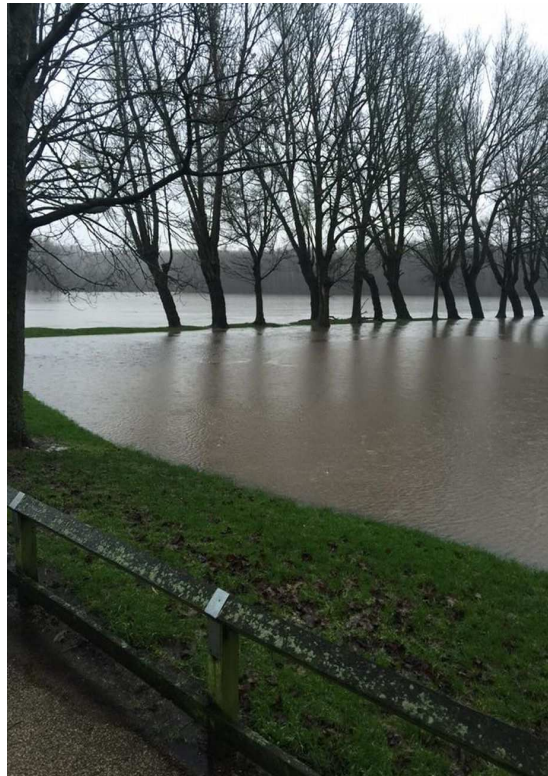


Bury Local Flood Risk Management Strategy



April 2018

Use of information in this strategy

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 Borough, the Council will prioritise investigations and works identified within this Strategy, based on perceived and evidenced risk and within limited resources.

The indication of flood risk in the report is high level and based on incomplete information. A level of subjectivity has been used in assessing relative flood risk and 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 some of the information and recommendations in this report at an individual property level.

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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.
- 1.2 In Bury, the presence of major rivers, various other watercourses, impermeable soils and ageing infrastructure means flooding is a real issue and when it occurs can seriously affect people's lives and businesses, as we witnessed in December 2015.
- 1.3 The three main aims of Bury's Local Flood Risk Management Strategy (LFRMS) are to:
- Increase awareness of local flood risk;
 - Identify how partners can best work together to reduce the risk;
 - Provide an overview of flood risk management in the Borough
- 1.4 The Strategy updates the previous [LFRMS 2014](#), and seeks to improve our understanding of flood risk within the Borough by outlining the levels of risk from all sources. 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 refreshed Strategy provides the opportunity to co-ordinate services so that the risk of flooding is reduced.

Structure of the Strategy

- 1.5 In outline the Strategy covers the following:

Chapter 2 provides a summary of flood risk in the Borough. This information helps to understand the varying levels of risk within Bury and prioritise geographical areas for action;

Chapter 3 considers future influences on flood risk;

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;

Chapter 9 discusses monitoring and review of the Strategy; and

Appendix 1 presents the Strategy's Action Plan.

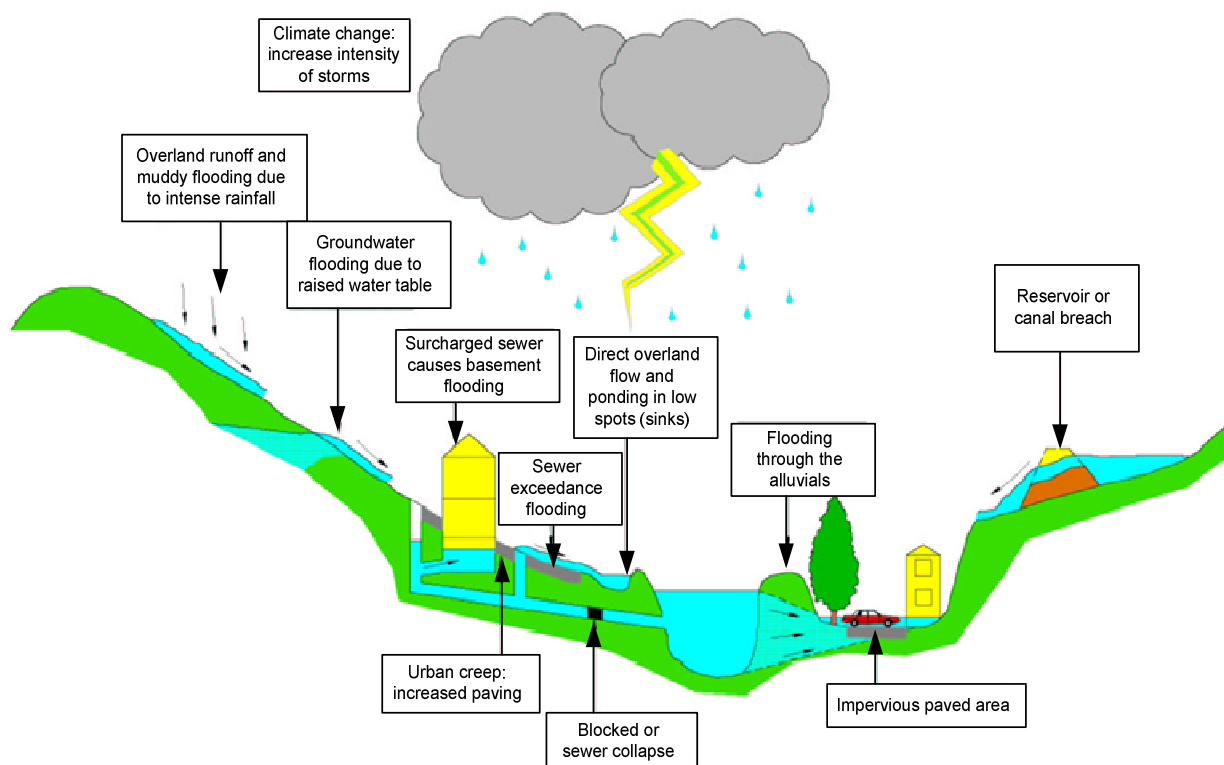
Who is the Strategy aimed at?

- 1.6 The Strategy has been written for all those affected by flood risk. It is also for organisations with flood risk management responsibilities and other partners, to ensure that there is a common understanding of the roles and priorities within Bury.

2 Flood Risk in Bury

- 2.1 The flood events on Boxing Day 2015 demonstrated the major impact flooding can have and highlighted many of the planning and emergency response challenges faced by the Council and partners. Over 680 residential and 136 commercial properties were flooded, the tangible cost of which is significant, so too is the emotional cost to both individuals and communities.
- 2.2 The complex nature of flooding experienced in Bury highlights the importance of understanding the risk of flooding in order to ensure that we can be better prepared in the future.
- 2.3 Bury is located within the centre of the wider River Irwell catchment. Much of the area grew rapidly during the industrial revolution with the development of factories and commercial and residential properties on the floodplain. Today, most of the watercourses are heavily modified and the Borough has a large number of culverts and weirs.
- 2.4 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 and 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 issues, particularly where actions could exacerbate flooding in downstream communities.
- 2.5 Flooding can occur from a range of sources as shown in Figure 1 below. Often a flood event is caused by a combination of sources.

Figure 1 – Flooding from all sources



Source: SFRA, 2009

River (Fluvial) Flooding

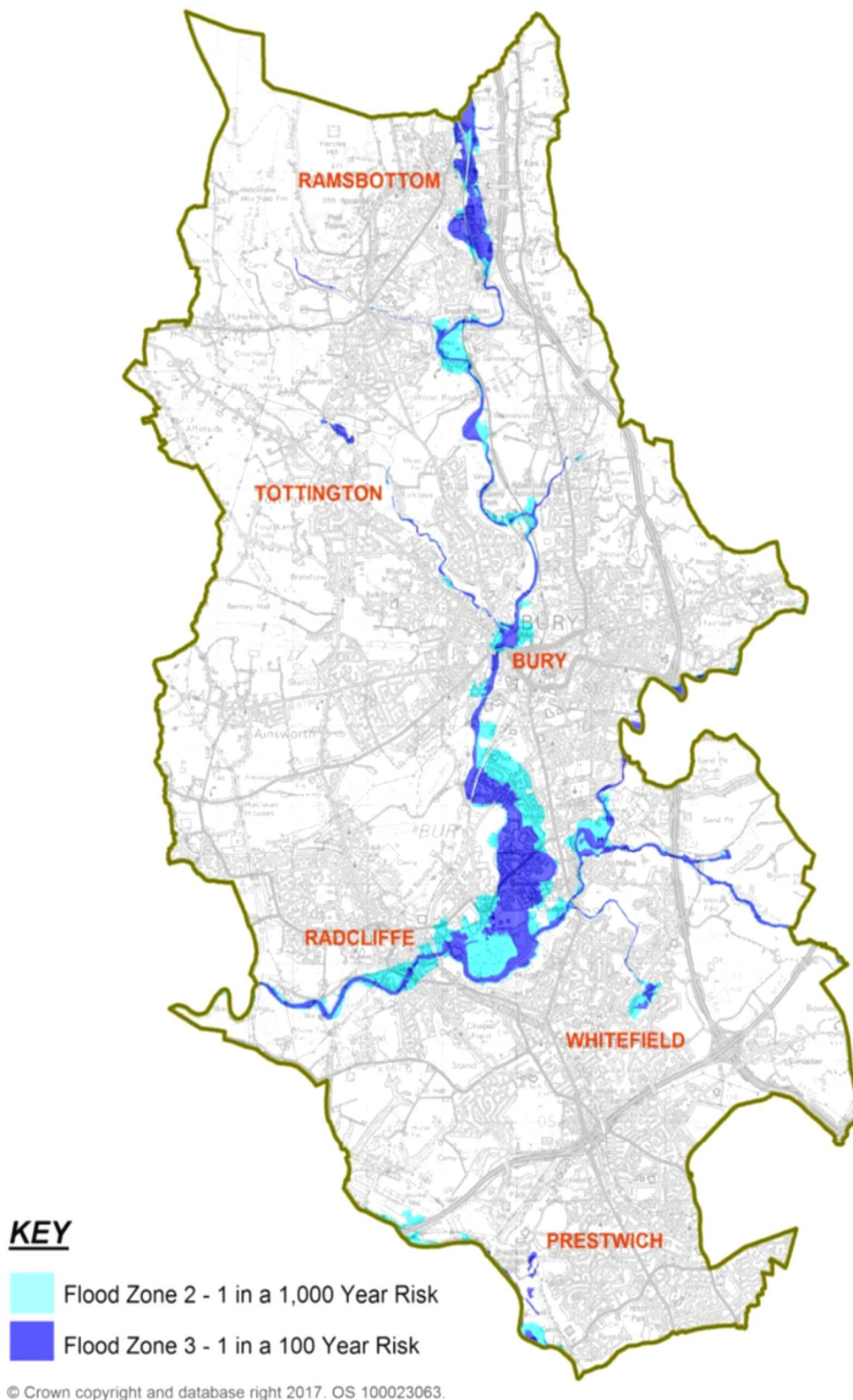
- 2.6 River flooding occurs when the capacity of the river or stream is reached, causing water to spill out of the channel into nearby areas – for example when heavy rain falls on ground that is already waterlogged and the watercourse cannot cope with the amount of water draining into it from the surrounding 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 floodplains.
- 2.7 The main source of fluvial flood risk in the Borough is from the River Irwell and its tributaries, including Holcombe Brook, Pigslee Brook, Kirkless Brook and the River Roch.
- 2.8 Due to the urbanised nature of the Borough many of the main river channels have been straightened and canalised to accelerate the flow of water and some have been culverted over significant lengths. Many now have a limited hydraulic capacity and are prone to blockages which can lead to flooding. These blockages are often caused by silt deposition from the rural upstream sections of the

Borough, vegetation falling into the watercourse and through fly tipping where debris is dumped into the river channels.

- 2.9 The Environment Agency is the overseeing authority for managing the risk of flooding from main rivers. To assist with this, the agency produce a [Flood Map for Planning \(Rivers and Sea\)](#), which identifies flood zones. These zones refer to the probability of river and sea flooding, ignoring the presence of defences¹.

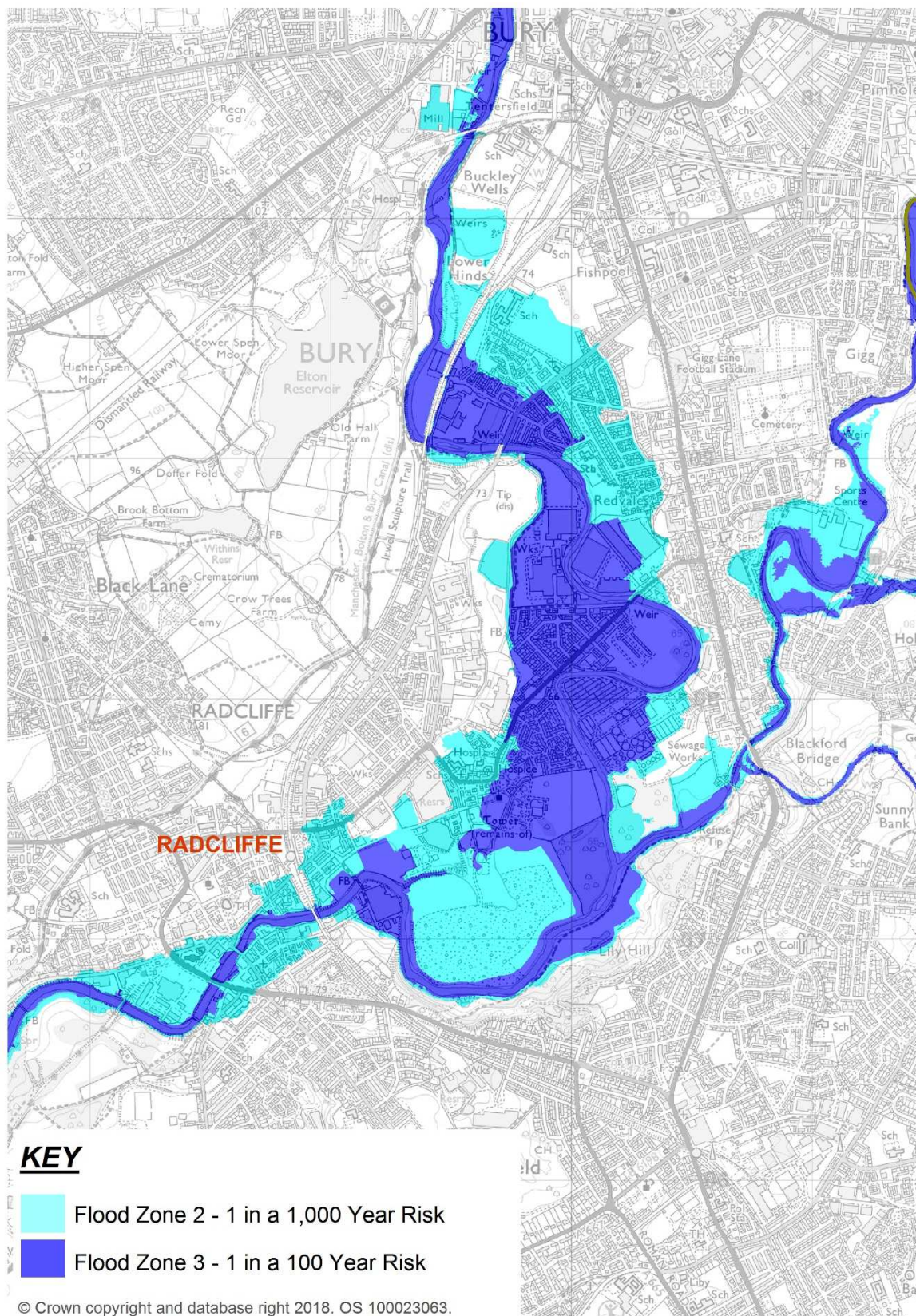
¹ The flood zones on the EA's Flood Map do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

Figure 2 – Environment Agency Flood Zones



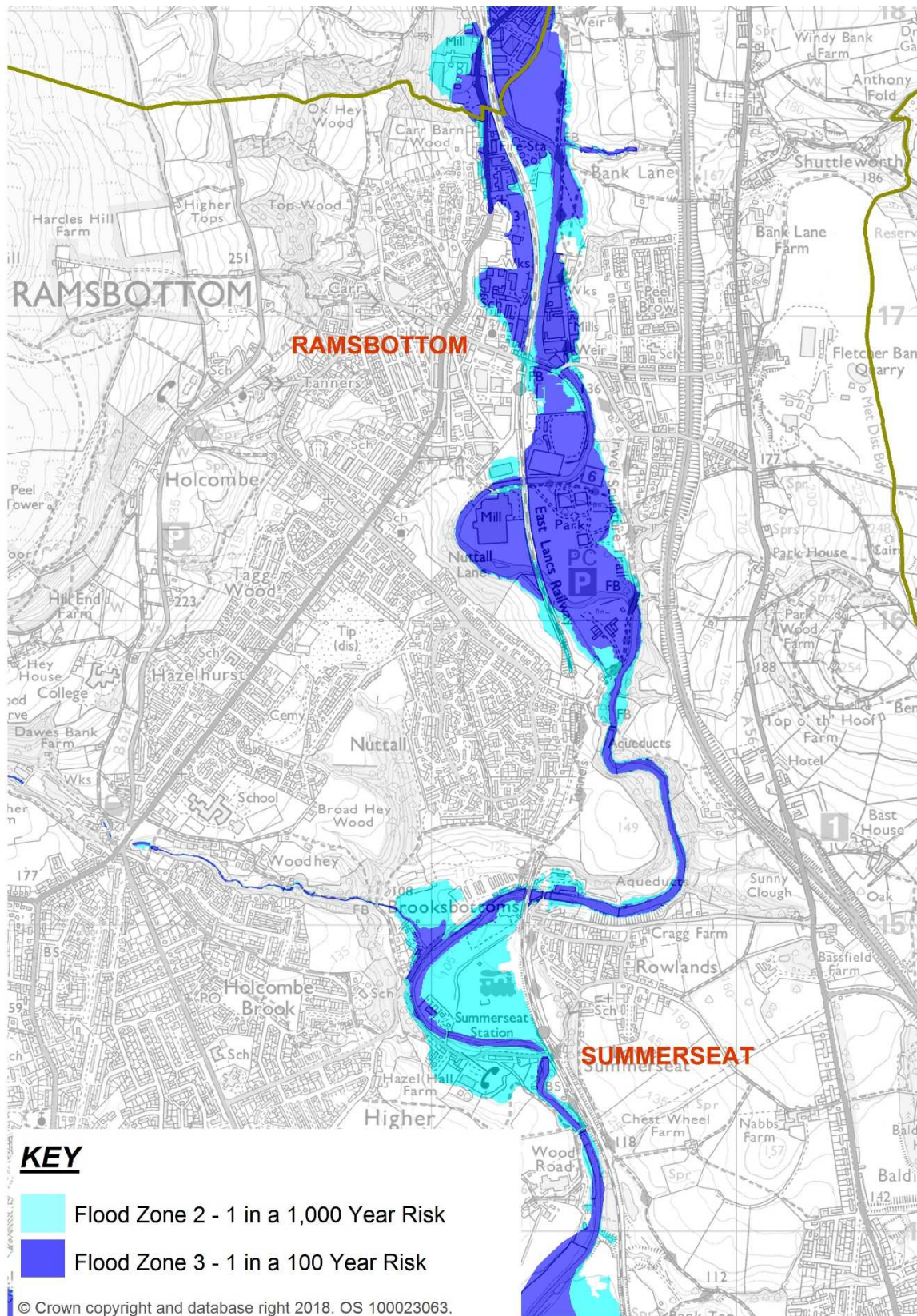
Source, Environment Agency, 2017

Figure 3 – Environment Agency Flood Zones in Radcliffe



Source: Environment Agency, 2017

Figure 4 – Environment Agency Flood Zones in Ramsbottom and Summerseat



Source: Environment Agency, 2017

2.10 Figures 2, 3 and 4 identify that the following areas are particularly at risk of flooding from the river:

Ramsbottom

- Stubbins Lane, Kenyon Street, Athos Street, Crow Lane;
- Nuttall Park, Ramsbottom Cricket Ground and Football Club

Summerseat

Bury

- Bury Ground
- Bridge Trading Estate

Redvales

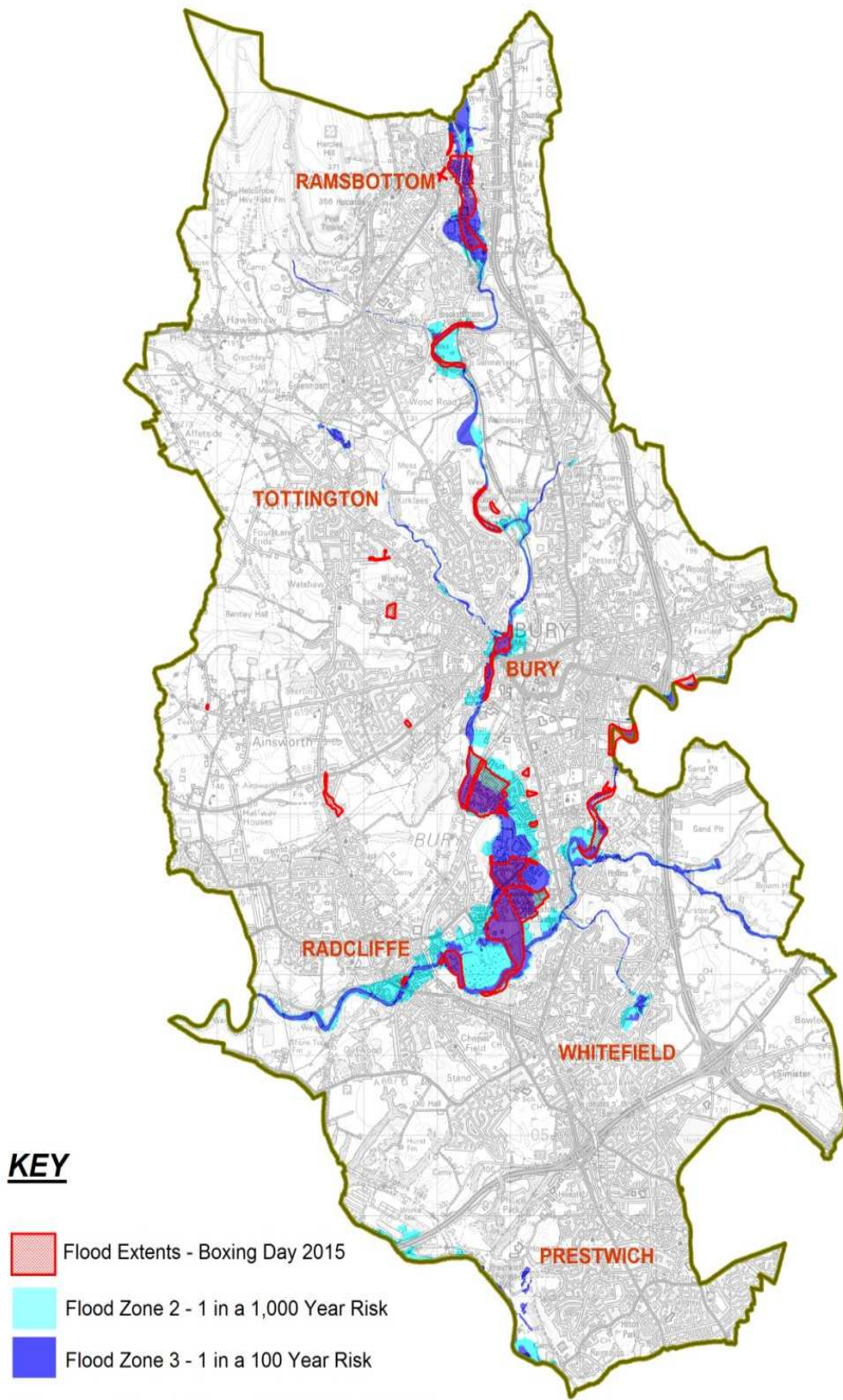
- Warth Industrial Park
- Warth Road, Openshaw Fold Road, Bealey Drive, Inglewhite Close, Ribchester Drive
- Radcliffe Road, Central Avenue, Keswick Drive

Radcliffe

- York Street, Ripon Close, Selby Close, Seddon Avenue, Borough Avenue
- Dumers Lane, Morris Street
- Close Park, Parkside Close, Riverside Road, Waterside Close
- United Utilities Sewage Works
- Pioneer Mills

2.11 The severe flooding experienced on Boxing Day 2015 largely followed these predicted flood extents as identified in Figure 5.

Figure 5 – Known Extent of 2015 Boxing Day Floods



Source: Bury Council, 2016

Note: Map 3 only presents those areas where the flood risk was reported to the Council, either during the event or afterwards.

Surface Water Flooding

- 2.12 Surface water flooding is caused by overland flow during periods of sustained or heavy rainfall, often involving 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.
- 2.13 Due to the steep topography of parts of Bury, the Borough has narrow and shallow surface water flow paths. This has the potential to lead to rapid inundation of water with higher velocities and hazards.
- 2.14 A number of flow paths have been identified in Borough where surface water flows off the hillsides and collects in small drains before flowing to the valley bottom. This is a particular issue in Ramsbottom and often causes flooding to major road networks and individual properties.
- 2.15 There are many modified small streams and culverts which are 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.
- 2.16 Highway drains connect the highway gullies to surface water drains. In some instances, the highway drains outfall into a watercourse such as rivers, ponds, soakaways etc. Heavy rainfall can often result in more water on the road than the highway gullies can cope with. Also, if the outfall is restricted, for example by high water levels in a river, surface water can back-up and road gullies will not be able to drain a road. During a severe rainfall event, the capacity of the drainage system can be overwhelmed by the amount of water trying to run off from the road and flooding can occur.
- 2.17 Figure 6 identifies the main areas within the Borough which suffer from surface water flooding. These include:

Ramsbottom

- Manchester Road/Whitelow Brow, Crow Lane, Carr Street, Moor Road, Branch Road, Longsight Road

Summarseat

- Railway Street, Wood Road Lane

Tottington/Greenmount

- Watling Street, Turton Road, Harwood Road, Bradshaw Road, Holcombe Road (Old Kays Park), Hollymount Lane, Moorside Road, Sunnybower Street, Scobell Street,

Bury

- Fern Grove, A58 Bolton Road (Three Arrows)

Radcliffe

- Higher Ainsworth Road, St Andrews Close, Close Park, Parkside Close, Riverside Road, Waterside Close, Openshaw Fold, Ripon Close, Bealey's Goit

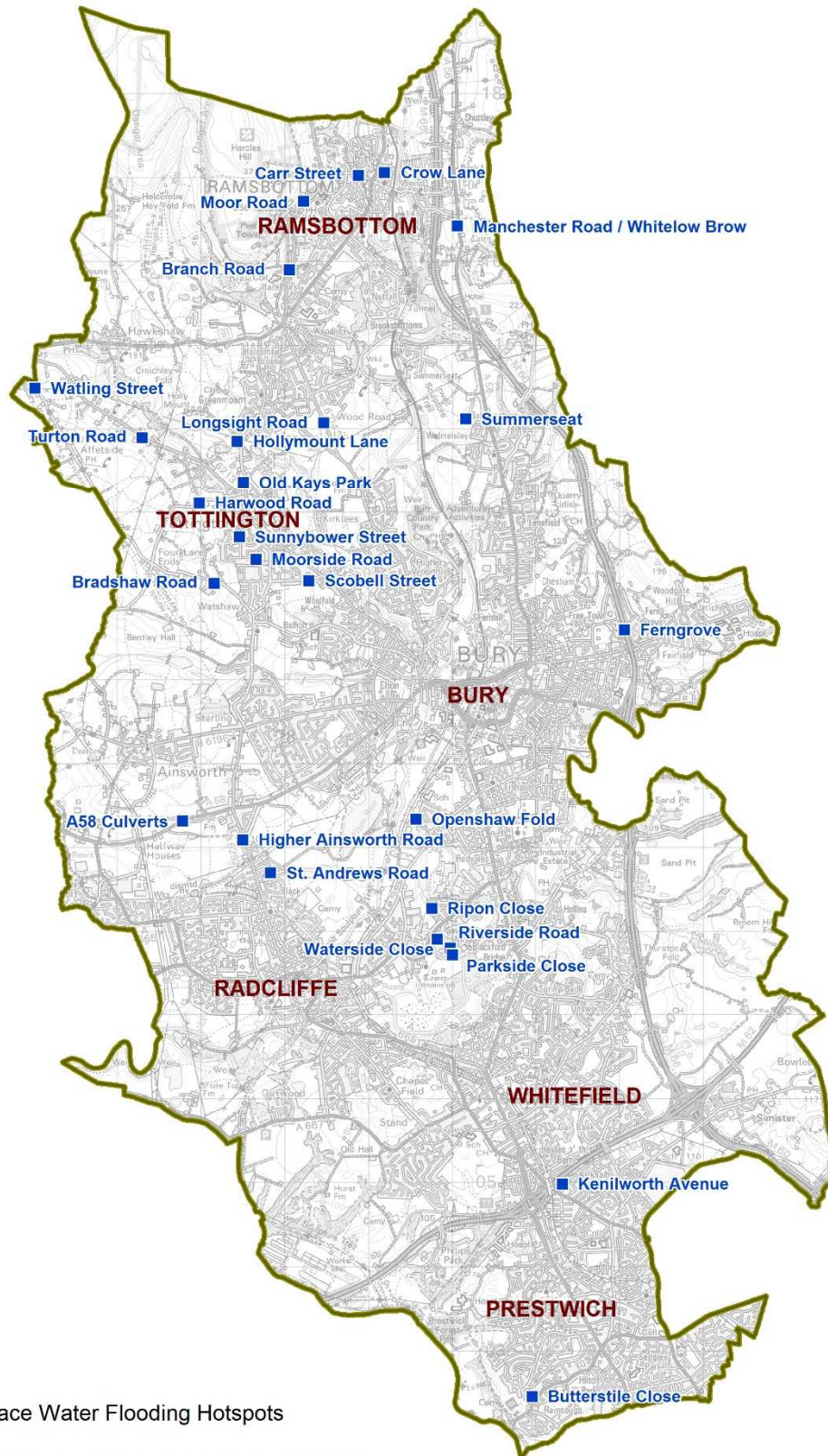
Whitefield

- Kenilworth Avenue

Prestwich

- Agecroft Road West/Butterstile Close

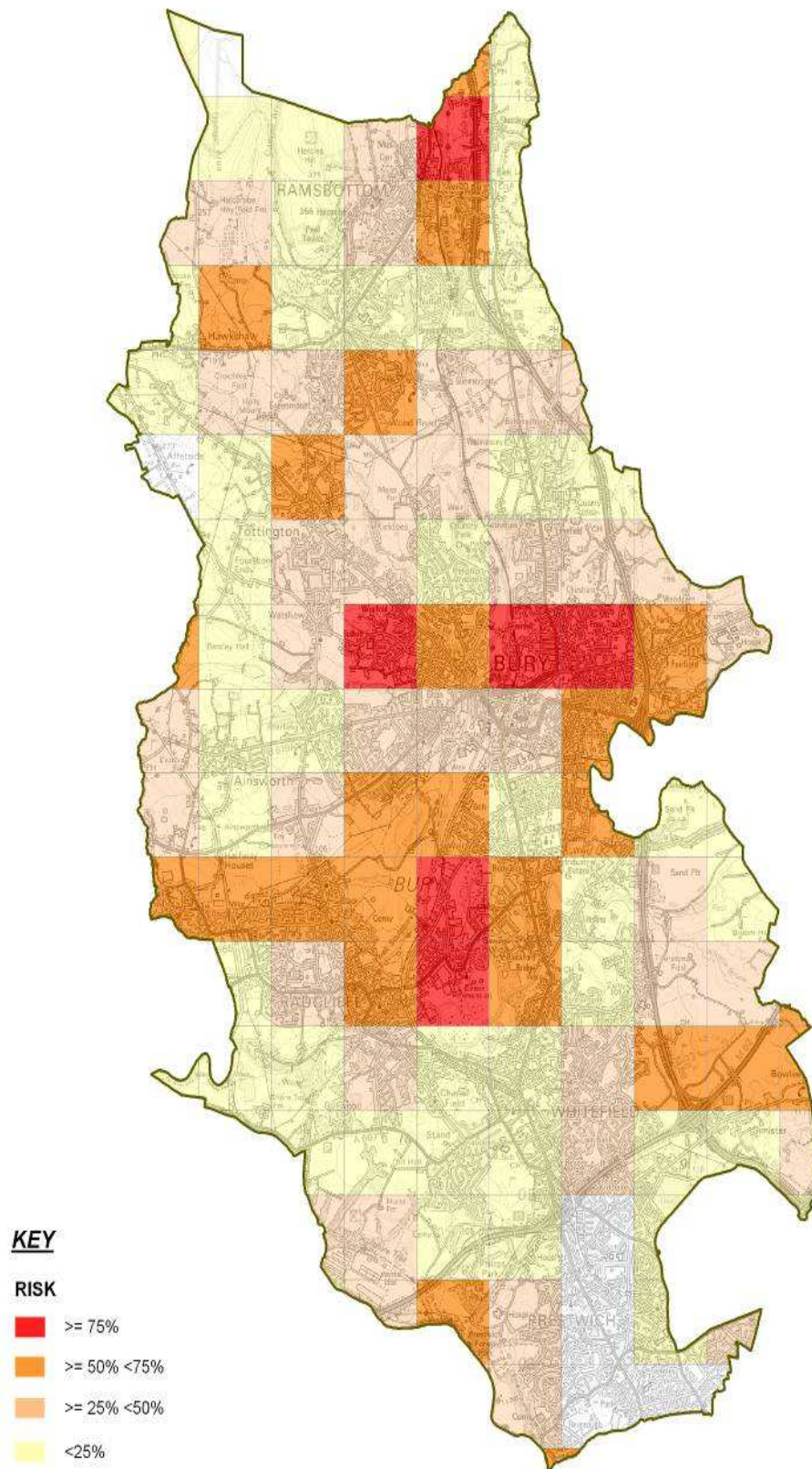
Figure 6 – Surface Water Flooding



Groundwater Flooding

- 2.18 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 as 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 and particularly if soils are impermeable, the water can be in situ for a lengthy period of time.
- 2.19 Local understanding of groundwater flooding is limited and often groundwater is not identified as a distinct event. The Environment Agency's national dataset, 'Areas Susceptible to Groundwater Flooding (AStGWF)', provides a limited basis for assessing flood risk from groundwater.

Figure 7 – Groundwater Flooding



© Crown copyright and database right 2013. Ordnance Survey 100023063.

Source: Bury Council, 2016

2.20 Bury lies over an aquifer with geology consisting predominately of sands and gravels which have high permeability. However, there are areas of clay which have low 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.

Sewer Flooding

2.21 Sewer flooding is generally caused by too much surface water entering the sewer network or when a blockage occurs. This generally happens during periods of heavy rainfall when the drainage network becomes overwhelmed. Land and property can be flooded with water containing raw sewage as a result. Sewers that overflow can also pollute rivers.

2.22 United Utilities has provided data on instances of flooding for use in this Strategy. It must be noted that the information is just a 'snap shot' in history at the time it was supplied and does not identify individual properties. The latest data identifies the following:

External Flooding:

- 135 properties are listed, 33 properties have suffered external hydraulic flooding to date in this Asset Management Plan (AMP) period (2015-2020)

Internal Flooding:

- 69 properties are recorded as having internal hydraulic flooding, 16 properties have suffered internal hydraulic flooding to date in this AMP period.

2.23 A number of these properties are located in and around Prestwich, Ramsbottom and Tottington.

2.24 More useful indicators of risk are associated with the data generated using hydraulic sewer network models. Parts of Tottington, Gigg, Greenmount and Radcliffe have hydraulic issues which are currently being investigated.

Canal Flooding

- 2.25 Canals are rivers or man-made channels that were originally developed for transport. Canal flooding is caused by overtopping or breach of the canal network when the canal cannot cope with the water entering it or when a wall or embankment collapses.
- 2.26 The Manchester, Bury and Bolton Canal connected Bury and Bolton with the River Irwell in Salford. The canal was closed to navigation in 1961 and surviving sections are discontinuous.
- 2.27 Bury's Preliminary Flood Risk Assessment (June 2011) identified a historic risk of 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 the volume of water contained relatively small;
 - The canal is discontinuous;
 - The last major breach was at Nob End downstream of Radcliffe in 1936. This breach was not repaired. The mining subsidence which increased risk of breach in the past is much lower.
- 2.28 The canal does intercept some surface water from the catchments to the west. No detailed modelling has been undertaken and the risk from this is therefore unknown.

Reservoir Flooding

- 2.29 Reservoirs can 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 its dam fails.
- 2.30 The Environment Agency maintains a Public Register of Large Raised Reservoirs. Table 1 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 Generic Reservoir Off-Site Plan (reviewed November 2016) identifies the Greater Manchester emergency response to any reservoir failure. In addition, there are Specific Reservoir Off Site Plans for those reservoirs within Greater Manchester which are in the top 100 reservoirs with the most serious consequences in a failure. Bury does not host any of these reservoirs, but a considerable number would impact upon the Borough should they

fail. The Generic and Specific plans have been tested at strategic, tactical and operational levels in the Borough and across Greater Manchester.

2.33 United Utilities has a programme of pro-active reduction which is reducing the risk of reservoir failure even further, on a year by year basis. The reservoirs operated by UU in Bury are water storage reservoirs which are filled from the water mains. They are therefore not affected by river flooding and are intrinsically lower risk structures than the majority of reservoirs.

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 it including climate change, new residential and commercial development and changes to the natural environment.

Climate Change

- 3.2 Although hard to predict, it is generally accepted that a changing climate will entail more extreme weather events, including longer and heavier rainfall.
- 3.3 In February 2016, the Environment Agency updated their advice² on climate change allowances for river flow modelling for planning. The new advice states, for the North West, river flows could increase by up to 70% in the long term. The Environment Agency previously advised that river flows may increase by 20% as a result of climate change.
- 3.4 The Bury, Bolton and Rochdale SFRA (2009) projected the likely extent of flood zone 3 under a climate change scenario (which assumes a 20% increase in the extent of the Environment Agency Flood Zone 3). In this scenario, Radcliffe appeared to be affected by climate change whilst Ramsbottom appeared to be more sensitive during more extreme rainfall events.
- 3.5 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 indicated that Ramsbottom, Bury Town Centre and Radcliffe will continue to be locations where future surface water flooding is likely to occur.

² <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowance>

- 3.6 The floods experienced on Boxing Day 2015 confirmed this pattern less than 10 years after these reports were produced.
- 3.7 The focus in meeting these challenges will in future be on flood risk management rather than providing flood defences. We can't always prevent flooding occurring however we can manage the risks of it happening and reduce the consequences when flooding does happen.

Flood Risk and Future Development

- 3.8 The Greater Manchester Combined Authority is in the process of producing the Greater Manchester Spatial Framework (GMSF). The GMSF will contain a suite of policies addressing economic, social and environmental issues, for example housing distribution, green infrastructure, flooding, carbon reduction, resilience and air quality.
- 3.9 The draft GMSF (October 2016) proposed that Bury should find sufficient land for 25,000 jobs and 12,500 homes and identified sites across Greater Manchester which could accommodate this growth. Critical services will need to be delivered to support these sites and flood risk will need to be fully considered. The proposed sites in Bury have been screened to ensure they are not situated in Flood Zone 3. However all new development sites will need to ensure that flood risk is not increased elsewhere and the most vulnerable elements of new developments are located in areas of lowest flood risk within the site. In addition all new development should seek to incorporate sustainable drainage systems (SuDS) so as not to increase the rate of run-off.
- 3.10 There are many different types of SuDS components that can fit into a variety of settings. A SuDS system could include: green roofs, infiltration trenches, permeable paving, underground storage, wetlands and ponds.
- 3.11 Sustainable drainage systems can also help to manage pollution and provides opportunities for biodiversity. Sustainable drainage systems provide opportunities to store and re-use water for a range of purposes for which 'grey' water is appropriate.

Natural Environment

- 3.12 Working with partners to ensure, planning and gradual reinstatement of open spaces (particularly within new

developments) together with the introduction of upland planting could help to reduce flood risk and promote the requirements of the Water Framework Directive.

- 3.13 It is important that opportunities are sought when new development and redevelopment arise and that areas of flood plain 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.

4 Legislative Context

Flood and Water Management Act, 2010

4.1 The [Flood and Water Management Act 2010](#) (FWMA), 2010 designated Bury Council as 'Lead Local Flood Authority' and as such the Council has a 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.

4.2 The development of the Strategy requires 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; and
- United Utilities

Flood Risk Regulations, 2009

4.3 The [Flood Risk Regulations 2009](#) (FRR) came into force in December 2009 and implement the EU Floods Directive in England. They provide a framework for managing flood risk over a 6 year cycle, comprising:

- Preliminary flood risk assessment (PFRA);
- Identification of areas of potential significant risk, referred to as flood risk areas;
- Mapping of flood hazards and risk; and
- Flood Risk Management Plans (FRMPs), setting out measures and actions to reduce the risk.

- 4.4 The FRR state that each of the above four elements must be reviewed, and updated where necessary, at least every 6 years.
- 4.5 Bury produced a [Preliminary Flood Risk Assessment](#) and identified flood risk areas in 2011. A review of the PFRA was required by the FRR in 2017. This was submitted to the Environment Agency who approved the review³.
- 4.6 The Council worked with the Environment Agency to assess flood risk areas and provide flood hazard maps to show the extent, speed and likelihood of possible flood events, as required by the Regulations. The flood risk maps show what is at risk of flooding such as people, economic activity, natural and historic areas of environmental importance. This information is presented at the River Basin District scale and is available from EA.
- 4.7 A Flood Risk Management Plan for identified flood risk areas was developed jointly by the risk management authorities and produced in 2016. This plan describes the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs; and they do so at river basin and catchment scale. The plans set out how the risk management authorities will work together, and with communities, to manage flood and coastal risk between 2015 and 2021. This includes measures and actions to manage the risk and improve resilience. The North West plan is available on Gov.uk – [Flood risk management plans 2015 to 2021](#)

National Planning Policy Framework

- 4.8 The [National Planning Policy Framework](#) and [National Planning Policy Guidance](#) were published and came into effect in March 2012. They provide a statement of national planning policy which 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 in combination with the NPPG.
- 4.9 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

³ The Environment Agency is required to publish the review on Gov.uk, when this is available we will provide the link on the following webpage - <https://www.bury.gov.uk/index.aspx?articleid=11124>

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.

4.10 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.

4.11 The challenge in terms of flood risk management relates to the NPPFs 'presumption in favour of sustainable development'. Achieving more housing growth is a key driver of the planning system but it needs to be balanced against ensuring flood risk is not increased. If the Council does not meet its annual housing targets, there is concern that it will become vulnerable to applications on the flood plain.

4.12 In addition to the above, Bury Council also has a range of responsibilities in accordance with other pieces of domestic and European Legislation⁴, 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);

⁴ Depending on the approach taken to EU exit, there may be potential to remove some pieces of legislation. However at the time of writing, the UK is still a full member of the EU.

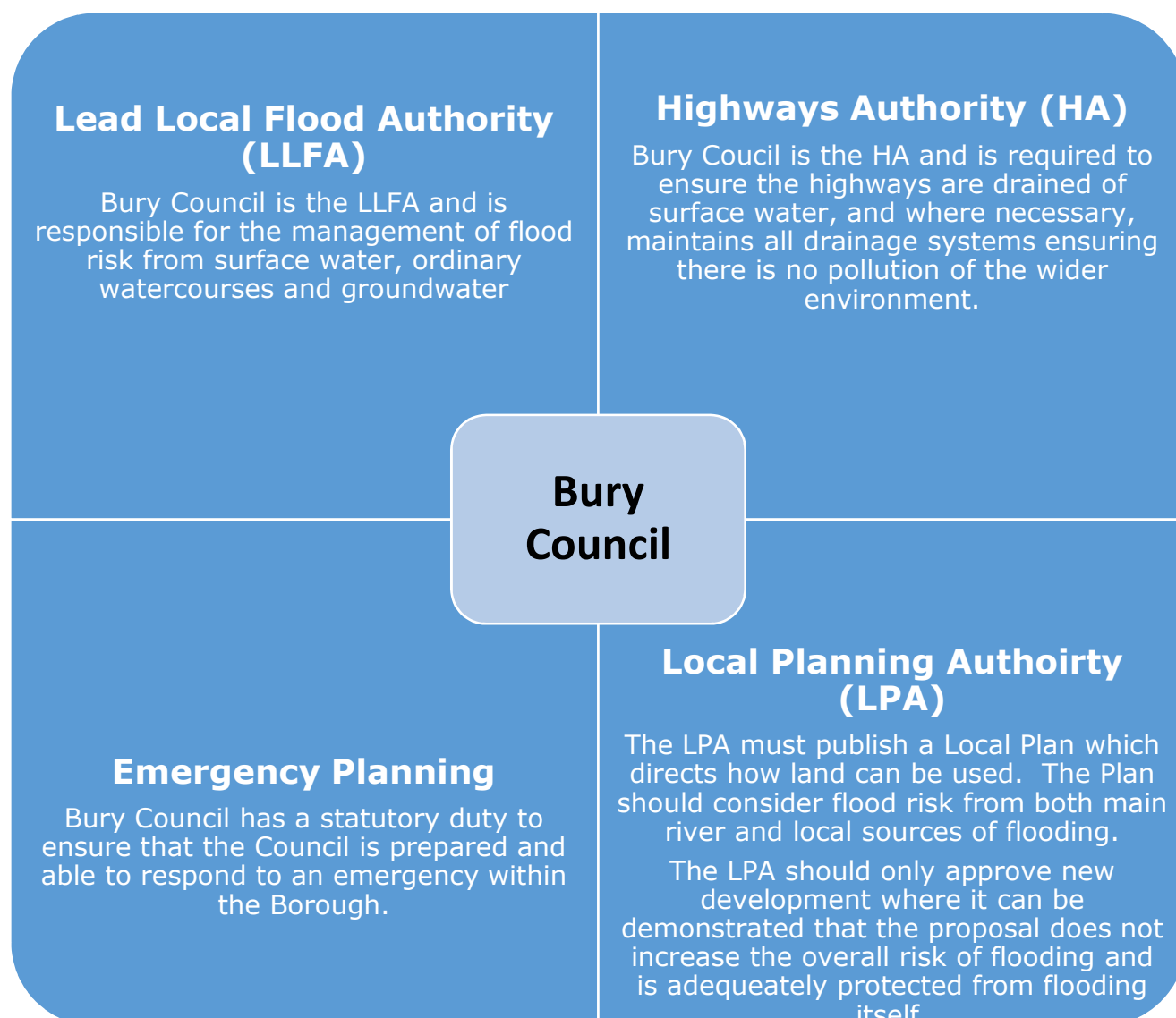
The Water Industry Act (1991);	The Environment Act (1995);
The Countryside & Rights of Way Act (2000);	The Water Act (2003);
The Planning and Compulsory Purchase Act (2004);	The Civil Contingencies Act (2004);
The Natural Environment and Rural Communities Act (2006);	The Climate Change Act (2008);
The Planning Act (2008);	The Localism Act (2011);
The EU Environmental Impact Assessment Directive (1985/337/EEC & 1997/11/EC);	The EU Habitats Directive (1992/43/EEC);
The EU Water Framework Directive (2000/60/EC);	The EU Floods Directive (2007/60/EC)

5 Roles and Responsibilities

Introduction

- 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 authorities;
 - 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

5.4 The Council performs a number of functions in relation to flood risk management⁵:



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

⁵ Further information regarding Bury Council's functions is provided in Appendix 2

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 or features relating to 'main rivers';
- A duty to report to ministers on Flood Risk Management;
- 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 effectively 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 10,000m³ 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 England

- 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

- Regional Flood and Coastal Committees (RFCC) 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; and
 - To provide a link between the Environment Agency, Lead Local Flood Authorities and other relevant bodies to ensure mutual understanding of flood and coastal erosion risks in its area.
- RFCC's are the key decision making bodies for allocating funding including Grant in Aid and local levy which are the key streams of funding for flood alleviations schemes.
- The RFCC also contribute towards individual property resilience schemes and the river maintenance programme. These committees, therefore, have a very important role in deciding which areas receive support for flood defences. How funding is calculated and allocated is discussed in more detail in Chapter 7.

Residents and Businesses

- In addition to the role of RMA's, individual landowners owning land adjacent to a watercourse, known as riparian owners, have important rights and responsibilities relating to flood risk management. 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 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

- 6.1 The Environment Agency, jointly, with DEFRA developed a national flood strategy which reflects Government policy on flood risk management and related issues. The 2011 strategy, entitled [‘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 Bury Council have developed the following objectives and measures for its Local Flood Risk Management Strategy:

<p>Objective 1</p> <p>To gain a strategic understanding of flood risk from all sources</p>	<ul style="list-style-type: none"> •Gather clear information on the different types of flooding, their potential and impact.
<p>Objective 2</p> <p>To manage the likelihood of flooding within the Borough</p>	<ul style="list-style-type: none"> •Identify an evidence based programme of works and maintenance regimes, which integrate flood management solutions with sustainable development, social and environmental benefits.
<p>Objective 3</p> <p>To help Bury residents to manage their own flood risk</p>	<ul style="list-style-type: none"> •Support residents to make informed decisions for dealing with flood risk; •Provide clear information about the roles and responsibilities of risk management authorities.
<p>Objective 4</p> <p>To ensure new development in Bury reduces rather than increases flood risk</p>	<ul style="list-style-type: none"> •The Council and other risk management authorities will seek to ensure that "no new flood risk" is taken into account when determining planning applications
<p>Objective 5</p> <p>To improve flood preparation, warning and post flood recovery</p>	<ul style="list-style-type: none"> •Increase knowledge of flood risk to ensure that emergency responders better understand the nature of local flood risk and can use the information to improve preparedness for flood events. •Assist communities and individuals in preparing for flood events, forming local action groups and planning for future flood risks
<p>Objective 6</p> <p>To endeavor to balance environmental, social and economic benefits</p>	<ul style="list-style-type: none"> •Adopting a sustainable approach to the management of flood risk can improve the environmental condition of watercourses and the social and economic benefits within and around their setting.

- 6.4 The Local Flood Risk Action Plan in Appendix 1 outlines actions which we have identified to achieve our objectives and notes current progress. A number 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.

Operational Measures to Manage Local Flood Risk

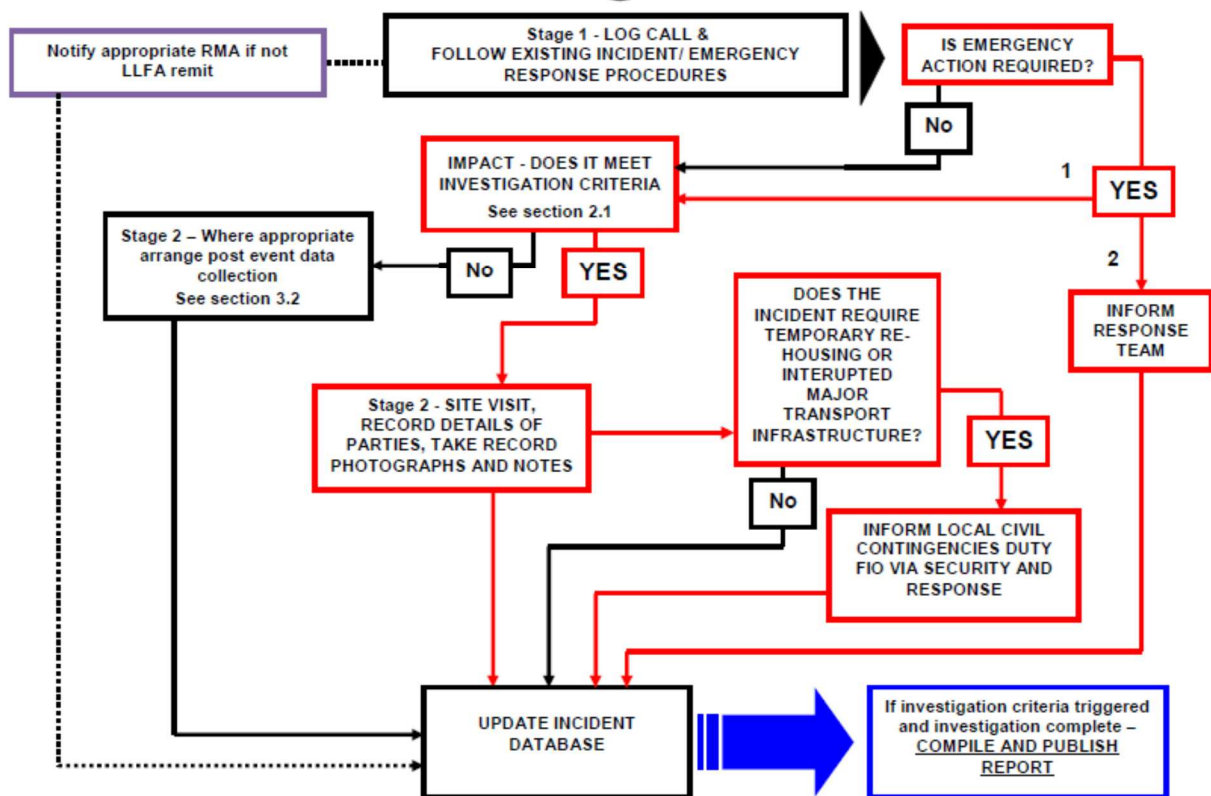
Investigating Flood Incidents

- 6.5 As discussed in Chapter 4, Section 19 of the 2010 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.
- 6.6 Where an authority carries out an investigation, the Act states that it must publish the results of its investigation and notify relevant Risk Management Authorities.
- 6.7 No specific guidance is provided on how to discharge this duty and many elements are open to interpretation. As a result and to avoid inconsistently across the sub region, the 10 Greater Manchester districts agreed in 2013 an Investigations Policy.
- 6.8 The focus of this policy is not solely around identifying a need for an investigation but to ensure that a process is in place to gather supporting evidence. Initially from the information received on 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 flooding is known.
- 6.9 Data gathered can be used to inform and predict the consequences of more serious incidents. 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 maybe frequency rather than the scale of the incident that triggers an investigation in the future.

6.10 Figure 6 illustrates the protocol for investigating flooding incidents across Greater Manchester. Figure 7 identifies the triggers for this protocol.

Figure 6 – Protocol for Investigating Flood Incidents



Source: AGMA Flood Investigations Policy, 2013

Figure 7 – ‘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

Source: AGMA Flood Investigations Policy, 2013

6.11 [A S19 report for the 2015 Boxing Day Floods](#) was produced by the Environment Agency in conjunction with the 10 Greater Manchester Authorities and United Utilities. The report details the extent of the flooding which occurred on Boxing Day and how the relevant RMA responded.

6.12 Although the purpose of the report was to provide a factual account of the contributing factors, impacts and responses to flooding, it does also include a number of recommendations regarding how to manage future flood risk.

Maintaining a Register of Assets

6.13 Section 21 of the 2010 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 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 (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 flood risk. 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 and Untied Utilities already hold asset information and we do not wish to duplicate information held, wherever possible. However, we would like to capture community assets – individuals and organisations who can respond in the event of a flood – as part of this process.

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 has a gully clearance programme in place.

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 this Strategy has been written against a backdrop of diminishing resources.
- 7.2 A partnership approach to flood risk management has been adopted. Each proposed flood risk scheme is accessed 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, compelling bids are submitted.

Table 5 - 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	Environment Agency	Medium to large capital FRM projects

Source of Funding	Description	Administered by:	Appropriate for:
	environmental or business benefits that will be delivered. There is additional emphasis on protecting households in deprived areas		
Local Levy	The Regional Flood and Coastal Committee can agree a levy to be paid 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 levy is agreed annually and monies can be carried over. However, any local schemes suggested which use the Levy need to ensure that it is in line with the regional priorities set out by the RFCC. The Local Levy can	Environment Agency	Smaller FRM projects or as a contribution to FDGiA projects.

Source of Funding	Description	Administered by:	Appropriate for:
	top up Flood Defence Grant in Aid funding.		
United Utilities	Investment is heavily regulated by Ofwat for contributions to area-wide projects which help to address sewer capacity issues.	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.
Council Capital Funding	Bury Council's Highway Services receives a small annual capital budget for work on the highways	Bury Council	Small to medium capital projects.

Source of Funding	Description	Administered by:	Appropriate for:
	drainage network. Work is prioritised according to safety, internal property flooding, social impact and the duration of flood incidents.		
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.

7.4 It is not technically, economically or environmentally possible to prevent all flooding. Therefore this strategy aims to 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 1, 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.

Partnership Funding

- 7.6 In the past, most flood risk management schemes have been built using DEFRA's 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.
- 7.7 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.
- 7.8 Work undertaken through this 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. Where it is not possible to fill funding gaps, it will be necessary to explore alternative solutions to reduce the costs of the schemes.
- 7.9 The first stage in developing any scheme is to consult with key partners, in order to explore 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.
- 7.10 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.
- 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

- 8.3 The Greater Manchester Combined Authority (GMCA) was established as a top tier administrative body for the local governance of Greater Manchester.
- 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.
- 8.5 The ten Greater Manchester Authorities work together strategically wherever possible, to ensure the new statutory duties associated with the FWM Act are implemented in the most effective manner.
- 8.6 Appropriate governance arrangements are 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.

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.

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 a 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.

GM Flood Risk Officers Group (FROG)

- 8.9 FROG provides a forum for joint working between the ten districts representatives of Greater Manchester LLFRA'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.

Bury Flood Working Group (FWG)

- 8.10 Bury's FWG meets quarterly and consists of representatives from Bury's planning and engineering services, the Environment Agency and United Utilities. This group will manage and review the strategy's action plan.

Voluntary Sector

- 8.11 Through the Strategy, the Council is hoping to engage more fully with the voluntary sector, as they are key partners in the emergency response following a flood event. This sector can not only contribute to on-going flood risk management but can also offer community assets (organisations and individuals) in the event of a flood.

Community Engagement

- 8.12 Following the 2015 floods, two multi-agency flood action groups have been established in Radcliffe and Ramsbottom⁶. These have been attended by members of the public, the National Flood Forum (Radcliffe and Redvales Flood Group) Bury Council, the Environment Agency, United Utilities and the Canal and River Trust. The aim of the groups is to provide clear information regarding flood risk to local communities allowing them to make informed decisions for managing their own flood risk. Public meetings have also been held in Summerseat where flooding issues have been discussed. The Council and the Environment Agency have both attended these meetings. The River Irwell Catchment Flood Group has recently been established and comprises the National Flood Forum and a number of flood groups along the River Irwell.
- 8.13 Several drop in sessions have been held in Radcliffe in relation to the Radcliffe and Redvales Flood Mitigation Scheme. These sessions have been jointly run by the Council and the Environment Agency.

⁶ Dates of these meetings can be found in Appendix 1 - Action Plan.

9 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 work will be undertaken through the Council's flood working group.
- 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 most up to date knowledge so partners can successfully manage flood risk both now and in the future.
- 9.3 Through this Strategy there are 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 signpost to, all relevant technical flood risk work undertaken.
- 9.4 The Strategy and Action Plan are 'living documents' and will be regularly reviewed to test effectiveness and updated as necessary.

Appendix 1 – Action Plan

The actions below provide an overview of proposed flood risk management activities within the Borough.

Completed actions are included for information.

1. Understanding flood risk

Action	Lead	Cost to Bury Council	Timescale	Priority for LLFA (1-3)	Comments
1.1 Model and map areas at risk of river, surface water and reservoir flooding. Publish resultant maps on EA website	Environment Agency	nil	Mapping updated quarterly	1	Update overdue. EA informed.
1.2 Produce a Strategic Flood Risk Assessment for Greater Manchester	GMCA/Flood & Water Management Programme Manager	Funded by GMCA	Jun 2018	2	Consultants engaged

Action	Lead	Cost to Bury Council	Timescale	Priority for LLFA (1-3)	Comments
1.3 Produce a Strategic Flood Risk Assessment for Bury	Bury Council/ Head of Strategic Planning	£30k (est)	Dec 2018	1	
1.4 Produce a Preliminary Flood Risk Assessment for Bury	Bury Council/ Head of Strategic Planning	N/A	Complete Review due 2023	N/A	available on-line at http://www.bury.gov.uk/index.aspx?articleid=11124
1.5 Produce a flood risk asset register for Bury	Bury Council/ Head of Engineering	£60k (est)	Dec 2018	2	It is proposed to procure a consultant to complete the register of structures

Action	Lead	Cost to Bury Council	Timescale	Priority for LLFA (1-3)	Comments
1.6 Undertake Integrated Drainage Area Study to understand risk from sewer flooding.	United Utilities	nil	June 2018	1	Not a public document but will be used to prioritise investment by UU and identify joint actions.
1.7 Investigate major incidents, i.e. Boxing Day 2015	Environment Agency	nil	Complete	1	Report available on-line at: www.greatermanchester-ca.gov.uk/downloads/file/199/boxing_day_flood_report_2015
1.8 Investigate local incidents: Investigations seeking funding: central Ramsbottom surface water	Bury Council/ Head of Engineering	£600k (est)	Decision awaited	1	Funding application submitted for area including Bridge St, Carr Street, Crow Lane, Moor Road

Action	Lead	Cost to Bury Council	Timescale	Priority for LLFA (1-3)	Comments
1.9 Investigate local incidents: Sunny Bower St, Tottington, Agecroft Rd West, Prestwich	Bury Council/ Head of Engineering	£10k (est)	March 2019	3	Explore funding opportunities
1.10 Investigate local incidents: Action by others: Kenilworth Ave, Whitefield	Highways England	nil	Outcome awaited	3	

2. Managing flood risk

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
2.1 Produce a Flood Risk Management Plan for the North West Region	Environment Agency	nil	Complete		2015-21 Plan available at : https://www.gov.uk/government/publications/north-west-river-basin-district-flood-risk-management-plan
2.2 Produce a Local Flood Risk Management Strategy for Bury	Bury Council/ Head of Strategic Planning	Staff only for document	Complete	1	This document
2.3 Implement Radcliffe and Redvales flood defence scheme	Environment Agency	Up to £2m plus	Planning application Nov 2018	1	The scheme aims to remove over 800

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
		staff time	Works 2019-21		properties from Flood Zone 3
2.4 Identify sites for Natural Flood Management Schemes	GMCA/ Bury Council Head of Strategic Planning	Not yet known	Jun 2018	2	Consultants commissioned by GMCA
2.5 Maintain flood assets, ie highway drains, gulleys, culverts	Bury Council	Approx £235k pa for on-going maintenance, £120k pa for gully wagon	Annually	1	The target is annual inspection and cleaning of all assets. 'Hotspots' receive priority attention and reactive work also occurs.

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
		operation, £100k pa for 2 nd gully wagon.			
2.6 Remove silt from Gypsy Brook culvert at Fern Grove	Highways England	nil	Dec 2018	2	Thought to have caused ponding in M66 subway.
2.7 Upgrade drainage infrastructure at Turton Road, Bradshaw Road, Hollymount Lane, Moorside Road, Bolton Road/Ainsworth Road, Longsight Road, Whitelow Brow	Bury Council/ Head of Engineering	£500k (est)	Mar 2019	3	Feasibility of funding application to be explored with EA

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
2.8 Implement sewer upgrades (locations being identified through current Integrated Drainage Area Study)	United Utilities	nil	2018-21?	1	

3. Helping residents understand and manage flood risk

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
3.1 Provide printed, on-line and face-to-face advice on resilience and event response	Environment Agency	nil	Review quarterly	1	See https://www.gov.uk/topic/environmental-management/flooding-coastal-change

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
3.2 Provide clear information and advice on Council website	Bury Council/ Head of Strategic Planning	Staff time	Review quarterly	1	See www.bury.gov.uk/flood risk
3.3 Hold advice sessions and briefings for residents	Environment Agency	Staff time	Events approx. 3 a year	1	Advice sessions held 11.2.16 and 11.6.16. Drop-in sessions held on 17.1.17, 19.1.17, 25.4.17, 27.4.17, 30.8.17 and 15.3.18

4. New development and flood risk

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
4.1 Implement government guidance on development in flood risk areas	Bury Council/ Head of Strategic Planning	Staff time	NPPF review expected Autumn 2018	1	The main guidance is NPPF paras 93-104 and the PPG on Flood Risk
4.2 Ensure Greater Manchester Spatial Framework includes policies on flood risk.	GMCA/ Planning Strategy Manager	Staff time	July 2018	1	Revised draft scheduled to be published in Summer 2018
4.3 Ensure Bury Local Plan includes policies on flood risk	Bury Council/ Head of Strategic Planning	Staff time	August 2018	1	Draft due for publication in late summer 2018

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
4.4 Implement national and local policies when determining planning applications.	Bury Council/ Head of Strategic Planning	Staff time	Relevant planning applications are submitted approx. 20-30 per year	1	

5. Flood event preparation, warning, response and recovery

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
5.1 Provide warning in advance of flooding	Environment Agency	nil	Complete	1	Many residents already receive text or phone

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
					warnings. Others can register to receive them at https://www.gov.uk/sign-up-for-flood-warnings
5.2 Provide advice on how to respond to events	Environment Agency/ GM Resilience Forum/ Bury Council	nil	Complete	1	See https://www.gov.uk/topic/environmental-management/flooding-coastal-change and http://www.gmemergencyplanning.org.uk/info/26/flooding
5.3 Ensure that emergency responders have a plan and implement it	Bury Council/ Forward	Staff time	Complete	1	Every emergency is unique and responses will depend on specific

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
	Incident Officer				circumstances. The Forward Incident Officer will direct the Tactical Officers.
5.4 Investigate feasibility of use of temporary flood barriers	Environment Agency	nil	Dec 2018	1	A number of sites along the Irwell have been assessed and Close Park is being looked at in detail.
5.5 Implement resilience grant scheme	Bury Council/ Head of Building Control	Staff time	Complete	1	Scheme now closed. 432 eligible applications (for residential and commercial properties) were approved.

6. Balancing environmental, social and economic benefits

<i>Action</i>	<i>Lead</i>	<i>Cost to Bury Council</i>	<i>Timescale</i>	<i>Priority for LLFA (1-3)</i>	<i>Comments</i>
6.1 Ensure consistency with national guidance	Bury Council/ Head of Strategic Planning	Staff time	See Section 4		
6.2 Ensure consistency with regional flood management plan	Bury Council/ Head of Strategic Planning	Staff time			Regional Plan at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/500468/North_West_RBD_Part_1_river_basin_management_plan.pdf

Appendix 2 – Role of Bury Council in Flood Risk Management

Bury Council – Lead Local Flood Authority

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

The functions that the Council, (as LLFA) can exercise under the FWMA 2010 and the FRR (2009) are:

- Production of a Local Flood Risk Management Strategy;
- Investigation of flood incidents;
- Creation and maintenance of a flood asset register;
- Designation of flood features;
- Carrying out of flood risk management works;
- Powers to request information;
- Preparation of a Preliminary Flood Risk Assessment;
- Identification of areas of significant flood risk;
- Production of a Flood Risk Management Plan

Bury Council – Highway Authority

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

Bury Council currently operates a cyclic gully cleansing regime where all gullies within the adopted highway network are checked annually. In addition to this, gullies are attended to on an ad-hoc basis that have

either been reported or identified through routine inspections as being blocked.

Bury Council – Emergency Planning

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 within the Borough. The Emergency Planning Team works closely with the Greater Manchester (GM) Civil Contingencies Team and partner organisation, which includes the emergency services, Environment Agency and GM districts.

A Greater Manchester Multi Agency Flood Risk Plan has been prepared and Bury Council has a multi-agency flood plan, however this plan contains a large amount of sensitive information and is therefore not available to view publically.

Bury Council – Planning Authority

The Council, as Planning Authority, must prepare, publish and use a Local Plan 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.

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.

Appendix 3 – Glossary

Acronym	Term	Description
ABI	Association of British Insurers	This is supported by the company members of the insurance industry to provide general advice. It promotes best practice, transparency and standards within the industry.
	Aquifer	Layers of permeable rock which provide water storage important for supporting water supply and/or river flows.
AStGWF	Areas Susceptible to Groundwater Flooding	Mapping produced by the Environment Agency and others to show areas with a potential for groundwater emergence.
AStSWF	Areas Susceptible to Surface Water Flooding	Mapping produced by the Environment Agency to provide broad areas where surface water flooding was likely to cause problems in four bands from Very Low to High Risk. The methodology assumed that sewer and drainage systems were near capacity and did not account for infiltration or the impacts of the locations of buildings.
	Base Flow	Water below the ground surface and movement of the water under the Ground Water Level, which tend to feed rivers and watercourses.
	Catchment	The area naturally draining to a stream, river, reservoir or surface water system.
CFMP	Catchment Flood	These plans assess flood risk from all sources over a larger river catchment area and establish flood risk management

	Management Plan	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 that affect temperature, wind and rainfall patterns.
CSO	Combined Sewer Overflow	A device which relieves overloaded sewers by allowing them to spill to river and other watercourses.
CDA	Critical Drainage Areas	These are areas with critical drainage problems defined by the EA, based on catchment data and historic records.
	Culvert	A structure that encloses a watercourse
DEFRA	Department for Environment, Food and Rural Affairs	Central Government department responsible for policy and regulations on the environment, food and rural affairs.
DG5	Director General 5 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 which has a strategic overview role for flood and coastal erosion risk management.
	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 areas.
FCERM	Flood and Costal Erosion Risk Management	A term that has replaced flood defence in recognition that we cannot defend against all flooding. Measures include strategies, policies and schemes designed to manage flood and coastal erosion risk at a national, regional or local scale. Also referred to as FRM – Flood Risk Management.
FDGiA or GiA	Flood Defence Grant in Aid	Part of the Environment Agency’s overall capital allocation to invest in flood risk management schemes for which bids are made and assessed.
	Flood	The temporary inundation by water of property or land not normally covered with water.
FMfSW	Flood Map for Surface Water	Mapping hosted by the Environment Agency to provide broad areas where surface water is likely to cause problems based on four bands of 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.
FRAr	Flood Risk Area	An area where there is a significant risk of flooding from local flood sources including surface water, groundwater and ordinary watercourses.
FRAs	Flood Risk Assessment	This is normally a requirement to be carried out by a developer as part of the planning application process. It is intended to assess what the risks are, whether there

		will be an increase in risk and how risk will be managed.
FRR	Flood Risk Regulations, 2009	Regulations for England and Wales which transposes and implements the European Floods Directive. It is based on a six year cycle of assessment and planning.
	Flood Working Group	This group is attended by officers from the Environment Agency, United Utilities, GMCA and Bury Council who have specific local knowledge about flooding incidents. The meetings are used to identify local flood hotspots and discuss potential solutions. They also enable partners to identify larger schemes which can be put forward into the bidding process for funding opportunities.
FWMA	Flood and Water Management Act, 2010	Regulations for England which sets out the roles and responsibilities for flood and coastal erosion risk management as a response to the Pitt review of the 2007 floods.
FZ1	Flood Zone 1	River and Coastal Low flood risk designated by EA. Assessed to have less than a 1 in 1000 year probability.
FZ2	Flood Zone 2	River and Coastal Medium flood risk designated by EA. Assessed to have between 1 in 100 and 1 in 1000 year probability of fluvial flooding
FZ3a	Flood Zone 3a	River and Coastal High flood risk designated by EA. Assessed to have greater than 1 in 100 year probability of fluvial flooding.

FZ3b	Flood Zone 3b	River and Coastal Flood Plain as determined by EA.
	Functional Floodplain	Areas adjacent to river channels that are needed during floods to allow water to flow or to be stored.
	Fluvial Flooding	Flooding where water in a river exceeds the capacity of the river and its banks and overflows into surrounding areas.
	Groundwater Flooding	Flooding where water stored underground or in the Base Flow rises above the ground or surface level in areas that have no channels or drainage paths.
GIS	Geographic Information System	A system designed to capture, store, manipulate, analyse, manage and present all types of spatial or geographical data.
	Highway Authority	There are two tiers. This can be the County, District or Unitary authority for most minor roads. Some Local Authorities operate as agencies for others typically within County areas.
HE	Highways England	A non-departmental public body sponsored by the Department for Transport (DfT), which is responsible for operating, maintaining and improving England's motorways and major A roads.
	Indicative Flood Risk Area	Areas identified by the EA as part of a PFRA in a development where more than 30,000 people are at risk of flooding (in clusters of 1km squares where at least 200 are potentially at risk of significant surface water flooding).

	Infiltration	A technique used for sustainable drainage in which water is allowed to return to the ground and a term that ranks the permeability of the sub-surface to allow this to happen.
	Land Drainage Act 1991	This is primary legislation in England and Wales that sets out the duties and responsibilities of how watercourses and drainage is maintained. It sets out the role of the Riparian owners and powers of local authorities.
LLFA	Lead Local Flood Authority	A County Council, Borough Council or Unitary Authority as designated under the F&WM Act that had duties under that Act responsible for local flood risk management. It is not responsible or liable for flooding but has powers to act.
	Local Flood Risk	Flooding from sources other than Main Rivers and the sea, which principally concerns surface runoff, groundwater and Ordinary Watercourses. Bury Council have responsibilities under the Flood and Water Management Act to manage flooding from these sources.
LFRMS	Local Flood Risk Management Strategy	The local strategy for the LLFA to identify the various flood risk management functions of different RMAs. It is to set out how it will assess local flood risk and measures for managing this and produces objectives and states how they will be implemented.
	Local Levy	Annual Levy collected from Local Authorities' by the Regional Flood and Coastal Committee to fund flood and

		coastal erosion risk management within that region.
LPA	Local Planning Authority	Bury Council is responsible for determining local planning applications and must consult with the EA when making planning decisions.
	Main River	This could be any watercourse, river, brook or stream that is deemed significant for catchment management to be managed by the EA and designated by the EA .
NFF	National Flood Forum	This is an independent charity set up to assist private individuals affected by flooding and guiding them on legislation and providing information. It works with communities and flood groups and supports projects.
NFRMS	National Flood Risk Management Strategy	The strategy developed by the EA for England to identify the various flood risk management functions of different RMAs and organisations. It sets out objectives and measures for managing flood risk, the costs and benefits of measures and how they can be implemented. It assesses impacts of climate change and contributions to wider environmental objectives.
NPPF	National Planning Policy Framework	The national planning policy framework.
	Ordinary Watercourse	This could be any watercourse, river, brook or stream and drainage path that is not classed by the EA as Main River or by the Water Companies as public sewer and as

		such is managed but not owned by the LLFA.
PFRA	Preliminary Flood Risk Assessment	An assessment under the FRR which evaluates significant historic and future flood risk within an area, identifying significant flood risk areas and providing information on flooding for reporting to the European Commission.
	Pluvial	Relating to rainfall and surface water run-off which often contributes to surface water flooding. Contrasts with Fluvial.
RFCC	Regional and Coastal Committee	Committees established by the EA consisting of members representing LLFAs and independent members who ensure that their plans for identifying and managing flood risk across catchments, promote investment in flood and coastal erosion risk management and provide a link between RMSs and other relevant bodies.
	Resilience Measures	Measures designed to reduce the impact of water that enters property and businesses; could include measures such as raising electrical appliances.
	Resistance Measures	Measures designed to keep flood water out of properties and businesses; could include flood guards for examples
	Riparian Owners	This is a key principle in drainage law in tha the landowner has duties and responsibilities for the management of watercourses in their land or if adjacent to their land.

RMA	Risk Management Authority	Defined under the F&WM Act as all bodies with vested interests in flood risk and management. They tend to be the LLFAs, the EA, water companies and Highway 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	Rainwater collects on the surface of the ground due to the soil being saturated or rests on hard standing areas where drainage and watercourses in the area are at full capacity or are not accessible due to land levels or restrictions. Can be referred to as Pluvial Flooding.
SWMP	Surface Water Management Plan	This assesses surface water flooding within a given area and outlines the preferred approach to managing that risk. It is undertaken in consultation with key partners who are responsible for flood risk management and drainage for that area. It is intended to influence future resource, emergency and land use planning and identifying areas where flood alleviation works maybe required.
SuDS	Sustainable Drainage Systems	Methods for draining and storing surface water that is designed to mimic natural processes and to provide and support multiple environmental benefits and improved amenity as well as helping mitigate flood risk potentially created by development or re-development.