infrastructure that is properly maintained and fit for purpose. Progress towards meeting the targets in the York Council Plan.

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 defence 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 our knowledge and understanding of flood events we can design and develop works to reduce the impacts of future floods.

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 theNorth Yorkshire Flood Risk Partnership).

The Yorkshire RFCC is 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 (LEPs), 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 them.

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	Ensure that planning decisions properly address all aspects of flood risk and that surface water flows are managed and controlled in a sustainable manner. Development of sustainable places better adapted to manage flood risk. Identification of planning gain opportunities to deliver support flood risk management infrastructure delivery – CiL, S106 etc	Short Term / ongoing	CYC - Local Planning Authority	Environment Agency (EA), Internal Drainage Boards (IDB), Yorkshire Water Services (YWS)	Core part of delivery with no capital cost, may require periodic capital costs to develop detail and understanding £5k - £10k per study
	SW, GW, F	2/3	Input into strategic planning and strategic development sites to identify sustainable flood risk and drainage solutions. Input into the emerging Local Plan, development of policies – FR1Flood Risk, FR2 Sustainable Drainage	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.	Medium	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	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 Close working and coordination is required between EA and CYC, property level resilience measures are likely to be the optimal solution. Work with residents and businesses to deliver collectively funded protection measures.	Short – Medium – long Dependant on issue, solution and funding	EA	CYC, YWS	£5M
	F	4	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 Review and scrutiny by the North Yorkshire Flood Risk Partnership and the RFCC, lobbying and pressure from CYC officers and members	Ongoing - annual	EA	CYC, IDB	£476k p.a. Needs based assessment, actual approved budgets may be less
	F	4	Delivery of IDB maintenance programme to ensure optimal, safe and effective operation of all IDB managed watercourses and assets in the CYC area Review and scrutiny by the North Yorkshire Flood Risk Partnership and the RFCC, lobbying and pressure from CYC officers and members	Ongoing - annual	IDB	CYC, EA	£670k Council paid Special Levy to support IDB works in our area

	Source	Local Flood Risk Strategy Objective (Section 2.1)	Action	Timescale	Lead Organisation	Support Organisation(s)	Estimated Cost
Protection	SW, GW, F	4	Delivery of CYC maintenance programme to ensure optimal, safe and effective operation of all CYC managed watercourses in the CYC area 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 watercourses and drainage networks are required to satisfy the CYC role as a Lead Local Flood Authority	Ongoing - annual	CYC	EA, YWS, IDB	£200k p.a. highways investigation / remediation £100k p.a. watercourse maintenance £25k p.a. reservoir management

	Source	Local Flood Risk Strategy Objective (Section 2.1)	Action	Timescale	Lead Organisation	Support Organisation(s)	Estimated Cost
Preparedness	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 on 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	EA	

	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	Deliver investigations in accordance with Section 19 of the Flood & Water Management Act and deliver all necessary post flood remedial works and actions Working with public & businesses to raise awareness of flood risks and to identify community led solutions	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)	£30k Installation £5k p.a. Maintenance
	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	£25k £2k p.a. licences

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 1980s. This successfully protected 225 properties against flooding in March 1982, the highest, at the time, since 1947, subsequent defences were built to protect

other areas of the city. 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 1980, 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 (highest on record), and 2012 in September, November and December. The September level equalled that reached in 1982. The defences performed successfully with no property flooding within the defended areas, but approximately 50 – 60 properties in unprotected areas were affected, large scale flooding from the sewage system behind flood defences in the Leeman Road area was avoided following emergency operations by all partners.

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 as well understood as that from main rivers. However, there is not considered to be any spare capacity for unmanaged runoff from future development and individual catchment surface water management plans are required to increase understanding and inform future development drainage strategies.

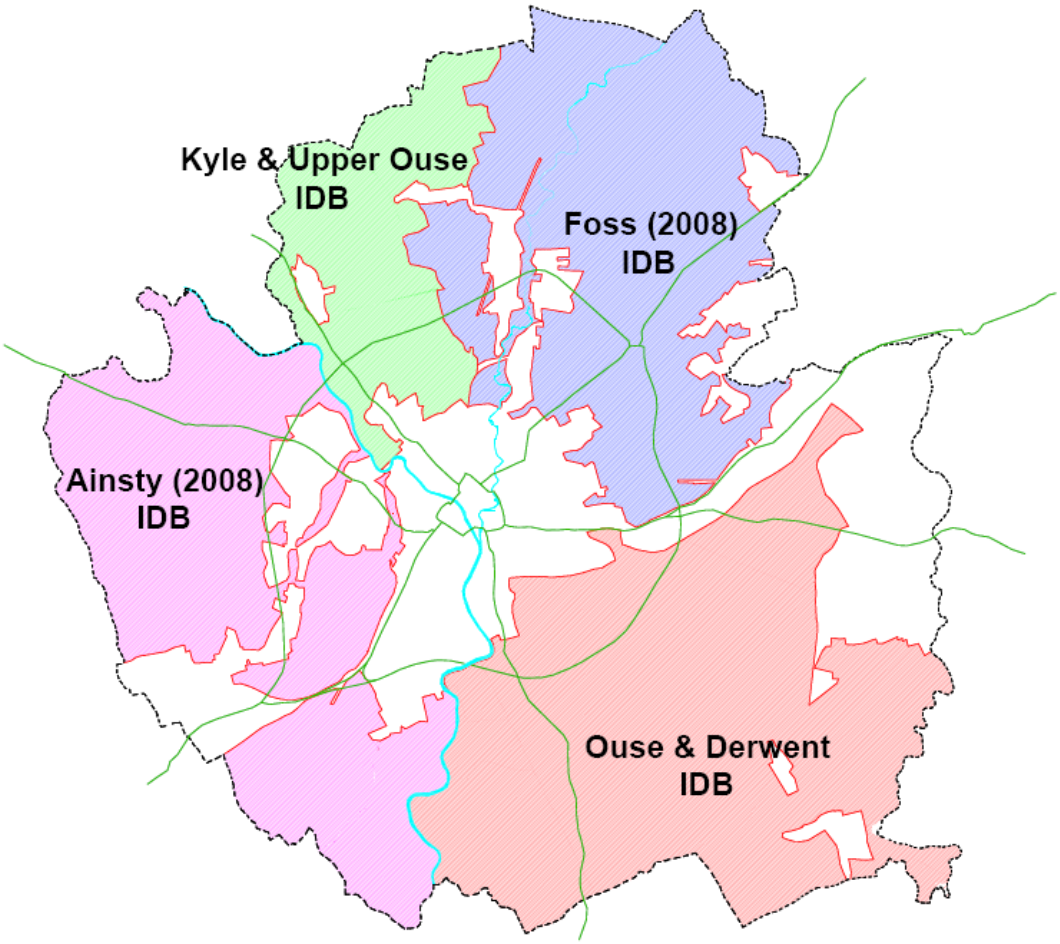


Figure 3.1: Internal Drainage Boards Districts Within York Boundary

Flood Risk from Local Sources

3.2.13 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.

3.2.14 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.

3.2.15 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.

3.2.16 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

3.2.17 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.

3.2.18 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.

3.2.19 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 flooded depth). The mapping shows no areas of concentrated flood risk in any specific area.

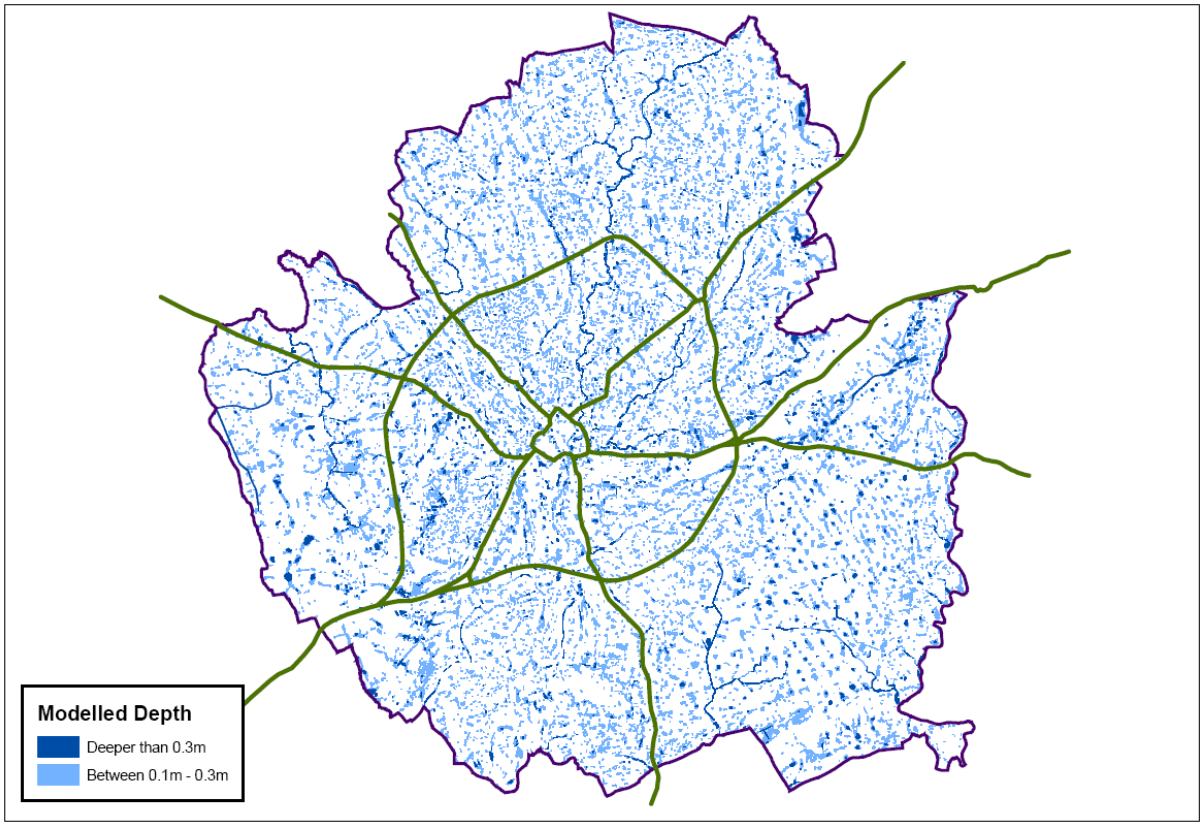


Figure 3.2: Flood Map for Surface Water 1 in 200 Year Event

3.2.20 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.

3.2.21 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 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 can increase surface water flood risk on a local scale. 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.

3.2.22 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

3.2.23 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.

3.2.24 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.

3.2.25 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.

3.2.26 Further problems can occur where sewerage systems are isolated behind flood defences in times of raised river levels. Systems are in place to manage these occurrences (pumping stations or sluices) but they can be compromised and present risks to areas that are defended – i.e. Leeman Road in 2012.

Flood Risk from Groundwater

3.2.27 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.

3.2.28 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.

3.2.29 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 sub-section (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.

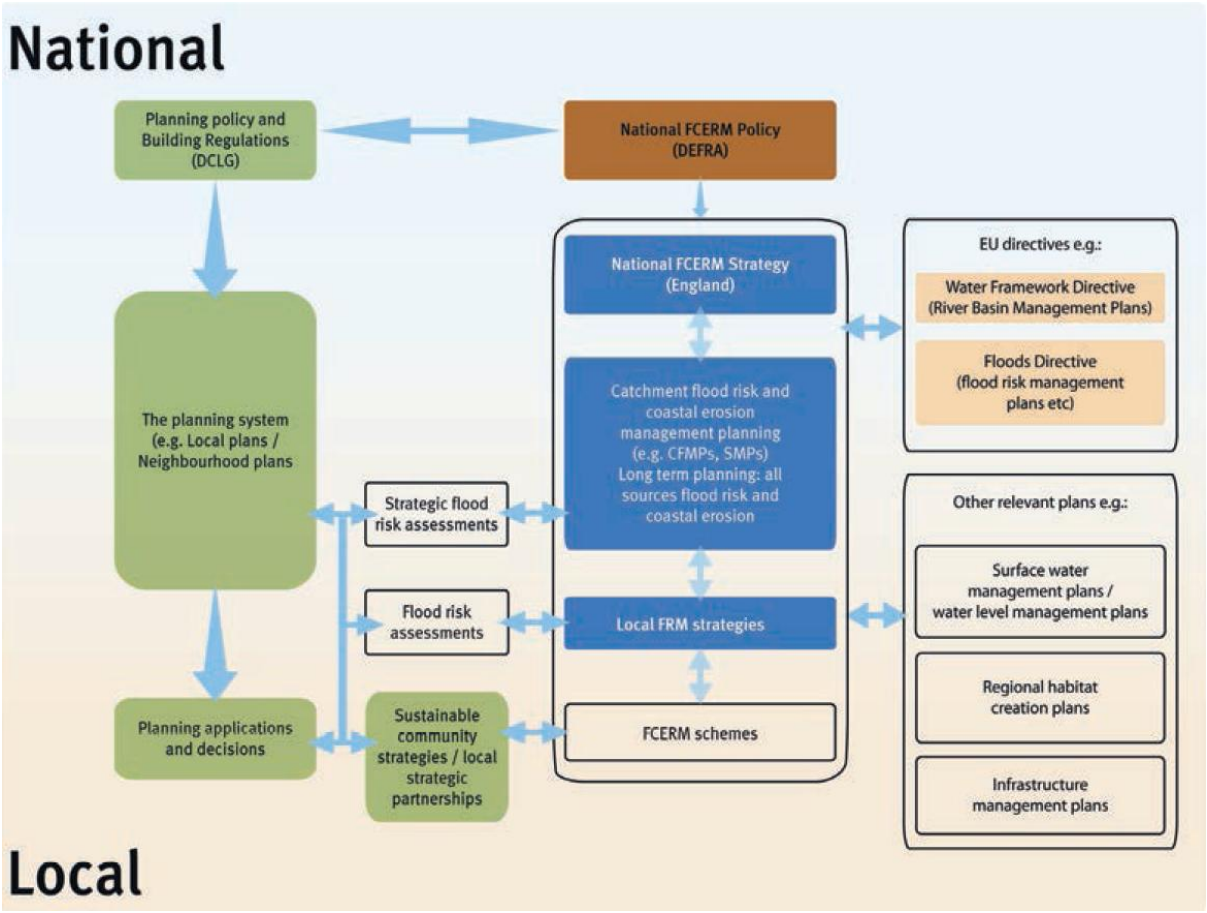
5.3 The Flood and Water Management Act 2010

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.



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 RMA's 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.

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 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 2nd revision	CYC	2013	Fluvial main river flood risk	Informs spatial and planning policy on flood risk in accordance with NPPF	Planning advice on flood risk management Guidance on application of sequential and exception tests and development management
Preliminary Flood Risk Assessment	CYC	2011	Local flood risk	Prepared in accordance with the Flood Risk Regulations 2009. High level screening exercise compiling information on significant local flood risk from past and future floods.	Does not identify a significant local flood risk area for the purpose of taking further action under the Flood Risk Regulations Future local flood risk is estimated to be low on basis of recorded incidents and modelling
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	York is within the Swale, Ure, Nidd and Upper Ouse catchment with the Yorkshire Derwent catchment on its eastern side. 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.
Ouse Catchment Flood Management Plan	EA	2010	All sources of flood risk in the York policy unit	Helps to understand current and future flood risk Provides a high level, long term plan for sustainable flood risk management Identifies flood risk management policies to assist key decision makers in the catchment	Policy Option 5 has been selected for this sub-area - to reduce existing flood risk. It recommends multiple approaches to manage flooding including: -Partnership working -Asset management -Surface water flooding reduction -Review Holgate and Burdyke pumping stations
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:

- Creat**e** 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 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^3
- 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 and sewage 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 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 a 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.

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 encourages 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 mimicing 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.