HALTON BOROUGH COUNCIL

Local Flood Risk Management Strategy

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Review

This document has been produced solely for the purpose of how we will manage flood risk in Halton. It is has an ongoing review process and will be fully revised at six year intervals in line with the Halton Borough Council Preliminary Flood Risk Assessment

Amendments

Reviewer		Date	Description

Foreword

This is the first Strategy for Flood Risk Management in Halton and it is a key step in making sure that the risk of flooding in our borough is dealt with as a whole, joining up the work done by the Council, the Environment Agency and United Utilities with that of our community and individual households. It will consider how all sorts of activities can be deployed to help manage flood risk, from better planning which makes sure new developments decrease rather than increase flood risk, to ensuring that emergency responders have a good understanding of where flood risk is greatest.

However, the activities identified in this strategy can only help manage flood risk. It would not be possible, even if we were not in an era of austerity, to protect all households from any flood risk. Instead, efforts need to be made by all involved, organisations and householders alike to reduce flood risk in practical ways. Sometimes, this involves focussing not just on decreasing the probability of flooding but also on addressing the impacts of flooding, making sure that properties and households can cope in the event of a serious flood.

We recognise that, in the past, the different organisations involved in risk management have not always worked together effectively enough in tackling the difficult problems that flood risk often creates. We have a strong and long tradition of partnership working in Halton and we intend to extend this to managing flood risk. It is vital that organisations work better not just with each other but crucially with the public. This is why this strategy details the roles and responsibilities of all major stakeholders, including households and community groups, so that there is better clarity and understanding about when different stakeholders should be involved.

This strategy focuses on 'local flood risk', that is, flooding caused by surface runoff, groundwater and ordinary watercourses (streams, ditches etc.) However, it is not the source of flooding but the effects that matter and we are keen to make sure that all forms are managed together and tackled according to level of risk rather than by what caused it.

Assessing levels of risk from flooding is a difficult task. With more development and increasingly uncertain weather patterns, houses and businesses that have never been flooded in living memory may be at risk, as Halton experienced in the Summer of 2012, when the country experienced the second wettest year on record.

This strategy is our statement of intent as to what needs to be done to tackle flooding in Halton. We hope it will help you become better informed of everyone's responsibilities, how to find out your flood risk and what we can do to help you become safer.

Councillor Tom McInerney
Portfolio Holder for Transportation
Halton Borough Council

Contents

Local Strategy: Context, Aims and Objectives

Section 9 of the Flood and Water Management Act 2010 (FWMA) requires lead local flood authorities to develop, maintain, apply and monitor a strategy for local flood risk management.

The strategy covers flood risk from surface runoff, groundwater and ordinary watercourses (i.e. non-main river). It must be consistent with the National Strategy published by the Environment Agency in 2011, and Halton must consult all risk management authorities and the public on its Local Strategy.

Introduction

Under statutory responsibilities as a Lead Local Flood Authority (LLFA), Halton Borough Council has developed this Local Flood Risk Management Strategy (LFRMS) to help understand and manage flood risk within the Borough. Halton Borough Council is well placed to co-ordinate flood risk management through its other statutory functions including Local Highway Authority, Local Planning Authority and Civil Contingencies Act 2004 Category 1 Responder. There is a well-developed network of partners by virtue of our historical operational and strategic practices. Halton, along with Cheshire East, Cheshire West, St Helens and Warrington Borough Councils, form the Cheshire Mid-Mersey Flood Management Group. All are LLFAs for their respective areas and this, and the wider North West England partnerships are outlined in more detail in section 1.4.

Catchment Approach

This strategy will set out a framework for managing flood risk in a holistic and sustainable way and will help Halton Borough Council as a Lead Local Flood Authority decide what we and our partners need to do to manage local risks. The Cheshire Mid-Mersey group of Lead Local Flood Risk Authorities have developed Local Flood Risk Management Strategies on a catchment-wide basis together, with local measures and flood risk assessments.

Who is this Strategy for?

Who	Details
Our Community	There may be areas that are at risk of flooding
Infrastructure Providers	Community providers, Highway Authority, Network Rail, United Utilities, Scottish Power and Transco etc.
Organisations responsible for managing land	Property, cultural heritage and the natural environment, land areas where the responsibility lies with people such as landowners, farmers and the Forestry Commission.
Non-Government organisations	Royal Society for the Protection of Birds, Country Land and Business Association, National Farmers Union, Wildlife Trusts, National Flood Forum, Association of British Insurers and economic development organisations.

Objectives

Aim		Objectives	Measures
To produce a coherent plan to demonstrate how the Council will work with individuals, the community, partners and other organisations to holistically manage flood risk in a sustainable manner.	1	To clearly set out the different types of flooding, who is responsible for managing risk and governance arrangements.	• Legislation • Roles and Responsibilities • Governance Arrangements
	2	To assess the total risk of flooding from all sources in Halton.	• Assessment of Halton Area • Sources of Data & Availability • Map flooding from all sources and its potential impact • Assess potential effects of Climate Change

	3	To manage flood risk and where appropriate reduce the risk and consequences of flooding through a range of activities and by effective management.	Achieve through: • Partnerships • Spatial planning • Development control • Sustainable drainage systems • Enforcement and consenting powers • Works powers • Asset management • Reservoirs • Designating features • Investigations • Communications • Emergency response
	4	To develop actions and interventions to reduce flood risk where appropriate	• Our approach to maintenance regimes and works • Works programmes and maintenance schedules • Improving information provision • Funding improvements
	5	To undertake flood risk management in a sustainable manner.	• Integrating sustainable practices through all flood risk duties and actions

Figure: Halton's step-by-step measures:

Powers and Duties

The Flood and Water Management Act 2010 (FWMA) places a number of new duties on the Council through either amendments to existing Acts such as the Land Drainage Act 1991 or through the FWMA itself. The key powers and duties in the Act are summarised below:

Responsibility	Details
Preparation of an Asset Register (s.21)	The Council has a duty to maintain a register of structures or features, which are considered to have an effect on flood risk, including details on ownership and condition as a minimum.
Power to designate flood risk management structures (schedule 1)	The Council, as well other flood management authorities have powers to designate structures and features that affect flooding or coastal erosion in order to safeguard assets that are relied upon for flood or coastal erosion risk management.
Investigation of flood incidents (s.19)	The Council has a duty to co-ordinate the investigation and recording of significant flood events within its area. This duty includes identifying which authorities have flood risk management functions and what they have done or intend to do with respect to the incident, notifying risk management authorities where necessary and publishing the results of any investigation carried out.
Prepare a Local Strategy for Flood Risk Management (s.9)	The Council is required to develop, maintain, apply and monitor a local strategy for flood risk management in its area. The local strategy will build upon information such as national risk assessment and will use consistent risk based approaches across different local authority areas and catchments.
SuDS Approval Body** (schedule 3)	The Council is designated the SuDS Approval Body (SAB) for any new drainage system, and therefore must approve, adopt and maintain any new sustainable drainage systems (SuDS) within its area.
Works powers and enforcement (amendment to Land Drainage Act 1991, s.14)	The Council has powers to undertake works to manage flood risk from surface runoff and groundwater, consistent with the local flood risk management strategy for its area.
Consenting changes to Ordinary Watercourses (s.21)	If riparian owners wish to culvert an ordinary watercourse or insert any obstructions, consent is required from an LLFA (Note: In areas of special drainage need (mainly in the east of the country and Severn / Avon catchments), cross-boundary Internal Drainage Boards (IDBs) undertake this function).
Powers to create Byelaws (amendment to Land Drainage Act 1991, s.66)	The Council may make such byelaws as it considers necessary for securing the efficient working of the drainage system in its district or area. Bye-laws are being progressed by the partners within the Cheshire Mid-Mersey group.

**At the time of writing, the SuDS aspects of the FWMA have not been fully implemented.
Section 7 sets out how the Council will develop these duties to manage flood risk.

Documents that Contribute to this Strategy

There are a number of existing documents relating to flood risk and planning policy that form the basis of this strategy:

- Halton BC Surface Water Management Plan
- Halton BC Preliminary Flood Risk Assessment
- Halton BC Flood Incident Response Plan
- Halton BC Level Two Strategic Flood Risk Assessment
- Halton BC Unitary Development Plan
- Halton BC Local Core Strategy
- Cheshire Multi Agency Flood Plan
- Mid Mersey Water Cycle Study
- Mersey Catchment Flood Management Plan
- Weaver Gowy Flood Management Plan

Objective 1: Risk Management Authorities and Responsibilities

Under Section 9(4) of the Flood and Water management Act 2010 Local Strategies must specify the risk management authorities operating in the Lead Local Flood Authorities' areas and the functions that may be exercised by them.

1.1 National Context

The Flood and Water Management Act 2010 identified certain organisations as 'Risk management authorities', which have responsibilities around flooding, both new ones from the Flood and Water Management Act 2010 and longstanding ones from previous legislation.

1.1.1 Background Legislation

The development and responsibility for flood risk management has evolved in recent years. Prior to 1989, it was the responsibility of the Local River Authorities, however the 1989 Water Act established the National Rivers Authority (NRA) and the privatisation of the Water and Sewerage sectors. Subsequently, in 1991, the following five Acts of Parliament were passed to consolidate existing water related legislation: The Water Industry Act, setting out the powers and duties of the water and sewerage companies; The Water Resources Act setting out the functions of the National Rivers Authority; The Statutory Water Companies Act, which applied specifically to the former statutory water companies; The Land Drainage Act, which transferred the functions of previous internal drainage powers of local authorities to the National Rivers Authority; and The Water Consolidation (Consequential Provisions) Act, which dealt with various consequential amendments, transitional arrangements and repeals arising from the introduction of the new legislation.

The Environment Agency (EA) was established in 1995, in place of the National Rivers Authority and took over the flood warning duties from the Police. Halton Borough Council is based within the EA's North West Region; with the head office based in Warrington. The release of the Planning Policy Guidance 25 (PPG25) in 2001 was in response to major flood events in 1998 and 2000, and designed to strengthen flood risk planning. This was superseded by the Planning Policy Statement 25 (PPS25) in 2006 for sustainable surface water management, which was in turn recently superseded again by the current National Planning Policy Framework, which intends to rationalise development legislation and processes.

1.1.2 Current Legislation

Following the 2007 Floods, the Pitt Review (2008) led to the overhaul of flood risk legislation within England and Wales. Greater responsibility particularly for surface water issues was assigned to upper tier Authorities such as Halton Borough Council. These responsibilities were formalised through the Flood and Water Management Act 2010. Summaries of these documents are as follows:

Legislation	Details
The Pitt Review (2008)	Sir Michael Pitt carried out a review of flood risk management practices after the widespread floods of 2007, in which over 50,000 households were affected and damages exceeded £4billion. The Pitt Review called for urgent and fundamental changes to the way flood risk was being managed. The report contained 92 recommendations for the Government, which were based around the concept of local authorities playing a major role in the management of local flood risk.
The Flood Risk Regulations (2009) (1) Preliminary Flood Risk Assessment (PFRA) (2) Flood Hazard and Flood Risk Maps (3) Flood Risk Management Plans	The Flood Risk Regulations transposes the EU Floods Directive into law for England and Wales. The Flood Risk Regulations require three main pieces of work: • The collecting of information on past and future floods from surface water, groundwater and small watercourses, assembling the information into a Preliminary Flood Risk Assessment (PFRA) report and identifying Indicative Flood Risk Areas. The PFRA for Halton Borough Council has been completed and is available on the Council website. • Following the identification of Flood Risk Areas, the Environment Agency was required to produce hazard and risk maps. As the Borough of Halton lies outside the Liverpool Flood Risk Area these maps were not required for Halton's 2011 PFRA. • The final stage is for Halton Borough Council to produce a Flood Risk Management Plan for the Indicative Flood Risk Areas. The Halton Borough Council Local Flood Response Plan 2012 and Merseyside Multi Agency Flood Plan (Merseyside Resilience Forum) will contribute significantly to the preparation of Flood Risk Management.
The Flood and Water Management Act 2010	The Flood and Water Management Act 2010 (FWMA) provides legislation for the management of risks associated with flooding and coastal erosion. Many of the recommendations contained in the Pitt Review have been enacted through the Flood and Water Management Act. The Act places a number of roles and responsibilities on councils such as Halton Borough Council, designating it a Lead Local Flood Authority, and on other risk management authorities with flood risk management functions. The preparation of this Local Flood Risk Management Strategy is brought about by this piece of legislation.

National Planning Policy Framework (2012)	The National Planning Policy Framework is a new document developed by the Department for Communities and Local Government (CLG). It is designed to streamline planning policy by substantially reducing the amount of planning guidance by bringing it all together in one coherent document.

1.1.3 National Flood and Coastal Erosion Risk Management Strategy

Section 11 of the Flood and Water management Act 2010 requires English risk management authorities to act in a manner that is consistent with the National Strategy and any published guidance.

In exercising its flood and coastal erosion risk management functions, an English risk management authority must act in a manner which is consistent with the national strategy and guidance, and, except in the case of a water company, act in a manner which is consistent with the local strategies and guidance. (Note: water companies must 'have regard' to Local Strategies).

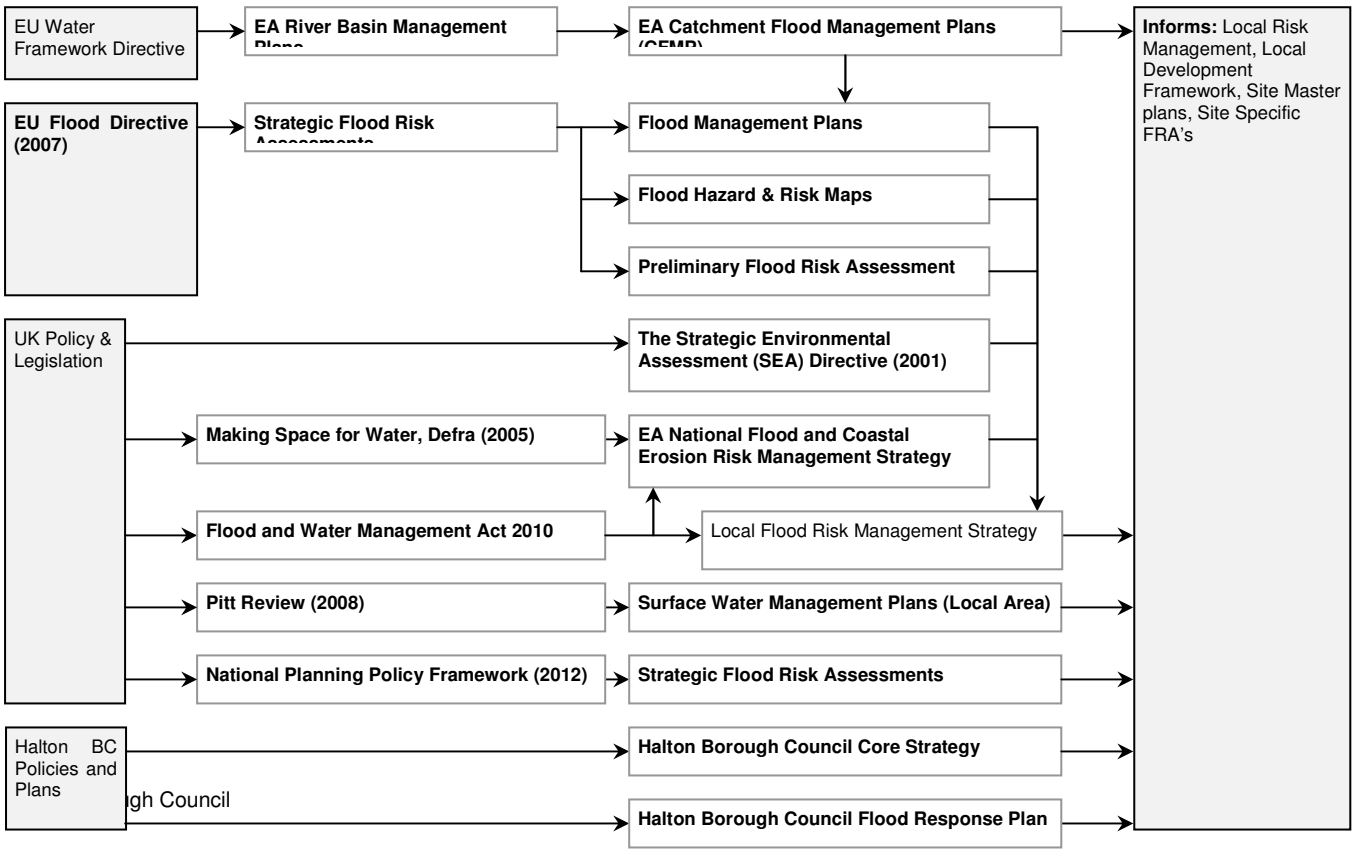
The Environment Agency and the Department for Environment, Food and Rural Affairs (Defra) have published a National Flood and Coastal Erosion Risk Management Strategy for England to ensure that the government, Environment Agency, local authorities, water companies, internal drainage boards and other organisations that have a role in Flood and Coastal Erosion Risk Management (FCERM) understand each other's roles and coordinate how they manage these risks. This fulfils a requirement of the Flood and Water Management Act 2010.

The Act gives the Environment Agency a 'strategic overview' of Flood and Coastal Erosion Risk Management, and in turn takes forward recommendations from Sir Michael Pitt's inquiry into the 2007 floods.

The National Strategy sets out what needs to be done to manage these risks by improving our understanding of them, reducing the likelihood of incidents happening, as well as managing the potential consequences for people, businesses, infrastructure and services. The National Strategy addresses these aims and shares them with LLFAs at a local level to:

- Respond better to flood incidents and recovery;
- Encourage local innovations and solutions;
- Help households, businesses and communities better understand and manage the flood risks they face;
- Manage the risk of flooding to people and their property and where possible, to improve standards of protection;
- Invest in actions that benefit public who face the greatest risk, but who are least able to afford to help themselves.
- Put sustainability at the heart of the actions we take, work with nature to benefit the environment, people and the economy.
- Move the focus from national government funded activities towards an approach that gives more power to local people, at individual, community or local authority level.

Figure: Overview of legislation contributing to current flood risk management



1.2 Types of Flooding and those Responsible:

Flood water is something that can affect all of us. This means that everyone has the responsibility to protect their properties from flooding. Whatever steps an individual takes to protect property from flooding must be carried out with due care. A property owner must ensure that they do not cause harm to their neighbours or their properties.

This Strategy sets out a framework for managing flood risk in a holistic way and will help Halton Borough Council as the Lead Local Flood Authority decide what we and our partners need to do to manage local risks. Halton Borough Council, as part of the Cheshire and Mid Mersey group of authorities, has defined a flood of 'significant harmful consequences' as having one or more of the following characteristics:

- Resulted in major disruption to the flow of traffic for 12 hours or more;
- Posed, or could have posed, a risk to human health;
- Adversely affected the functioning of critical infrastructure;
- Caused harmful impacts to environmentally and socially important assets;
- Caused internal flooding to a property used for residential or commercial purposes.

The table below shows which organisations are responsible for the different types of flooding. Although these organisations may be responsible this does not mean that they are liable for damage caused by flooding. Property owners who own land bounding a river, lake, or other water course are defined as 'Riparian Owners' and they have the responsibility of protecting their property and for maintaining the section of adjacent watercourse.

Risk Management Authority for each Type of Flooding

	Flooding Type	Details	Risk Management Authority	Responsibility for Flood Protection
Natural	River flooding (Fluvial)	This occurs when a river or stream cannot cope with the water draining into it from the surrounding land – for example, when heavy rain falls on ground that is already water logged.	Main River – Environment Agency Ordinary Watercourse – Halton Borough Council	Riparian land owner
	Tidal flooding	This can occur at high spring tides. High water levels in the Mersey Estuary cause water to surcharge back up tributaries and flood surrounding land and highways.	Environment Agency	Environment Agency, Halton Council, Riparian land owner
	Surface water flooding (Pluvial)	This occurs, for example, 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 rather than from a channel. This type of flooding can be difficult to predict and pinpoint much more so than river or coastal flooding.	Halton Borough Council	Land Owner
	Groundwater Flooding	This 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 which become saturated following periods of persistent rainfall These are permeable rocks that water can soak into or pass through.	Halton Borough Council	Land Owner
Joined	Highway Flooding	Flooding is caused by heavy rainfall or by water overflowing from blocked drains and gullies causing water to pond within the highway network.	Halton Borough Council	Halton Borough Council, Highways Agency, Merseylink Ltd (in respect of the Mersey Gateway project roads)

Man made	Sewer Flooding	This can happen when sewers are overwhelmed by heavy rainfall or when they become blocked. The chance of flooding depends on the capacity of the local sewage system and amount of rain that falls. Land and property can be flooded with water contaminated with raw sewage as a result. Sewers that overflow can also pollute rivers.	United Utilities	United Utilities
	Water Supply Flooding	When flooding occurs from a manmade water supply, for example when a burst water main results in flooding in a residential area.	United Utilities	United Utilities, asset owners (if in private ownership)
	Reservoir flooding	Reservoirs hold large volumes of water above ground level, contained by walls or dams. Although the safety record for reservoirs in England is excellent, it is still possible that a dam could fail.	Canal and River Trust, Environment Agency, United Utilities, Halton Borough Council	Reservoir Owner
	Canal	Canals are rivers or manmade channels that have been developed for use in industry. Canal flooding occurs when the canal cannot cope with the water draining into it from the surrounding land.	Canal and Rivers Trust, Peel Holdings (not a Risk Management Authority)	Canal Owner – Peel Holdings, Bridgewater Canal Company Ltd.

Other Relevant Legislation

There is a wide range of other relevant legislation and guidance contributing to Flood Risk Management including:

- The Reservoirs Act 1975
- The Ancient Monuments & Archaeological Areas Act 1979
- The Highways Act 1980
- The Wildlife & Countryside Act 1981
- The Building Act 1984
- The Environmental Protection Act 1990
- The Town and County Planning Act 1990
- The Planning (Listed Buildings & Conservation Areas) Act 1990
- The Land Drainage Act 1991
- The Water Resources Act 1991
- The Water Industry Act 1991
- The Environment Act 1995
- The Countryside & Rights of Way Act 2000
- The Water Act 2003
- The Planning and Compulsory Purchase Act 2004
- The Civil Contingencies Act 2004
- The Climate Change Act 2008
- The Planning Act 2008
- The Local Democracy, Economic Development & Construction Act 2009
- The Localism Act 2011
- The EU Wild Birds Directive (1979/409/EEC & 2009/147/EC)
- The EU Environmental Impact Assessment Directive (1985/337/EEC & 1997/11/EC)
- The EU Habitats Directive (1992/43/EEC)
- The EU Strategic Environmental Assessment Directive (2001/42/EC)
- The EU Water Framework Directive (2000/60/EC)
- The EU Floods Directive (2007/60/EC)

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1.3 Risk Management Authorities and Others and their Responsibilities

Authority	Responsible For	Activity
Government (Defra)	Defra develops FCERM policy and is the lead Government department for flood risk management in England.	New or revised policies are prepared with other parts of government such as the Treasury, the Cabinet Office (for emergency response planning) and the Department for Communities and Local Government (land-use and planning policy). These national policies form the basis of the Environment Agency's work.
Environment Agency (RMA)	As national co-coordinator, the Environment Agency has a strategic overview of all sources of flooding (as defined in the Flood and Water Management Act 2010). It is also responsible for regulating reservoir safety, and working in partnership with the Met Office to provide flood forecasts and warnings. • Main rivers • Reservoirs over 10,000m³	Developing long-term approaches to FCERM. This includes working with others to prepare and carry out sustainable Flood Risk Management Plans at a regional level, (formerly Catchment Flood Management Plans (CFMPs)) to address flood risk in river basins. Shoreline Management Plans (SMPs) assess the risks of coastal flooding and erosion and propose ways to manage them. The Environment Agency also collates and reviews assessments, maps and plans for local flood risk management (normally undertaken by Lead Local Flood Authorities). Providing evidence and advice to support others. This includes national flood risk information, data and tools to help other risk management authorities and inform government policy, and advice on planning and development issues. Working with others to share knowledge and the best ways of working. This includes work to develop FCERM skills and resources. Monitoring and reporting on flood and coastal erosion risk management. This includes reporting on how the national FCERM strategy is having an impact across the country. The Environment Agency brings together local authorities and communities to share our combined knowledge, and develop a sustainable framework so that the right actions are decided for each community.
Halton Borough Council (LLFA RMA)	As local coordinators, the Flood and Water Management Act directs responsibility for the following types of flooding to LLFAs to: • Surface Water • Highway Drainage • Groundwater • Ordinary Watercourses Providing and managing highway drainage and roadside ditches under the Highways Act 1980.	Prepare and maintain a strategy for local flood risk management in their areas, coordinating views and activity with other local bodies and communities through public consultation and scrutiny, and planning. Maintain a register of assets – these are physical features that have a significant effect on flooding in their area, Issue consents for altering, removing or replacing certain structures or features on ordinary watercourses; Establish approval bodies for design, building and operation of SuDS. Play a lead role in emergency planning and recovery after a flood event. Set land use policy and manage development in relation to policy The owners of land adjoining a highway also have a common-law duty to maintain ditches to prevent them causing a nuisance to road users. To manage these risks as set out in the national strategy, authorities will need to work effectively with the Environment Agency.
United Utilities (RMA)	Work with flood authorities to co-ordinate the management of water supply and sewage systems.	Make sure their systems have the appropriate level of resilience to flooding, and maintain essential services during emergencies. Maintain and manage their water supply and sewage systems to manage the impact of flooding and pollution to the environment. Provide advice to LLFAs on how water and sewage company assets impact on local flood risk. Work with developers, landowners and LLFAs to understand and manage risks.
Private Sewer Ownership	Since 1 October, 2011 property owners have no longer been responsible for certain sewer pipes that connect their homes to public sewers	New legislation will transfer responsibility for these pipes, called private sewers and lateral drains, to United Utilities. After the private sewer transfer there will be public sewers which will be owned and maintained by United Utilities, and private drains This will remove confusion for responsibility and aid flood management. The deadline for the transfer of private pumping stations to United Utilities is October 2016.
Manchester Ship Canal Company (Not a RMA)	Managing the Manchester Ship Canal primarily for navigation and secondarily for flood risk purposes.	Manchester Ship Canal Company is the statutory navigation authority for the canal and as such is responsible for managing the shipping movements along the entire length of the canal. Manchester Ship Canal Company is also responsible for managing flood risk directly from the canal and can do this by managing water levels through the operation of key assets and undertaking dredging where necessary.
Bridgewater Canal Company Ltd (Not a RMA)	Managing the Bridgewater Canal primarily for navigation and secondarily for flood risk purposes.	The Bridgewater Canal Company is the statutory navigation authority for the canal and as such is responsible for managing the shipping movements along the entire length of the canal. The Bridgewater Canal Company is also responsible for managing flood risk directly from the canal and can do this by managing water levels through the operation of key assets and undertaking dredging where necessary.
Residents and Business (Not RMAs)	Riparian Land Owners are responsible for the maintenance and upkeep of the watercourse if it is part of their land. Householders and businesses are responsible for the protection of their own properties.	

1.4 LLFA Structure (including governance and local partnerships)

Section 13 of FWMA 2010 requires risk management authorities to co-operate with each other in exercising their flood risk management functions.

This also enables the sharing of information between them. Sub section 13(4) allows for functions to be delegated to other risk management authorities (except for those in connection with national and local strategies).

Much of the local knowledge and technical expertise necessary for Halton Borough Council to fulfil duties as a LLFA lies with the Council and other partner organisations. The Flood and Water Management Act 2010 pre-dated the Localism Act and NPPF of 2012 but includes the same principle of the need for relevant authorities to cooperate. They create a duty on local planning authorities and other bodies to cooperate with each other to address issues relevant to their areas. The duty requires ongoing constructive and active engagement on the preparation of development plan documents and other activities relating to the sustainable development and use of land, in particular in connection with strategic infrastructure.

It is therefore crucial that the Council works alongside these partners as they undertake their responsibilities to ensure effective and consistent management of local flood risk. These working arrangements have been formalised to ensure clear lines of communication. In assuming its new statutory responsibilities as the Lead Local Flood Authority, Halton Borough Council is well placed to co-ordinate flood risk management through its other statutory functions including: Local Highway Authority, Local Planning Authority and Civil Contingencies Act Category 1 Responder. The Council has a centralised network of partners by virtue of its historical operational and strategic innovative practices. This strategy formalises and develops our partnerships.

Halton Borough Council has taken a “whole catchment” view of flood risk management. By doing so it ensures we appreciate our actions over the whole area rather than simply within political boundaries. Halton Borough Council’s administrative area is situated within both the Mersey catchment and the Weaver Gowy catchment area. The Council has established a strong liaison link with Warrington Borough Council due to the general topography and drainage characteristics and the interplay between Halton and Warrington. Other influences are from watercourses in Knowsley BC, St. Helens BC and Warrington BC administrative areas of the catchment.

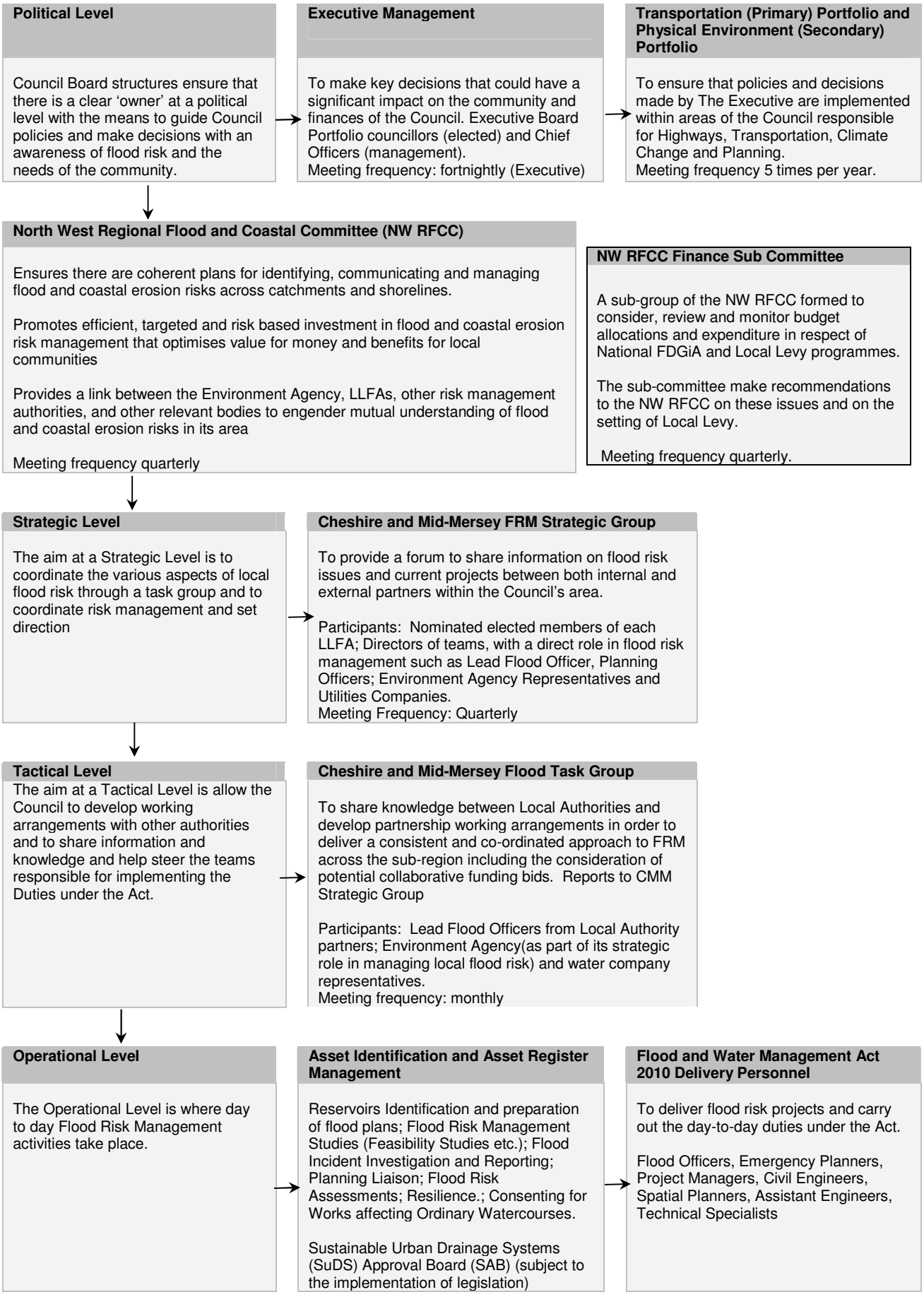
Halton Borough Council is part of the wider Cheshire and Mid-Mersey sub-regional LLFA working group, where best practice and lessons learned are shared in relation to the management of flood risk. There is liaison with the Merseyside Group of Drainage Authorities as a result of established transportation and economic partnership working, and ultimately to the whole Mersey Estuary Catchment through contacts at a regional level with Manchester Authorities (AGMA).

Authorities within the Cheshire Mid Mersey Flood Management group are:

- Halton Borough Council
- St. Helens Borough Council
- Cheshire East Council
- Cheshire West and Chester Council and
- Warrington Borough Council

Additionally, the Merseyside Environmental Advisory Service (MEAS) is a sub-regional service that serves Halton, Knowsley, Liverpool, Sefton, St Helens and Wirral Councils. MEAS provides environmental advice and sustainable solutions. The service comprises professional technical staff and its role is to assist the Liverpool City Region (LCR) Districts by providing technical advice on a wide range of environmental matters. It assists the LCR Districts by providing a 'one-stop-shop' for a broad range of environmental, nature conservation and sustainable development and waste management issues.

Figure: Structure Responsibilities



Objective 2: Assessment of Flood Risk in Halton

Section 9 (4) of the FWMA 2010 requires the Local Strategy to include an assessment of local flood risk in the LLFA's area.

2.1 The Area

The administrative area of Halton Borough lies within two catchments. These are the Mersey Estuary and the Weaver Gowy catchments, which form the southern part of the North West River Basin District.

Area Overview:

The Borough of Halton has a population of 125,700 and covers an area of 79 square Kilometres (30.5 sq. miles). It is situated in the North West of England, to the east of Liverpool and north of Cheshire and straddles the River Mersey tidal estuary.

Approximately two thirds of the Borough is built-up urban area, chiefly comprising the towns of Widnes and Runcorn, with six parishes, largely comprising the remaining one-third green belt area and situated to the west of Widnes and to the east of Runcorn.

North of the Mersey estuary, the land slopes gently upwards to a maximum elevation of around 50m AOD. This area is drained predominantly by Ditton Brook to the west and Bowers Brook to the east of Widnes. Both of these main rivers flow into the tidal Mersey Estuary. Ditton Brook is also tidal and flows in open channel. The southern section of Bowers Brook is culverted. South of the Mersey estuary, the land slopes steeply from the west and north to a general height of around 75m AOD across Higher Runcorn and Halton. The landform slopes more gently southwards to the River Weaver valley and eastwards to Keckwick Brook. The Runcorn area is drained by several ordinary watercourses which outflow to these main rivers. River catchment areas, main rivers and watercourses are detailed in Appendix 1.

Agricultural land at Halebank, Widnes Warth and Wigg Island in Runcorn is affected by River Mersey tidal flooding. In Widnes, the built-up frontage to the river estuary is protected by river walls. To the south, the Runcorn conurbation is protected by the Manchester Ship Canal walls. There are two other canals in the area, the St Helens Canal and the Bridgewater Canal. The locations of these are shown in Figure 12 appendix 1 to this document.

The underlying geology in Halton consists of a band of Helsby Sandstone with Wilmslow Sandstone to the north and Tarporley Siltsone to the south. The overlying drift geology is predominantly Boulder Clay, with Blown Sand (Shirdley Hill Sand) at Weston Point. The soils of the surrounding area are a combination of brown earths and argillic stagnogley soils. A large proportion of the Mersey Estuary catchment lies upon a significant aquifer, which, in the past, was pumped extensively for mining, water supply and other industrial purposes.

The average rainfall across Halton is 50mm, with a seasonal low of less than 40mm in spring and around 70mm in October.

Due to the general landform and proximity to the River Mersey Estuary with its tributaries, Halton generally has a low flood risk rating. However, the Environment Agency currently operate five flood risk warning areas within Halton associated with tidal and fluvial flooding and there are several local surface water flooding 'hotspots' which were identified in Halton's PFRA and SWMP study.

2.2 Availability of Data

Authority	Dataset	Description
Environment Agency	Flood Map (Rivers and the Sea) Flood Map for Surface Water	Shows the extent of flooding from rivers with a catchment of more than 3km² and from the sea. Includes two flood events (with a 1 in 30 and a 1 in 200 chance of occurring) and two depth bandings (greater than 0.1m and greater than 0.3m). (Makes allowance for some drainage)
	Areas Susceptible to Surface Water Flooding Areas Susceptible to Groundwater Flooding	The first generation national mapping, outlining areas of risk from surface water flooding across the country with three susceptibility bandings (less, intermediate and more). (Makes no allowance for drainage) Coarse scale national mapping showing which areas are susceptible to groundwater flooding.
	National Receptors Dataset (NRD)	A national dataset of social, economic, environment and cultural receptors including residential properties, schools, hospitals, transport infrastructure and electricity substations.
	Indicative Flood Risk Areas	Nationally identified Flood Risk Areas, based on the definition of 'significant' flood risk described by Defra
	Historic Flood Map	Attributed spatial flood extent data for flooding, from all sources.
	Flood Warning Areas	Residents in Ditton and Halebank areas of Widnes receive automated flood warning messages.
	Mersey Estuary Catchment Flood Management Plan (FMP) & Weaver Gowy Catchment FMP	CFMPs consider all types of inland flooding, from rivers, groundwater, and surface water and tidal flooding and are used to plan and agree the most effective way to manage flood risk in the future.
Halton Borough Council	Strategic Flood Risk Assessment (SFRA);	SFRA contains useful information on historic flooding, including local sources of flooding from surface water, groundwater and flooding from canals. SFRA applies a sequential analysis in respect of development
	Level 2 Strategic Flood Risk Assessment (JBA, 2011)	SFRA contains useful information on historic flooding, including local sources of flooding from surface water, groundwater and flooding from canals.
	Preliminary Flood Risk Assessment PFRA	Preliminary Flood Risk Assessment (PFRA), Details on historical past flooding records and possible future flooding areas. The document also contains the level of significant flooding
	Historical flooding records	Historical records of flooding from surface water, groundwater and Ordinary Watercourses.
	Anecdotal information relating to local flood history and risk; Basic Anecdotal information	Anecdotal information from authority members regarding areas known to be susceptible to flooding from excessive surface water, groundwater or flooding from Ordinary Watercourses. Anecdotal information: flood risk, flood history and local flood hotspots.
	Highways Flooding Reports	Highways Flooding Reports for a number of locations within Halton Borough Council, including analysis of the flood risk at each location.
	Asset register	Register of assets that are part of private and public flood defences in the borough.
	Surface Water Management Plan	Details of a SWMP Study that was carried out for the whole of the Borough in 2011 and which identifies surface water flooding 'hotspots' and proposed actions for further development.
	Mid-Mersey Water Cycle Study (Outline Phase) 2011	Strategy on the Water Cycle for the Mid-Mersey Catchment, which Halton Borough Council is a part of.
	Desk Top Culvert Inundation Study	A desk top study to provide initial culvert locations and inundation flood model (JBA 2012)
	Surface Water Study	Study of surface water mapping (Jacobs 2012)
Cheshire Fire & Rescue Service	Incident response register	Issue logs of all events recorded by Cheshire Fire and Rescue Service. This includes flooding incidents.
United Utilities	Wastewater Incident register DG5 Register	Extracts from United Utilities Sewerage incident database and register of properties / areas that have flooded as a result of under capacity of the sewerage system.

2.3 Summary of Recorded Flooding

2.3.1 Flooding from Ordinary Watercourses (Fluvial)

Ordinary Watercourses are any watercourses that are not designated a 'Main River' by the Environment Agency and therefore come under the land drainage remit of Halton Borough Council. These watercourses can vary in size considerably and can range from drains and open ditches, to streams, brooks and small rivers. There are gaps due to currently unavailable information. Like many urban watercourse systems, the network through the Borough has many culverts particularly on Bowers Brook, which flows through Widnes Town Centre.

The locations of known ordinary watercourses have been identified in the Halton SFRA. Flooding of watercourses is associated with the exceedance of channel capacity during higher flows. The process of flooding on watercourses depends on a number of characteristics associated with the catchment including; geographical location and variation in rainfall, steepness of the channel and surrounding floodplain and infiltration and rate of runoff associated with urban and rural catchments.

2.3.2 Surface Water Flooding (Pluvial)

Surface water flooding in this context is surface water runoff as a result of high intensity rainfall when water is ponding or flowing over the ground surface before entering the underground drainage network or watercourse, or cannot enter it because the network is full or at capacity, thus causing flooding. This is known as pluvial flooding. Pluvial flooding also includes overland flows from the urban/rural fringe entering a built up area. Whilst pluvial flooding from heavy rainfall can occur anywhere in the Council's area, there are certain locations where these mechanisms are more prominent due to the urban nature of the catchment, complex hydraulic interactions between watercourses and surface water and combined sewer systems.

Significant surface water flooding is a result of interacting hydraulic mechanisms. The locally significant instances that are known are in the Kingsway and Appleton Wards in Widnes.

2.3.3 Coastal Flooding (Tidal)

Coastal flooding may be described simply as the inundation of low lying coastal areas by the sea, or the overtopping or breaching of sea defences. Coastal flooding may be caused by seasonal high tides such as those driven by the spring neap tide cycle, storm surges and where increase in water level above the astronomical tide level is created by strong on shore winds or by storm driven wave action. Extreme conditions leading to coastal flooding are most commonly a result of a combination of two or more of these mechanisms. In Halton, coastal tidal flooding is a risk in low lying areas close to the Mersey Estuary and its tidal tributaries.

Flooding from coastal / tidal influences is known to affect property and highways at Hale Road, Ditton Road, St Michaels Road, and Marshgate, in Widnes and Ramsbrook Lane, Halegate Road, Hale.

2.3.4 Groundwater Flooding

Groundwater flooding is caused by the emergence of water from underground, either at point or diffuse locations. The occurrence of groundwater flooding is usually very local and unlike flooding from rivers and the sea, does not generally pose a significant risk to life due to the slow rate at which the water level rises. However, groundwater flooding can cause significant damage to property, especially in urban areas, and can pose further risks to the environment and ground stability. There are several mechanisms, which produce groundwater-flooding including: High in-bank river levels, artificial structures, prolonged rainfall and groundwater rebound (which occurs when abstraction, typically for drinking water, industrial or mine dewatering purposes, stops and water levels return to pre-abstraction levels).

A large proportion of the Mersey Estuary catchment lies upon a significant aquifer, which, in the past, was pumped extensively for mining, water supply and other industrial purposes. There is no known documented evidence of surface flooding from groundwater in the Mersey Estuary catchment. Groundwater flooding is a minor issue at catchment scale it is not considered in detail for the Weaver Gowy catchment. The known possible groundwater flooding areas in the Halton Brook area of Runcorn and Barrow's Green area of Widnes did not produce any recorded incidents in the September 2012 Flooding.

2.3.5 Highway Drainage Networks and Sewers

Flooding from artificial drainage systems occurs when flow entering a system, such as an urban storm water drainage system, exceeds its discharge capacity, the system becomes blocked or it cannot discharge due to a high water level in the receiving watercourse. A sewer flood is often caused by surface water discharging into the surface water or combined sewer systems, sewer capacity is exceeded in large rainfall events causing the backing up of floodwaters within properties or discharging through manholes. The management of flood risk from public sewers is the responsibility of the sewage undertaker; the undertaker for Halton Borough Council is United Utilities (UU).

Records show that flooding has occurred mainly in areas in the Kingsway and Appleton wards of Widnes. Due to the potential link between different types of flooding and the need for understanding of past flood events, information on this source of flooding has been indicated in Halton's Surface Water Management Plan study

2.3.6 Flooding from Canals

There are four canals within the Halton Borough study area: The Manchester Ship Canal, the Bridgewater Canal, the St Helens Canal and the Weaver Navigation. The predominant cause of uncontrolled loss of water from canal systems is as a result of flooding, vandalism or structural failure causing a breach. In the event that a canal does fail resulting in a release of water, the height that the canal is elevated above surrounding land will affect to some degree the amount of flood hazard that could be caused by deep or fast flowing debris laden water, alongside the cause of failure. The amount of water that can escape depends on the pound length, which is the distance between two locks because the maximum volume of water that will outflow will be contained between the two locks or time taken for an operator to react to a failure to prevent further escape. The risk of flooding from canals is reduced by regular inspection by the owners to identify any problems with inflow and outflow structures, canal lining or embankments.

Canal flooding due to failure of the Manchester Ship Canal is considered to be unlikely. A mathematical reliability analysis has been undertaken, which looks at the probability of the sluices not operating normally, and this has informed the published MSC Water Level Operational Protocol. As a controlled water body, the Bridgewater Canal only poses a minor risk of flooding to adjacent people and property. There is a small risk associated with lower probability events such as overtopping and/or the breaching of embankments. There is anecdotal evidence of the Bridgewater Canal overtopping its banks and flooding the highway at Runcorn Road, Moore.

2.4 Future Flood Risk (from all sources)

This section aims to identify what the future flood risk is for Halton. This includes looking at current flood modelling data that has been created for Halton Borough Council by the Environment Agency and others, using both local and national datasets and considering the known historic events. In summary, flood modelling suggests the following potential risks:

Data Set	Flooding Type	People	Properties	Transport Network	Critical Infrastructure (see note *)	Community Facility
Mersey Estuary Catchment Flood Management Plan 2008	Main River	758	324	3.2km	13	-
Weaver Gowy Catchment Management Plan 2008	Main River	7	3	5km	3	-
Halton Preliminary Flood Risk Assessment 2011	Surface Water	2579	373	-	20	1
JBA Culvert Analysis 2012	Ordinary Watercourses	1010	332	-	-	-

*Critical infrastructure includes major roads, railways, and power and water infrastructure.

2.4.1 Flooding from Ordinary Watercourses (Fluvial)

There are a small number of identified flood risks from Ordinary Watercourses across Halton. Flooding from ordinary watercourses can also occur during high tides, particularly in the Hale area, and at times of flash storm events. A study to locate culverts and to undertake flood model analysis of all culverts on ordinary watercourses to map inundation scenarios has been undertaken (JBA Consultants 2012). This mapping forms part of the Council's set of risk maps and asset management data. Flood risks are identified for Higher Runcorn and at Desoto Road, where there is the potential to affect a number of highways at West Bank Industrial Estate. Flooding from Ordinary Watercourses is known to affect property and highways at:

Watercourse	Location	Impact
Willow Brook	Pool Hollow	Property and highway
Marsh Brook	Desoto Road	Highway

2.4.2 Flooding from Main River

Halton Borough Council has reviewed and identified that there are flooding incidences from Main Rivers within the Borough. The main source of flood risk in Halton is associated with fluvial flooding from Ditton Brook and its tributaries and Keckwick Brook. The Mersey Estuary Catchment Flood Management Plan, produced by the Environment Agency, quantifies the following risk for a 1% annual exceedance flood event (for the whole of Halton):

- 765 people
- 327 properties
- 8.2km of Transport Network
- 16 items identified as critical infrastructure
- 0 community facilities

Flooding from Main River is known to affect property and highways at:

Watercourse	Location	Impact
Ditton Brook	Ditton Road, St. Michael's Road, Hale Road	Highway
Rams Brook	Hale Gate Road	Highway
Keckwick Brook	Glastonbury Close	Property and highway
Keckwick Brook	Eastgate Road	Property and highway

Although flooding from Main Rivers is the prime responsibility of the Environment Agency, the Council will liaise and act in partnership to solve or mitigate issues. Flood defences to protect against river flooding are in place on Ditton Brook and Keckwick Brook. The EA have 2 active Flood Warning Zones across Halton as follows:

Watercourse	Area	Number of Properties
Ditton Brook	Ditton	109
Ditton Brook	Hale Bank	278

Maps of these zones are provided at Appendix 2.

2.4.3 Culvert Study

Two phases of a staged process to develop the Council's flood risk asset register have been undertaken. In 2012, a preliminary desk-top exercise was undertaken which identified culvert locations and analysed the risk of flooding to land critical infrastructure and properties through hydraulic modelling of potential failure of the culverts. In 2014, a second phase of site-based culvert inspection was undertaken to create a record of individual culvert construction and condition. The culvert flood risk analysis, taken together with the condition inspection, will help to inform and prioritise future maintenance and repair works programmes.

2.4.4 Surface Water Flooding (Overland Flow)

The Environment Agency (EA) has produced a national assessment of surface water flood risk in the form of two national mapping datasets. These comprise:

1) the first generation national mapping; Areas Susceptible to Surface Water Flooding (AStSWF) which produces three susceptibility bandings (less, intermediate and more); and
2) the Flood Map for Surface Water (FMfSW), which contains two flood events: 1 in 30 annual chance and 1 in 200 annual chance, for two depth bandings: greater than 0.1m and greater than 0.3m.

The EA suggest that LLFAs should review, discuss, agree and record the surface water flood data that best represents their local conditions. The FMfSW estimates a greater number of properties to be at risk of surface water flooding and consequently, under a precautionary approach that would provide a robust analysis; this was used in the preparation of Halton's PFRA.

The Pitt Review recommended that Surface Water Management Plans (SWMPs) should form the basis for future management of all local flood risks. Mott MacDonald was commissioned by Halton Borough Council to undertake a SWMP study of the Halton Borough area including the towns of Widnes and Runcorn, which are ranked 156 and 309 respectively in the National Rank Order of Settlements Susceptible to Surface Water Flooding (DEFRA, 2009). The study included an intermediate level risk assessment of flood risk of the whole Borough to identify priority areas and the first stage of a detailed assessment of those 'hot-spot' areas susceptible to flooding, which comprised an in-field review and summary recommendations.

The outputs of the study can be summarised as follows:

- a suite of interactive surface water flood risk maps comprising four series covering 1 in 30, 1 in 100 and 1 in 200 year events and based upon a 100m x 100m cellular grid:
    - **100 Series -** flood depth, hazard and velocity;
    - **200 Series –** Flood Impact Maps for Property including impact scores for flood depth and hazard;
    - **300 Series –** Flood Impact Maps for Essential Transport Infrastructure including impact scores for flood depth only;
    - **400 Series –** Flood Risk Maps for Property comprising flood risk scores for flood depth and hazard
- A 'higher risk' cluster cell analysis based on the 100m x 100m grid and 'Hot-Spot' area mapping;
- Detailed risk assessment and Prioritised list of Actions for Hot-Spot areas.

The Halton Surface Water Flood Map that has been produced for the SWMP study shows very close correlation with the EA's second generation FMfSW and it has been agreed with the EA that the national FMfSW will be used as the definitive locally agreed surface water map.

Appendix 1 Figure 6 shows the flood Map for Surface Water for Halton Borough Council area. The following table summarises the numbers of properties potentially affected by surface water.

Properties at risk from surface water flooding in Halton

Depth	Estimated number of **ALL** properties at risk of surface water flooding from a 1-in-200 event	Estimated number of residential properties at risk of surface water flooding from a 1-in-200 event
0.1m	12,690	9,747
0.3m	3,061	2,293

Halton Council has completed Strategic Flood Risk Assessments (levels 1 and 2), in which, anticipated development and associated flood risks have been Sequentially Tested. It is intended that this approach to development and flood risk ensures that planned development does not increase flood risk and also that appropriate development only, in terms of flood risk, is permitted. Appendix 1 Figures 8 and 9 show future development sites in relation to the EA's Flood Risk Zones.

Evaluation of the modelling reports for the watercourses within this area indicates that many of the channels and culverts running through Halton have significant capacity, often exceeding the 1 in 100 (1%) year annual probability flood event. The surface water mapping, however, assumes deficient existing drainage capability and does not take account of potential additional capacity of watercourses. Consequently, it is likely that much of the flooding shown in these areas could in fact flow into the watercourses and be conveyed downstream, unless prevented by physical characteristics of the area (e.g. built-up defences, culverts, topography, etc.). The extent of surface water flooding could, therefore, be significantly less than the model suggests. It is also likely that the areas that are affected by surface flood risk are relatively hydraulically independent of each other. This means that an action to reduce surface water flood risk in one area is unlikely to have significant positive or negative impacts in other areas.

Surface water runoff from adjacent ground to highways and private property is highly variable and often dependant on localised agricultural land management and degree of ground saturation, which proved a particular contributing factor during the second half of 2012.

2.4.5 Groundwater Flooding

National Environment Agency datasets provide an assessment of groundwater risk in terms of percentage likelihood in given 1km national grid squares. This is the Areas Susceptible to Groundwater Flooding (AStGwF). The Council subscribes to the new ESI National Groundwater Flood Risk Map which shows that the areas at risk from groundwater flooding are considerably less extensive than previously flagged by other providers of groundwater flood information. Figure 10 in Appendix 1 shows the distribution of groundwater flooding which includes high risk areas associated with the Keckwick Brook and Whitley Brook catchments. Reliable data on groundwater flood events is sparse, and in exchange for licence to use the maps for planning and flood risk management purposes, the Council has undertaken to provide data that will develop and further improve the map.

The Council has recorded groundwater emergence in the Stenhills area of Runcorn, although this is not classed as a significant or harmful risk. However, the Council believes that there is a general risk of groundwater flooding in subsiding areas within north Widnes, potentially relating to groundwater rebound following cessation of dewatering after the closures of mines. The extent of any groundwater flooding is likely to be limited and occupy areas similar to the fluvial floodplain. It is therefore considered that the probability of groundwater floods with significant harmful consequences is low.

2.4.6 Canal Flooding

There are four navigable canals within the Borough of Halton:

Manchester Ship Canal

The Manchester Ship Canal follows the southern bank of the Mersey Estuary around Runcorn. Water levels in the Manchester Ship Canal within Halton are affected by four factors:

- Water flowing down the River Mersey from the upper reaches of the canal, above Latchford Locks.
- Water flowing down the canal from Latchford Locks.
- Water flowing down the River Weaver.
- Tidal events.

There is significant freeboard between the surface water level and the top of bank. Though not designed specifically for flood management purposes, the canal and the operation of the eight sluices at Runcorn, which control the water level in the lower reaches of the canal as it passes through Halton, does reduce flood risk by allowing flows to pass downstream. The Council's view is that the operation of these sluices is likely to have a significant impact on flood risk.

The Manchester Ship Canal Company has developed a Water Level Control Operational Protocol for the canal, in liaison with the Environment Agency. This document sets out the operating procedures for the canal sluices, including at high flows. It also details the maintenance regime and the reliability of the sluices. The Council is satisfied that this document sets out an appropriate basis for managing the sluices on the Ship Canal and does not seek to designate these features.

Canal's Relationship with Keckwick Brook:

Keckwick Brook drains a large catchment area on the east side of Runcorn, which originally flowed into the Mersey Estuary. The Manchester Ship Canal severed this route and the Brook now outfalls into the canal via (older) brick-lined egg-shaped outfall culverts and (newer) inverted siphon outfall culverts, both with flap valves to control backflow from the canal to the brook when tidal conditions dictate high water levels in the canal.

The lower reach of Keckwick Brook north of Sandymoor has minimal gradient as it passes through the Manor Park area of Runcorn. Due to the slackening of the gradient and the sandy nature of the soils upstream, the brook is prone to silting over this section, which causes capacity problems within the channel, through culverts. Culvert blockage at Daresbury Expressway results in frequent flooding of a pedestrian subway, with consequent health and safety issues for users of the highway infrastructure in this area.

Flood attenuation reservoirs adjacent to Keckwick Brook were constructed by the Warrington & Runcorn Development Corporation in the 1980's at Wharford Farm and Oxmoor, to provide flood protection for new development in east Runcorn. The Oxmoor basins take flow from Keckwick Brook during high flows and when tidal conditions in the Mersey Estuary and water levels in Manchester Ship Canal lock-out the outfalls. At Oxmoor, water is impounded by two basins and is discharged back into the brook via gates when water levels subside. Alternative discharge from the basins is available via the United Utilities pumping station which can pump high volumes quickly into the canal to empty the basins.

The hydrology of the brook has been recently re-modelled by the Environment Agency to ensure flooding mechanisms at Sandymoor are known and risk is managed appropriately. The EA and the Council are currently considering alterations at Wharford Farm flood storage basin inlet structure that would bring the balancing lake into operation at lower frequency storm events

The drainage system of Keckwick Brook, including the attenuation / flood storage basins and the outfalls to the Ship canal are complex. The Council proposes to convene a meeting of partners: the EA, United Utilities and Peel Ports Group / Peel Holdings (the MSC owners), to share information on flood modelling, sluice control and pumping discharge options, in order to engender a better understanding between the parties, of flooding modes in the Keckwick Brook catchment and seek to reduce flood risk in the lower Keckwick Brook catchment.

Bridgewater Canal

The Bridgewater Canal is a broad, fairly shallow canal with two distinct reaches within the Borough: the mainline which runs between Moore Village and Preston Brook, and a spur that runs into Runcorn Old Town. The canal has no locks and an Act of Parliament provides rights to take any water within a half-mile of the Canal to fill the Canal or remove water from the Canal into adjacent watercourses. The Bridgewater Canal is the responsibility of the Bridge Water Canal Company, owned by the Peel Group. The canal is embanked above surrounding ground level in places and Flood risk from the canal is associated with lower probability events such as overtopping and/or the breaching of embankments.

Water levels in the Canal are controlled by several telemetry warning installations that continuously monitor water levels, both high and low levels. The continuous level monitoring and freeboard combine to give a reasonable degree of control over water levels. When circumstances dictate, the level of the Canal can be drained via a number of let-offs. There are two discharge points within Halton, the Penstock in Runcorn Old Town at the end of the spur that consists of a 600mm culvert with sluice gates that drains into the Manchester Ship Canal and a discharge into Keckwick Brook. If the sluices at Runcorn Old Town fail there are sluices at Barton and Manchester that can be used to release water into the Mersey. To date there are no records of flooding caused by the Canal in Halton. However, flooding could be caused by the Canal through:

- Collapse or blockage of the sluice in Runcorn Old Town when in use.
- Draining water into Keckwick Brook
- Collapse of the embankments supporting the Canal.
- Failure of under-bridges where the Canal passes above roads.

The infrastructure of the Canal is inspected regularly and remedial action taken to correct any problems. Stop log positions are located at Red Brow Lane Daresbury to allow repairs to be carried out should the need arise.

The main cause of potential embankment failure is unauthorised engineering and building works and the best method of managing this situation is to avoid interference with the embankments unless absolutely necessary.

St Helens Canal

St Helens Canal is a broad canal with two tidal locks into the River Mersey, which runs along the northern edge of the estuary towards Warrington and then into St Helens. The Canal is owned by Halton Borough Council. The Canal is at a lower level to the surrounding land and there are no under bridges, therefore embankment breaches do not pose a risk of flooding.

The Canal acts as a flood defence for South Widnes as it effectively forms a large 'moat' between the tidal River Mersey and the urban area. There is a substantial strip of salt marsh / open space between the River Mersey and the Canal, and as the capacity of the canal is unknown, modelling would have to be undertaken to predict the height of the tide required to cause the Canal to fill with seawater.

River Weaver Navigation

The River Weaver Navigation is owned and operated by British Waterways. At a point just to the south of the Borough boundary, the River Weaver splits to form a canalised section running into Weston Docks and a separate channel draining over sluices into a natural river section that joins the Manchester Ship Canal. Neither of these water bodies is known to cause flooding in Halton. In both cases land is above the level of the canal with substantial freeboard. During flood events water in the Weaver discharges over sluice gates on the outskirts of Frodsham into the Manchester Ship Canal where upon it discharges via sluices into the River Mersey.

2.4.7 Reservoirs

Reservoir flooding is extremely unlikely to happen. There has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers. The EA are the enforcement authority for the Reservoirs Act 1975 in England and ensure that reservoirs are inspected regularly and essential safety work is carried out.

In Halton, the main areas susceptible to reservoir flooding are parts of Sandymoor and Manor Park in Runcorn, which include residential and commercial property and are at risk due to potential failure of the Wharford Farm balancing lake reservoir. This reservoir is owned by Halton Borough Council and provides floodwater storage for Keckwick Brook acting as flood defence for the developing Sandymoor residential area. The reservoir has a capacity of 25,000 cubic metres and is designed to only impound (contain) water during 1 in 50 year rainfall/flood events. The last recorded impounding was in October 2012.

The management of this reservoir is currently governed by the Reservoirs Act Legislation and it is therefore subject to the inspection and supervision regime under the Act, as indicated above. The Flood and Water Management Act 2010 updates the Reservoirs Act 1975 and adopts a more risk based approach to reservoir regulation which (inter-alia) reduces the capacity at which a reservoir will be regulated from 25,000m³ to 10,000m³ and requires only those reservoirs assessed as a higher risk to be subject to regulation. High risk reservoirs will be those reservoirs where human life would be endangered if there were an uncontrolled release of water from the reservoir. Owners of 'high risk' reservoirs will need to comply with all the requirements of the Act. Owners of reservoirs that are not designated as 'high risk' and all undertakers with reservoirs over 10,000m³ will still need to register these with the EA, but will not need to comply with the inspection and supervision requirements of the Act. Registering the reservoirs means that in case of maintenance or flood risk incidents, clear communication lines can be set up.

There are two other large reservoirs, which, if their impounding structures were to fail, could potentially affect areas of Widnes. Pex Hill reservoir which sits outside Haton's administrative boundary in Knowsley MBC, is owned and operated by United Utilities. According to the EA, worst-case scenario flooding follows watercourse flow-paths to the north of Upton Rocks. Fiddlers Ferry ash lagoons to the east of Widnes and within Warrington BC's administrative boundary, are owned and operated by Scottish and Southern Energy PLC. Failure of these structures has the potential, in a worst-case scenario, to flood industrial and commercial areas at Shell Green and Tanhouse, Widnes.

2.5 The effects of Climate Change on Future Flood Risk

Over the last few years, the frequency of flooding incidents reflecting unseasonable erratic weather patterns has increased across the area of Halton. Our approach to flood risk management reflects the impact of climate change. There is clear scientific evidence that global climate change is happening. Greenhouse gas levels in the atmosphere are likely to cause higher rainfall in future. If emissions follow a medium future scenario, the UK climate prediction (UKCP09) projected changes by the 2050s relative to the recent past are:

- Winter precipitation increases of around 14% (very likely to be between 4 and 28%)
- Precipitation on the wettest day in winter up by around 11% (very unlikely to be more than 25%)
- Relative sea level at Morecambe very likely to be up between 6 and 36cm from 1990 levels (not including extra potential rises from polar ice sheet loss)
- Peak River flows in a typical catchment likely to increase between 11 and 18%. Increases in rain are projected to be greater near the coast than inland.

Climate changes can affect local flood risk in several ways. Impacts will depend on local conditions and vulnerability. Wetter winters and high intensity rain falling in wet spells may increase river flooding especially in steep, rapidly responding catchments. More intense rainfall causes more surface runoff, increasing localised flooding and erosion. In turn, this may increase pressure on drains, sewers and water quality.

Storm intensity in summer has increased in recent years, so we need to be prepared for the unexpected. Halton Borough Council will prepare by developing an understanding of our current and future vulnerability to flooding, developing plans for increased resilience and building the capacity to adapt. Regular review and adherence to these plans is key to achieving long term, sustainable benefits. We will continue to monitor and correlate weather patterns to increase our understanding.

2.6 Improving Risk Understanding

We will continue to monitor flood events in tandem with the EA/Met Office forecasts, main river gauge records, rainfall data and actual flood extents compared to predictive mapping. This combination of analysis will over time allow us to:

- Refine risk models
- Monitor recorded flood incidents
- Implement residual risk management measures
- Improve community advice
- Seek to share EA telemetry data for analysis and improved warnings

Objective 3: Managing Local Flood Risk

Section 9 (4) of the FWMA 2010 requires the Local Strategy to specify the LLFA's objectives for managing local flood risk.

This includes details of the measures proposed to achieve the objectives and plans for implementation and funding.

Halton Borough Council as the Lead Local Flood Risk Authority will coordinate and manage flood risk through a range of activities, across internal departments and external partners.

	Measure	Contribution to Risk Management
1	Partnership Coordination	Community resilience. Localism Act 2011
2	Spatial Planning Policy	Setting policy and future land use through Halton's planning policy documents
3	Development control	Assessing planning applications in respect of flood risk
4	Sustainable Drainage Approval Board (SAB)	Assessing and approving applications (subject to final legislation)
5	Enforcement and Consenting	Enforcement and consenting in respect of ordinary watercourses. Development and enforcement of Halton's Bye Laws
6	Works Powers	Power to carry out works in respect of essential flood risk management
7	Asset Management	Identifying and managing drainage assets. Works and operations
8	Designation of Features	Identifying critical assets and designation to protect
9	Investigations and Flood Reporting	Undertaking investigations and resolution of flooding incidents. Maintaining log of flooding incidents
10	Communication and Community Engagement	Ensuring the community is aware of flood risk and is prepared.
11	Emergency Preparedness and Response	Preparing and responding to flood alerts, flood warnings and flood incidents.

3.1 Community Focus, Partnership Working and Encouraging Community Resilience

People who live and work in flood risk areas have a critical role in managing the risks they and their communities face. Halton Borough Council and other risk management authorities will support this role.

Community Resilience:

Responsibilities
Communities and individuals in areas at risk of flooding should take responsibility for understanding the risks and, where appropriate, take steps to protect themselves for example, signing up to the Environment Agency's flood warning system in the designated areas. Preparing a flood plan for their household or business, creating or joining a local flood action group, and taking steps to protect their property and others (for example, where they own land adjoining ordinary watercourses and have maintenance responsibilities).
Partnering
Halton Borough Council will work with partners together to make communities and individuals more aware of flood risks. The aim of this work is to help communities to participate as far as possible in LFRM. To do this, we will work with partners to publish up to date information on risks and liaise with those groups who may be better placed to provide links with communities.
Communities
Communities, led by Halton Borough Council, will plan for the future and take appropriate steps to adapt to changing flood risks. Defra, the Environment Agency, the Council and others will support community adaptation by working with them to develop understanding of how they can adapt to change, the costs and benefits of different approaches, and by providing practical approaches and examples that can be shared. In particular, these will focus on community adaptation planning and engagement and implementing long term multiple benefit, innovative adaptive solutions such as land use management change.
Householders
Householders and businesses at risk of flooding should take the appropriate steps to better protect their properties through property-level resistance and resilience measures. Halton will support this work by raising awareness and understanding and, in some cases, supporting wider take up of flood resistance and resilience measures to reduce damage to buildings. When flooding does occur we will work with specialist groups such as the National Flood Forum to aid recovery.
Publicity

Halton Borough Council will publicise the importance of insurance as a means of protection. Affordable and widely available flood insurance is a means of sharing the risk between individuals, businesses, and insurance companies. Flood risk has long been included as standard in most building and contents insurance policies. The Government and insurance industry agreed to support the wide availability of insurance after the Statement of Principles expired in July 2013. The agreement recognises that the terms of government policy are likely to reflect local risk. The policy should take account of any actions carried out at a property or community level to reduce flood risk.

3.1.1 Localism Act 2011

The Localism Act 2011 will give communities and local government greater powers and freedom from Whitehall. The five key measures in the Localism Act intended to decentralise power are:

- Community Rights
- Neighbourhood Planning
- Housing
- General power of competence
- Empowering cities and other local areas

The Localism Act 2011 identifies a duty to cooperate in joint planning, in particular where sustainable development or use of land that has or would have a significant impact on at least two planning areas. These planning areas could encompass land for or in connection with infrastructure that is strategic, sites of special scientific interest and Green Belt land. Linking with the Flood and Water Management Act 2010, it brings the possibility or discretion to share data and cooperate as stated by the Act to become a defined legal duty, thus strengthening the position of LLFAs in dealing with the impending SAB and SuDS duties.

3.2 Planning Policy

Planning policy is the fundamental starting point in reducing flood risk in Halton. Spatial planning is the responsibility of Halton Borough Council as the Local Planning Authority (LPA). It therefore allows close working arrangements with the Council's other statutory function as the Lead Local Flood Risk Authority.

Local Planning Authorities must prepare Local Plans which set out planning policies in a local authority area. Local Plans form the statutory development plan against which planning applications must be determined, unless material considerations indicate otherwise. The Council adopted the Halton Core Strategy Local Plan in April 2013 and work has commenced on the Delivery and Allocations Local Plan. Local Plans must be positively prepared, justified, effective and consistent with national policy in accordance with section 20 of the Planning and Compulsory Purchase Act 2004 (as amended) and the National Planning Policy Framework.

Through planning policy documents, a policy framework is created for development control within which all those engaged in the planning process can actively contribute to a more sustainable approach to managing flood risk. This will provide opportunities to:

- Adopt a catchment-wide approach, develop integrated sustainable developments, which deliver multiple benefits
- Factor flood risk into planning decisions from the outset of the spatial planning process
- Develop local authority, developer and community-led initiatives to reduce flood risk / enhance the environment
- Ensure that both the direct / cumulative impacts of development on flood risk are acknowledged and mitigated
- Ensure that these decisions fully consider the implications of climate change and provide greater clarity and certainty to developers regarding which sites are suitable for developments of different types

Policy CS23: Managing Pollution and Risk within Halton's Core Strategy contains the following measures aimed at managing flood risk:

> Development should not exacerbate existing levels of flood risk nor place residents or property at risk from inundation from flood waters. This will be achieved by:
>
> - Directing development to areas where the use is compatible with the predicted level of flood risk, both at present and taking into consideration the likely effects of climate change.
> - Using Halton's Strategic Flood Risk Assessment to inform the application of the sequential approach/test and exception test in accordance with national planning policy.
> - Requiring site-specific Flood Risk Assessments for proposals in areas at risk from flooding as identified in the Halton SFRA.
> - Supporting proposals for sustainable flood risk management (e.g. defence / alleviation work) so long as they do not have a detrimental impact on the landscape of the Borough.

In respect of flood risk the following documents will inform the preparation of local planning documents:

- National Planning Policy Framework (CLG, 2012): This aims to ensure that inappropriate development in areas at risk of flooding is avoided.
- Halton Strategic Flood Risk Assessment (HBC, 2007): This provides a detailed and robust assessment of the extent and nature of the risk of flooding in the Borough and the implications for future development.

- Halton Level 2 Strategic Flood Risk Assessment (JBA, 2011): This builds on the technical information and methods used in Level 1 and focuses on three primary watercourses and development areas.
- Mid Mersey Water Cycle Study (Entec, 2011): This provides an overview of the water cycle and its constraints to development across the Mid Mersey area
- Mersey Estuary Catchment Management Plan
- Weaver Gowy Catchment Management Plan
- North West Shoreline Management Plan

3.2.1 Surface Water Mapping and Land Use Considerations

The Environment Agency advises that LPAs and developers should carry out assessments of surface water flooding in line with Government planning policy detailed within the National Planning Policy Framework. Halton Borough Council as the lead on local flood risk has reviewed, discussed, agreed and recorded, with the Environment Agency, United Utilities and other interested parties, what surface water flood data best represents local conditions.

The Flood Map for Surface Water has been reviewed against a local scoping study, local historic data and local knowledge. This knowledge base will continue to develop through the newly established arrangements that will capture and record surface water flood information to validate assumptions made.

Surface water data may be different for different purposes, even within one location. The locally agreed surface water flood risk information will be taken into account in the preparation of Local Development Plans and may be material to decisions on individual planning applications. In land use planning, locally agreed surface water flood risk information can be used to highlight where a more detailed study of surface water flooding may be necessary, for example, within a strategic flood risk/consequence assessment.

The Environment Agency surface water flood maps are not appropriate to use as the sole evidence for any specific planning decision, at any scale, without further supporting studies or evidence. Proving the model on the ground and other available data, such as locations of historic surface water flooding, should be used alongside the Environment Agency surface water flood maps.

The locally agreed surface water flood risk information is most appropriate for use at this level of the development planning system where it will provide the greatest benefit in terms of the identification, management and avoidance of surface water flooding. This surface water flood risk information will act as a starting point to highlight areas where the potential for surface water flooding needs particular assessment and review within Strategic flood risk/consequence assessments and in Surface Water Management Plans.

The output from these assessments can then be used to inform development allocations within Local Plans and outline the requirements for site level flood risk/consequence assessments to be carried out by developers. The Local Planning Authority is required to appraise risk, manage risk and reduce risk using a partnership approach. Risk appraisal is undertaken by:

- Identifying land at risk,
- the degree of risk of flooding from river, sea and other sources;
- Preparing Strategic Flood Risk Assessments (SFRAs) as freestanding assessments that contribute to the sustainability appraisals of Local Plans.

The Sequential Test advised by the National Planning Policy Framework Guidance Document is used by Halton Borough Council in allocating sites for development, or determining planning applications. In using the sequential test, sites are “zoned” in order of preference according to the flood risk probability, identified by the SFRA. Appropriate land uses for each flood zone are also listed to provide guidance for LPAs when they are considering appropriate use of sites within each zone.

Strategic development will be approached through planning, appropriate design, situation and location of future development, all of which can contribute to reducing the risk of flooding, including:

- Application of SuDS techniques with new developments (adoption subject to national legislation);
- Application of property and location-specific flood protection measures;
- Reference to the Local Flood Risk Authority developments affecting ordinary watercourses
- Planning enforcement in respect of unauthorised development undertaken in liaison with the Lead Local Flood Authority
- Identify river corridors and the natural flood plain to provide potential riverside storage and urban river corridors in built up areas.

3.3 Development Control

Details of the management of flood risk in planning and development control is contained in Halton’s Core Strategy CS23 – Managing Pollution and Risk. Guidance on the requirement for site Flood Risk Assessments, based upon the size of development and / or the risk of flooding (from rivers and the sea) in that location, is provided on the EA website. When

the FWMA SuDS legislation is enacted, the local planning and SuDS approval processes will enable those development sites not captured within the EA's flood risk zones to be assessed for other forms of flood risk.

Developments in Flood Zone 1 are at low risk of flooding from main river/ordinary watercourses and the sea, but can be at risk from surface water or groundwater flooding and can cause or exacerbate flood risk elsewhere if runoff is not attenuated. As Lead Local Flood Authorities have responsibilities for managing these 'local' sources of flood risk, from 2014, Halton as Local Planning Authority, formally consults LLFA staff on rates of runoff, drainage details and overland flood flow routes in respect of FZ1 planning applications. The Environment Agency only provides standing guidance on FZ1 applications and continues to be consulted on developments near or over watercourses.

Halton's Core Strategy also deals with sustainable development and climate change within policy CS19 which seeks to encourage the adoption of the Code for Sustainable Homes for new residential development and BREEAM standards for new non-residential development. Both of these include the adoption of practices for surface water and flood risk management through a variety of sustainable drainage techniques to reduce the amount of surface water that runs off the site into storm drains such as:

- Provision of soakaways
- Provision of areas of porous paving;
- Supplying accessible water butts;
- Rainwater harvesting and
- Property resilience to mitigate residual flood risk

The application of the range of SuDS techniques for new and redeveloped sites will be adequately considered through the Development Control and SuDS Approval planning processes.

3.4 Sustainable Drainage Systems (SuDS)

Sustainable drainage is to be introduced under Section 32 and Schedule 3 of the FWMA 2010.

Halton, in carrying out its functions both as Lead Local Flood Authority and as Highway Authority, must aim to make a contribution towards the achievement of sustainable development. Furthermore, Schedule 3 of the FWMA 2010 contains details of the requirements for Sustainable Drainage Systems that are aimed at reducing damage from flooding; improving water quality; protecting and improving the environment; protecting health and safety and ensuring the stability and durability of drainage systems.

Note: It is anticipated that this part of the legislation will be enacted in April 2015.

SuDS is a technique that manages surface water and groundwater sustainably. The primary purpose of SUDS is to mimic the natural drainage of land prior to development. This is achieved by capturing rainfall, allowing as much as possible to evaporate or soak into the ground close to where it fell, then conveying the rest to the nearest watercourse to be released at the same rate and volumes as prior to development. The key objectives are to manage the volume and rate of flow of surface runoff to reduce the risk of flooding and water pollution. SuDS can also reduce pressure on the sewerage network and can improve biodiversity and local amenity.

The use of SuDS techniques was seen as a key element of the Pitt Review and his recommendations on sustainable drainage are encompassed within the FWMA 2010 under Schedule 3. At the time of preparing this Local Strategy, this section of the Act has not been introduced. However, when it is enacted, (expected to be in April 2015), it will establish Halton Borough Council as a SuDS Approving Body (SAB), with duties to approve drainage systems in new developments and redevelopments, before construction can commence. It is envisaged that responsibilities of the SAB will be set up as follows:

Sustainable Drainage Approving Body (SAB)

Department	Key Responsibility	Elements
Planning	Lead	Lead administration aligned to Development Control system. Policy setting through the production of planning policy documents.
Building Control	Advice	Technical advice and site inspection
Open Spaces	Maintenance	Technical advice and maintenance for soft SuDS
Highway Development	Adoption and Maintenance	Technical advice; Agreements; Adoption and Asset Management

The Act amends Section 106 of Water Industry Act 1991, to make the right to connect surface water to public sewers **conditional** on the SAB approving the drainage system. It will also require that the proposed drainage system meets new National Standards for design, construction, operation and maintenance of SuDS.

Defra carried out a consultation on draft proposals for the implementation of SuDS legislation, the operation of SABs and a draft set of National Standards in 2012. However, as described above, proposals have yet to be finalised and this section of the Act has not been enacted. There will be further clarity in due course and the Local Strategy will be amended as necessary.

In the meantime, Halton BC is working with partners and neighbouring LLFAs on preparing for the new role and we want to ensure close links to the planning approval process. Until Schedule 3 of FWMA 2010 is enacted, the National Standards are adopted and funding arrangements in connection with SAB duties are confirmed, Halton BC will not be in a position to formally approve and adopt any SuDS proposals by developers.

Part VIII of Defra's consultation on the implementation of SuDS sought to deal with the issue of "Orphan" SuDS – those SuDS to which adoption does not apply because, for example, construction preceded the SAB approval requirement. If during the period prior to the enactment of the legislation, a developer does propose SUDS, then Halton BC will attempt to ensure that the SUDS design is acceptable. Until the SAB is constituted the following condition will be added to planning decisions: "All proposed SUDS features are to be designed in accordance with CIRIA document C697."

It should be noted that initial assessments of the geology and soil types across Halton Borough have indicated a generally 'LOW' suitability for the use of infiltration SuDS. The map in appendix 8 shows SuDS suitability and further information is available for Developers in Halton's SFRA2 and the Mid-Mersey Water Cycle Study.

However, the SuDS approach is not wholly dependent on infiltration but also includes attenuation techniques such as ponds, wetlands, green roofs and water recycling schemes which hold back runoff volumes and rates and allow water reuse. If proposed SuDS are compliant in terms of design and construction, and following discussions with Halton's Open Spaces Division, they **may** be accepted as part of Public Open Space, together with agreement on the payment of commuted sums for their future maintenance. Alternatively, developers will be encouraged to transfer future responsibility to a Management Company set up for the purpose of maintenance and repair of features on their development.

3.5. Watercourse Regulation: Enforcement and Consenting

No person shall obstruct the flows in a watercourse under section 23 of the Land Drainage Act 1991.
No person shall erect any obstruction or culvert in any ordinary watercourse that would be likely to affect flow of any ordinary watercourse without the written consent of the Local Authority. An application fee of £50 is required and consent will not be unreasonably withheld.

Powers to require works for maintaining flow of watercourse are contained in Section 25 of the Land Drainage Act 1991.
If the proper flow of water in an ordinary watercourse is impeded then the Local Authority concerned may, by serving a notice under section 25 require that person to remedy that condition.

Before exercising their powers under section 25 the Local Authority shall, under section 26, notify either the drainage board for that district or the Environment Agency.

The following changes in legislation give administrative powers to the Lead Local Flood Authority:

Schedule 2, paragraph 30 of the Flood and Water Management Act 2010 repeals section 17 of the Land Drainage Act 1991 and requires Local Authorities to exercise their powers in accordance with their local FRM strategy.

Schedule 2 paragraph 32 (6) of FWMA 2010 amends section 23 of the Land Drainage Act 1991 so that the Environment Agency's role as a drainage board for ordinary watercourses outside an internal drainage district is taken over by Lead Local Flood Authorities.

Schedule 2, paragraph 33 of the FWMA 2010 amends section 25 of the Land Drainage Act 1991 to give the powers of the Environment Agency to Lead Local Flood Authorities.

The Flood and Water Management Act changed the responsibility for the regulation of works on ordinary watercourses from the Environment Agency to Lead Local Flood Authorities. 'Regulation' is the management of any activity that has the potential to create obstructions to flow in watercourses and comprises two key activities:

- Consenting of works (including any temporary works) before they are constructed; and
- Enforcement actions to bring about the remediation of any unconsented or unacceptable work or the removal of obstructions.

These are very important powers, as any work that is carried out without consent has the potential to increase flood risk to people and property, including those unconnected with the works. Consenting by LLFAs is undertaken through the use of powers under sections 23, 24 and 25 of the Land Drainage Act 1991.

Activities on ordinary watercourses that require consent are generally those likely to cause an obstruction to flow or restrict storage and include culverting, bridge foundations, weirs etc. Halton Borough Council is required to ensure that all works on watercourses that it is responsible for, have the appropriate consent and that the consented works are constructed according to the agreed design. Generally, it is the more rural areas which tend to generate the most applications for consent. Historically, there have been a very low number of consent applications from within the Borough to the EA, when they were responsible for regulation on ordinary watercourses.

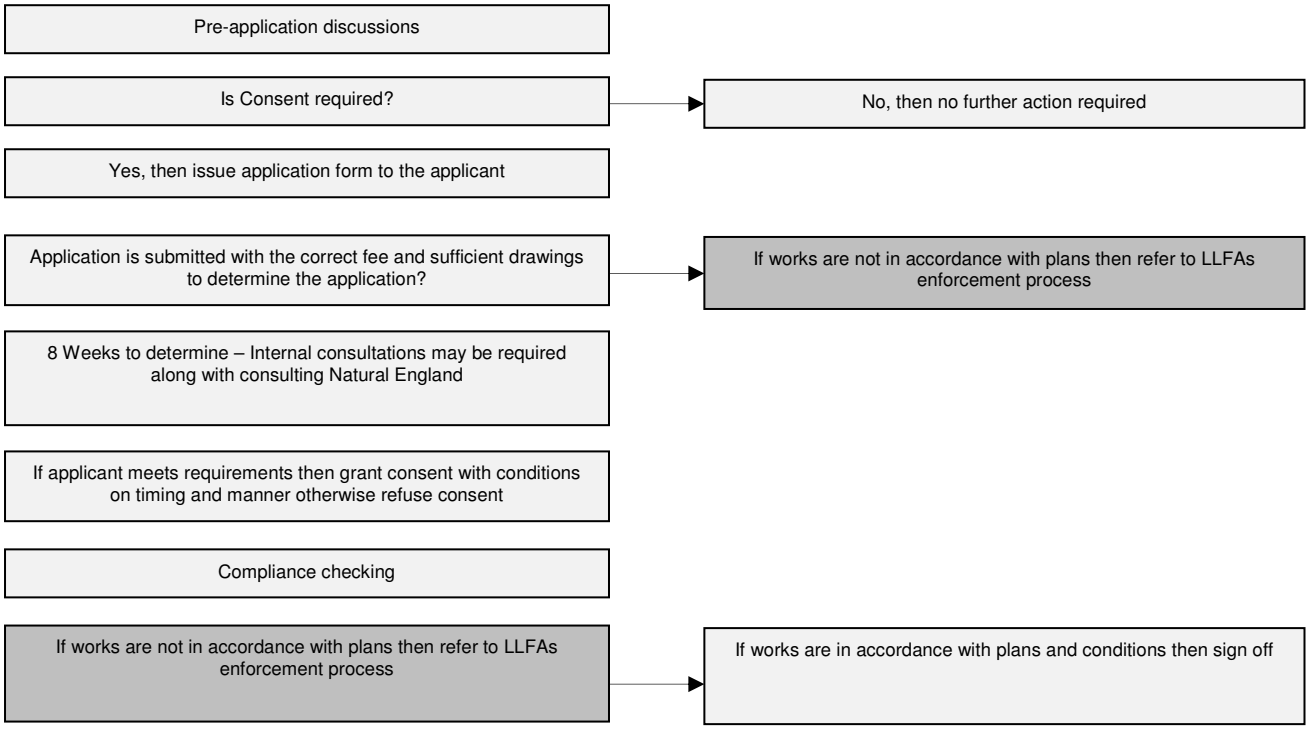
The same criteria would be used to assess works to ordinary watercourses that have been undertaken without consent, and whether the Council should consider enforcement action in those cases. Enforcement action may be taken where damaging (or potentially damaging) works have been carried out without consent, or the works are in contravention to a consent that has been issued. Some works may be sufficiently serious (or deficient) to require immediate action to mitigate the risk of flooding, others may require a more proportionate response. Where enforcement measures are deemed necessary the Environment Agency's Enforcement Concordat will be followed.

The Environment Agency will retain an overview role and LLFAs must consult the Environment Agency when they are consenting work that they are themselves proposing to minimise the potential for conflict of interest.

3.5.1 Procedure

Historically, the EA has adopted a proportionate and risk based approach in relation to watercourse regulation and it is expected that they will continue to do so in relation to Main River regulation. To assist LLFAs in the transfer of regulatory powers, the EA produced a comprehensive advice note for consenting and enforcement of works on ordinary watercourses. The EA has applied its assessment criteria over a period of time, such that land owners and developers are familiar with the 'rules' applied by the EA. Halton Council has closely aligned its processes with the EA assessment criteria and advice and has adopted a suite of documents, comprising letter and notice templates, to be used in connection with ordinary watercourse regulation.

Figure: Proposed Consenting Procedure



Formal consents will be approved and issued by the Operational Director using delegated authority. This process will work in a similar way to the established process for permitting works on a highway. Standard conditions will also be imposed to ensure that works are carried out in a satisfactory and acceptable manner. Works will be recorded onto the asset database system.

3.5.2 Local Byelaws

Halton Borough Council has approved and will formally introduce a set of Land Drainage Byelaws based on the DEFRA recommended template. The purpose of these are to apply detail to the Enforcement and Consenting powers to ensure the basic powers within the Land Drainage Act 1991 are strengthened and provide effective flood risk action at the local level.

3.6 Power to Carry out Works

Section 14A of the Land Drainage Act provides general powers to LLFAs to undertake flood risk management works for the purpose of managing a flood risk in the authority's area from surface runoff or groundwater.

General powers to undertake flood risk management works by Local Authorities are provided by Schedule 2, section 29 of the Flood and Water Management Act 2010, which adds section 14A Land Drainage Act 1991 and gives general powers to Local Authorities in relation to flood risk management works. This work has to be undertaken having regard to the Local Flood Risk Management Strategy for an authority's area. Operations to manage a flood risk include maintaining existing works, improving existing works, constructing new works and altering or removing works. A list of capital works bids for flood risk management projects made by Halton is shown in Appendix 3. Halton Borough Council will collate data, assess need and compile any information necessary to prepare bids for such FRM works through the Flood Defence Grant in Aid programme and the NWRFCC Local Levy funding.

Works powers are extended to ordinary watercourses by the Act as amended under schedule 2 paragraph 32 (6) to allow work to be undertaken to reduce flooding. To undertake works, on land owned by others, facilitating powers (powers of entry, compensation and compulsory purchase) are provided. Powers of entry are needed to get access to land. Compensation Powers are needed if damage occurs when carrying out works, for example it may be necessary to move heavy equipment across a garden damaging the lawn and flowerbeds. Sometimes it may be necessary for the risk authority to own the land in order to carry out and maintain works. If the land cannot be bought by agreement, a compulsory purchase order could be applied as a last resort.

3.6.1 Powers to acquire land and Compulsory Purchase

Powers to acquire and dispose of land, including compulsorily, are provided in section 62 of the Land Drainage Act 1991. These powers are not altered by FWMA and the powers in section 62 are available for use with the new flood risk management works powers, as section 14A is inserted into the Land Drainage Act 1991. Where such powers may be needed, for example in section 39, they are provided for within the Act. Section 39 (12) requires the Minister to apply compensation provisions, together with powers of entry and compulsory purchase provisions, to the incidental flooding or coastal erosion powers, section 39 of the Act. The Minister must use the Water Resources Act 1991 provisions but may amend them. The Water Resources Act provisions are slightly different from those found in the Land Drainage Act 1991.

3.7 Asset Management

3.7.1 Asset Register

The Lead Local Flood Authority has a duty to maintain a register and a record of information of structures or features that are likely to have a significant effect on a flood risk in its area under section 21 of the Flood and Water Management Act 2010.

The register is available for public inspection. The record will include information about ownership and state of repair.

Halton's asset register has been compiled and further development is expected to be achieved over an extended period. Halton BC will keep a record of "features" that are likely to have a significant effect on flood risk in its area. The record will include information about ownership, state of repair and where appropriate, maintenance regimes. These features will be either a structure, a natural or man-made feature of the environment, e.g. sluices, channels, culverts, walls, embankments, bridges, highway gullies, SuDS systems, grillages and screens. By collating information and mapping flood risk assets, the Council will eventually be able to:

- Develop informed maintenance regimes, which can take account of assets important for managing flood risk, particularly in high risk areas
- Establish where the entire surface water drainage and watercourse systems are, allowing for quicker identification of the responsible authority in incidences of flooding
- Produce and publish a maintenance schedule for the assets as well as providing guidance to riparian owners as to how they should maintain their assets

Collating all asset information for the register is an enormous undertaking that requires considerable resources. The initial data collection exercises to populate the register and record are risk based and related to the requirement to record structures, which have a significant effect on flood risk management and are not part of the main river system. Recording has commenced using the information contained in the Preliminary Flood Risk Assessment (PFRA), Surface Water Management Plan (SWMP) and the desk study already undertaken by JBA to identify culverts with high consequential flood risk from blocking. Halton BC will initially make the register available at the Council's offices, but in the longer term the aspiration is to make this available on the Council's website.

The register is populated with those structures or features which are most significant first and related to ordinary watercourses and surface water flooding. It is intended that the information contained within the register will build up over time as we respond to flood incidents, conduct investigations, carry out maintenance works and adopt third party developments. A substantial amount of information is readily available from a variety of sources such as:

- All the highway network road gullies, known highway drains and highway culverts
- Records of highway structures held by the Council's Bridges Section
- Contemporary records of landscape features held by the Council's Open Spaces Division
- Records relating to storm water storage at Oxmoor Wood and Wharford Farm reservoirs

The vast majority of this information is of good quality and fit for purpose. Therefore, collation and entering this information onto the register or digitising hand drawn maps will be a primary task. The detail in records will be proportionate and relate to how the register and record will be used to support the wider LLFA role. Where existing good practice approaches to recording state of repair or other information are available, these will be recorded, otherwise the record will be developed over time as resources allow and inspections or investigations are undertaken. The register will utilise templates supplied by DEFRA and substantial liaison will be made with Environment Agency Asset Database. Records will be held on GIS and on the Council's asset management system.

Unlike major assets associated with fluvial or tidal flooding, there has often been much confusion over the ownership and maintenance responsibility of local flood risk assets. This is likely to be due to local drainage infrastructure commonly being hidden underground or along land boundaries, where landowners either do not realise or acknowledge that they have any responsibility as riparian owners. The Asset Register is a way to address this problem and means that residents are aware of assets in their area and can contact the assets' owners when there are problems.

There are no defined criteria for what defines an asset as significant but the most important consideration is its location. Future flood risk mapping and the flood history at a site will be used to analyse the 'significance' of each flood risk asset. The vulnerability of the asset's surroundings will also be used to determine the consequences of its failure. Proactive collection of information regarding existing assets is required and this requires Halton BC to work with Parish Councils as well as working with the Council's Highways Maintenance team and United Utilities.

Halton's local system is a web-based, asset database containing asset data and other information hosted by JBA Ltd. It is compatible with neighbouring authorities and with the Environment Agency's National Flood and Coastal Defence Database (NFCDD) and its successor database. This contains details of Main River and Non-Main River and coastal flood risk assets, including current inspected condition. This data is continuously updated following review or inspection of assets. This information will be utilised in developing the Halton register, which will include main river assets (particularly where the Council is riparian land owner) for completeness in the efficient management of investigations.

The Environment Agency has started a project called Creating Asset Management Capacity (CAMC) to replace NFCDD with an upgraded and improved database.

3.7.2 Asset Maintenance and Improvement

The Council will work with a wide range of partner organisations and communities in order to identify sustainable measures to manage reduce or where possible, eliminate flooding. A catchment-wide approach that addresses flooding issues within green infrastructure solutions will be employed in order to maximise opportunities for wider community or environmental benefits. Where appropriate, actions may focus on identifying a range of opportunities which, cumulatively, provide significant improvement. This could range from better management of current infrastructure, such as regular blockage removal from river channels, to adoption of small areas of land along a river valley, to hold flood water.

Our approach therefore to developing maintenance and larger capital works programmes in respect of reducing flood risk will be undertaken as follows:

- Work closely with the Environment Agency to identify, fund and implement schemes in regard to fluvial flooding from main river
- Consider managing residual risk where it is not economically feasible to undertake works, through property resilience and flood warning site telemetry
- Identify as far as possible responsible riparian owners
- Consider long term sustainable solutions encompassing leisure and habitat creation in parallel to Policy 4A and B of the Mersey Estuary and Weaver Gowy Catchment Flood Management Plans
- Develop risk based maintenance programmes to target reducing financial resources

3.8 Designation of Features

The Authority has the power to designate features under section 30 of the Flood and Water Management Act 2010.

The effect of designation is that a person may not alter, remove or replace a designated structure or feature without the consent of the responsible authority. Designation is classed as a local land charge.

The process of designation prohibits a person from altering, removing, or replacing a designated structure or feature without the permission of the LLFA. If a person contravenes this requirement, the LLFA may take enforcement action. Once a feature is designated, the owner must seek consent from the authority to alter, remove, or replace it. An individual may appeal against a designation notice, refusal of consent, conditions placed on consent or an enforcement notice. In addition to embankments and other structures, many sustainable drainage systems (SuDS) may be designated and will be issued with a Provisional Designation Notice Procedure. The provisional designation notice must provide important information about the provisional designation. As a minimum the notice will set out:

- The feature in question
- Why the feature is being provisionally designated
- The period in which representations may be made
- The date from which the feature is provisionally designated and:
- How the owner of the feature may make representations to the LLFA in respect of the notice.

During the period of notice, the owner has the right to make representations to the designating authority on the provisional designation, which the authority must consider before confirming a designation by means of a designation notice. The LLFA may cancel a designation (including a provisional designation). It may do so at the owner's request or where it thinks it appropriate for another reason, for example if a new flood defence system has been provided that negates the need for the designation. An owner may appeal if their request for a cancellation is denied.

The structures and features chosen for designation may include a wide range of things from walls and other structures to raised areas of land and embankments. All will serve a flood and coastal erosion risk management purpose although they were not necessarily designed or constructed for that purpose. Once a structure or feature is designated, anyone wishing to alter, remove, or replace it must seek consent from the LLFA, acting as designating authority. At the present time it is envisaged that there will be very few features in the borough that will be designated with the possible exception of future Mersey Gateway drainage structures. The Borough does have a number of existing flood defence features along important watercourses but they are under the control of the Environment Agency.

The owner will be able to maintain the feature if they wish provided that they are maintaining it in the state it was when it was designated. However, there is no obligation on the riparian landowner to maintain a designated feature. For this reason Halton Borough Council will act with due diligence before designating any such features as ultimately the maintenance liability could fall to the Council. Consideration for designation of any critical features will follow as the Asset Register develops.

Key Responsibilities

Asset	Main River	Ordinary Watercourses	Surface Water	Ground Water
Environment Agency	Overall management of main river network and flood warning service.	--	--	--
	Enforcement in respect of riparian owners where integrity of water course is compromised.			
Halton Borough Council	Inspection and maintenance of assets on Council owned land.	Maintenance of assets on Council owned land. Advice to private land owners on management.	Maintenance of highway drainage and water courses on Council owned land.	Management on Council owned land.
		Permissive intervention for maintenance of riparian owned assets as deemed appropriate.	Advice or Enforcement of private land owners causing flood discharge.	Advice to riparian land owners
		Enforcement in respect of riparian owners where integrity of watercourse is compromised.	Permissive intervention for maintenance of riparian owned assets as deemed appropriate.	
United Utilities	--	--	Maintenance of adopted surface water, foul and combined sewers.	--
Riparian Land Owners	Maintenance of private assets to prevent flooding. Responsibility to accept flows including groundwater.	Maintenance of private assets to prevent flooding. Responsibility to accept flow.	Prevention of surface water discharge from private land.	Management of privately owned land

Refer to Appendix 3 for Maintenance Schedules and Preliminary Works Programmes

3.9 Investigations and Flood Reporting

Section 19 of the Flood and Water Management Act 2010 requires a lead local flood authority to investigate flooding incidents in its area which it becomes aware of.

This is in order to identify which risk management authority has flood risk management functions in respect of the flooding and establish whether that authority has responded or is proposing to respond to the flood. The lead local flood authority must publish the results of any investigation.

Halton's Investigation Policy is divided into three main sections:

- Phase A Incident Capture: Where the incident is reported by the public / business and logged
- Phase B Post Incident Review: Where the significance of the incident is assessed and the requirements for investigating the incident are determined
- Phase C Formal Investigation: Where an investigation is undertaken if considered necessary

Proposed LLFA Flood Incident Investigation and Reporting Policy

Halton will, on becoming aware of a flood in its area, carry out a Post Incident Review to determine the consequences of the flooding incident. The Post Incident Review will determine the likely cause of the flooding and what was flooding during the incident. If a flood event is deemed to have had a significant consequence, then a Formal Investigation of the flooding incident will be undertaken.

A flood event with significant consequences is one that has had, or could have had if action had not been taken, one or more of the following impacts:

- Resulted in major disruption to the flow of traffic for 12 hours or more
- Posed, or could have posed, a risk to human health
- Adversely affected the functioning of critical infrastructure
- Caused harmful impacts to environmentally and socially important assets
- Caused internal flooding to a property used for residential or commercial purposes.

Local Investigation Targets

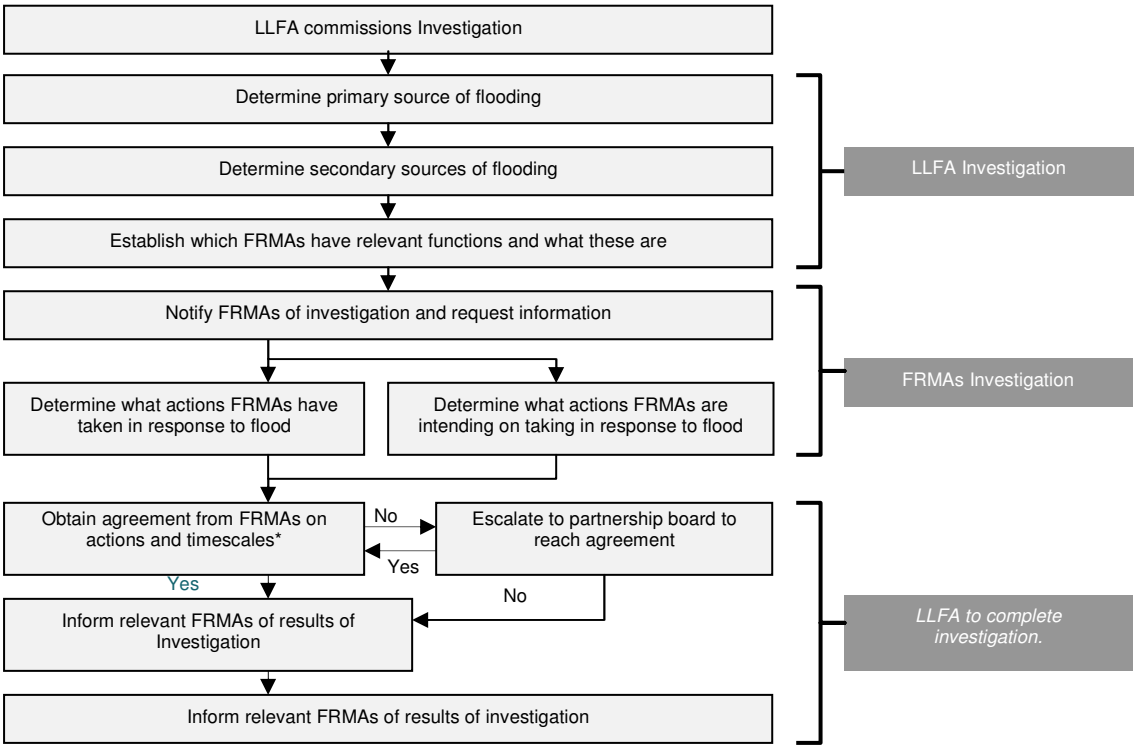
Ascertaining responsibility	1 week following event
Agree with responsible actions and timescales	One month
Final report	Two months

Timescales are subject to the scale of incidents being investigated

Reporting

Flooding incidences meeting the criteria will be investigated by the Council and recorded internally, a published Formal Investigation will be initiated for every flood event captured and reported to the Flood Officer, which meets the above criteria. Therefore, it is essential that the threshold for triggering a Formal Investigation should recognise the actual significance of the flooding incident with any repeated events also recorded but not published. All events will be reviewed at the quarterly External Partner Group Meetings. Continuing mapping of flood incidents and the results of investigation will inform future work programmes and maintenance regimes.

Figure: Proposed Formal Investigation Procedure



3.10 Communications and Public Engagement

Communications are based around internal partners, external partners and our community. The purpose of the communications and engagement for the LFRM strategy is to:

- Ensure understanding of the roles and responsibilities of the partner organisations (Halton Borough Council, Environment Agency, United Utilities)
- Manage expectations and be clear about what we can and cannot achieve
- Build a greater awareness of flood risk and ownership of the problem at a local level
- Generate a culture of personal responsibility for being prepared for flooding
- Coordinate with the Council's Emergency Plan.

The following objectives have been set to guide our communications with our community and stakeholders:

- Identify and raise awareness of areas as potentially at risk of surface water flooding.
- Managing risks together - we can provide practical solutions but there are ways the community can help too.

Figure: Cross reference of flood management working groups and internal and external links.

Group	Internal																	
	Remit	Meeting Frequency	Lead Flood Officer	Asset Manager	GIS Coordinator	Operations Lead	Civic and Open Spaces Manager	Development Plan Manager	Development Control Manager	Building Control Manager	Emergency Planning	United Utilities	Environment Agency	Warrington Council	St. Helens Borough Council	Cheshire East Council	Cheshire West & Cheshire
Internal Officer Group	To provide a forum to share information on flood risk issues, planning liaison and development between internal partners as necessary	Quarterly	✓	✓	✓	✓	✓	✓	✓	✓	✓						
External Partner Group	To provide a forum to share information on flood risk issues and current projects between external partners within the Council's area	Biennially	✓	✓	✓	✓						✓	✓				
Sub Regional FRM Tactical Group Cheshire & Mid Mersey	Technical and operational leads/managers to share knowledge & skills, coordinate delivery, establish priorities for joint working and efficiencies.	Monthly	✓	✓								✓	✓	✓	✓	✓	✓
Sub Regional FRM Strategic Group Cheshire & Mid Mersey	Strategic lead linking delivery to decision making and funding (senior managers and Members)	Quarterly	✓									✓	✓	✓	✓	✓	✓
Consents	Internally delegated to consider / approve applications	Referral	✓	✓					✓								
Sustainable Drainage Approval SAB	To approve applications, monitor process adopt and maintain –subject to implementation of legislation.	TBA	✓	✓	✓		✓		✓	✓		✓					

Communication and Consultation - Stakeholder identification

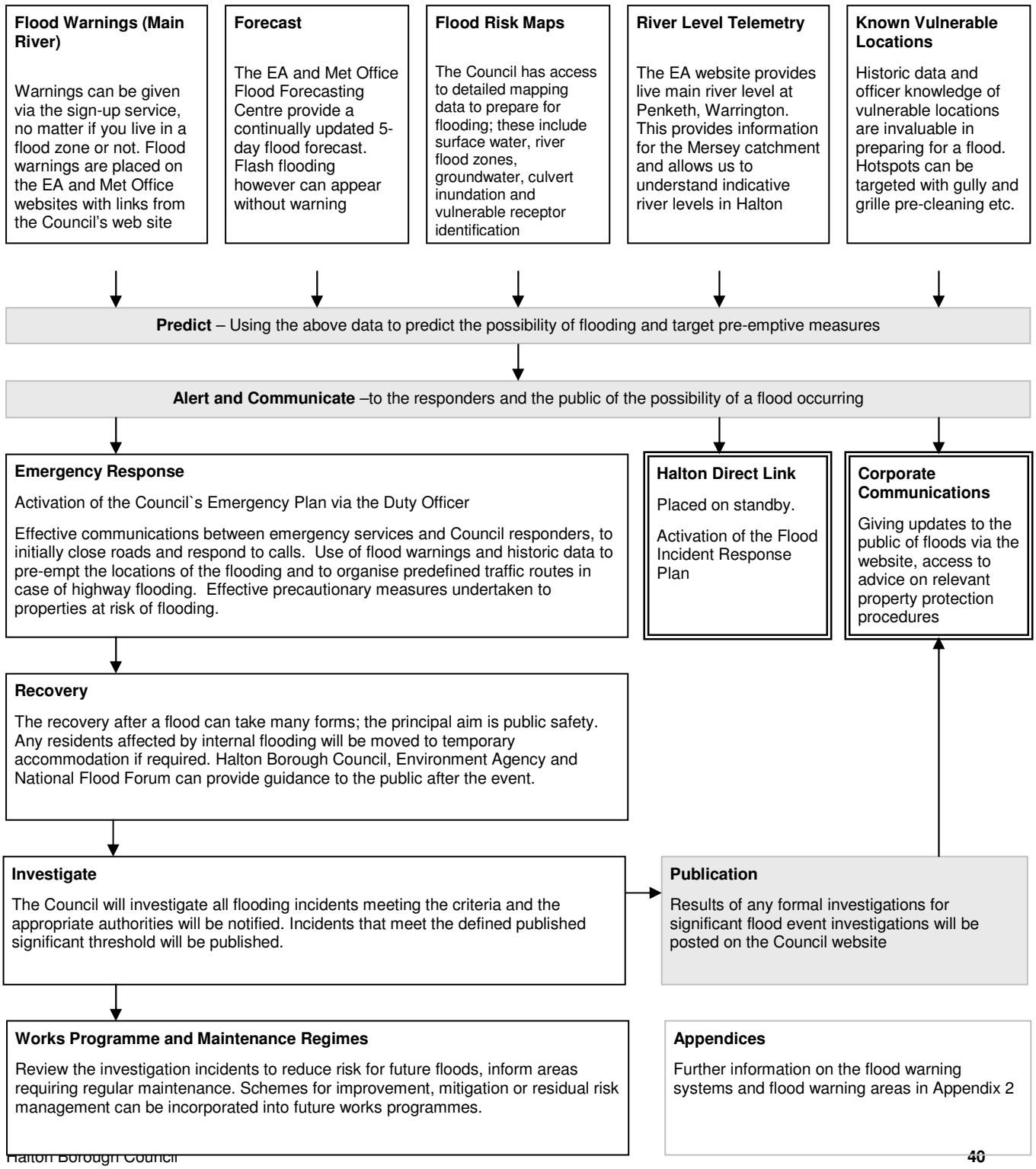
Local Authorities and Partners	Halton Borough Council, Warrington Borough Council, St. Helens Council, United Utilities, Environment Agency
Political stakeholders	MPs and MEPs, Portfolio heads, Ward members, Parish councillors, neighbouring authorities
Transport and infrastructure	Highways Agency, Planning, Other utility companies, Merseytravel/transport operators
Environmental stakeholders	MEAS, RSPB, NFU
Emergency services	Fire service, All other blue light services, Police Community Support Officers, Resilience forum
Business and industry	Halton Chamber, local businesses, Business forums, Employees, Landowners where known
Communities and individuals	Resident association groups, Faith centres, Doctors and community services, landlords and housing associations, Recreation groups – Friends of Parks, Cycling groups, Ramblers Association, Hospitals, Schools, Local press, CEN, CVS, Anglers, SCARS.

3.11 Preparedness and Emergency Response

Preparedness

Flooding is a natural occurrence. It is neither technically feasible nor economically affordable to prevent all properties from flooding. Halton Borough Council's aim is to reduce flood risk and minimise the harm caused by flooding. We take a risk based approach to achieve the best results possible using the budgets and resources available. We will continue working to reduce both the likelihood of flooding and the impacts of a flood when it happens. Informing people a flood is about to happen is vital, as it gives them time to prepare. We also encourage those in risk areas to make a flood plan, so that they are ready when the warning comes. The Council prepare for potential flood emergencies as follows:

Figure: Preparedness and Predictions



The Civil Contingencies Act 2004 is the most relevant piece of legislation in relation to emergency planning for flooding. It formalises a number of duties on Local Authorities, the emergency services and other organisations involved in responding to any emergency. Amongst these are contingency planning and risk assessment for emergencies at the local level, including flooding. The Environment Agency are the Lead Responder for provision of flood warnings and information to the public, However, all Category One responders have a role to play in communicating with the public and will either lead or play a significant part at some stage in a flood event, e.g. Police (public safety announcements and information in the consequent management phase), the Council (recovery phase), etc.

The principal method of warning the public of flood risk in Cheshire is via the Environment Agency's Flood Line Warnings Direct system, and messages that the EA issue via local media. It is the property owners' responsibility under the law to protect their own property from flooding. However the EA, Halton Borough Council and the Emergency services, where possible, will offer assistance in the event of a flood.

Emergency Plans allow all responding parties to work together on an agreed coordinated response to flooding. LRFs bring together Category 1 and 2 responders within a local police area for the purpose of cooperation in fulfilling their duties under the Civil Contingencies Act 2004. Halton Borough Council has an Emergency Plan that revolves around a single point contact number. It has been designed to enable the Council to:

- Receive notification of emergency incidents via a 24/7 contact facility;
- Respond to initial requests for assistance via the Duty Officer mechanism;
- Activate and facilitate the Local Authority Emergency Centre for direct incident response.

The Council will respond and advise on the following:

- Surface water, groundwater flooding, flooding from non-main rivers and coordinate the response with other Flood Management Authorities for main river;
- Work with the other Category 1 and 2 responders as part of the multi-agency response to floods;
- Coordinate emergency support from the voluntary sector;
- Liaise with Government departments and with essential service providers;
- Manage the local transport and traffic networks initially on safety grounds followed by signing and diversionary routes;
- Mobilise trained emergency social workers and emergency assistance;
- Deal with environmental health issues, such as contamination and pollution;
- Coordinate the recovery process.

If serious flooding involves people having to be evacuated, the Council may be able to offer temporary shelter and welfare support in the form of Rest Centres. Emergency services (Fire, Police, Ambulance and the Army) will help to evacuate people who are stranded or in danger. Where required, they will also provide medical assistance and emergency life-saving treatment. It is important to understand that although these bodies can assist at the time of flooding, they are not required by the law to protect your home or other properties from flooding. The responsibility to do that, lies with the property holder.

Communications

During a pending, or ongoing emergency, communications are vital. This is an area we will continually refine as forecasting techniques and information technology develops particularly in the use of social media networks. As a source of information the Council`s web pages have proved the most effective and accessed media as a source of information at times of flooding. Information will therefore be published on a regular basis as well as through traditional news media channels. When appropriate, the Council's network of highway variable message signs will be used to inform of road closures.

We will continue to work with our partners at the Environment Agency to raise awareness of the flood warning service in the designated high risk zones.

Sandbag Policy

The Council recognises that the primary responsibility for protecting property from the risk of flooding rests with the property owner. It is also aware of the considerable efforts put in by the Environment Agency to notify property owners in flood risk areas of the risks they face and encourage them to plan their own arrangements to protect themselves and their properties.

The Council supports this approach and urges those living within areas identified as being at risk from flooding to follow the advice of the Environment Agency. The Council is concerned that, in the event of the threat of flooding to a large number of properties in the borough, it may not have the resources to protect every property and that priorities will have to be made. This could inevitably lead to some flooding to properties that, with some pre-planned preventative measures by the occupant, could have been avoided or minimised.

However, as a responsible authority, the Council recognises that the level of individual preparedness will vary enormously and it is prudent to plan for some additional support to the local community. With this in mind the Council has developed the following policy:

In the event of deteriorating weather leading to the issuing of weather alerts that could potentially affect any part of the Halton administrative area then risk assessments will be undertaken and regularly updated. These assessments could be area-wide or site specific. They could include information obtained from site visits by Council Officers or other professional partners. In the event of the Council's risk assessment for a defined area identifying the use of sandbags to be appropriate to minimise or mitigate the risk of flooding to residential, utility or commercial properties the Council may make available sandbags in accordance with its sandbag policy (see appendix 2).

The allocation of sandbags to individuals will depend upon a number of factors including the total number of sandbags available, an assessment of the viability of protecting the particular property with sandbags, demands from other emergency flood defence measures involving the use of sandbags that would protect a greater number of properties. The need to protect infrastructure assets e.g. roads, energy distribution sites, communication network sites, hospitals and the Council's own public buildings, etc. are also likely to make demands on the Council's limited resources.

Occupants of properties where protection from the risk of flooding using sandbags is assessed as viable but lack the physical ability to do so, e.g. elderly or infirm may, subject to availability of manpower and the assessed priorities at the time, be provided with assistance from the Council.

Road closures and disruption to the road network can impact on the Council`s ability to distribute sandbags. Flash flooding can occur in an overwhelming manner and recede quickly. In these circumstances it is impossible to respond in the timeframe of the event.

Sandbags will not prevent floodwater encroaching completely into property and householders should remove articles to a safe location above the anticipated flood level. People building flood defences with sandbags should also be aware of the building methods to employ in order to make an effective seal and the health and safety implications of manual handling sandbags as they are exceptionally heavy.

It therefore must be emphasised that residents of Halton who live in identified flood risk areas should not rely upon the Council to respond to a threat of flooding to their property but should have in place their own flood protection plan.

The provision of sandbags and assistance by the Council under this policy will be without prejudice and free of charge.

4. Objective 4: Funding and Actions & Interventions to Reduce Flood Risk

Section 16 of the FWMA 2010 enables the Environment Agency to pay grants to any person in respect of expenditure incurred in connection with flood or coastal erosion risk management in England.

Under subsection (1) The Environment Agency may make grants in respect of expenditure incurred or expected to be incurred in connection with flood or coastal erosion risk management in England. Under subsection (3) a grant may be subject to conditions (including conditions as to repayment and interest).

4.1 – Revenue Funding

Defra provides funding directly to Halton Borough as a Lead Local Flood Authority to help with the new duties under the Flood and Water management Act. The funds are intended to fully cover the costs for local authorities of putting into place and carrying out new responsibilities under the FWMA, such as flood mapping, producing risk management plans and supporting community flood awareness groups. The majority of the allocation is issued under the business rates retention system and part as Area Based Grant provided direct to the Authority. Funding commenced in 2011/12 and Halton currently receives a £135,600 non-ring-fenced annual allocation of which £20,000 is via Local Services Support Grant.

In 2013/14, Halton has allocated the following sums in its revenue budgets for flood risk management and land drainage:

Lead Local Flood Authority – Employee Related	£31,750
Lead Local Flood Authority – Contracted Services	£48,250
Land Drainage & Flood Defence	£23,170
Land Drainage and Flood Defence – Environment Agency / NW RFCC Levy	£58,430

In addition, sums have been allocated within the highway maintenance revenue budget for highway drainage purposes. These funds can be prioritised to assist with the management of flood risk in those higher risk areas identified in the PFRA and 'hotspots' described in Halton's SWMP study:

4.2 – Capital Funding

Flood Defence Grant in Aid (FDGiA)

In England, government funding is available for capital works to manage and reduce flood and coastal erosion risk. This funding is administered by the Environment Agency on behalf of Defra, through its Regional Flood and Coastal Committees (RFCCs). Flood Defence Grant in Aid (FDGiA) is allocated to Risk Management Authorities (RMAs - Environment Agency, Local Authorities, and Internal Drainage Boards). Each year RMAs are invited to submit details of proposed flood and coastal erosion flood management works which require funding for the next five years. The proposals are captured in the Medium Term Plan (MTP). The MTP from each region is combined into one programme schedule to give an indication of investment needs across England. Funding may also be allocated for scheme appraisals and other pre-delivery stages of projects.

There are four categories under which projects can attract FDGiA. These are:

- All benefits arising as a result of the investment, less those valued under the other outcome measures (Outcome Measure 1)
- Households moved from one category of flood risk to a lower category (Outcome Measure 2)
- Households better protected against coastal erosion (Outcome Measure 3)
- Statutory environmental obligations met through flood and coastal erosion risk management (Outcome Measure 4)

The maximum amount of FDGiA funding on offer is calculated using a formula which considers the monetary value of the above benefits against projected project costs. Some projects will qualify for full national capital funding, but others mey need to identify cost savings or must attract other sources of funding to proceed under the partnership approach described in paragraph 4.3.

Halton makes an annual application for FDGiA funding for its proposed flood risk management works following the Environment Agency's grant allocation calendar which is illustrated at the following weblink: http://www.environment-agency.gov.uk/static/documents/Research/FCRM_GiA_allocation_diagram_v3.pdf. Briefly, the process is as follows:

- June – submission of proposed schemes / programmes to EA

- August – prioritisation by EA
- October – Indicative programme considered by RFCCs (shared with RMAs)
- January – RFCCs consent programme
- February – EA funding Board approval to consented schemes.

Schemes that have been awarded FDGiA funding in the current (2014/15) MTP are detailed in Appendix 3

4.3 – Partnership Funding Approach

A key principle of the FDGiA outcome based approach is that the beneficiary should contribute in some way towards the scheme. The 'beneficiary pays' principle therefore places part of the cost burden on those that are at risk of experiencing flooding. Under Defra's new partnership funding approach, relatively small amounts of locally found funding (or cost savings) could make the difference between locally important projects going ahead or not. Such contributions will supplement the amount of Government funding available at the national level. For example, a 10% local contribution towards a scheme could leverage large amounts of funding from Government, delivering typically an 80 to 1 return on the local investment, and benefits in terms of property, land values, insurance costs and business productivity to the community that dwarf the costs involved over the long term.

A practical resource relating to partnership funding and collaborative delivery of local flood risk management was produced in March 2012 to support Lead Local Flood Authorities. Titled: "Partnership funding and collaborative delivery of local flood risk management: a practical resource for LLFAs", this guidance provides useful information on potential partner organisations and on potential funding sources. It uses a range of case studies of successful partnership funding approaches and offers practical advice on motivating and engaging with partners to help maximise chances of identifying and realising partnership funding opportunities:
http://www.local.gov.uk/web/guest/paying-for-flood-and-coastal-erosion-risk/-/journal_content/56/10180/3600375/ARTICLE#sthash.DMFyZxMK.dpuf

Partnership

Key partners with direct interest in schemes are potential funders, or may be able to contribute to schemes in other ways, such as coordinating their work to achieve scheme objectives or allowing works to take place on their land. In its role as Highway Authority, Halton Borough Council also has responsibility due to the importance of the highway drainage network in managing flood risk. Where there is a shortfall of funding, Halton Borough Council as a scheme promoter will look more widely for alternative sources of funds for its local flood defence and protection schemes. It is anticipated that where the circumstances of flooding dictates, or where there are related implications for flood risk management, the following partner organisations will be approached as potential partners as appropriate:

- United Utilities (Water and Sewerage Company)
- The Highways Agency
- Network Rail
- Housing Associations and Registered Social Landlords
- Private Developers

Managing partnerships and potential partner contributions, is likely to need the early involvement of elected representatives in choices that may require political support. Although this is a new approach to flood management funding, the Council is very experienced in developing and delivering multi-source funded schemes.

Water and sewerage companies (WaSCs) play an important role in local flood risk management. Their sewer networks provide drainage for a significant proportion of rainfall, particularly that falling in urban areas. Section 94 of the Water Industry Act 1991 (WIA91) effectively sets out a flood risk management function for WaSCs. It imposes a duty to 'effectually drain' their areas of responsibility. They also have a responsibility to resolve sewer flooding affecting properties. Partnership funding will be sought particularly where flood risk arises from sewer under-capacity and when there is correlation with UU's sewer asset management programme (AMP6) and co-ordination with their planned capital schemes.

Local Levy

The Local Levy is an additional, locally-raised, source of income for the North West Regional Flood Defence Committee. The income is raised by way of a levy on the County Councils and Unitary Authorities within the committee boundaries, which is voted for by the local authority members of the committee and administered by the Environment Agency on behalf of the RFCC.

The local levy is used to support, with the approval of the committee, flood risk management projects that are not considered to be national priorities and hence do not attract full national funding through Flood Defence Grant in Aid. The local levy also allows locally important projects to go ahead to reduce the risk of flooding within the committee area.

5 Objective 5. Environment and Sustainability

Section 27 Sustainable Development
In exercising a flood or coastal erosion risk management function, a Lead Local Flood Authority must aim to make a contribution towards the achievement of sustainable development.

Sustainable Development is defined as "...development that meets the needs of the present without compromising the ability of future generations to meet their own needs".
Brundtland Commission, 1987 (UK Government adopted definition)

5.1 The main purpose of this document is to set out a strategy for implementing flood risk management measures across Halton. However there is an opportunity to derive significant benefits in the process, in respect to Borough and national aspirations in the wider context of sustainability, environmental and social improvement. Delivering multiple benefits will require working with partners to identify local priorities and opportunities. Where appropriate, and in line with the principles of the National Strategy, contributions that help to deliver these additional improvements could be sought from those partners that benefit. Higher levels of Government funding may also be accessible when wider benefits are delivered as part of the Local Strategy.

5.1.1 Through Halton undertaking its duties in a responsible manner as outlined in this strategy, it can have a positive effect on the environment. Halton Council will utilise up to date and best practice advice and guidance where applicable, when undertaking its duties with regard to flood risk management.

The environmental objectives and measures specific to the LRFM Strategy which will contribute to the effective management of local flood risk are included below:

- To reduce flooding impact and consequences for individuals, communities, businesses and the environment;
- Take a sustainable approach to flood risks management balancing economic, environmental and social benefits;
- To ensure that planning decisions are properly informed by flooding issues and that the impact future planning and long term developments may have on flood risk management is taken into account;
- Improve and/or maintain the capacity of existing drainage systems by targeted maintenance;
- Establish a Sustainable Drainage Systems Approval Body (SAB); and embrace UK Government guidance on the adoption and maintenance of SuDS (Subject to enactment of Schedule 3 of the Flood and Water Management Act 2010).

In addition to the local strategy specific objectives, the strategy should also contribute where possible to achieving national environmental objectives. The Local Strategy should not hinder aims and objectives but has the potential to contribute to the achievement of them. Other key documents and legislation containing objectives relevant to flood risk management include:

- Water Framework Directive (2000/60/EC)
- River Basin Management Plan
- Catchment Management Plans
- Wildlife and Countryside Act 1981
- Water Cycle Strategy
- Biodiversity Action Plan
- Warrington LDF Core Strategy

Note: this list in indicative only and not meant to be definitive.

Through undertaking its duties the council can have a positive impact on the environment examples are as follows:

Duties and their potential environmental benefits:	
Consenting	The ordinary watercourse consenting process is in place to ensure that any works carried out do not have a detrimental effect on other people or the environment. It also ensures that any works which may affect flood risk are properly designed and where necessary environmental considerations are designed for i.e. fish ladders / passes etc. In determining an application it is necessary to consider other legislation including, but not exclusively: The Environment Act; the Habitats Regulations; the Water Framework Directive (WFD); the Countryside and Rights of Way Act; the Salmon and Freshwater Fisheries Act; the Eel (England and Wales) Regulations 2009.
Enforcement	The purpose of ordinary watercourse regulation is to control certain activities that may have an adverse impact on flood risk and the environment. If works are carried out without consent, the Council has enforcement powers to remove or modify them

Designation of 3rd Party Assets	The purpose of this legislation is to try and ensure that owners do not inadvertently alter structures and other features and potentially increase flood risk to themselves, their neighbours and the wider community, hence having a negative social effect.
SuDS	Upon enactment of Schedule 3 of the FWMA 2010, Halton will encourage, adopt and maintain SuDS. SuDS play a crucial role in managing the surface water from developments on site and hence reducing the flood risk, however, they have many environmental and social benefits, including; • Improving groundwater recharge; • Protecting and potentially enhancing surface water quality by filtering pollutants; • Providing habitats for wildlife; and providing landscape amenity for the community; • Providing potential opportunities for community engagement, management and ownership of SuDS. • As well as planning for new Green Infrastructure, the LFRMS needs to protect existing wetlands due to their important role in surface water management.
Capital Works	In assessing potential solutions there may be conflicts between measures that are more or less sustainable. Halton Council will assess sustainability with the economic, environmental and social benefits of any proposed scheme. Halton Council will be transparent about the trade-offs in both the short and long term and explain decisions taken.
Maintenance Works	As recommended by the Pitt Review, Halton may need to take a more pre-emptive view of maintenance requirements, particularly in those locations known to have a significant flood risk. Some rivers are designated under the Habitats Directive as Special Areas of Conservation. Any maintenance activities that we may wish to carry out, including dredging and weed cutting, must comply with the requirements of the Habitats Directive. The Water Framework Directive does not prohibit dredging. The Directive calls for the reinstatement of natural river channels and, as far as possible, for a reduction in interference in the natural river process.

Appendices

List of Appendices:

HALTON
BOROUGH COUNCIL