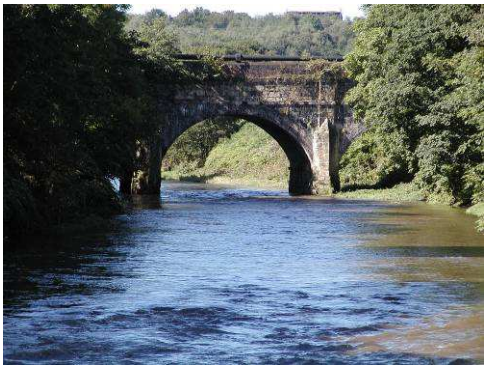
April 2014

Local Flood Risk Management Strategy









DEPARTMENT FOR RESOURCES AND REGULATION

Bury COUNCIL

Use of Information in this Report

As Lead Local Flood Authority (LLFA), Bury Council has a duty to develop, maintain, apply and monitor a Strategy for local flood risk management. The Local Strategy will complement and support the national flood risk management strategy, published by the Environment Agency.

The LLFA must specify objectives to manage flood risk and suggest measures to achieve these objectives. The LLFA has a responsibility to consider the flood risk management functions that it may exercise to reduce flood risk.

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

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

Contents

1. Introduction

1.1 Flooding is a natural process and does not respect political or administrative boundaries. It is principally influenced by natural elements of rainfall, tides, geology, topography, rivers and streams and man made interventions such as flood defences, roads, buildings, sewers and other infrastructure. As has been seen by recent events in places like Somerset, Carlisle, Hull and Cockermouth, flooding can cause massive disruption to communities, damage to property and possessions and even loss of life.

Nationally, 1 in every 7 properties (17% of the total building stock) is considered to be at risk from some form of flooding in the UK. (**Cabinet Office 2012**)

1.2 In relation to Bury, while flooding does not affect the entire Borough, the presence of major rivers, smaller watercourses, ageing infrastructure and the threat of surface water in some areas means that flooding is a real issue and, when it occurs, it can seriously affect people's lives and businesses. Evidence also suggests that, in future, damage caused by flood incidents could increase due to the impact of climate changes and further pressure for development in areas at risk of flooding.

Purpose of the Strategy

1.3 The three main aims of the Bury Local Flood Risk Management Strategy are to:

- increase awareness of local flood risk issues;
- identify how partners are working together to reduce flood risk; and
- provide an overview of ongoing flood risk management within the Borough, together with an Action Plan and a Programme of Schemes.

1.4 Different types of flood risk are not always distinguished as it is their impact which is often of key concern. The Strategy seeks to improve our understanding of flood risk within the Borough by outlining the levels of risk from all sources. This is broader than the types of flood risk for which the Council is strictly responsible, as Lead Local Flood Authority (LLFA) under the Flood and Water Management Act 2010, but, hopefully, helps to give a complete picture.

Around 3.8 million properties are thought to be at risk of surface water flooding nationally. (**ABI 2010**)

1.5 Extreme weather events appear to be on the rise, many of our existing homes and businesses are built in the floodplain and we are under increasing pressure to build more. The Strategy

provides the opportunity to co-ordinate services so that the risk of flooding is reduced.

Structure of the Strategy

1.6 In outline the Strategy covers the following:

- **Chapter 2** provides a summary of flood risk in the Borough and includes a review of the information that already exists. The information helps to understand the varying levels of risk within Bury and prioritise geographical areas for action.

Across the UK, £60,000 is the average claim for business premises following flood (**ABI 2012**)

- **Chapter 3** considers future influences on flood risk while **Chapter 4** provides an overview of the legislation that underpins flood risk management in Bury. **Chapter 5** provides clarification on the various roles and responsibilities of the organisations involved in flood risk management. It also looks at the role residents and businesses can play in helping to manage flood risk, including riparian owners and property owners.
- **Chapter 6** identifies our objectives and measures for managing flood risk in Bury. **Chapter 7** provides an overview of funding opportunities for flood risk management.
- **Chapter 8** outlines the governance and scrutiny arrangements and **Chapter 9** discusses monitoring and review of the Strategy.

Who is the Strategy aimed at?

1.7 The Strategy has been written for all those prone to flood risk. It is also of relevance to authorities with flood risk management responsibilities and other partners, to ensure that there is a common understanding of the roles, responsibilities and priorities within Bury.

Review

1.8 We will refresh the action plan and programme of works annually. They will reflect, as far as possible, all the schemes and activities planned by risk management authorities and partners to address the objectives in the Strategy.

£20,000-£40,000 to reinstate a property following a flood within the UK(**ABI 2012**)

1.9 Given that our knowledge and understanding of flood risk will improve significantly in the coming years, there must be opportunities to update the Strategy as new information becomes available. For this reason, the Strategy should be viewed as a 'living document'.

185,000 businesses nationally are at risk from flooding (**ABI 2010**)

2. Flood Risk in Bury – What is the Problem?

2.1 The flood events in Summer 2007 demonstrated the major impact flooding can have and highlighted the importance of understanding the risk of flooding in order to ensure that we can be better prepared to face future risks. Nationally, more than 5 million people live and work in 2.4 million properties that are at risk of flooding from rivers or the sea, with a further 2.8 million properties susceptible to surface water flooding[1].

2.2 Flooding can occur from many different and combined sources and in many different ways. Different types and forms of flooding present a range of different risks and the flood hazard, depth and duration of flooding can vary greatly. What this means for Bury is explored below.

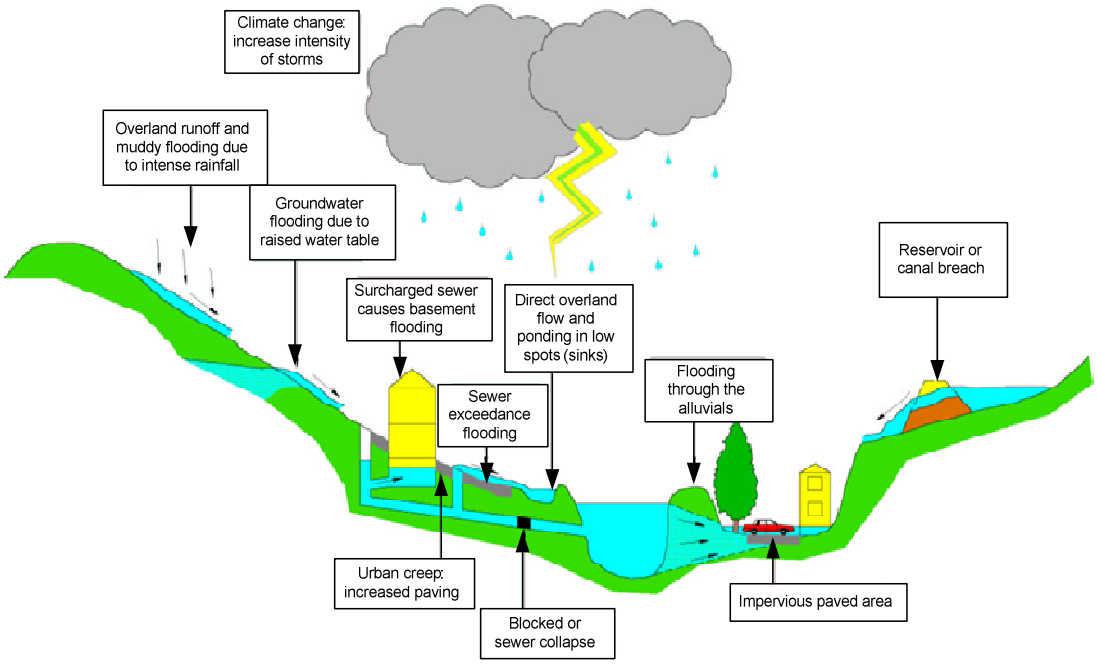
2.3 A number of studies and assessments have sought to explore flood risk from a variety of sources within the Borough. These include the Environment Agency's (EA's) National Flood Risk Assessment, EA's mapping of fluvial flood zones, EA's Reservoir Flood Maps, the Greater Manchester Strategic Flood Risk Assessment, the Bury, Oldham and Rochdale Strategic Flood Risk Assessment, Bury's Preliminary Flood Risk Assessment (PFRA) and the Greater Manchester Surface Water Management Plan (GMSWMP). Historic records of flooding vary greatly, making it difficult to provide a consistent picture of past flooding within Bury, however these are considered where notable events have occurred.

2.4 Bury is located within the centre of the wider River Irwell catchment area where the gradient of the Irwell is flatter and surrounded by moorland. Much of the area grew rapidly during the Industrial Revolution with the development of mill buildings and commercial and residential properties on the floodplain. Today, most of the watercourses are heavily modified and contain a large number of culverts and weirs.

2.5 The major watercourses in the Borough are the River Irwell and River Roch which originate outside the administrative boundary. Smaller watercourses such as the Rivers Beal and Spodden, or other tributaries of the River Roch originate within Rochdale and Oldham and flow into the Borough. This highlights the need for the Council to work with neighbouring authorities on flooding problems, particularly where actions could exacerbate flooding in downstream communities. Managing the network of tributaries is complicated, but important, as they could increase flooding problems in downstream areas.

[1] Investing for the Future; Flood and Coastal Risk Management in England, Environment Agency, 2009

Figure 1 - Flooding from all Sources



Source: SFRA 2009

a. River (Fluvial) Flooding

River flooding occurs when the capacity of a river or stream is reached, causing water to spill out of the channel into nearby areas – for example when heavy rain falls on ground that is already water logged and the watercourse cannot cope with the water draining into it from the surrounding land. In some areas the surrounding floodplain of the river may be undeveloped or have flood compatible uses, but in some areas development has occurred within these floodplain areas.

2.6 The main source of fluvial flood risk in the Borough is from the River Irwell and its tributaries, including the Holcombe Brook, Pigslee Brook, Kirklees Brook and the River Roch.

2.7 In the Borough 1,870 (2.2%) dwellings fall within the Environment Agency's Flood Zone 2 (1 in 1000 chance of flooding in any year) and 1,365 (1.6%) in Flood Zone 3 (1 in 100 chance of flooding in any year).

Ramsbottom

2.8 According to the Environment Agency, the River Irwell through Ramsbottom is defended by a mix of Environment Agency raised defences and maintained channels. The Environment Agency raised defences have 1 in 100 year standard of protection and protect land surrounding Peel Brow.

2.9 Flooding on the west bank of the River Irwell in Ramsbottom is highly dependant on the Irwell overtopping around Stubbins and flood water flowing underneath its railway line. Water then

flows south down the west side of the railway line and into the area of the Drill Hall.

2.10 During smaller flood events the majority of flooding on the east bank of the River Irwell through Ramsbottom is located on greenfield land downstream of Cuba Industrial Estate and again at Nuttall Park.

2.11 Downstream of Ramsbottom, the Irwell remains mainly in bank or flooding open land around Summerseat and Higher Woodhill during the 1 in 100 year event. Downstream of the disused railway line at Daisyfield in Bury, flooding can become widespread, placing a large number of properties at risk within the Environment Agency flood zone outlines.

South of Bury

2.12 Further downstream of the River Roch confluence, the River Irwell assumes a more westerly course, which takes it through Radcliffe towards Farnworth to be joined by the River Croal. The river then changes course and heads in a south easterly direction through Kearsley (between Prestwich and Pendlebury) and into Salford and Manchester where it discharges into the Manchester Ship Canal.

2.13 The Environment Agency operates a Flood Warning Service in areas at risk of flooding. Figure 3 shows the flood warning areas that are currently in operation within the Borough.

Figure 2 - Extent of Flood Zone 2 and 3 in Bury

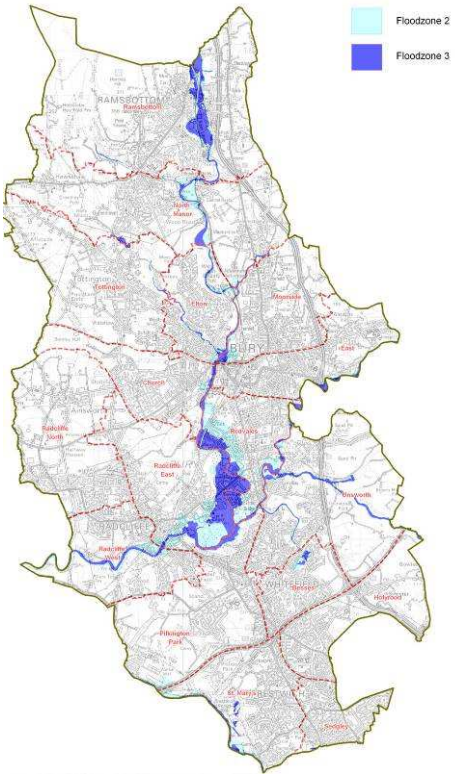
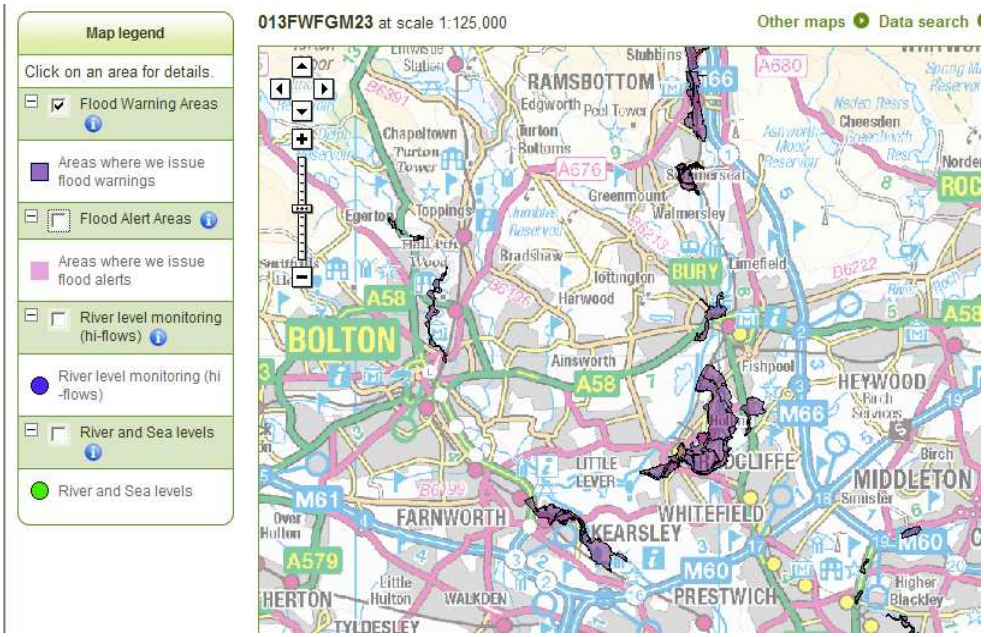


Figure 3 – Flood Warning Areas



Source: Environment Agency website, accessed April 2014

b. Surface Water Flooding

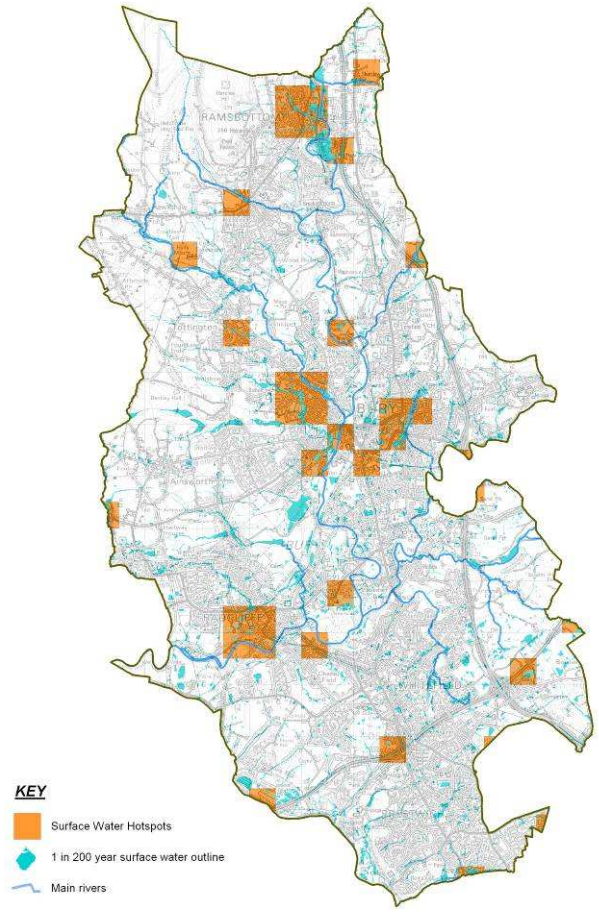
Surface water flooding is caused by overland flow during periods of sustained or heavy rainfall, causing ponding of water where it becomes obstructed or collects in low lying areas. Local drainage capacity and infiltration is unable to cope with the volume of water experienced. The risk of surface water flooding increases as the amount of built up area and the volume of impermeable hard surfacing increases within the Borough.

2.14 The Bury, Rochdale and Oldham Strategic Flood Risk Assessment (2009) identified Critical Drainage Areas (CDA) in Bury which focused on Ramsbottom and Radcliffe. CDAs were identified as areas where surface water risk was established as most widespread and significant and where particular care was needed in assessing the impact of development on surface water flood risk.

2.15 Bury's PFRA (June 2011) identified that the Environment Agency's Flood Map for Surface Water (FMfSW) was the best available indication of predicted surface water flood risk throughout the Borough. Based on this information, approximately 20,200 properties are predicted to be at risk of deep flooding up to a depth of 300mm, and a further 6,600 at a depth above 300mm, in a high risk (1 in 200 chance in any year) flood event.

2.16 Since the PFRA was published the Greater Manchester Surface Water Management Plan (SWMP) has been produced. The SWMP identifies with greater detail than previous assessments where there are more extensive areas of surface water risk. The SWMP predicted the potential for surface water flooding in most of the Borough's main urban areas, with significant risk identified in Ramsbottom, Bury Town Centre and Radcliffe. An illustration of the surface water hotspots in the Borough based on the SWMP can be seen in Figure 4 below.

Figure 4 - Surface Water Hotspots 2013



Note: this plan should not be used to identify individual properties

2.17 Due to the steep topography of Bury, the SWMP identified that the Borough has narrow and shallow surface water flow paths. This has the potential to lead to rapid inundation with higher velocities and hazards.

2.18 A number of flow paths have been identified in the Borough, as surface water flows off the hillsides, collecting in small drains before flowing to the valley bottom. Runoff direct from rural land is also an issue particularly in Ramsbottom, causing flooding to major road networks and individual properties.

2.19 The SWMP identified that the surface water hotspot at the junction of Water Street and Ainsworth Road in Radcliffe should be taken forward to further investigation. Flooding at the site is as a result of the limited capacity of the stormwater culvert and the combined sewer system. A number of options have been identified to manage the flood risk, however, to date no preferred option has been agreed.

2.20 Figures 5, 6 and 7 highlight the potential for surface water flooding in a 1 in 30 year, 1 in 200 year and 1 in 200 year plus climate change flood event. It is not appropriate to apply the information contained within these maps at a local property level.

Figure 5 – Surface Water Flood Extent – 1 in 30 Year Flood Event

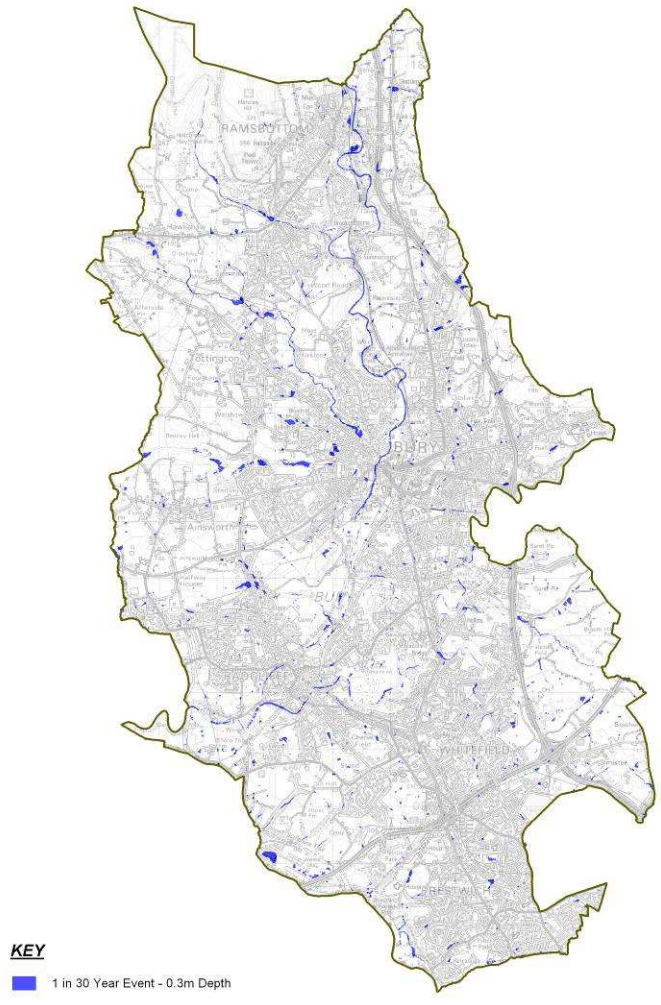


Figure 6 – Surface Water Flood Event – 1 in 200 Year Flood Event

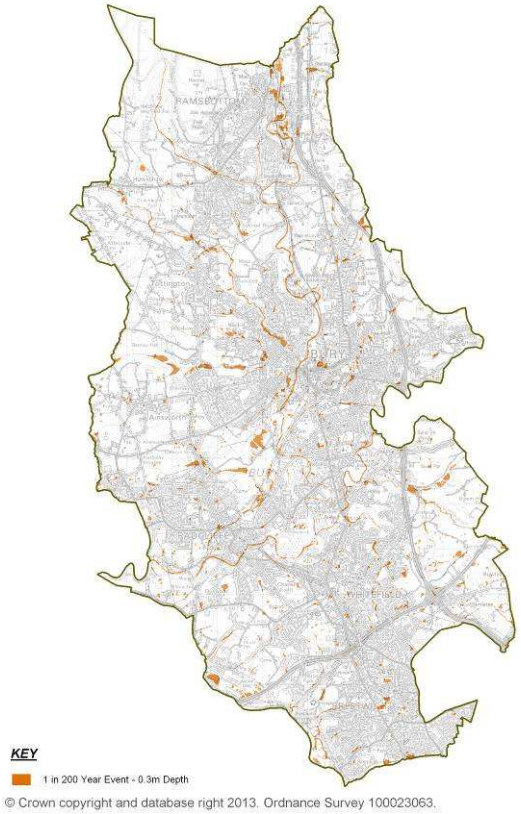
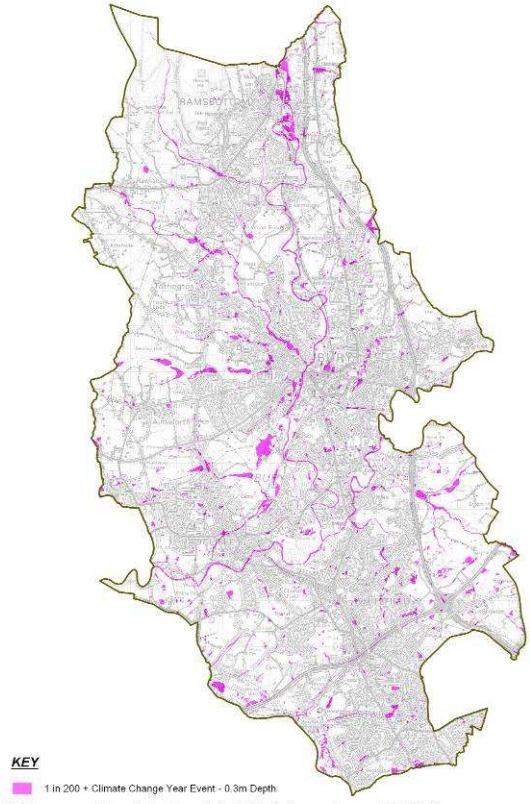


Figure 7 – Surface Water Flood Extent – 1 in 200 Year + Climate Change Flood Event

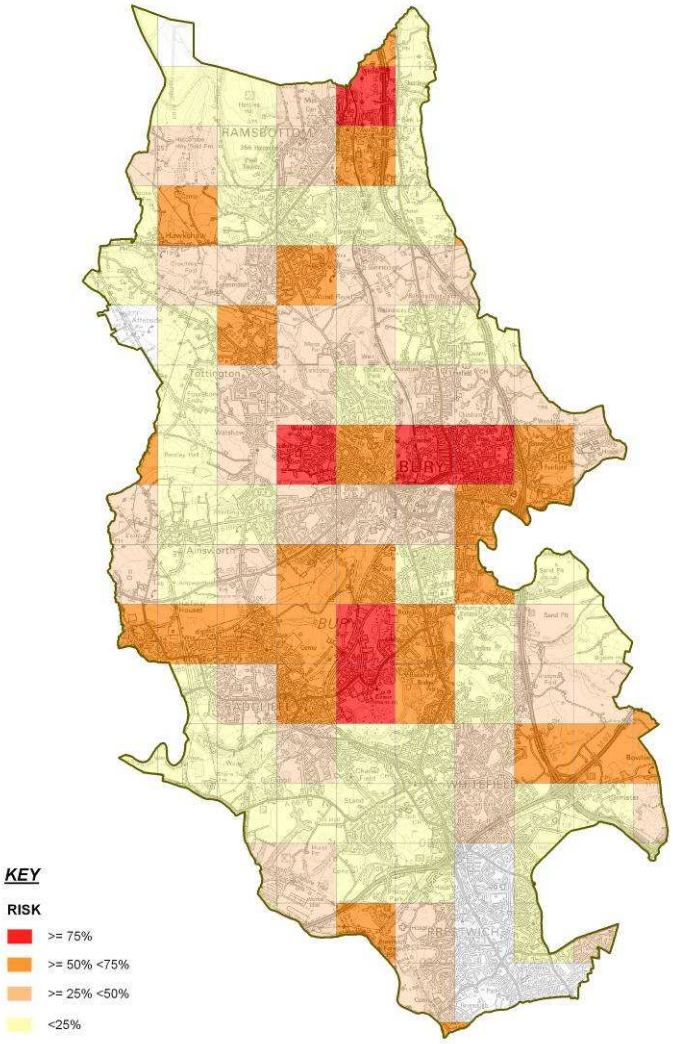


c. Groundwater Flooding

Groundwater flooding occurs when the water held underground rises to a level where it breaks the surface in areas away from usual channels and drainage pathways. It is generally a result of exceptional extended periods of heavy rain, but can also occur as a result of reduced abstraction, underground leaks or the displacement of underground flows. Once groundwater flooding has occurred, the water can be in situ for a lengthy period of time.

2.21 The Environment Agency's national dataset, Areas Susceptible to Groundwater Flooding (AStGWF), provides the basis for assessing future flood risk from groundwater.

Figure 8 - Areas Susceptible to Groundwater Flooding



Note: Complete groundwater data was not available for the entire Borough
Note: This plan should not be used to identify individual properties

2.22 Bury lies over an aquifer with geology consisting predominately of sands and gravels which have high permeability. There are a number of flood defences along the River Irwell through Ramsbottom which elevate river levels above the flood plain. There is the possibility that alluvial groundwater flooding could occur in these areas. However, there are relatively few reported incidents of groundwater flooding in Bury.

d. Hidden or Culverted Watercourses

2.23 There are other watercourses across the Borough which are not captured on DEFRA's Main River map. Many modified small streams, brooks and culverts are now hidden below ground and their condition is deteriorating; they have become blocked with debris and are the cause of much localised flooding following heavy rain.

2.24 Due to the urbanised nature of the Borough, only a few of the watercourses are in their natural form. Many of the main river channels have been straightened and canalised to accelerate the flow of water and have been culverted over significant lengths. Many of the channels and culverts have a limited hydraulic capacity and are prone to blockages which can lead to flooding. The blockages are caused by silt deposition from the rural upstream sections of the Borough, vegetation falling into the river and through fly tipping where debris is dumped in the channels.

2.25 There is approximately 12.4km of culverted channel in Bury.

e. Sewer or Highway Flooding

Sewer or highway flooding is caused by excess surface water entering the drainage network, exceeding available capacity or when a blockage occurs. This generally occurs during periods of heavy rainfall when the drainage network becomes overwhelmed. Land and property can be flooded with water contained with raw sewage as a result. Sewers that overflow can also pollute rivers

2.26 United Utilities keep a record of property flooding which is called the DG5[2] register. In Bury, to date 63 properties have flooded internally as a result of sewer flooding whilst 112 have flooded externally.

2.27 Whilst this data can give an idea of those areas with limited drainage capacity, it must be acknowledged that it is a register of properties that have already been flooded due to exceedance or the blockage or failure of sewer systems, not properties at risk of flooding. In addition to this, sewer flooding problems may have been investigated and resolved since the register was

[2] DG5 relates to flooding from sewers.

compiled. For these reasons, the DG5 register has limited usefulness in predicting future flooding locations. More useful indicators of risk are associated with the data generated using hydraulic sewer network models.

f. Canal Flooding

Canals are rivers or man made channels that have been developed for use in industry. Canal flooding is caused by overtopping or breach of the canal network when the canal cannot cope with the water draining into it from the surrounding land.

2.28 The Manchester, Bury and Bolton Canal once started in Bury, running southwards through Radcliffe, before joining the River Irwell at Salford. The canal was closed in 1961 and is disused and discontinuous north of Salford.

2.29 The PFRA identified a historic risk of broad canal flooding, however there is no modelled flood risk data available. Furthermore, a number of factors suggest that the flood risk on the Manchester, Bury and Bolton Canal is low:

- Embankments are generally low and made from clay;
- The canal is discontinuous;
- The last major breach and location of many breaches was at Nob End (downstream of Radcliffe) in 1936. This stretch of canal was not restored;
- Previous canal failures were caused by mining subsidence. It is assumed that mining activity in the area has now ceased, although some risk does still remain; and
- The canal intercepts some surface water from the catchments to the west. However, no detailed modelling has been undertaken and this is a large unknown.

Figure 9 – The 1936 Manchester, Bolton and Bury Canal Breach

Source: Bury, Oldham and Rochdale SFRA, 2009

g. Reservoir Flooding

Reservoirs hold large volumes of water above ground level and are contained by walls or dams. Reservoir flooding occurs when a reservoir structure is overtopped or fails due to damage or collapse.

2.30 The Environment Agency maintains a Public Register of Large Raised Reservoirs. Table 2 identifies the reservoirs within Bury. The chance of reservoir failure is very unlikely as reservoirs are regularly inspected and there is an extremely good safety record in the UK with no loss of life due to reservoir flooding since 1925.

2.31 Elton Reservoir is considerably bigger than any other reservoir within the Borough.

2.32 The Greater Manchester Civil Contingencies and Resilience Unit (CCRU) are currently in the process of producing Generic Reservoir Off-Site Plans which will outline the Greater Manchester emergency response to any reservoir failure. In addition, the CCRU are producing Specific Reservoir Off-Site Plans for those reservoirs within Greater Manchester which are in the top 100 reservoirs. Bury does not host any of these reservoirs, but a considerable number would impact upon the Borough, should they fail.

Table 1 - Reservoirs in Bury

Reservoir	Physical Status	Construction	Year Built	Capacity	Surface Area
Elton	In Operation	Earthfill	1808	923,000	217,000
Elton Vale Lower	In Operation	Earthfill	1860	56,000	24,000
Lowercroft Lower	In Operation	Earthfill		40,000	16,000
Lowercroft Middle	In Operation	Earthfill	1800	127,000	28,300
Lowercroft Upper	In Operation	Earthfill	1890	183,000	30,000
Pilsworth Reservoir	In Operation	Earthfill		25,000	30,000
Woodgate Hill 1	In Operation	Other	1958	64,000	11,000
Woodgate Hill 2	In Operation	Other	1961	269,000	47,000

Source: Environment Agency, April 2013

3 Future Influences on Flood Risk

3.1 Flood risk is not static and there are many factors which could influence how flood risk changes over time including: climate change, new residential and commercial development and changes to the natural environment.

Climate Change

3.2 Changes in climatic conditions will affect flood risk within the Borough in several ways, however impacts will depend on local conditions and vulnerability. Wetter winters and more intense rainfall may increase river flooding in both rural and urban areas. More intense rainfall causes greater surface runoff, increasing localised flooding and erosion. In turn, this may increase pressure on drains, sewers and water quality. Storm intensity in summer could increase even in drier summers, so the Borough needs to be prepared for the risks arising from unexpected flash flooding.

3.3 Based on UKCIP09 projections of future rainfall, it is likely that winters will become significantly wetter and extreme winter precipitation will increase. In summer there is likely to be less overall rainfall but intense heavy downpours are anticipated. Both changes would lead to an increase in levels of ground water and increase fluvial and surface water flooding.

3.4 It is difficult to predict in detail as much depends on the nature of the rainfall as, once the ground is saturated or the intensity of rain exceeds the rate of infiltration, water runs off and is not available for groundwater recharge. However, surface water management plans and strategic flood risk assessments have tried to take account of the potential impacts of climate change.

3.5 The SFRA projected the likely extent of the 1 in 100 year fluvial flood risk zone under a climate change scenario (which assumes a 20% increase in the extent of the existing area subject to Environment Agency Flood Zone 3 fluvial flood risk). Radcliffe appears to be particularly sensitive to climate change for a range of flood events whilst Ramsbottom will be more sensitive during more extreme events in the future.

3.6 In the Surface Water Management Plan, an assumption was made that climate change will lead to a 30% increase in rainfall intensities for the 1 in 200 year flood event. The modelling indicates that in the Borough, Ramsbottom, Bury Town Centre and Radcliffe continue to be locations where future surface water flooding is likely to occur. This enables this Strategy to take account of climate change in the prioritisation of actions and in defining implementation timescales.

3.7 The focus of activity in meeting these challenges will in future be on flood risk management as opposed to simply providing flood defences. It is now widely recognised that whilst we can't always prevent flooding occurring, we can manage the risks of it happening and reduce the consequences when flooding does happen.

3.8 Many drainage systems have been modified to manage water levels and could help in adapting locally to some impacts of future climate change on flooding. However changing intensity of weather patterns may mean that these assets may need to be managed differently, particularly as storm intensity in summer could increase even in drier summers.

3.9 Adaptation to the potential effects of climate change on flood risk is likely to be a gradual process, as resilience to flooding is progressively increased. The modelled impacts of climate change on flood risk underline the need for effective surface water management. Future detailed surface water management plans will continue to model the possible impact of climate change and it will therefore be a key consideration in the identification and prioritisation of mitigation actions.

3.10 The potential effects of climate change are also a key concern for the land use planning process, as local planning authorities need to consider possible changes in flood risk from all sources over the lifetime of a development.

3.11 One of the key messages from the Surface Water Management Plan is that long term adaptation of the urban environment is crucial, especially in areas where flood defences are not feasible. The opening up of flood corridors, and use of open spaces for temporary storage of water in times of a flood, can help to mitigate some of the potential implications of climate change.

Flood Risk and Future Development

3.12 Under the Localism Act (2012) Local Authorities are now individually responsible for setting their own housing numbers based on objectively assessed need, which is reflective of the economic circumstances, environmental capacity and an understanding of the existing unmet housing need of local communities.

3.13 Alongside the development of residential homes will be the delivery of critical services and it is important that surface runoff from these sites, and potential flood risk to these sites are fully considered. The location of future developments and flood defences within a catchement can heavily influence food risk within an area and has the potential to further increase flood risk at areas downstream of such developments. Impacts could include the lowering of the Standard of Protection offered by

flood defences and the carrying capacity of culverts, drains, sewers and watercourse channels. This potentially leads to areas being at risk of flooding that were previously not at risk and highlights the increasing conflicts and pressures that are emerging between climate change scenarios and future development aspirations.

3.14 Without effective planning policy there is a risk that the increase in hard standing and impermeable surfaces associated with such development will increase surface water runoff and hence the risk of flooding.

3.15 New development can however also contribute to improved drainage and flood risk management where it is well located and incorporates appropriate flood risk management measures

3.16 Schedule 3 of the Flood and Water Management Act (2010) includes the provision to increase the uptake of sustainable drainage systems (SuDS) in new developments and redevelopments. In addition, the government is encouraging existing communities to 'retrofit' sustainable drainage in their gardens and neighbourhoods.

3.17 The SuDS approach to surface water drainage aims to deliver better management of surface water runoff, promote the sustainable use of water, including allowing for the collection and storage of surface water. SuDS aim to mimic natural drainage processes by limiting the rate and volume of surface water runoff, as well as treating water to improve quality.

3.18 At the time of writing, guidance to support the establishment of a new system for managing surface water through sustainable drainage systems by April 2014 had not been published. The Flood and Water Management Act 2010 requires the establishment of a Sustainable Drainage Approval Body (SAB) which will receive applications for sustainable drainage proposals that require approval. This is a separate process from existing planning and building control approval processes but will need to relate to the timescales of these processes where appropriate as SAB approval will be required prior to development being able to commence.

3.19 There are many different types of SuDS components that can fit into a variety of settings. They can be soft (vegetation based) or hard (proprietary devices) and each has a different function. Features of a SuDS system could include: green roofs, infiltration trenches, permeable paving, underground storage, wetlands and ponds.

3.20 Sustainable drainage systems can help to manage pollution and also provide opportunities for biodiversity. Sustainable drainage systems can also provide opportunities to store and re-use water for a range of purposes for which 'grey' water is appropriate. It

is important to ensure that appropriate sustainable drainage approaches are introduced based on proper consideration of factors such as geology, previous land use and ground contamination.

Natural Environment

3.21 The FWMA 2010 provides powers for the Council to manage flooding in the interest of nature conservation, preservation of cultural heritage and people's enjoyment of the environment generally.

3.22 Where possible, opportunities should be sought to enhance the river corridor habitats, landscape, access and amenity facilities to support planning policy to develop green infrastructure and increase access to riversides.

3.23 Blue corridors are a component of green infrastructure, adjacent to watercourses or along key overland flow paths, which are designated for the primary purpose of conveying water, particularly in times of flood. They also provide a wide range of additional functions such as amenity and biodiversity conservation.

3.24 Working closely with key partners to ensure careful land use planning and gradual reinstatement of green open spaces (within existing and new developments) together with the introduction of wetlands could help to reduce flood risk and promote the requirements of the Water Framework Directive.

3.25 It is important that opportunities are sought when new development and redevelopment opportunities arise and that areas of floodplain reinstatement in conjunction with green and blue infrastructure are identified and realised. This will not only have flood risk benefits, but also ecological, environmental and recreational improvements.

3.26 Given the scope and content of this Strategy, DEFRA has determined that a statutory Strategic Environmental Assessment (SEA) is required to be prepared by the Council to support this Strategy. A SEA is undertaken to ensure that any environmental consequences are considered during the preparation of the local Strategy.

3.27 A Habitats Regulations Screening Assessment (HRA) has also been undertaken to asses the impacts of implementing the Strategy policies and measures on European sites within the Borough.

3.28 Both the SEA and HRA were developed alongside this Strategy and have therefore been used to inform sustainable decision making throughout, including the development of the Strategy's objectives and the consideration of alternative options.

3.29 All of the Strategy objectives and measures were assessed against the SEA objectives. Some measures were categorised as having 'less significant implications' because they have the potential to lead to a positive or negative effect but there is too much uncertainty to identify what the effect/s might be and their magnitude, location, timing etc.

3.30 It was determined that for these measures, plus any new measures which are to be included as part of each annual review of the action plan, there needs to be a checklist to ensure there is sufficient information to determine whether the action is likely to be compliant with the Habitats Regulations, the Water Framework Directive and the action is addressing the SEA objective.

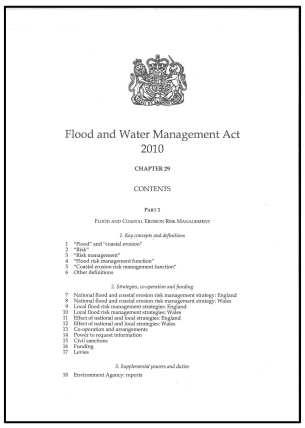
3.31 None of the objectives or measures in the final LFRMS are likely to have significant negative effects on any of the SEA objectives. This is because of the nature of the LFRMS, which has an underlying aim of environmental protection through flood risk management, meaning that the effects of the Strategy are largely positive.

3.32 In order to ensure the positive effects of the LFRMS on the environment, it will be necessary to ensure that project level environmental assessment or appraisal feeds into the choice of location and scheme design for any new LFRMS measures and that detailed EIAs include measures to mitigate any adverse effects. An EIA screening opinion, which determines whether an EIA will be required, will need to be obtained by Natural England for any LFRMS measures that could potentially have an effect on the environment.

3.33 In assessing this Strategy for Water Framework Directive Compliance, the measures proposed are unlikely to have negative environmental effects and will not cause deterioration to water bodies. However, actions identified may require site specific environmental assessment to identify any potential environmental effects. The policies and proposals throughout this Strategy will actively help to prevent harm to water bodies and will encourage future improvement where possible.

4. Legislative Context

Flood and Water Management Act, 2010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4.1 Following the 2007 floods, Sir Michael Pitt, commissioned by Government, undertook a review of the serious flooding and produced 'Lessons learned from the 2007 summer floods'. Of particular importance was the high proportion of flooding that came from surface water runoff, rather than rivers.

4.2 92 recommendations were made in the Pitt Review (June 2008), many of which were based on Local Authorities playing a greater role in the management of local flood risk. The Government accepted these recommendations and in 2010 they were transposed into UK Law in the form of the Flood and Water Management Act 2010.

4.3 The Flood and Water Management Act aims to provide better, more comprehensive management of flood risk for people, homes and businesses.

4.4 One of the requirements of the Flood and Water Management Act 2010 is for the Environment Agency to 'develop, maintain, apply and monitor a strategy for flood and coastal erosion risk management in England'. The Environment Agency has jointly with DEFRA, developed a national strategy that reflects Government policy on flood risk management and related issues. The Strategy, entitled a National Flood and Coastal Erosion Risk Management Strategy for England describes what needs to be done by all organisations involved in flood risk management. These organisations include local authorities, Internal Drainage Boards, water and sewerage companies, highways authorities and the Environment Agency.

4.5 The Strategy sets out a statutory framework, guiding principles and objectives that will help communities, the public sector and other organisations to work together to manage flood risk. It supports local decision making and engagement in flood risk management, making sure that risks are managed in a coordinated way both locally and across catchments. The National Strategy can be found here: https://www.gov.uk/government/publications/national-flood-and-coastal-erosion-risk-management-strategy-for-england

4.6 Under the Flood and Water Management Act 2010, Bury Council is designated as a 'Lead Local Flood Authority' and as such has the responsibility for developing, maintaining and applying a

local flood risk strategy in Bury. Bury's Local Flood Risk Management Strategy needs to be consistent with the following guiding principles outlined in the national strategy:

- Community focus and partnership working;
- A catchment based approach;
- Sustainability;
- Proportionate, risk based approach;
- Multiple benefits; and
- Beneficiaries should be allowed and encouraged to invest in risk management

4.7 The development of the Strategy will require input from the designated 'Flood Management Authorities' (FMA) who have a duty to act consistently with the strategy. In addition to the Council, the other FMA in Bury are:

- Environment Agency
- United Utilities
- Highways Authority

4.8 Bury's Strategy will clarify roles and responsibilities for local flood risk, and the duties and permissive powers that FMA have. It will build on the existing partnerships developed in Bury and provide a framework for local communities to develop local partnerships and solutions to the flood risks they face and underpin a partnership approach to funding flood resilience projects.

4.9 Although this Strategy's remit under the Flood and Water Management Act (2010) is to address flooding from surface water, ground water and ordinary watercourses, this document will also look to provide guidance on other forms of flooding, such as main rivers, a responsibility of the Environment Agency.

Flood Risk Regulations, 2009

4.10 The Flood Risk Regulations 2009 came into force in December 2009. They transpose the EU Floods Directive into UK law. Key provisions in the regulations include:

- To require that preliminary flood risk assessments be prepared by the Environment Agency and Lead Local Flood Authorities by December 2011. Those assessments should identify areas of significant flood risk;
- To require that flood hazard and risk maps be prepared by December 2013, to identify areas of significant flood risk; and
- To require that flood risk management plans be prepared, by December 2015.

The Bury Preliminary Flood Risk Assessment is available to download from the Council's website.

Other Relevant Legislation

National Planning Policy Framework, 2012

4.11 The National Planning Policy Framework and the accompanying Technical Guidance were published and came into effect on 26th March 2012. They provide a statement of national planning policy that all planning authorities must take into account when exercising their development management and forward planning functions. Paragraphs 99-108 of the Framework deal with issues of flood risk management, and in combination with paragraphs 2-19 of the accompanying Technical Guide, replace Planning Policy Statement 25 (Development and Flood Risk).

4.12 The NPPF provides the framework for local and neighbourhood plans and seeks to deliver development which is sustainable in economic, social and environmental terms.

4.13 Meeting the challenge of flood risk is one of the objectives of the NPPF as part of addressing climate change and reducing the vulnerability of communities to climate change. New development should not increase flood risk on site or elsewhere and should include measures where necessary such as green infrastructure to avoid and reduce the risk of flooding. Inappropriate development in areas of high flood risk should be avoided and directed to more appropriate areas where possible or made safe where this is necessary development at that location.

4.14 The NPPF requires that local plans should be informed by a Strategic Flood Risk Assessment (SFRA) and include the advice of the Environment Agency. Local Plans should apply a sequential test when needed to guide the location of development and help ensure it is safe. If development is unavoidable it will need to meet the Exception Test where it can be shown that development could not be located elsewhere and would be safe for its lifetime. Local Planning Authorities are also required to safeguard land that may be required for current or future flood risk management.

4.15 The challenge in terms of flood risk management relates to the NPPF's 'presumption in favour of sustainable development'. Achieving more housing growth is the driver behind the planning reform agenda, however there is concern about how these two potentially conflicting aspects will be balanced. There is concern that Local Planning Authorities who can not demonstrate a five year deliverable supply of specific sites will be vulnerable to applications on flood plains.

4.16 In addition to the above, Bury Council also has a range of responsibilities in accordance with other pieces of domestic and European Legislation, 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 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 & Compulsory Purchase Act (2004)
- The Civil Contingencies Act (2004)
- The Natural Environment and Rural Communities Act (2006)
- 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).

5. Roles and Responsibilities

5.1 Numerous organisations, agencies and authorities have roles and responsibilities relating to flood risk management. This Chapter sets out what these roles and responsibilities are for each of the different organisations, agencies and authorities.

5.2 Part 1, Section 6 (13) of the Flood and Water Management Act defines a flood risk management authority as:

- A Lead Local Flood Authority;
- A District Council for an area for which there is no unitary authority;
- The Environment Agency;
- An Internal Drainage Board;
- A Water Company; and
- A Highway Authority.

5.3 Under the provisions of the Flood and Water Management Act the following duties are common to all risk management authorities:

- Duty to cooperate with other risk management authorities;
- Duty to act consistently with the national and local strategies;
- Powers to take on flood risk functions from other risk management authority;
- Duty to contribute towards the achievement of sustainable development; and
- Duty to be subject to scrutiny from the lead local flood authority's democratic processes.

Detailed information on the specific roles of each organisation is provided in Table 2, below.

Bury Council – Lead Local Flood Authority

5.4 Bury Council is a Lead Local Flood Authority (LLFA) and as such is now responsible for the management of flood risk from surface runoff, ordinary watercourses and groundwater.

5.5 The following table sets out all of the functions that the Council can exercise under the Flood and Water Management Act (2010) and the Flood Risk Regulations (2009). The table outlines whether or not these functions are a duty or a power, the national and local deadlines that are in place for implementation and how far along the Council is to achieving these deadlines.

Table 2 – Functions that Bury Council may Exercise

Function	Legislation	Explanation	Duty or Power	National Deadline	Bury Council Deadline
Local Flood Risk Management Strategy	Flood and Water Management Act (2010)	The Council must develop, maintain, apply, monitor and publish a local strategy. The Strategy will provide the framework to deliver a prioritised programme of works and initiatives to manage flood risk in the area. The LLFRA must consult all affected risk management authorities and the public about the Strategy.	Duty	Not Set	Spring 2014
Investigation of flooding incidents.	Flood and Water Management Act (2010)	On becoming aware of a flood in its area, the Council must undertake an investigation to the extent that it considers necessary or appropriate. This investigation must set out which risk management authority is responsible and whether they have responded appropriately to the flood. The results of the investigation will be published on the Council's website and any	Duty	On-going	On-going

Function	Legislation	Explanation	Duty or Power	National Deadline	Bury Council Deadline
		relevant risk management authorities informed of the results.			
Creation and maintenance of a flood asset register.	Flood and Water Management Act (2010)	The Council must maintain a register of structures or features that, in the opinion of the Council, are likely to have a significant effect on flood risk. In Bury, the register will contain key assets, such as culverts, ponds, ditches that are known to cause the flooding of properties, critical infrastructure or block major roads when the asset is not functioning to an adequate level. Where known, information will also be held on ownership and state of repair.	Duty	Not-Set	Asset identification ongoing
Designation of Features	Flood and Water Management Act (2010)	Designation is a form of legal protection reserved for key structures or features that are privately owned and maintained and that contribute to the management of flood and coastal erosion risks.	Power	Not-Commenced	Not-Commenced

Function	Legislation	Explanation	Duty or Power	National Deadline	Bury Council Deadline
		Designation aims to ensure that owners do not advertently alter structures and features and potentially increase flood or erosion risks to themselves, their neighbours and the wider community. Structures or features meriting designation could include culverts, garden/building walls and flood banks. A designation is a legally binding notice served by the designating authority to the owner of the structure or features and the notice is also a local land charge. The power to designate structures that have an effect on flood risk has not been fully commenced. If an asset becomes 'designated' its owner can not alter, remove or replace it, without prior consent from the designating risk management authority.			

Function	Legislation	Explanation	Duty or Power	National Deadline	Bury Council Deadline
		Designated features will be added to the asset register.			
Sustainable Drainage (SuDS) Approval Body (SAB)	Flood and Water Management Act (2010)	The Council will approve, adopt and maintain all newly-constructed Sustainable Urban Drainage Systems (SuDS) which serve more than one property.	Duty	April 2014	April 2014
Flood Risk Management Works	Flood and Water Management Act (2010)	The Council has powers to undertake works to manage surface water runoff and groundwater flood risks. In addition the Council has powers to do works on ordinary watercourses.	Power	On-going	On-going
Power to request information.	Flood and Water Management Act (2010)	The Council may request information from an individual in relation to the authority's risk management functions. The information must be provided in the form/manner and period specified within the request. Enforcement action may be taken if the individual neglects to comply with the request.	Power	On-going	On-going
Preliminary Flood Risk	Flood Risk Regulations	All LLFA must prepare a PFRA for their area. A PFRA is a report	Duty	December 2011	June 2011

Function	Legislation	Explanation	Duty or Power	National Deadline	Bury Council Deadline
Assessment Report (PFRA)	(2009)	about past floods and the possible harmful consequences of future floods, based on existing information.			
Identify areas of significant flood risk.	Flood Risk Regulations (2009)	The Environment Agency used the national Flood Map for Surface Water and the National Receptor Dataset to identify areas of significant flood risk. Ten indicative flood risk areas were identified in Greater Manchester, one of which partially covers Bury Council.	Duty	December 2011	June 2011
Production of Flood Risk Management Plan	Flood Risk Regulations	A flood risk management plan is a plan for the management of significant flood risk, identified within a flood risk area.	Duty	December 2015	December 2015

Bury Council - Highway Authority

Duty to maintain the public highway network

5.6 The Highways Act requires the Council, as Highways Authority to ensure that highways are drained of surface water and, where necessary, maintain all drainage systems ensuring there is no pollution of the wider environment. In particular, the Council carries out regular maintenance of a number of forms of drainage associated with the highway, including gullies, soakaways, ditches, channels, drains, grills and outlets.

Bury Council - Emergency Planning

5.7 Bury Council has statutory duties under the Civil Contingencies Act 2004 to ensure that the Council is prepared and able to respond to an emergency in the Borough. The Emergency Planning Team works closely with the AGMA Civil Contingencies Team, which includes the emergency services, Environment Agency and AGMA districts.

5.8 A Greater Manchester Multi Agency Flood Risk Plan has been prepared and individual Borough plans are to be updated which will detail how local services will work together to respond to an emergency flood incident within the Borough.

Bury Council - Planning Authority

Responsibility to consider flood risk in Local Plans

5.9 The Council, as Planning Authority, must prepare, publish and use a Local Plan (LDF) which directs how land can be used. The Local Plan should consider flood risk from both fluvial (main river) and local sources (surface water) of flooding, utilizing evidence contained in Strategic Flood Risk Assessments, Preliminary Flood Risk Assessments and Surface Water Management Plans.

Responsibility to consider flood risk when assessing planning applications

5.10 The Planning Authority should only approve development where it can be demonstrated that the proposal doesn't increase the overall risk of flooding in the area and is adequately protected from flooding itself. A sequential approach should be taken to ensure development sites are chosen which offer the lowest possible flood risk.

Other Risk Management Authorities

5.11 The main roles, responsibilities and functions to be exercised by the other risk management authorities are as follows:

Environment Agency

- Strategic overview of all forms of flooding;
- Risk-based management of flooding from 'main rivers';
- Regulation of the safety of higher-risk reservoirs;
- Development of the National Strategy for Flood and Coastal Erosion Risk Management;
- Co-ordination of Regional Flood and Coastal Committees;
- Powers to request a person for any information relating to its flood management responsibilities;
- Powers to designate structures and features relating to 'main rivers';
- A duty to report to ministers on Flood Risk Management;
- Statutory consultees to the SuDS approving body; and
- Is a competent Authority for the Water Framework Directive.

United Utilities

- Where appropriate, assist the LLFAs in meeting their duties in line with the national strategy and guidance;
- Where appropriate, assist the LLFAs in meeting their duties in line with local strategies in its area;
- Where appropriate, sharing of information and data with RMAs, relevant to their flood risk management functions;
- A duty to effectually drain their area, in accordance with section 94 of the Water Industry Act 1991;
- A duty to register all reservoirs with a capacity greater than 10,000m^3 with the Environment Agency;
- An agreement with Ofwat to maintain a register of properties at risk from hydraulic overloading in the public sewerage system (DG5 register);
- The appropriate management of surface water in combined systems;
- Encouraging the use of SuDS;
- Creating a detailed understanding of flood risk from the public sewer system;
- Explore and implement multi benefit/agency schemes; and
- A duty to ensure local flood risk management and drainage works are consistent with environmental regulations (including the Water Framework Directive).

Highways Agency

- A duty to act in a manner which is consistent with the local and national strategies and guidance;
- A duty to share information with other RMA‟s relevant to their flood risk management functions; and
- A duty to drain the adopted highway of surface water.

Regional Flood and Coastal Committee

5.12 Regional Flood and Coastal Committees are Environment Agency committees which consist of elected members from the relevant Lead Local Flood Authorities and independent members with relevant experience appointed by the Environment Agency. They have three key purposes:

- To ensure there are coherent plans for identifying, communicating and managing flood and coastal erosion risk across catchments and shorelines;
- To promote efficient, targeted and risk-based investment in flood and coastal erosion risk management that optimises value for money and benefits for local communities. This includes managing the spending of both Government Flood Defence Grant in Aid and Local Levy paid by Lead Local Flood Authorities; and
- To provide a link between the Environment Agency, Lead Local Flood Authorities, other flood risk management authorities and other relevant bodies to ensure mutual understanding of flood and coastal erosion risks in its area.

5.13 Regional Flood and Coastal Committees are the key decision making bodies for allocating funding from both Flood Defence Grant in Aid, local levies which are raised from Lead Local Flood Authorities and general drainage charges which are raised from landowners. These are the key streams of funding for flood alleviation schemes from fluvial, coastal and local flooding. They also contribute towards individual property resilience schemes and the river maintenance programme. These committees, therefore, have a hugely important role in deciding which areas receive support for flood defences. How funding is calculated and allocated is discussed in detail in Chapter 6.

Residents and Businesses

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

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

6. Objectives and Measures – What are we doing?

6.1 As discussed in Chapter 3, the Environment Agency has, jointly with Defra, developed a national strategy that reflects Government policy on flood risk management and related issues. The strategy, entitled a National Flood and Coastal Erosion Risk Management Strategy for England describes what needs to be done by all organisations involved in flood risk management.

6.2 The national strategy objectives are to:

- Manage the risk of flooding to people and their property;
- Help householders, businesses and communities better understand and manage the flood and coastal erosion risk they face;
- Respond better to flood incidents and during recovery;
- Encourage local innovations and solutions;
- Invest in actions that benefit the communities who face the greatest risk; and
- Achieve environmental, social and economic benefits consistent with the principles of sustainable development

6.3 Reflecting the national guiding principles and strategic objectives, at a local level, Bury Council have developed the following aim, objectives and measures for its Local Flood Risk Management Strategy:

Table 3 – Local Flood Risk Management Strategy Aim, Objectives and Measures

Aim: To produce a strategy which demonstrates how Bury Council will work with individuals, the community, and businesses to manage the risk of flooding and its impacts within the Borough.	
Objectives	**Measures**
To gain a strategic understanding of flood risk from all sources in Bury.	To gather clear information and understanding of the different types of flooding; their potential and impact.
To manage the likelihood of flooding within the Borough.	To identify an evidence-based programme of works and maintenance regimes, which integrate flood management solutions with sustainable development and social and environmental benefits.
To help Bury residents to manage their own risk.	To provide clear information regarding local flood risk to local communities allowing them to make

	informed decisions for managing their own flood risk. To provide clear information about the roles and responsibilities of risk management authorities Local communities will be encouraged to become engaged in the development of flood alleviation schemes, where they are appropriate.
To ensure that new development in Bury reduces rather than increases flood risk.	The Council and other risk management authorities within the Borough will be required to ensure that the principle of 'no new flood risk' is taken into account as part of new development and infrastructure, managing the effects of climate change and further reducing flood risk where possible.
To take a sustainable approach to flood risk management within the Borough, which balances economic, environmental and social benefits with flood risk policies and programmes.	The Council and other risk management authorities within the Borough will be required to adopt a sustainable approach to reducing local flood risk, seeking to lessen the risk of localised flooding using mechanisms that are economically viable, deliver wider environmental benefits and promote the well being of local people.
To improve flood preparation, warning and post flood recovery.	To spread knowledge of flood risk within the Borough to ensure that emergency responders better understand the nature of local flood risk and can use the information to improve preparedness for flood events. The Council will undertake investigations into flood events where it is necessary to understand the cause of flooding. Communities and individuals will be supported to take part in preparing for flood events, forming local action groups and planning for future flood risks.
To endeavour to direct flood risk funding to areas most at need or where solutions will be most effective.	Local flood risk information will be used to bid for funding for flood risk management projects and ensure that resources are directed to areas where it will be most effective.

6.4 Appendix 1 identifies the actions that we have identified to achieve our objectives and current progress towards these

actions. A number of actions are already being delivered, however it will not be possible to deliver all potential flood risk management actions in the short term as resources are simply not available. Therefore the approach taken in Bury will be proportionate and risk based, in line with advice set out in the national strategy.

6.5 In addition to identifying actions to reduce local flood risk, a detailed works programme can be found in Appendix 2. This programme includes work that partners are proposing to undertake to adhere to their new flood risk management responsibilities. It is important to note however that production of the Strategy marks the beginning of a new process of flood risk management and therefore a number of measures and potential projects identified in Appendix 2 are indicated as 'not yet started' and funding 'unknown' at the present time. This is inevitable at the outset of the Strategy as the implementation and funding of some of the new proposals may not be clear at this stage as they involve funding sources that are not yet confirmed or they involve sections of the Act that are not yet implemented.

6.6 It is important in this respect that the Strategy is seen as a 'living document'.

Operational Measures to Manage Local Flood Risk

Investigating Flood Incidents

6.7 As discussed in Chapter 4, Section 19 of the Flood and Water Management Act introduces a new responsibility for LLFAs with respect to investigating flooding incidents. The Act states that the LLFA is required to investigate flood incidents that it becomes aware of, to the extent that it considers necessary or appropriate. Where the LLFA investigates such a matter, it will determine:

- Which authority has relevant flood risk management functions;
- Whether that authority has exercised, or is proposing to exercise, those functions in response to the flood.

6.8 Where an authority carried out an investigation, the Act states that it must publish the results of its investigation and notify relevant Risk Management Authorities.

6.9 There has been no guidance provided on how to discharge this duty and many elements remain highly subjective. As a result, and to avoid inconsistency across the sub region, the 10 Greater Manchester districts have agreed an 'Investigations Policy'.

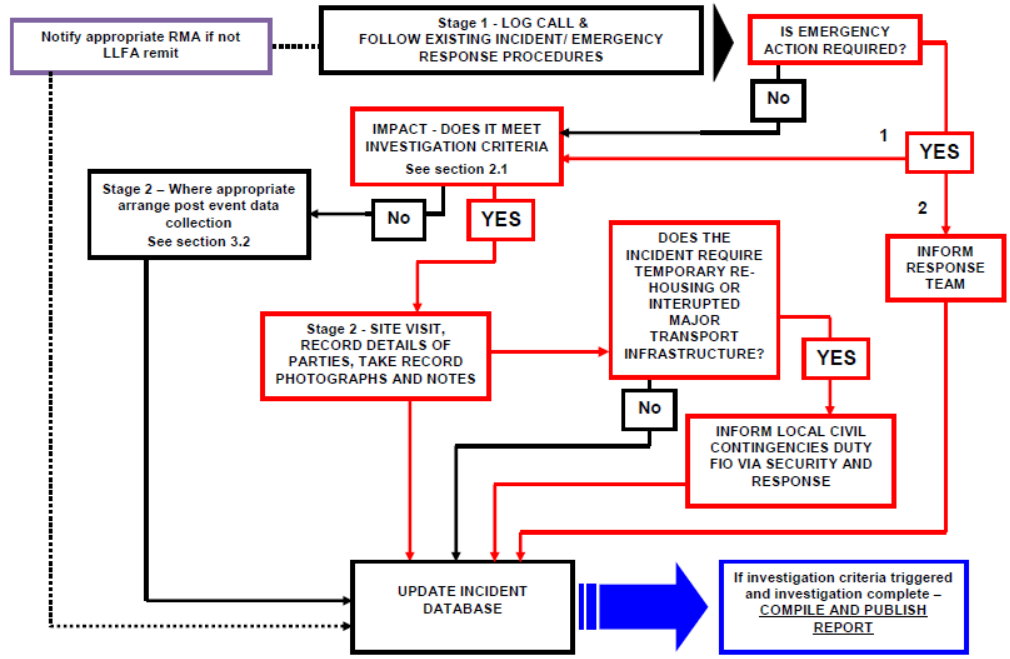
6.10 The focus of this policy is not solely around the identification of the necessity to instigate an investigation but to ensure that a process is in place to gather supporting evidence. Initially from the information received relating to a flood incident it may be deemed a full investigation is not appropriate but by having a process in place as outlined in this document the supporting

evidence is in situ if the incident escalates to one of much greater significance once the impact of the flooding is known.

6.11 Data gathered can be used to inform and predict the consequences of more serious incidents, not doing this may hinder a comprehensive understanding of risk across an LLFA area. Where the incident has impacted on resources it may be decided that data is gathered post event when resources allow. Information such as photographs, flow paths and sources should be recorded where possible and even if they are not required as part of an investigation will become useful evidence especially to support and quantify the identified risk areas. If it is found that flooding occurs on a frequent basis to a property/area it may be frequency rather than the scale of the incident that triggers an investigation in the future.

6.12 Figure 10 illustrates the protocol for investigating flooding incidents across Greater Manchester. In determining whether an incident requires a full investigation, the Council will be mindful of the criteria for locally significant floods, agreed across Greater Manchester, which is outlined in Figure 11.

Figure 10 – Protocol for Investigating Flood Incidents



Source: AGMA Flood Investigations Policy, 2013

Figure 11 – 'Significant Incident' Triggers

- Where there is a risk to life;
- Where there is an impact on critical service (schools, hospitals, nursing homes and emergency services);
- Where 5 properties or more were flooded internally;
- Economic disruption; and
- Where local democratic pressures from elected members, committees or other elected bodies, might be considered as a factor in determining whether a formal investigation should be carried out.

Source: AGMA Flood Investigations Policy, 2013

Maintaining a Register of Assets

6.13 Section 21 of the Act states that a 'lead local flood authority must establish and maintain:

- A register of structures or features which, in the opinion of the authority, are likely to have a significant effect on a flood risk in its area; and
- A record of the information about each of those structures or features, including information about ownership and state of repair.

6.14 Section 21 also states that this register (called an asset register) must be available for inspection at all reasonable times. Identifying the location, ownership and condition of assets will help the Council and other Risk Management Authorities to better understand how the performance of these assets affects local flood risk. It is our intention to build up the asset register using a risk based approach. Therefore, we will initially prioritise our efforts in capturing asset information for the assets which are known to have a significant effect on local flood risk. Over time, and subject to available resources, we will work collaboratively with the Environment Agency and United Utilities to capture more information on a larger number of assets. It is anticipated that the initial capture of assets will be completed by Summer 2014. Subject to available resources there will be an ongoing programme to capture information on other assets which have a less significant effect on local flood risk.

6.15 It is not our intention to capture and store information for assets associated with Main Rivers, reservoirs and public sewers. Both the Environment Agency (for Main Rivers and reservoirs) and United Utilities (for public sewers) already hold asset information and we do not wish to duplicate information held, wherever possible.

Ensuring Effective Maintenance of Assets

6.16 Subject to available resources and funding, we need to ensure that we understand the maintenance requirements and conditions of assets, and take action to ensure key flood risk assets are performing effectively. It should be noted that the Council already have a gully clearance programme in place. Therefore we will focus our efforts on existing assets which do not have a defined maintenance regime.

7. Flood Risk Management Funding

7.1 A key objective of the Strategy is to align stakeholders, particularly those with available funding, with those who would benefit from further investment in flood risk management. It is important to note that at the time of writing this strategy, this is set against a backdrop of limited resources and low economic activity nationally.

7.2 A coordinated approach led by the Council as Lead Local Flood Authority is therefore considered essential and this will include a partnership approach to Flood Defence Grant in Aid and other relevant bids. Each proposed flood risk management scheme will be assessed separately to identify which partner should be involved and could comprise:

- The Environment Agency;
- United Utilities;
- Regional Flood and Coastal Committee; and
- Beneficiaries and communities

7.3 The Council will consider all forms of funding identified in Table 5 and will ensure that when opportunities arise, detailed and robust bids are submitted.

7.4 Although the benefits of individual flood risk management measures are often many times greater than their cost, it is not technically, economically or environmentally possible to prevent all flooding. Therefore this strategy will implement the most sustainably cost effective measures that will help to reduce flood risk and help to manage the impacts felt by communities.

7.5 For each potential project or scheme outlined in Appendix 2, the following will be assessed:

- The potential for these projects to receive national FDGiA funding;
- The potential for these projects to receive contributions from Bury Council;
- Where schemes are unlikely to be affordable, to suggest where a different approach may be needed such as a reduced standard of protection or property resilience measures; and
- How any identified funding gaps might be filled, either by drawing up on partners resources or pursuing wider sources of funding.

7.6 Table 5 below sets out a number of different sources of funding for flood and water management work. These range from European to national, regional and local sources of funding,

including both direct and indirect beneficiaries from flood alleviation schemes.

Table 4 – Sources of Funding

Source of Funding	Description	Administered By	Appropriate for?
Flood Defence Grant in Aid (FDGiA)	Central government funding for flood and coastal defence projects. Funding levels for each scheme relate directly to the number of households protected, damage prevented and other benefits such as environmental or business benefits that will be delivered. There is additional emphasis on protecting households in deprived areas.	Environment Agency	Medium to large capital FRM projects.
Local Levy	The Regional Flood and Coast Committee can agree a levy to be paid by upper tier authorities (county and unitary authorities) for works which do not attract a sufficiently high priority for funding by national government, but are nonetheless cost effective and of local importance. The Local Levy is supported by the Department of Communities and Local Government (DCLF). It allows locally important flood defence projects, including property level protection to go forward. The Levy is agreed annually and monies can be carried over annually. However, any local schemes suggested which use the Levy need to ensure that it is inline with the regional priorities as set out by the Regional Flood and Coastal Committee. The Local Levy can top up Flood Defence Grant in Aid funding.	Environment Agency	Smaller FRM projects or as a contribution to FDGiA projects.
United Utilities	Investment heavily regulated by Ofwat but opportunities for contributions to area-wide projects which help to address sewer under-capacity problems.	United Utilities	Projects which help to remove surface water from combined sewers
Section 106 funding (developer contributions)	Section 106 of the Town and Country Planning Act 1990 allows a planning authority to request payments from developers (linked to specific developments to contribute to the infrastructure required to make developments acceptable in planning terms.	Bury Council	Larger development sites
Community Infrastructure Levy	A local levy applied by the Planning Authority on developers to contribute to a general infrastructure fund. Bury Council has not yet implemented a scheme. A bid for CIL would have to be made for flood management/drainage improvements against other competing council priorities. priorities, such as additional school places and highway schemes.	Bury Council	Larger development project
Council Capital	Bury Council's Highway's service receives an annual capital budget for	Bury Council	Small to Medium capital

Funding	work on the highways drainage network. Work is prioritised according to safety, internal property flooding, social impact and the duration of flood incidents.		projects.
Requesting Local Contributions	Contributions from residents and/or businesses that benefit from proposed flood risk mitigation schemes may be explored in specific cases.	Bury Council	All projects

Partnership Funding

7.7 In the past, most flood risk management schemes have been built using Defra central government funding (FDGiA), with allocation based on a national prioritisation. Local Levy was allocated towards local priorities, including projects that could not attract FDGiA.

7.8 Increasingly however, there is an emphasis on funding from external contributions towards schemes, because FDGiA is allocated based on the benefits on a scheme delivers, which may not cover the full cost. Even where FDGiA will cover the full costs, there will still be a case to be made for local contributions, which will increase the overall amount of grant that is available for other schemes.

7.9 Work undertaken through the Strategy has highlighted the need to secure a range of sources of funding. Actions have been included within this strategy to continue bidding for funding as well as influencing communities and beneficiaries of potential schemes as and when they are developed. Where it is not possible to fill funding gaps, it will be necessary to explore alternative solutions to reduce the costs of the schemes.

7.10 The first process to develop any scheme is to consult with key partners, in order to discuss and agree funding options and to assess any environmental implications. For the majority of schemes, further investigation studies are required to reduce the uncertainties to get a clearer understanding of the requirements of the scheme and to allow for FDGiA bids to be submitted.

7.11 The alternative sources of funding identified by this process will need to be investigated in further detail by the relevant partners, coordinated by the Council to determine their viability. There are a number of triggers which may alter the way in which projects are funded and these could include: changes to funding regimes, availability of funding, changes in political priorities, community pressures, a major flooding incident, new development, regeneration, revised assessments of flood risk and changes in assessment methodology.

8. Local Partnerships, Governance and Scrutiny

8.1 The Flood and Water Management Act (2010) requires the Council as Lead Local Flood Authority (LLFA) to establish arrangements to bring together all relevant bodies to work as partners in the management of local flood risk. This approach has been further strengthened through the 2011 Localism Act and the 'Duty to Co-operate'. Both Acts recognise the important roles played by Councils, Environment Agency, water companies and other flood risk management authorities.

8.2 Although the Act does not stipulate what these local arrangements should look like, it does require the relevant authorities to co-operate with each other in exercising functions under the Act. It also empowers LLFRAs or the Environment Agency to require information from others if needed for their flood risk management functions.

Greater Manchester Combined Authority (GMCA)

8.3 On 1st April 2011 the **Greater Manchester Combined Authority** (**GMCA**) was established as a top-tier administrative body for the local governance of Greater Manchester. The GMCA:

- Is funded by direct government grant and some money collected with local Council Tax apportioned between the constituent councils;
- Consists of ten indirectly elected members, each a directly elected councillor from one of the ten metropolitan boroughs that comprise Greater Manchester; and
- Replaces a range of single-purpose joint boards and quangos to provide a formal administrative authority for Greater Manchester for the first time since the abolition of the Greater Manchester County Council in 1986.

Association of Greater Manchester Authorities (AGMA)

8.4 The governance arrangements for the GMCA build on the Association of Greater Manchester (AGMA) model of voluntary collaboration and it is a statutory body with its functions set out in legislation. AGMA continues to act as the voice of the ten local authorities but as part of a much stronger partnership with the GMCA.

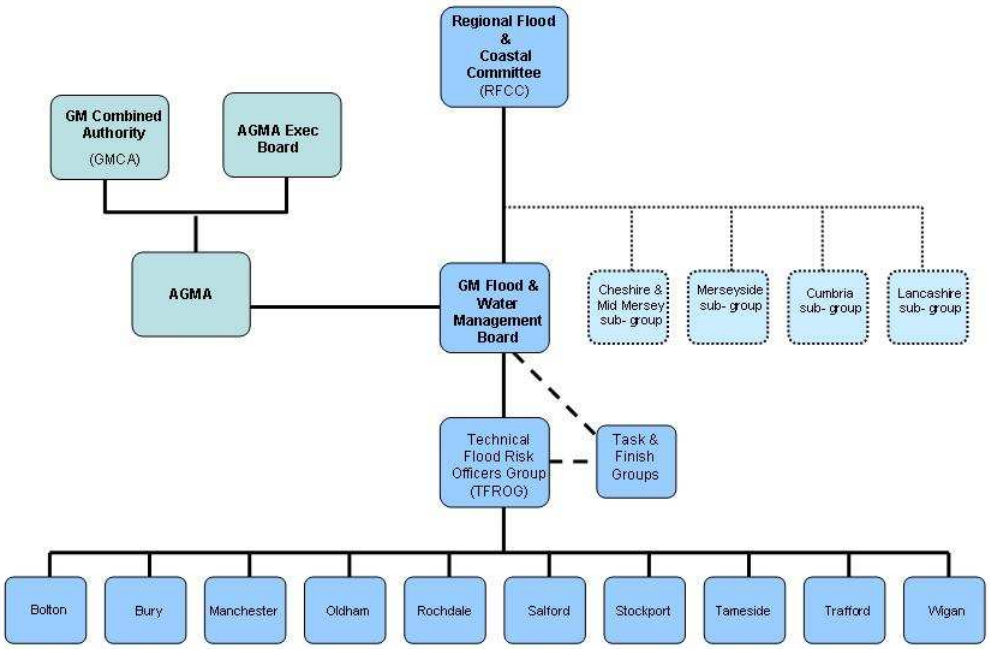
8.5 The ten Greater Manchester authorities work together strategically wherever possible, to ensure that the new statutory duties associated with the FWM Act are implemented in the most efficient and effective manner. This practice of joint working is based on a series of key principles including:

- flood risk management issues in GM extend beyond single districts in terms of causes of risk, their impact and the opportunities for solutions;

- technical capacity and capability is varied across GM especially in terms of spatial planning and drainage engineering expertise and there are opportunities for pooling expertise and capacity building at a GM level;
- added value in doing things once strategically rather than several times locally in terms of ensuring consistency, robustness and the capacity to do things; and
- robust evidence and a stronger case for flood risk management investment can be developed at a strategic GM scale with additional benefits for local priority schemes

8.6 AGMA has appropriate governance arrangements (Figure 12) in place to set GM-wide priorities, set the strategic direction and attracts investment through the Regional Flood and Coastal Committee (RFCC) and the GM Flood and Water Management Board.

Figure 12 – AGMA Governance structure



Regional Flood and Coastal Committee (RFCC)

8.7 The RFCC was created by the FWMA and provides democratic input into local decisions and help coordinate flood and coastal erosion risk management. It promotes efficient, targeted and risk-based investment and provides a link between the EA, LLFA's and other RMA's.

The Greater Manchester Flood and Water Management Board (FWMB)

8.8 The FWMB provides a vehicle for strategic co-operation and joint working between the GM Commissions, EA, UU and the RFCC covering spatial planning, climate change, drainage and flood infrastructure and emergency planning. It provides an effective working interface with the RFCC ensuring that GM maximises the potential to secure resources through Flood Defence Grant in Aid, Local Levy funding, partnership projects and the EA as part of their capital investment programmes.

Flood Risk Officers Group (FROG)

8.9 FROG provides a forum for joint working between the ten districts representatives of Greater Manchester LLFA's and partner organisations to deliver the strategic GM flood risk work programme and support local priorities for flood risk management and delivering new powers and duties.

9. Strategy Monitoring and Review

9.1 Continued monitoring, review and development of the strategy is essential to ensure that local flood risk management is responsive to changes. This ongoing monitoring and review will be undertaken through the Council's Flood Risk Management Working Group (FRMWG).

9.2 Although there is no formal deadline for the Strategy to be produced or updated, regular maintenance will ensure that local flood risk management is based on the best and most up to date knowledge so that partners can successfully manage flood risk both now and in the future.

9.3 The Strategy will be updated every three years from the date of final approval and overall action plan will be updated annually.

9.4 Key triggers may also require the update of specific section of the Strategy more regularly, including if the following occur:

- Amendments to partner responsibilities;
- Updates to legislation;
- Alternations in the nature or understanding of local flood risk; and/or
- A flood event.

9.5 In these circumstances the triggers will be discussed with the Flood Risk Management Working Group and a decision made as to whether the strategy requires a full or partial review. If only minor changes are required, these will be undertaken and the Strategy will be updated and posted on the Councils Flooding WebPages with an explanation as to what the amendments are and the date of review.

Monitoring

9.6 The purpose of monitoring is twofold, as monitoring needs to consider both beneficial and adverse effects. Firstly, monitoring should measure the actual significant effects of implementing the objectives and actions of the strategy and measure its contribution towards achievement of desired objectives.

9.7 Secondly, monitoring assists in the identification of unforeseen adverse effects and the need to undertake appropriate action.

9.8 Monitoring should aim to ensure that the policies and actions contribute towards the strategies objectives, as well as the Strategic Environment Assessment objectives.

Review

9.9 Through developing this Strategy there are now clear objectives for managing local flood risk within the Borough as well as an

associated action plan for delivering these objectives. This strategy will be the focal document for all flood risk matters and will be informed by and sign post to all relevant technical flood risk work undertaken.

9.10 In preparing the Strategy there is now a greater understanding of local flood risk issues in Bury. The different roles and responsibilities for managing local flood risk have now been clarified and formally set out so as to avoid confusion.

9.11 The Strategy and Action Plan are "living documents" and will be regularly reviewed to test effectiveness and updated as necessary.

Appendix 1 – Local Flood Risk Management Plan Action Plan

The Action Plan highlights the key objectives of the Strategy and associated measures and actions to achieve them.

Aim: To produce a strategy which demonstrates how Bury Council will work with individuals, the community and businesses to manage the risk of flooding and its impacts within the Borough.					
Objectives	**Measures**	**Actions**	**Lead Organisation**	**Timescales**	**Status**
To gain a strategic understanding of flood risk from all sources in Bury.	To gather clear information and understanding of the different types of flooding; their potential and impact.	Recording/mapping flood incidents	Bury Council (Lead Local Flood Authority - LLFA)	On-going	In progress
		Carry out flood investigations	Bury Council (LLFA)	On-going	In progress
		Assessment of flood risk locations in SFRA/SWMP	Bury Council (LLFA)	On-going	In progress
		Record drainage and flood assets	Bury Council (LLFA)	2013/2014	In progress
		Maintain a flood risk asset register	Bury Council (LLFA)	2013/2014	In progress
		Obtain information from stakeholders	Bury Council (LLFA)	On-going	In progress
		Improve skills and knowledge of flood risk officers	Bury Council (LLFA)	On-going	In progress

To manage the likelihood of flooding within the Borough.	To identify an evidence-based programme of works and maintenance regimes, which integrate flood management solutions with sustainable development and social and environmental benefits.	Develop an affordable cyclical maintenance regime based on risk	Bury Council (LLFA)	2013/2014	Not started
		Develop a responsive, reactive maintenance regime based on risk.	Bury Council (LLFA)	2013/2014	Not started
		Work with partners to identify schemes which will alleviate flood risk in the future.	Bury Council (LLFA) Environment Agency United Utilities	On-going	In progress

To help Bury residents to manage their own risk.	To provide clear information regarding local flood risk to local communities allowing them to make informed decisions for managing their own flood risk. To provide clear information about the roles and responsibilities of risk management authorities Local communities will be encouraged to become engaged in the development of flood alleviation schemes, where they are appropriate.	Publish and distribute information explaining responsibilities, local flood risk, property protection/resilience etc.	Bury Council (LLFA)	2013/2014	Not started
		Involve local communities in local initiatives and schemes.	Bury Council (LLFA) Environment Agency United Utilities	2013/2014	Not started
		Improve and maintain the Council's flood risk management web pages.	Bury Council (LLFA)	2012/2013	Completed

To ensure that new development in Bury reduces rather than increases flood risk.	The Council and other risk management authorities within the Borough will be required to ensure that the principle of 'no new flood risk' is taken into account as part of new development and infrastructure, managing the effects of climate change and further reducing flood risk where possible.	Develop and apply a robust local policy on flood risk management and drainage solutions on new development sites.	Bury Council (LLFA)	2013/2014	In progress
		Develop a process with the Planning Department to create clear advice and direction to developers on flood risk management and drainage.	Bury Council (LLFA)	2013/2014	Not started
		Establish the SuDS Approval Body (SAB).	Bury Council (LLFA)	2014/2015	Not started – preparatory work in 2013 in advance of expected commencement of legislation in April 2014

To take a sustainable approach to flood risk management within the Borough, which balances economic, environmental and social benefits with flood risk policies and programmes.	The Council and other risk management authorities within the Borough will be required to adopt a sustainable approach to reducing local flood risk, seeking to lesson the risk of localised flooding using mechanisms that are economically viable, deliver wider environmental benefits and promote the well being of local people.	Undertake a Strategic Environmental Assessment, Habitats Regulations Assessment and Water Framework Directive Compliance check of the LFRMS	Bury Council	2013/2014	Completed

		Work with the Environment Agency and Natural England to embed policies from River Basin Management Plans, local environmental policies and designated protected sites into FRM procedures and programmes.	Bury Council	On-going	In-progress
		Encourage natural flood risk management	Bury Council	On-going	In-progress
		Seek to provide blue and green infrastructure throughout the Borough	Bury Council	On-going	In-progress

To improve flood preparation, warning and post flood recovery.	To spread knowledge of flood risk within the Borough to ensure that emergency responders better understand the nature of local flood risk and can use the information to improve preparedness for flood events. The Council will undertake investigations into flood events where it is necessary to understand the cause of flooding. Communities and individuals will be supported to take part in preparing for flood events, forming local actions groups and planning for future flood risks.	Publish and distribute information explaining responsibilities, local flood risk, property protection/resilience;	Bury Council (LLFA) Environment Agency	On-going	In-progress
		Involve local communities in local initiatives and schemes;	Bury Council (LLFA) Environment Agency Private Developers/ Landowners	On-going	As-required

To endeavour to direct flood risk funding to areas most at need or where solutions will be most effective.	Local flood risk information will be funding to areas most at need or where solutions will be most effective.	Continue to bid for relevant funding as and when the opportunity arises, to support future projects and flood alleviation schemes	Bury Council (LLFA) Environment Agency	On-going	In-progress
		Ensure Community Infrastructure Plans, Transport Infrastructure plans are influenced by this Strategy & that developer funding is sought where considered appropriate & necessary.	Bury Council	On-going	In-progress

Appendix 2 – Local Flood Risk Management Plan Programme of Schemes – 2013/2014

Appendix 2 provides a summary of potential flood alleviation schemes identified at the time of writing. Most require further investigation to assess their viability but have been compiled from information drawn from a number of different sources. The map included in Appendix 3 provides the location of these potential schemes identified for further assessment.

Scheme	Lead Risk Management Authority	Funding Source	Project Summary	Timescales	Status
Capital Drainage Schemes					
Moor Road, Ramsbottom	Bury Council	Unknown	Catch pit and gullies at car park		Completed
Whitelow Brow & 119 Manchester Road, Ramsbottom	Bury Council	Unknown	Possible upgrade of drainage and/or PLP		Investigations in progress
Old Kays Park, Greenmount	Bury Council	Unknown	Increase capacity under carriageway		In progress
Holly Mount Land, Greenmount	Bury Council	Unknown	Increase capacity under carriageway		Not Started
Old Oak Cottages, Ramsbottom	Bury Council	Unknown	Possible culvert upgrade or diversion		Not Started
Dungeon Pub, Harwood Road, Tottington	Bury Council	Unknown	Increase culvert capacity		Feasibility in progress
Turton Road, Tottington	Bury Council	Unknown	New highway drainage system		Not Started
Watling Street, Affetside	Bury Council	Unknown	New drainage system		Feasibility in progress

Scheme	Lead Risk Management Authority	Funding Source	Project Summary	Timescales	Status
Bradshaw Road, Tottington	Bury Council	Unknown	System replacement required		Not Started
Scobell Street/Sycamore Road, Tottington	Bury Council	Unknown	Upgrade culvert in carriageway		Not Started
Moorside Road, Tottington	Bury Council	Unknown	Clear culvert at rear of properties		Not Started
A58 Culverts	Bury Council	Unknown	Replace 2 culverts		Not Started
Investigations					
Spring Vale, Vernon Drive, Prestwich	Bury Council	Unknown	A number of culvert related flooding issues which may be linked – further investigation required		Investigations with UU
Openshaw Fold, Radcliffe	Bury Council	Unknown	Up to 4 properties affected by flooding – further investigation required		Not Started
Rippon Close, Radcliffe	Bury Council	Unknown	Flooding linked to canal feeder – further investigation required		Not Started

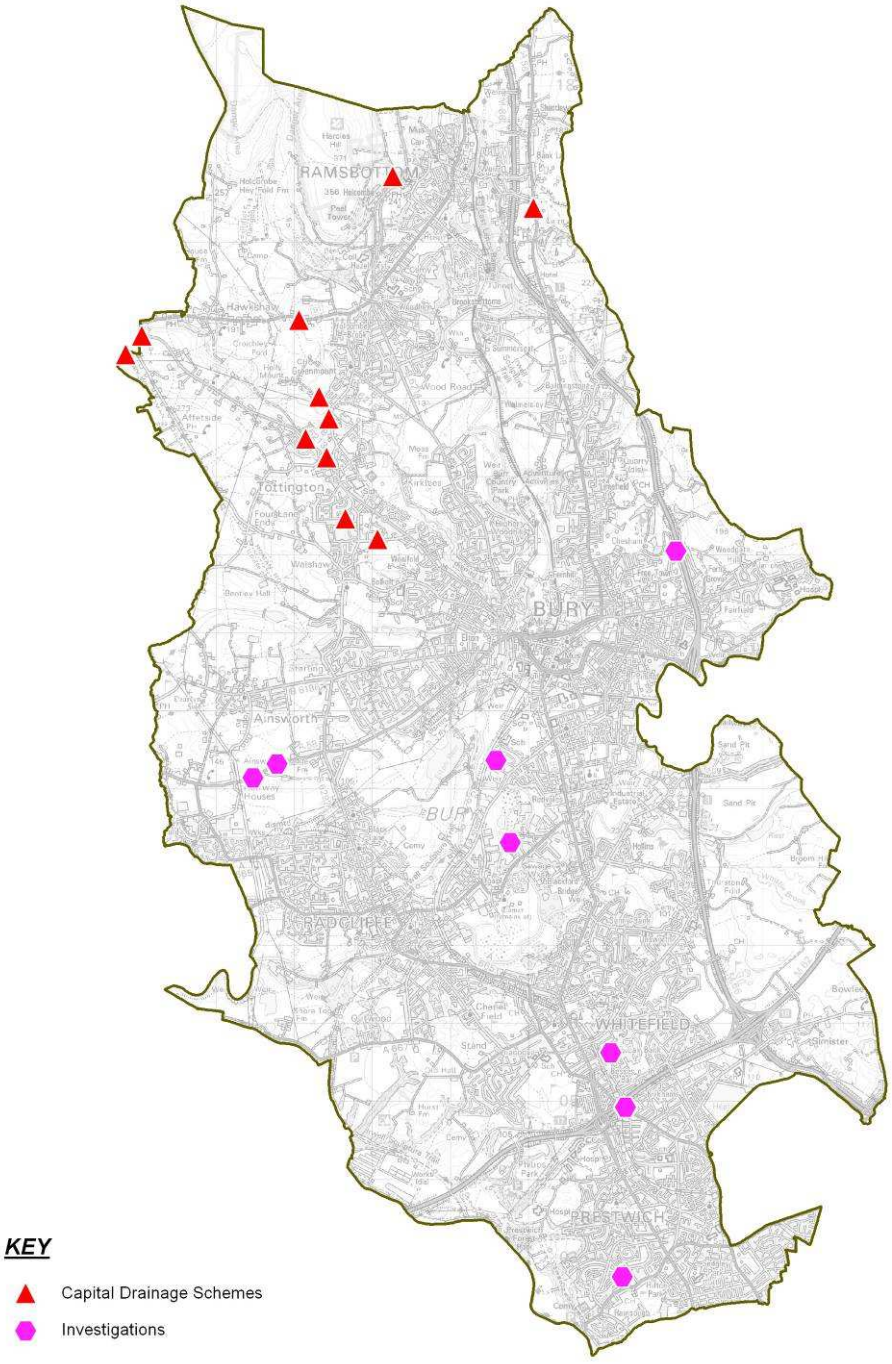
Scheme	Lead Risk Management Authority	Funding Source	Project Summary	Timescales	Status
Stirling Close, Whitefield	Bury Council	Unknown	Property flooding – further investigation required		Not Started
Fern Grove, Bury	Bury Council	Unknown	Flooding of carriageway due to culvert issue – further investigation required		Not Started
Kenilworth Avenue, Whitefield	Bury Council	Unknown	Flooding affecting 3 properties – further investigation required.		Not Started
Environment Agency Schemes					
Stubbins and Ramsbottom Flood Management Scheme	Environment Agency	FDGiA funding 2012/2013		2012-2014	Detailed design in progress. Planning application due to be submitted to Rossendale BC in July 2013.
Bury South	Environment Agency	FDGiA funding 2012/2013		2012-2018	Project Appraisal in progress
United Utilities Schemes					

Scheme	Lead Risk Management Authority	Funding Source	Project Summary	Timescales	Status
Radcliffe UIDs – BRY0128	United Utilities	AMP5	Powered mechanical screen on combined sewer overflow to screen spill flow up to 1 in 5 year storm intensity	2013-2014	Design and modelling ongoing to determine final location of screen and combined sewer overflow.
Ainsworth Road/Water Street	United Utilities	AMP5	Screening of spills from combined sewer overflow up to 1 in 5 year storm intensity. Provision of storage on sewer network. Upgrade of CSO. Possible partnership working with Bury Council and EA	2015-2016	Optioneering solutions. Preferred solution to be determined.
Clifton PS SAL0148 Croal UID	United Utilities	AMP5	Construction of new off-line storage tank at Clifton Pumping Station	2013-2014	Optioneering solutions
Radcliffe UIDs – BRY0033	United Utilities	AMP5	Static screen and new outfall	2013	Construction complete

Scheme	Lead Risk Management Authority	Funding Source	Project Summary	Timescales	Status
Radcliffe UIDs – BRY0026	United Utilities	AMP5	New storage tank and static screen on combined sewer overflow. New pumping station with duty/standby pumps	2013	Construction complete
Ogden Street DG5 - Prestwich	United Utilities	AMP5	New storage tank. Removing properties from the DG5 at risk register to alleviate flooding caused by hydraulic inadequacy	2013	Under construction

Note: A number of measures and potential projects are indicted as 'not yet started' and funding 'unknown' at the present time. This is inevitable at the outset of a new Strategy as the implementation and funding of some of the new proposals may not be clear at this stage as they involve funding sources that are not yet confirmed or they involve sections of the Act not yet implemented.

Appendix 3 – Identified Potential Schemes, Investigations and Improvements



Glossary

Acronym	Term	Explanation
	Aquifer	Layers of permeable rock which provide water storage for supporting water supply and/or river flows.
AStGW	Areas Susceptible to Groundwater Flooding	Mapping produced by the Environment Agency to show areas with a potential for groundwater emergence.
AStSW	Areas Susceptible to Surface Water	Mapping produced by the Environment Agency to provide broad areas where surface water flooding was likely to cause problems in three bands ranging from less susceptible to more susceptible to flooding. The methodology assumed that sewer and drainage systems were full and did not account for infiltration or the impacts of the location of buildings.
CFMP	Catchment Flood Management Plan	CFMPs assess flood risk from all sources across a river catchment area and establish flood risk management policies for those areas to assist in understanding flood risk within the catchment and delivering sustainable flood risk management in the long term.
	Climate Change	Long term variations in the climate of the earth including temperature, wind and rainfall patterns.
CLG	Department for Communities and Local Government	Government department responsible for policy and regulations supporting local government, communities and neighbourhoods.
Defra	Department for Environment, Food and Rural Affairs	Government department responsible for policy and regulations on the environment, food and rural affairs.
	DG5 Register	Records of property flooding from the drainage and sewer network collated and held by water companies.
EA	Environment Agency	A non-departmental public body responsible for protecting and improving the environment and promoting sustainable development.
	European Floods Directive	European Commission legislation which aims to provide a consistent approach to managing flood risk across Europe.
FAS	Flood Alleviation Scheme	A capital scheme to provide defences or storage for flood water to alleviate flooding within a surrounding area.
FCERM	Flood and Coastal Erosion Risk	Measures including strategies, policies and schemes designed to manage flood and coastal erosion risk at a national,

	Management	regional or local scale. Also referred to as FRM-Flood Risk Management.
FDGiA	Flood Defence Grant in Aid	Part of the Environment Agency's overall capital allocation to invest in flood risk management schemes.
FMfSW	Flood Map for Surface Water	Mapping produced by the Environment Agency to provide broad areas where surface water flooding was likely to cause problems based on two different changes of rainfall and displayed in two bands – surface water flooding and deep surface water flooding. The methodology assumed an allowance for infiltration and a national average drainage capacity and mapped building locations.
	Flood Risk Area	An area where there is a significant risk of flooding from local flood risk sources including surface water, ground water and ordinary watercourses, identified using guidance produced by Defra as areas where a 'cluster of square kilometres affected by flood risk holds in excess of 30,000 people.
FRR	Flood Risk Regulations 2009	UK regulations implementing the requirements of the European Floods Directive which aim to provide a consistent approach to managing flood risk across Europe, based on a six year cycle of assessment and planning.
	Flood and Water Management Act 2010	UK legislation which sets out the roles and responsibilities for flood and coastal erosion risk management in England in response to the Pitt review of the 2007 floods.
	Flood Zone 3	This zone comprises land assessed as having a 1 in 100 (.1%) or greater chance in any year of fluvial flooding.
	Flood Zone 2	This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 (1%-0.1%) chance in any year of fluvial flooding.
	Fluvial	Relating to rivers or streams (compare with entry for pluvial below). Generally used to describe flooding from main rivers – fluvial flooding.
	Fluvial Flooding	Flooding where water in a river exceeds the capacity of the river banks and spills into the surrounding area.
	Groundwater Flooding	Flooding where water stored underground rises above the surface of the land level in areas which are not channels or drainage pathways.

iFRAs	Indicative Flood Risk Area	Areas identified by the EA as part of the PFRA development where more than 30,000 people at risk of flooding (built up from clusters of 1km squares where at least 200 are potentially at risk of significant surface water flooding).
LFRMS	Local Flood Risk Management Strategy	The local strategy for a LLFA to identify the various flood risk management functions of different authorities and organisations, assess local flood risk, produce objectives and measures for managing flood risk, the costs and benefits of those measures and how they will be implemented, and contributions to wider environmental objectives.
LLFA	Lead Local Flood Authority	A county or unitary authority responsible for taking the lead on local flood risk management matters.
	Local Levy	Annual levy collected from local authorities by the Regional Flood and Coastal Committee to fund flood and coastal erosion risk management within its area.
NFRMS	National Flood Risk Management Strategy	The national strategy for England developed by the Environment Agency to identify the various flood risk management functions of different authorities and organisations, objectives and measures for managing flood risk, the costs and benefits of those measures and how they will be implemented, impacts of climate change and contributions to wider environmental objectives.
NPPF	National Planning Policy Framework	The new national planning regime. See entry on PPS25 below for an explanation of the relevance to this Strategy.
	Ordinary Watercourse	A stream, ditch, cut, sluice or non-public sewer which is not classified as a main river.
PFRA	Preliminary Flood Risk Assessment	An assessment under the FRR which assesses significant historic and future flood risks within an areas, identifying significant flood risk areas and providing information on flooding for reporting to the European Commission.
	Pluvial	Relating to rain compare with fluvial above. Generally used to describe surface water flooding – pluvial flooding.
PPS25	Planning Policy Statement 25	Guidance on how flood risk should be covered in planning policy and development control. Although superseded by the National Planning

		Policy Framework the principles are likely to be carried through in local plans and related guidance.
RFCC	Regional Flood and Coastal Committee	Committees established by the Environment Agency consisting of members representing LLFAs and independent members, who ensure that there are plans for identifying and managing flood risk across catchments, promote investment in flood and coastal erosion risk management and provide a link between risk management authorities and other relevant bodies.
RMA	Risk Management Authority	As defined under the Flood and Water Management Act as LLFAs, the Environment Agency, unitary authorities, water companies and highways authorities.
SFRA	Strategic Flood Risk Assessment (Level 1 and Level 2)	An assessment providing information on areas at risk from all sources of flooding, used to provide an evidence base for flood risk and planning decisions.
	Surface Water Flooding	Flooding where rainwater collects on the surface of the ground due to soil being saturated or drainage and watercourses in the areas are full to capacity or not accessible by the rainwater due to land levels.
SWMP	Surface Water Management Plan	A plan which assesses surface water flooding within a given area and outlines the preferred approach to managing that risk. The plan is undertaken in consultation with key partners who are responsible for flood risk management and drainage in that area. The plan should influence future resource, emergency and land use planning and identify areas where flood alleviation works may be required.
	Sustainable Development	Development undertaken in a sustainable manner to ensure that the needs of the current generation do not adversely impact the lives of future generations, improving and enhancing the area concerned.
SuDS	Sustainable Drainage Systems	Methods for draining and storing surface water in a sustainable way, designed to mimic natural drainage processes as far as possible, providing multiple environment benefits.

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