October 2013

Rochdale Borough's Strategy for Flood Risk Management 2013-2023 (Consultation Draft)

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Foreword

We live in a changing climate where risk from flooding is one of the environmental challenges we need to prepare for as residents, neighbourhoods and businesses. Flooding can change places and lives and disrupt our economy and its effects can be hard to recover from. We can't remove all risk from flooding but we can take steps to reduce it significantly and be better prepared to deal with flooding and its effects such as from our rivers and surface water.

Working with our partners such as the Environment Agency, Rochdale Council as a Lead Local Flood Authority will work to make people and businesses better informed about flood risk affecting them and how to help reduce it. We will also seek to help people and businesses to be better prepared to deal with flooding when it happens. In addressing flood risk in our borough we will work closely with our partners to improve our drainage systems and flood defences to reduce risk in the borough now and for the future and ensure that development is well located and contributes to managing flood risk better. Our strategy seeks to ensure that Rochdale borough, its people and its economy is well prepared and as resilient to the range of flood risks affecting the borough as possible.

Councillor Peter Williams – Deputy Leader and Cabinet Member for Economic Development and Customer Services

Executive Summary

Flooding can change places and lives overnight. It is important that Rochdale borough, its people and economy is well prepared and is as resilient to the range of flood risks affecting the borough as possible. The Flood and Water Management Act 2010 sets out a range of roles and responsibilities for Rochdale Council as a Lead Local Flood Authority (LLFA) which include preparing a district flood risk management strategy setting out local flood risks and how the LLFA proposes to address them. As a LLFA, Rochdale Council has three types of flood risk for which it has specific responsibility i.e. flooding from surface water, Ordinary watercourses and groundwater. The Council will work with other flood risk management authorities including the Environment Agency and United Utilities and with other partners and stakeholders including developers, local businesses and residents, neighbouring local authorities and emergency services in delivering its duties and powers.

Flood risk is a dynamic issue and future influences on flood risk in the borough include:

- More extreme and intense rainfall events through predicted climate change impacts;
- Investment in flood risk management infrastructure;
- The location of new development and change in the urban environment;
- The location and quality of green infrastructure including trees and peat moorland;
- Agricultural practices and riparian ownership; and
- Greater awareness and acceptance of risk and preparedness for flood events.

The Council's objectives for flood risk management are to:

- Understand our flood risks better;
- Communicate those risks more effectively to those who are at risk from flooding and with those who can help manage and respond to flood risk and its consequences;
- Help people, communities and businesses to take greater ownership of flood risk where they can manage and where possible reduce their risk and be better prepared to respond to and recover from flood events;
- Work as a LLFA with other flood risk management agencies to manage flood risk better, reduce the impact of flooding and wherever possible reduce or remove the risk of flooding through investing in our drainage infrastructure and its future management;

- Ensure that development and land management do not increase flood risks and contribute to sustainable drainage and reduction of flood risk; and
- Ensure that how we manage and reduce flood risk helps our local communities, economy and environment to be more resilient to climate change impacts and helps to deliver a clean and safe water environment, rich in wildlife and opportunities for its enjoyment.

Guiding principles for Rochdale Council's flood risk management approach are:

- Consistency with national strategy and other local plans and strategies;
- Working together with people and organisations in an inclusive, well co-ordinated approach to addressing and managing flood risk;
- A whole catchment approach ensuring risk is not transferred or increased elsewhere and that effective measures can be delivered;
- Maximising economic, environmental and social benefits;
- Delivering sustainable solutions which meet the needs of all communities at risk of flooding including the most vulnerable members of our communities;
- Flood risk management should be proportionate, well targeted and represent good value for money; and
- Encouraging and securing a wide range of investment in flood risk management from risk management authorities and beneficiaries.

The Council's strategy will be delivered by a specific delivery plan with an annually updated work programme including:

- Studies and investigations to ensure targeting of activities and proposals are well planned and based on good evidence;
- On-going maintenance activities for flood risk management assets, land and water bodies and highways;
- Partnership projects with other Risk Management Authorities including the Environment Agency and United Utilities to ensure more effective and integrated drainage and flood resilience strategies can be delivered for all sources of flood risk;
- Development led sustainable drainage systems and flood defence measures;
- Local authority asset improvement programmes; and
- Local community projects including environmental improvements, property level flood resilience, awareness and preparedness activities.

A series of strategic projects have been identified for development where they will help address the borough's most significant flood risks and enable opportunities for strategic partnership working and investment in flood risk management to be maximised. These are:

- The River Roch – Littleborough to Rochdale Town Centre;
- Central Heywood; and
- Rochdale Flood Resilience Community Pathfinder (central Heywood and East Central Rochdale).

The strategy will be subject to monitoring and evaluation of progress against agreed indicators, targets and objectives.

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Acronyms

AGMA	Association of Greater Manchester Authorities
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
FMP	Flood Risk Management Plan
GM CCRU	Greater Manchester Civil Contingencies and Resilience Unit
LLFA	Lead Local Flood Authority
NPPF	National Planning Policy Framework
OFWAT	The Water Services Regulation Authority
RFCC	Regional Flood and Coastal Committee
SAB	Sustainable Drainage Approval Body
SAC	Special Area of Conservation
SPA	Special Protection Area
SUDS	Sustainable Drainage Systems
WFD	Water Framework Directive

1 Why publish a strategy for flood risk management?

1.1 Flooding can change places and lives overnight with often dramatic and sometimes long term disruption to people's lives, properties and communities. Local businesses, jobs and employment can be affected, property can be blighted and there can be a significant risk to health and lives. It is therefore absolutely essential that we understand and take ownership of our flood risks as residents, communities, businesses and as organisations with a responsibility for helping to manage and reduce flood risk and its impacts both today and for the future.

1.2 Flood risk can come from many sources, often in combination. Many of these can be reduced or even eliminated quickly and relatively inexpensively through better awareness of what contributes to flood risk and by often small changes to how we maintain our environment, properties and go about our daily lives. There are also more complex and long term causes for why flooding occurs in Rochdale district, sometimes located outside our borough requiring substantial investment in our drainage infrastructure and careful consideration of how we develop and manage land and buildings today and for the future.

1.3 It is important to understand and accept that all flood risk cannot be removed from our communities. Our changing climate with unpredictable and extreme weather combining with a range of local factors will always have the potential to create a flood event whether minor or more severe. Flood events can also occur very quickly and at any time of year such as 'flash' flooding after extreme heavy rainfall which for example may overload drainage systems or fall on hard dry ground where it cannot soak away. The strategy therefore seeks to ensure that Rochdale borough, its people and its economy is well prepared and is as resilient to the range of flood risks potentially affecting the borough as possible.

2 Our objectives for flood risk management in Rochdale borough

2.1 Our objectives for flood risk management are put simply to:

- Understand our flood risks better;
- Communicate those risks more effectively to those who are at risk from flooding and with those who can help manage and respond to flood risk and its consequences;
- Help people, communities and businesses to take greater ownership of flood risk where they can manage and where possible reduce their risk and be better prepared to respond to and recover from flood events;
- Work as a Lead Local Flood Authority with other flood risk management agencies to manage flood risk better, reduce the impact of flooding and wherever possible reduce or remove the risk of flooding through investing in our drainage infrastructure and its future management;
- Ensure that development and land management do not increase flood risks and contribute to sustainable drainage and reduction of flood risk; and
- Ensure that how we manage and reduce flood risk helps our local communities, economy and environment to be more resilient to climate change impacts and helps to deliver a clean and safe water environment, rich in wildlife and opportunities for its enjoyment.

3 Who should read this strategy?

3.1 Flood risk affects us all and as such this strategy is aimed at a wide range of interests. These include:

- **Local businesses and residents** to increase awareness of flood risk in the borough, how the Lead Local Flood Authority (LLFA) proposes to manage it, including in partnership with other Risk Management Authorities and to provide an opportunity to play a more active part in how flood risk is managed;
- **Risk Management Authorities and emergency services** to provide clarity about the LLFA priorities and identify where partnership and co-operation can and should be strengthened between organisations and across district boundaries;
- **Policy and funding bodies** including Government, the Regional Flood and Coastal Committee and the Environment Agency to provide clear evidence of the LLFA's commitment and approach to delivering its responsibilities and how the LLFA proposes to address local priorities including through grant in aid and partnership funded works; and
- **Developers and land managers** to ensure that flood risk is fully incorporated into their operations and proposals for the future use and development of land.

4 Legislation and strategic plans guiding flood risk management

4.1 After the widespread flooding experienced in 2007, Sir Michael Pitt was appointed to carry out an independent review of flood risk management policy and practice. The review, published in 2008 called for urgent and fundamental changes to how flood risk was managed and this included an enhanced role for local authorities in terms of co-ordinating flood risk management in their areas.

4.2 Flood risk management is the responsibility of many different organisations who incorporate this into their operation and future investments in infrastructure and how it is maintained. Figure 1 below sets out some of the key organisations involved in flood risk management and their roles and responsibilities in the context of Rochdale borough.

Figure 1 Flood risk management local roles and responsibilities

Flooding type	Description	Party responsible for managing the risk
Surface water flooding	Flooding from intense downpours of rain that result in large volumes of run-off from land or when drainage systems cannot cope with the amount of rainfall.	Rochdale Borough Council
Groundwater flooding	Occurs when the ground water table rises causing flooding.	Rochdale Borough Council
Highway flooding	Occurs when the highway drainage system or the sewers they discharge into cannot cope with the amount of rainfall entering the system, or when gully's become blocked.	Rochdale Borough Council / Highways Agency
Ordinary watercourses	Flooding from intense downpours of rain that result in large volumes of run-off from land causes streams and culverts not marked on the main river map to overflow.	Rochdale Borough Council
Main river	Flooding from rivers or streams on the main river map.	Environment Agency

Flooding type	Description	Party responsible for managing the risk
Reservoirs	Flooding from reservoirs falling under the provisions of the Reservoirs Act 1975	Environment Agency
Sewer flooding	Occurs when the amount of water entering the sewer system exceeds its design capacity or when the system becomes blocked.	United Utilities
Water supply flooding	Occurs when water mains burst.	United Utilities
Canals	Breaches of embankments supporting canals can result in flooding.	Canal and River Trust
Railways	Flooding from intense downpours of rain that result in large volumes of run-off from land on the railway or when drainage systems on the rail network cannot cope with the amount of rainfall.	Network Rail

The Flood and Water Management Act 2010

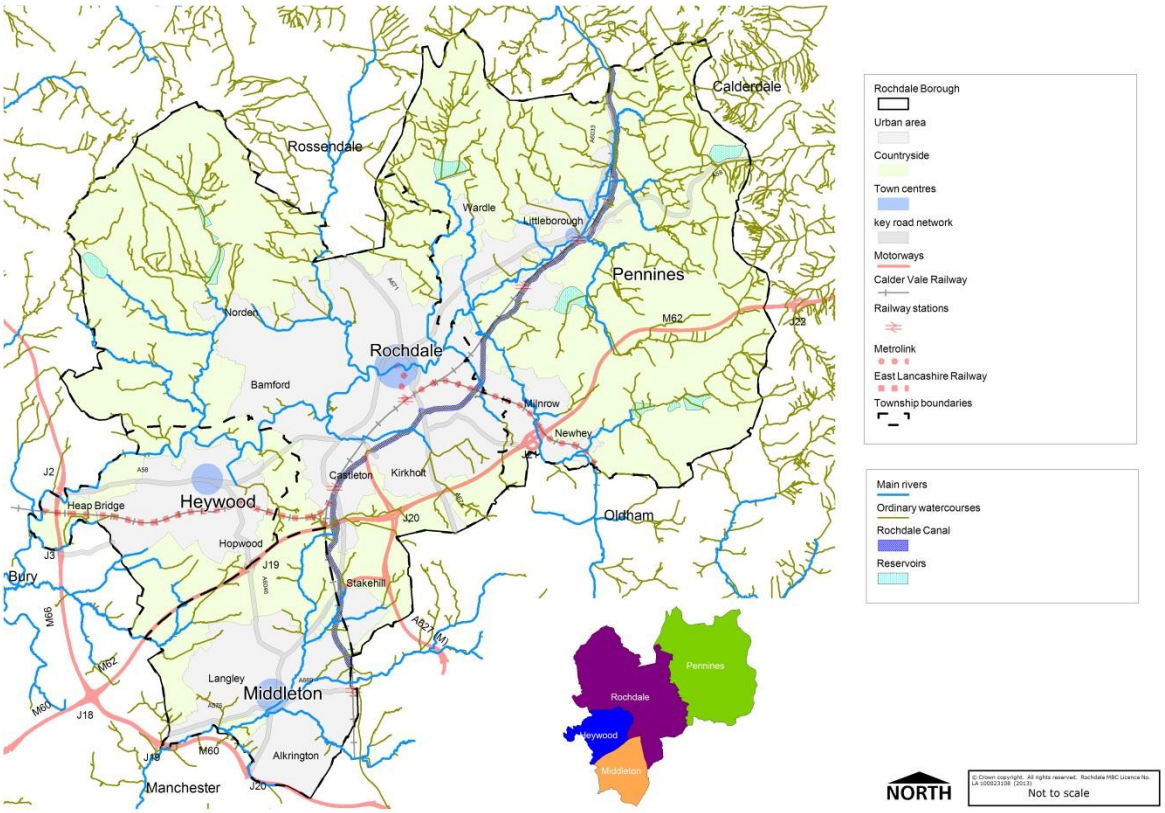
4.3 The Act, published in 2010 includes many of the recommendations of the Pitt Review and establishes a number of roles and responsibilities with associated duties and powers for local authorities as Lead Local Flood Authorities (LLFA). The main responsibilities are:

- providing the local lead and co-ordination for flood risk management;
- to act consistently with national flood risk management strategy;
- preparing a register of structures and features of significance for flood defence and management;
- where appropriate designating such assets where they are owned by a third party;
- consenting and enforcing as required, works affecting flood risk management on Ordinary watercourses;
- investigating flood events and their causes and publishing a report where that event is considered to be significant;
- Establishing a Sustainable Drainage Systems (SuDS) Approval Body and managing and maintaining adopted SuDS systems in line with national guidelines; and
- Preparing a district flood risk management strategy setting out local flood risks and how the LLFA proposes to address them.

4.4 The LLFA has specific responsibility for three types of flooding affecting Rochdale borough which are from:

- **Surface water** – Intense rainfall over a short period of time is often unable to get into drainage systems and watercourses quickly enough. As a result water will flow above ground and gather in low spots which can flood properties, roads and other local infrastructure often rising quickly and dispersing over a period of hours. Managing and minimising surface water flood risk requires close working within the local authority e.g. with highway authority officers but also external agencies including United Utilities as the sewerage undertaker, the Highways Agency and the Environment Agency;
- **Ordinary Watercourses** – The Environment Agency is responsible for fluvial flood risk management for the "main rivers" located in the borough which are shown on their Main Rivers map available through their website. Ordinary watercourses are typically small streams and brooks which flow into these larger rivers. The location of the borough's principal main rivers and ordinary watercourses are illustrated in Figure 2; and
- **Groundwater** – Groundwater flooding occurs when rainfall has caused the natural water table in the ground to rise. This is a less common form of flooding in Rochdale borough but as Groundwater risk is perhaps less understood than other forms, the LLFA will work with other risk management agencies to improve available data and identify where risk is more significant.

Figure 2 Drainage network overview for Rochdale borough



4.5 Whilst flooding is often clearly related to a specific source it can in many cases be a complex interaction of types of flood risk for example when a river is in flood, surface water may not be able to find a watercourse to drain into and hence may worsen and extend the flood and the area affected.

4.6 The roles and responsibilities for flood risk are considered further as required throughout this strategy. As flood risk and how it is best managed often involves addressing a range of issues it is important that Risk Management Agencies work together to develop more joined up solutions which may involve partnership working and more integrated infrastructure and investment plans.

4.7 Other flood risk management requirements are placed upon LLFA's in the **Flood Risk Regulations 2009** which transposes the EU Flood Directive into law for England and Wales. The Regulations require a Preliminary Flood Risk Assessment to be undertaken as a high level screening exercise to indicate whether flood risk within the LLFA boundary meets specific nationally defined criteria and affects 30,000 homes or more. This screening was carried out across Greater Manchester rather than within one district due to the interaction between centres of population and areas of flood risk in the core of the conurbation and used the best available national and local data. A Greater Manchester Flood Risk Area has been identified including a part of Rochdale

borough. An assessment of risk and hazard for the Greater Manchester Flood Risk Area with a high level flood risk action plan will be completed by 2015 working with the Environment Agency. This plan will draw on local strategies and existing data about flood risk and identify strategic flooding issues for Greater Manchester requiring co-operation across districts and agencies.

The Water Framework Directive

4.8 The Water Framework Directive (WFD) came into force in December 2000 and became a part of UK law in December 2003. It has several key objectives for protecting water sources, improving quality and achieving sustainable use and management of water and applies to all surface and ground water bodies. Objectives include preventing water quality deterioration, restoring surface waters to good ecological and chemical status, reducing and controlling pollution, and balancing abstraction from and recharge of water bodies and sources. The Directive seeks to contribute to mitigating the effects of floods and droughts and flood risk management is therefore one of the primary ways in which the UK can deliver multiple objectives of the Directive.

4.9 Activities undertaken by the LLFA and others which could affect WFD requirements may require a specific assessment to ensure compliance and that the water environment is not damaged or adversely affected. This can include works for maintenance of water bodies and related land and infrastructure and also new capital works such as those to manage flood risk.

4.10 The **North West River Basin Management Plan (2009)** sets out the strategy for meeting WFD in the North West. Ensuring that Rochdale borough's approach to flood risk management complies with and helps deliver the objectives of the WFD is one of the core objectives of this strategy and will include ensuring that:

- Rochdale Council complies with the duty to protect and enhance the water environment;
- Plans and strategies are consistent with the North West River Basin Management Plan;
- Flood risk management works will protect and wherever possible enhance naturalisation of water bodies, biodiversity, access to and enjoyment of water; and
- Opportunities for future improvement to the water environment and water bodies are protected and where possible enhanced.

Conserving the natural environment

4.11 In addition to the requirements of the WFD for protecting and enhancing the water environment, the requirements of the **EU Habitats Directive** must also be given appropriate consideration where works could affect a 'Natura 2000' site i.e. sites throughout the European Union which are statutorily protected for their habitats which may be both rare and declining. These sites include Special Areas of Conservation (SAC) and also Special Protection Areas (SPA) which are designated under the EU Birds Directive for their importance for bird species and communities. Such sites can be sensitive to impacts such as the effect of changes to drainage patterns, potential for ground or water pollution and activities such as dredging. As such it is important to ensure that proposals which could impact on such sites are identified and appropriately assessed with specific approval to proceed sought where required to ensure they can be carried out, avoiding harm to species and habitats of recognised importance and ensuring appropriate mitigation takes place.

4.12 Rochdale borough includes a long section of the Rochdale Canal SAC and a part of the South Pennine Moors SAC/SPA which is located in the South Pennines watershed and includes water gathering catchments and a number of reservoirs and watercourses draining into water bodies in Rochdale district and beyond. The LLFA working with other risk management authorities as required will ensure that proposals for flood risk management including for flood defences and water storage are subject to robust scoping and that Natural England, the body with responsibility for ensuring the protection and good management of Natura 2000 sites are properly consulted and engaged to determine where further Habitat Regulations Assessment and associated approvals may be required.

The National Flood and Coastal Erosion Risk Management Strategy for England 2011

4.13 The National strategy, published by Defra and the Environment Agency in 2011 aims to ensure that Risk Management Authorities i.e. those organisations with a responsibility for managing specific types of flood risk or assets which can affect flood risk management, deliver effective flood risk management. This includes understanding each of their roles and responsibilities, use of up to date data sources to inform their activities and that they work together to co-ordinate and deliver their activities more effectively where needed including flood warning and response, investing in infrastructure to improve standards of flood protection and avoiding inappropriate development and use of land. The strategy further stresses the need to support communities and local decision making to raise awareness and help communities to be better prepared to manage and reduce flood risk and respond to flooding and its impacts including

in communities at significant risk but less able to afford the cost of flood risk protection and recovery. Actions to manage or reduce flood risk should be sustainable with multiple benefits for people, the economy and environment. These objectives form a part of the core objectives for Rochdale borough's strategy.

The National Planning Policy Framework

4.14 The National Planning Policy Framework (NPPF) March 2010 sets out the Government's planning policies for England and how they are expected to be applied. The NPPF provides the framework for local and neighbourhood plans and seeks to deliver development which is sustainable in economic, social and environmental terms. 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 flood risk. 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. The NPPF requires that local plans should be informed by Strategic Flood Risk Assessments and include the advice of the Environment Agency, the LLFA and other risk management authorities in developing planning policies. Local Plans should apply a Sequential Test when needed to guide the location of development to help ensure it is safe and that if development is unavoidable it meets an 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.

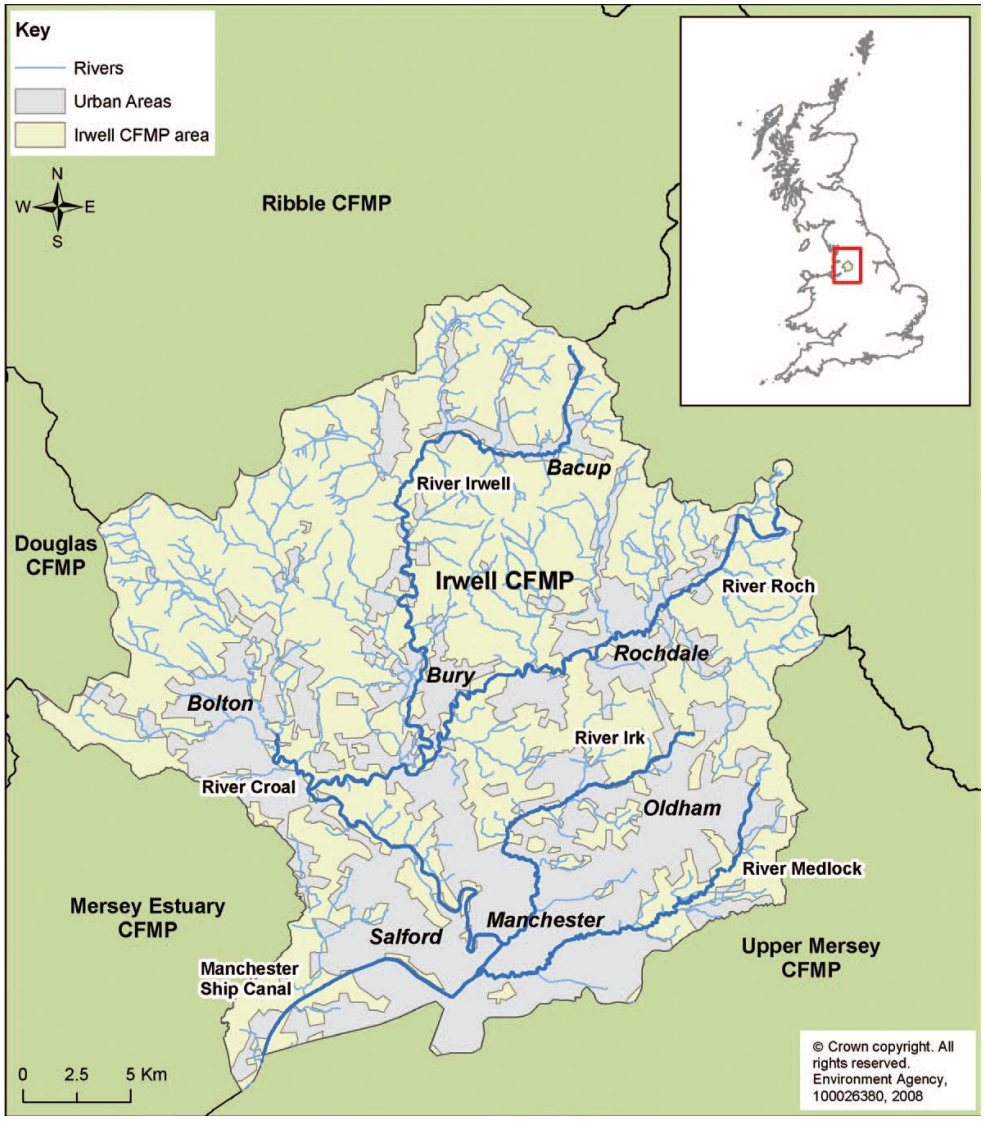
5 Flood risk management in Rochdale borough

5.1 Rochdale borough forms a part of the wider River Irwell catchment which drains into the River Mersey through Greater Manchester. The main settlements of Rochdale borough including Rochdale, Heywood, Littleborough, Middleton and Milnrow grew through the industrial revolution with much of that growth centred around water power and transport in the main river valleys such as the Roch, Beal, Irk and Spodden where town centres, mills and housing were built often at a high density. The South Pennine uplands to the north and east of the borough provide water gathering grounds for industry, agriculture and drinking water and feed the Rochdale Canal, a historic transport route and also an extensive reservoir network in the uplands and their fringes. These steep sided upland areas which include significant areas of peat also drain into the river valleys where most development is located in the borough. The basis of the drainage infrastructure we have today was shaped and established in the nineteenth century including our sewers and use of the rivers and other waterbodies such as reservoirs, canals, ponds and lodges to collect and manage rain and waste water as required. As our towns and populations have grown, the pressures on drainage infrastructure both 'natural' and engineered have grown significantly through increased development and hard surfacing in urban areas and whilst there has been much investment in upgrading and extending drainage infrastructure there is a legacy of ageing infrastructure which cannot cope with the requirements of today and poses a risk to communities through flooding.

Irwell Catchment Flood Risk Management Plan (FMP) 2009

5.2 The Irwell Catchment FMP sets out the scale and extent of flooding both current and anticipated in the future. It includes policies for managing flood risk to help inform planning and decision making regionally and locally to achieve a more sustainable approach to managing flood risk. The FMP includes policies for a series of sub-catchment areas including for maintenance, flood resilience, development and further investigation of risk. This strategy incorporates the key policies and proposals as affect flood risk management in Rochdale borough. An illustration of these fluvial interactions can be seen in the figure 3 map below.

Figure 3 Irwell Catchment Flood Management Plan overview



Sources of flooding in Rochdale borough and challenges

5.3 Although flood risk in itself is quite widespread in Rochdale borough, the potential significance of that risk varies greatly. Data about how flood risk could impact in terms of its extent and how much hazard it could have (i.e. how deep and fast moving it could be) is updated regularly based on data from flood events, modelling of risk against specific criteria such as duration and amount of rainfall and the impact of flood risk management measures. The most up to date flood outlines and supporting data about how that could affect a location are available through the Environment Agency and the Lead Local Flood Authority (LLFA).

5.4 Flooding events have been recorded over time in Rochdale borough for different types and scales of flooding. In addition the Environment Agency publishes a regularly updated flood risk map for main rivers and will publish a national map for surface water flood risk which at the time of writing is expected by December 2013 or soon after. Rochdale Council, working with all Greater Manchester districts, the Environment Agency and United Utilities has also produced a suite of Strategic Flood Risk Assessments and a Greater Manchester Surface Water Management Plan which highlights priority areas for surface water risk and opportunities for how that could be mitigated.

5.5 The greatest potential for flooding in Rochdale borough and the severity of its impact is focused on a number of key locations where factors such as topography, urban form, hydrology and geology and the capacity of the local drainage infrastructure either individually or in some combination make the incidence of flooding which may be significant, more likely. As part of the upper Irwell catchment, flood risk emanating from the River Roch and its tributaries in particular can increase flood risk pressures downstream. It is important that when managing flood risk through defences, water storage or other measures, the potential impacts and benefits for downstream locations are fully considered as part of a wider catchment approach for the River Irwell.

5.6 Flood risk in Rochdale borough is often not from a single source and many of the locations where flood risk is higher have a combined risk for example from both fluvial and surface water flooding. The main types of flood risk and areas where risk is most significant are outlined below.

Fluvial flooding

5.7 This is flooding caused by rivers and streams which in heavy or prolonged rainfall overtop their banks and flood water spreads outside of the river channel.

5.8 As at September 2013 it is estimated that 958 properties in Rochdale borough are located in areas with a high probability of flooding from rivers i.e. shown on the Environment Agency's flood map as having a 1% or greater chance of being affected by flooding each year. A further 2119 properties have a likelihood of being affected by flooding with an annual chance of a flood occurring of 0.1%.

5.9 The River Roch and its tributaries present the main fluvial flood risk in Rochdale borough. Many of the main residential and employment locations and town centres are located along the Roch Valley or its tributaries. Whilst flood risk in the Roch Valley is quite extensive along the river valley corridor it is important to ensure that areas of natural flood plain are protected and

enhanced to continue to perform that role. Particular areas of significant flood risk for residential and business properties are located within the following areas:

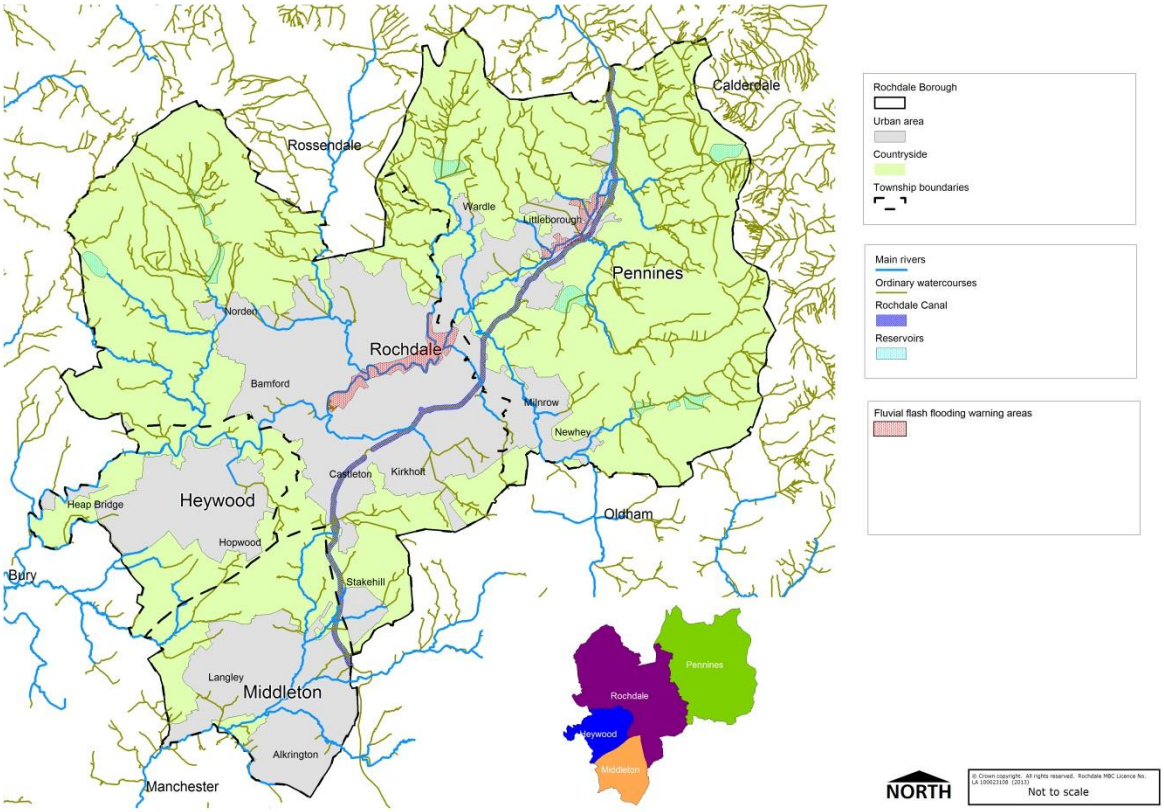
- Littleborough (Todmorden Road) to Wardle and Smallbridge which includes the River Roch, Ash Brook, Calder Brook, Ealees Brook, Green Vale Brook and Townhouse Brook;
- Milnrow and Newhey – the River Beal;
- Central Rochdale – (Albert Royds Street, Belfield and Heybrook to Roch Valley Way, Marland) including the River Roch, River Beal, River Spodden, Buckley Brook; and
- Heywood – Millers Brook and Wrigley Brook, in central Heywood and the River Roch at Heap Bridge

5.10 The River Roch at Wardleworth in central Rochdale around Wardleworth and Heybrook and in central Littleborough is also designated as a Flash Flooding Area i.e. where watercourses can rise quickly in response to intense rainfall with peak river flows possible within a few hours. Surface water may also increase the impact of flooding in these areas. This type of flood risk is caused by factors including dense urban layouts and in Littleborough, steep sided water catchments flowing into the settlement in the river valley. Due to the potential for flood risk in these areas to develop over a short space of time with little warning, flood response can be challenging to organise and deploy. An illustration of these fluvial flash flooding warning areas can be seen in Figure 4 below.

5.11 The River Irk and its tributaries to a lesser extent include areas of significant fluvial risk primarily west of Middleton town centre and including Wince Brook.

Fluvial flooding in the Roch Valley, Wardleworth (2012)

Figure 4 Fluvial flash flooding warning areas in Rochdale borough



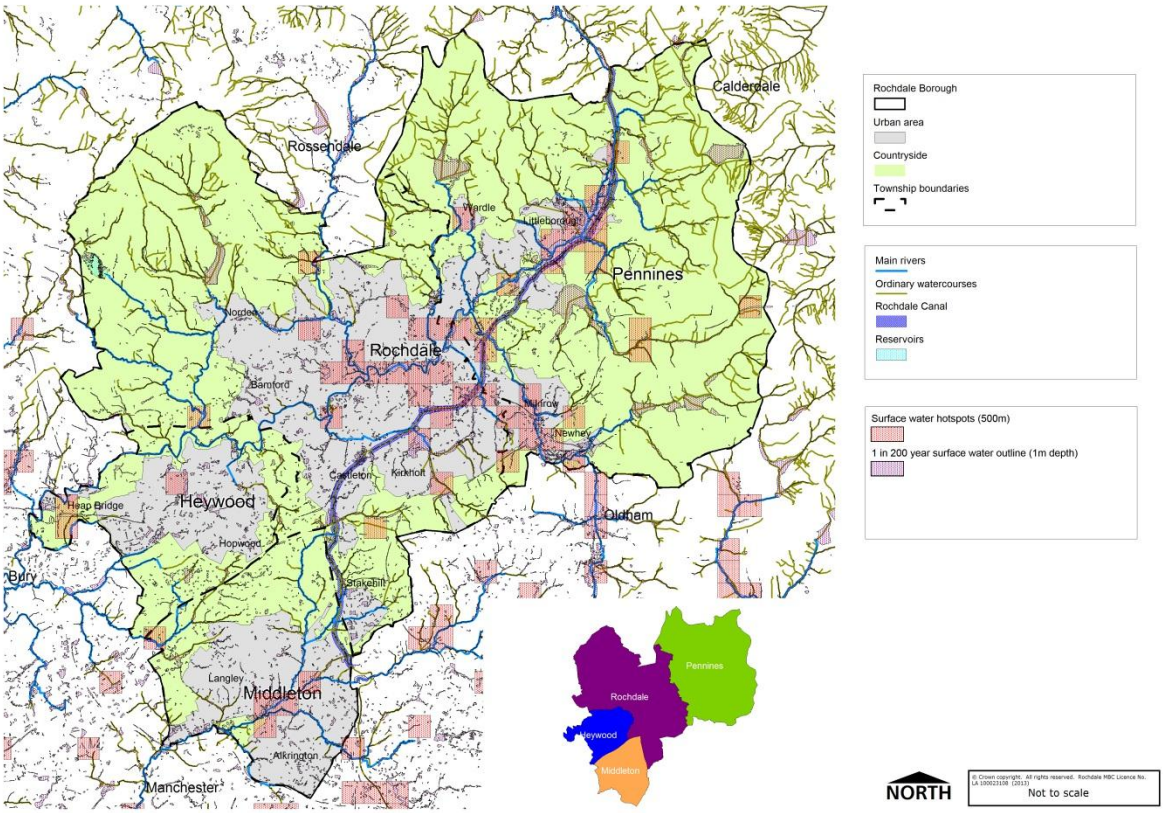
Surface water flooding

5.12 This occurs when very intense rainfall occurs over a short period of time and water cannot get into drainage systems quickly enough. Water will in such circumstances flow overland and gather in low spots and hollows. Rivers, reservoirs, canals, sewers and other water bodies can all contribute to surface water flooding.

5.13 The Bury, Rochdale and Oldham Strategic Flood Risk Assessment (2009) identified Critical Drainage Areas (CDA) in Rochdale borough focused on the urban areas of Heywood and Littleborough. CDA's 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. The most recent assessment of surface water flood risk in Greater Manchester is the GM Surface Water Management Plan (GMSWMP) completed in 2013. Surface water flood risk in Rochdale borough is quite widespread but is also very localised in its impacts and often closely aligned with fluvial flood risk from rivers and other water bodies or are

locations where ponding can occur due to dips and hollows. The GMSWMP identifies with greater detail than previous assessments where there are more extensive areas of surface water risk, some of which is significant, in Littleborough, central Rochdale, Heywood, Milnrow and Newhey. Different permutations of rainfall, flood depth and speed of flow and other factors have been input into flood risk models which identify the likely extent and effects of surface water flooding under various given circumstances. As an illustration, based on the GM SWMP, a total of 1860 residential properties and a further 1105 non-residential properties in Rochdale borough would potentially be affected by surface water flooding in a storm or rainfall event with an annual probability of 0.5% per year i.e. a 1 in 200 year chance. Different numbers, types and locations of properties will potentially flood under lesser or greater storm events. Based on the most up to date flood risk data available, the Environment Agency will shortly publish a national map of surface water flood risk which is expected to be available during or soon after December 2013. An illustration of the surface water hotspots in Rochdale borough based on the GM SWMP can be seen in Figure 5 below.

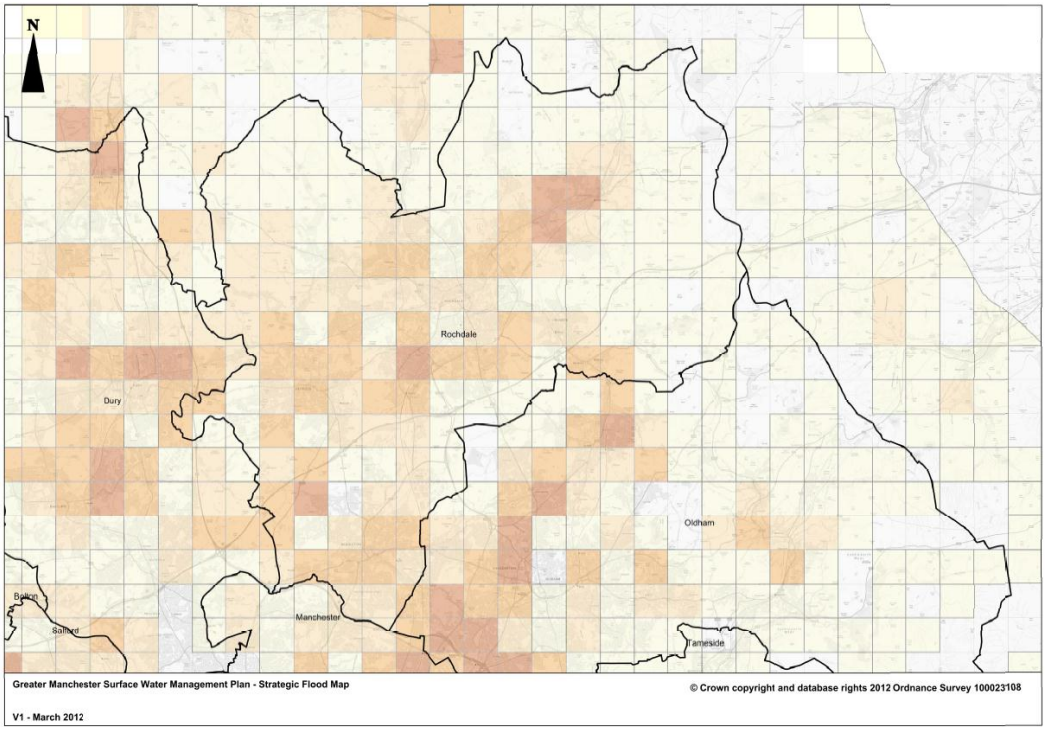
Figure 5 Surface water hotspots of Rochdale borough based on GM SWMP



Groundwater flooding

5.14 Groundwater flooding occurs where water levels in rock and soil are high enough for the water to appear near to or above ground. It can be caused by rainfall either locally or some distance away. Whilst this is uncommon as a type of flooding, limited smaller scale flooding, often of cellars and under floors has occurred. Further work to identify areas where this is a significant source of flood risk will be undertaken by the LLFA working with other risk management agencies. An illustration of areas susceptible to groundwater flooding can be seen in Figure 6 below.

Figure 6 Areas susceptible to groundwater flooding in Rochdale borough



Canal flooding

5.15 The Rochdale Canal runs through a significant part of Rochdale borough on its route between West Yorkshire and Manchester City Centre. As canals have various features which allow for regulation of water flow their flood risk is generally low. Flood risk from the Rochdale Canal is largely from breaches in the canal walls or blockages which occur before measures to manage flow can be taken.

Reservoir flooding

5.16 Rochdale borough and the wider Pennine uplands encircling much of Greater Manchester contains extensive water gathering grounds and a large number of reservoirs providing drinking water and water for recreation and abstraction for a variety of uses. Whilst water within reservoirs can be regulated, flood risk can arise and the most significant risk is from failure of a reservoir dam for example through a breach in the dam wall. Whilst the likelihood of such an event is low, the flooding consequences from such an event could be significant. There are 56 reservoirs located in and around Greater Manchester where the risk and impacts from flood water that could potentially flow into the conurbation in a flood event such as a breach of the dam is considered to be high. In total more than 120 reservoirs over 25,000m^3 could have some effect on Greater Manchester as a result of a flood event. A series of plans and measures are being developed through the Greater Manchester Civil Contingencies and Resilience Unit to ensure an appropriate response is put in place for managing such risk. Rochdale borough includes 14 reservoirs either within the borough or adjoining districts which could flow into its centres of population. Much of the reservoir network is owned and managed by United Utilities who monitor and maintain reservoirs as required to ensure their structural integrity and safety.

Other water bodies

5.17 In addition to watercourses and waterbodies as set out above there are also many ponds, mill lodges and other water features which could contribute to local flood risk for example by over topping or the failure of dam walls and embankments. These are in many different ownerships including Rochdale Council and private owners. In many cases such water bodies may not be subject to regular maintenance or inspection. The Council as LLFA will work with the Environment Agency to ensure that such water bodies are monitored and that owners are made aware of flood risk and the remedial actions needed where this is required.

Sewer flooding

5.18 United Utilities is responsible for flooding from foul, surface water and combined sewers. Flooding from sewers can occur when there is a blockage, collapse or their capacity to pass water is exceeded.

5.19 United Utilities maintain records of properties at risk of flooding from sewerage systems and of reported incidents of flooding both internal to

properties and where gardens, highways and public open spaces have flooded. For illustration, between September 2012 – September 2013 United Utilities have reacted to 19 reported hydraulic flooding incidents.

5.20 United Utilities has an investment programme which is reviewed and updated in five year cycles called its Asset Management Plan (AMP). The AMP seeks to ensure that investment in its sewerage infrastructure is targeted to where it can achieve best value and most benefit and where opportunities for partnership projects that can reduce pressure on the sewerage infrastructure network can be realised. United Utilities have invested significantly in Rochdale borough and Greater Manchester more widely in improvements to the water environment including reducing the risk to property from flooding. United Utilities have placed priority on Heywood in their investment proposals for the AMP6 period 2015-2020 which will include further investigation of flood risk from the sewerage network to identify proposals for improvements to sewerage infrastructure and exploring other opportunities with the LLFA, Environment Agency and others for sustainable drainage systems which will reduce pressure on specific assets and the wider network. Funding of this work is subject to the final determination of OFWAT, the water services regulation authority.

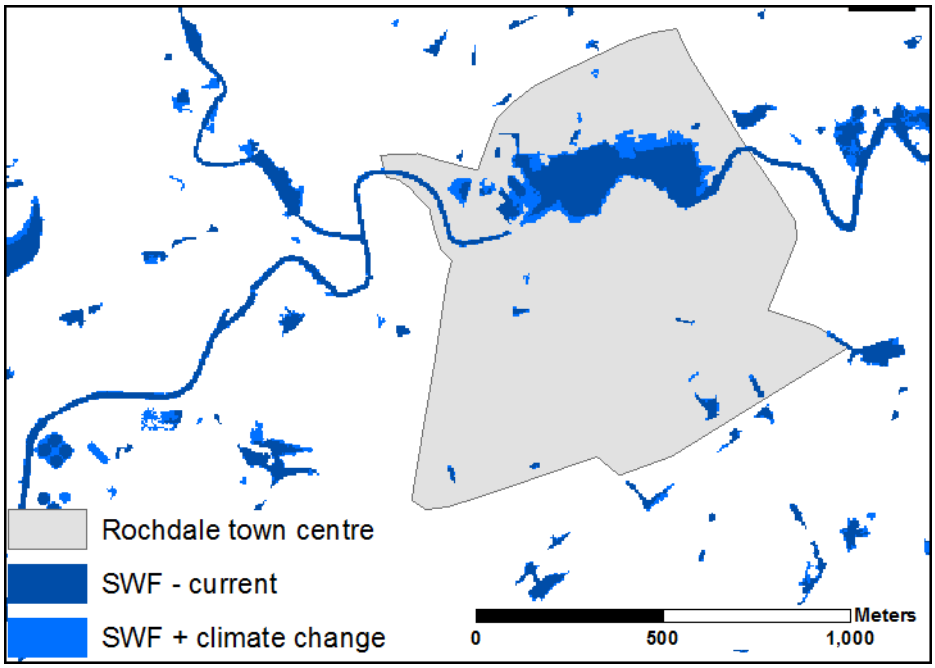
Improvements to sewer and drainage infrastructure at Park Road, Rochdale (United Utilities 2013)

Influences on future flood risk

5.21 Flood risk is a dynamic issue and its causes, effects and impacts will vary over time based on a range of local and external factors. These include:

- **Climate change** – long term predicted changes in climate pose the most significant likely change to flood risk. By the 2080's UK climate projections (UKCP09) suggest there could be around three times as many days in winter with heavy rainfall (more than 25mm in a day). More extreme and intense rainfall events is likely to lead to more frequent and potentially damaging and disruptive flooding. Research into the potential impacts of climate change on a range of environmental concerns such as flood risk is underway including through EcoCities, a joint initiative between the University of Manchester and property company Bruntwood which includes publicly available web based tools to visualise potential climate change hazards and vulnerabilities. An illustration of potential exposure of Rochdale Town Centre to current and future (with climate change) surface water flooding can be seen in Figure 7 below;

Figure 7 Illustration of potential exposure of Rochdale town centre to current and future (with climate change) surface water flooding (EcoCities project)



Source: Carter and Kazmierczak 2013

- **Investment in flood risk management infrastructure** – on-going investment in assets that will increase drainage capacity and flood water storage, upgrade ageing sewer and drainage infrastructure and invest in new or enhanced sustainable drainage systems will help reduce the incidence and impact of flood risk in many cases.

Investment is a long term and often expensive process potentially involving many partners and as such needs to be effectively planned, targeted and co-ordinated;

- **Development and urban change** – development and related infrastructure such as roads and the increase in hard urban environments can increase flood risk both locally and downstream. However, well designed and located development which for example incorporates Sustainable Drainage Systems (SuDS) and does not compromise flood plains can help reduce and effectively manage flood risk. Smaller scale activities by individuals for example loss of green spaces such as gardens to drives and other hard non- permeable surfaces can bring a cumulative increase in flood risk within a neighbourhood. The operation of SuDS Approval Bodies will increase sustainable drainage assets and ensure they remain managed and fit for purpose through enforcement and adoption of approved schemes where required under legislation;
- **The South Pennines Watershed** - includes extensive areas of peat which helps to retain and control water. Threats to peat include climate change and changes in land management which could affect upland drainage and vegetation. Whilst some peat is deep and in good condition other areas are deteriorating and require improvement to safeguard their future well-being. Potential upland management activities concerning drainage have the potential to limit water run off to urban areas but may also have impacts on ecology, water catchment and soil management which need to be fully understood and incorporated into management activities;
- **Trees and woodland** - loss of trees and woodland reduces the ability of land to retain and manage water. Activities which safeguard and increase tree planting in the countryside and also within urban areas can have a positive impact on retaining and managing water flows from agricultural land and built development and help to maintain or improve soil quality;
- **Changes in agricultural practices** – changes to how land is used and managed which affects drainage and run off from agricultural land can increase flows into watercourses and also increase surface water risk in nearby areas. Changes in land management should take account of the impact on drainage and what can be done to reduce flood risk on site and in neighbouring or downstream areas;
- **Watercourse management by riparian owners** – People or organisations which own land alongside a river or other watercourse are also a riparian owner. Riparian ownership includes responsibilities for maintaining river banks and beds, allowing free flow of water and control of invasive plant species. Flood risk can be caused or made worse by blockages caused by trees and vegetation, fly tipping and other materials which can accumulate and restrict water flows. Land owners can also carry out work to watercourses such as creating dams

and pools which can affect flood risk. Whilst gaining consent for works which could affect flood risk management and taking enforcement action against unauthorised works will help reduce such risks, greater vigilance and involvement from local communities will assist in ensuring problems are addressed early and more effectively; and

- **Greater awareness and acceptance of risk** - Increased property and business resilience will help limit the impact and damage caused by flood events. Although not in itself reducing risk, increased use of flood resilience measures in areas of high risk and improved property maintenance and good practice can substantially increase public safety and levels of property protection which will limit damage and disruption and ensure that flood recovery is quicker and less expensive. Work with local businesses to increase the resilience of our local economy to disruption from flood risk, can include devising specific flood plans for business continuity, staff training and site management measures for example around waste disposal, storage and building and property features and maintenance.

Surface water flooding at Belfield Road, Rochdale

6 Local plans and strategies

6.1 Greater Manchester has set out a vision to make Greater Manchester distinctive and a place that people want to invest in bringing economic growth, jobs and prosperity. The ambition for growth is based on a sustainable low carbon vision where Greater Manchester is also more resilient to climate change impacts and has a high quality environment. **The Greater Manchester Strategy (2013-2020)** is the key document setting out this vision and how it will be delivered. Supporting the Greater Manchester Strategy there are a series of environmental strategies and key approaches to sustainable development including the **Greater Manchester Climate Change Strategy (2011 -2020)** which will help to deliver the transition to a low carbon economy and increase preparedness for a changing climate. A strategic approach to Green Infrastructure is also being developed recognising the role the river valleys and other strategic networks of green spaces and water bodies have in providing environmental services such as flood risk management for the whole of Greater Manchester. Rochdale borough's flood risk management strategy will play its part in delivering a more resilient economy and communities for Greater Manchester where people want to live, work, visit and invest in.

6.2 Rochdale borough's local flood risk management strategy in addition to being consistent with and helping to deliver national, regional and Greater Manchester plans and strategies for flood risk management also seeks to ensure that flood risk is properly recognised and better flood risk management delivered in a range of local plans and strategies for the benefit of communities, the local economy and environment. These include:

- **Pride of Place - Rochdale Borough Sustainable Community Strategy 2011-2021** - this strategy sets out a series of objectives for improving people's lives, a prosperous, ambitious and entrepreneurial borough and to create places where people choose to be;
- **Rochdale Renaissance Borough Masterplan (2010)** - the Borough Masterplan sets out a framework for transformation and includes a vision of providing an attractive and distinctive location for economic investment and in which to live. Its objectives include investment in town centres, employment and neighbourhoods and include a commitment to capitalise on the borough's environmental assets as part of the borough's identity and to provide part of its economic offer supporting tourism and sustainable growth;
- **Rochdale borough's Core Strategy** is the Council's plan on how the borough should grow and develop to 2028. It shows the scale of employment and housing land needed and identifies where regeneration and environmental improvements should be focused. It also looks at what transport and other services are needed to support growth and development. The Core Strategy includes policies consistent with the

National Planning Policy Framework to ensure that development does not increase flood risk, is appropriately located and contributes to sustainable drainage. The Core Strategy and its policies will also help inform documents such as the Land Allocations Development Plan Document which will set out more detail of development locations in the borough and will be supported by a Supplementary Planning Document providing further advice about flood risk in Rochdale borough to help interpretation and delivery of the Core Strategy and its delivery. At the time of writing, subject to the outcome of an Examination in Public, it is proposed to adopt the Council's Core Strategy by early 2014;

- **Rochdale borough Green Infrastructure Strategy** – Scheduled for completion by summer 2014, the strategy will provide a strategic overview of green infrastructure in the borough and the Council's objectives for protecting, enhancing and creating green infrastructure assets and networks. Green infrastructure includes all green spaces and water bodies which provide environmental services for the local community and economy and for the wider South Pennines and Greater Manchester including biodiversity, sustainable drainage and recreational use. Delivering more extensive and effective flood risk management is one of the primary objectives for the boroughs green infrastructure strategy both in terms of storing and managing water in rural locations and providing sustainable drainage systems within urban areas. A series of Green Infrastructure Plans for each of the borough's Townships has been produced setting out objectives for delivering green infrastructure priorities including flood risk management; and
- **Pennine Edge Forest Action Plan (2011-2015)** – the Pennine Edge Forest is the community forest for eastern Greater Manchester covering the districts of Rochdale, Oldham, Stockport and Tameside. The forest partners and its Action Plan set out objectives for maximising the role of trees and woodlands in managing flood risk including as a part of more sustainable urban drainage and in rural areas to help reduce the extent of surface water run-off and limit the flow of water into the rivers and urban areas. The Forest actively promotes community action and participation which includes good environmental stewardship in river valleys which can help manage flood risk for example through reduced fly tipping and increased tree planting.

7 Working together

7.1 Effective flood risk management requires working with a wide range of partners and across district boundaries. Working together on delivering good flood risk management is needed at all scales from local people and neighbourhoods to other flood risk management and environmental organisations and partnerships.

7.2 The cause and effects of flooding can be geographically separate and understanding risk and developing measures to manage and reduce flood risk may require a more strategic catchment scale approach to their planning, funding and delivery, often involving many partners. Without such an approach we may simply move or worsen flood risk downstream. In addition we want flood risk management to provide a range of benefits for people and places including a greener environment with reduced pollution, more wildlife and opportunities for leisure. This again provides opportunities for working in partnership with local communities, the voluntary sector, landowners and environmental partnerships.

7.3 The North West Regional Flood and Coastal Committee (RFCC) is a statutory body which provides the vehicle for planning and managing the delivery of flood risk management priorities and investment in the North West. It brings together the Environment Agency and local government and manages investment programmes for flood risk management through Flood Risk Grant in Aid and the Local Levy raised from local government towards flood risk management activities. Greater Manchester districts are represented on the governance structures for the RFCC.

7.4 In Greater Manchester, the Association of Greater Manchester Authorities (AGMA) and the Greater Manchester Combined Authority enable strategic collaboration between the ten districts of Greater Manchester and key partners seeking to deliver a stronger, low carbon economy and more attractive and sustainable places to live in and visit. Flood risk management plays an important part in delivering this ambition.

7.5 To ensure that flood risk management is planned and delivered strategically where required a Greater Manchester Flood and Water Management Board has been established. The Board provides representation to the RFCC and includes each of the ten Greater Manchester districts, Environment Agency, United Utilities and brings together spatial planning, drainage engineering, civil contingencies and climate change and sustainability leads for Greater Manchester. The Board oversees and directs delivery of strategic flood risk management priorities in Greater Manchester which includes ensuring that statutory duties are delivered, data and evidence is up to date, shared

appropriately and co-ordinated and investment is well planned and targeted. The Board is supported by a Flood Risk Officers Group which enables joint working and co-operation on technical issues, delivering statutory duties, and project delivery. So that links with related issues such as economic development, tackling climate change and managing and enhancing the natural environment are strong, the Board and supporting officers group maintains relationships with other relevant strategic bodies including the Greater Manchester Local Nature Partnership and Local Economic Partnership.

7.6 At a local scale, a Flood Risk Management Steering Group has been established for Rochdale district led by the Lead Local Flood Authority (LFFA) and including the Environment Agency, United Utilities and a range of Greater Manchester and local authority services including spatial planning, highways and drainage engineering, economic development, civil contingencies and housing. The steering group will help develop, manage and review the work programme for delivering this Flood Risk Management Strategy and ensuring it is properly embedded in and delivered through a range of policies, plans and projects including development management, land and green space management, highways and drainage infrastructure and community engagement. An illustration of the governance arrangements for flood risk management in North West England can be seen in Figure 8.

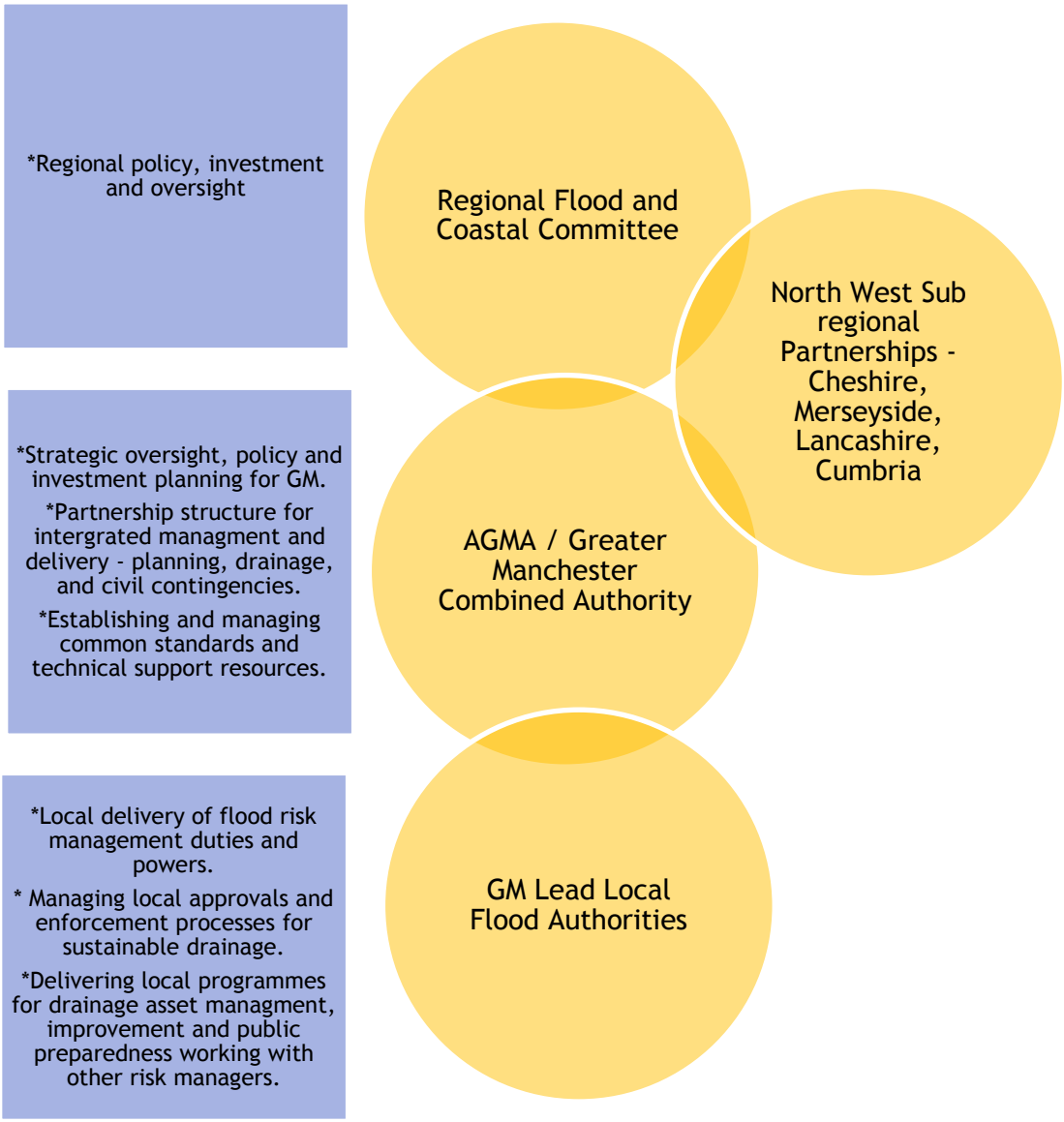
7.7 Over time it is hoped that communities and local land management interests will play a more active part in local flood risk management governance structures through local flood forums and action groups which may be established in areas of significant flood risk. The LLFA working with the National Flood Forum will support such opportunities where they would be appropriate and there is local interest and will seek to raise awareness of flood risk and ways in which communities and businesses can participate in managing and reducing those local flood risks. This objective is being piloted through the Rochdale Flood Resilience Community Pathfinder working with communities in Wardleworth and Heywood.

7.8 Our key partners and stakeholders for flood risk management in Rochdale district are:

- Department for Environment, Food and Rural Affairs (Defra);
- Regional Flood and Coastal Committee;
- Environment Agency;
- United Utilities;
- The Association of Greater Manchester Authorities and Greater Manchester Combined Authority;
- Adjacent Lead Local Flood Authorities in Lancashire and West Yorkshire with drainage and water catchment links to Rochdale district including Rossendale Borough Council, Lancashire County Council, Calderdale Borough Council;

- Emergency response services;
- Canal and River Trust;
- Pennine Edge Forest;
- Pennine Prospects;
- Voluntary sector organisations including National Flood Forum, Groundwork Oldham and Rochdale;
- Local communities and businesses; and
- Developers and land managers.

Figure 8 Governance arrangements for flood risk management in the North West England



8 Managing Rochdale Council's flood risk management assets

8.1 Rochdale Council manages a number of assets either as land owner, riparian owner or as Highway Authority which form part of our flood risk management infrastructure. These include:

- Structures – including bridges, culverts, walls, drains and weirs;
- Land – including open spaces, water bodies and flood plain which contribute to existing or potential areas of land for sustainable drainage such as water storage; and
- Highways – including gulleys and drains.

8.2 The Council through the Highway Authority and Lead Local Flood Authority (LLFA) function maintains a register of structures with a significant role in flood risk management and will adopt a programme of inspections to ensure that they are appropriately maintained and where required repair and improvement to secure and extend the lifespan of assets is included in future capital investment programmes and asset management plans. Particular risks for flood risk management include blockages, structural collapse for example culverts or dam walls, and where channels and drains have insufficient capacity to cope with potential flood water volumes. The Council will focus particular effort in areas of significant flood risk and on assets which pose a greater risk of failure through deterioration, breach or collapse, inadequate capacity or potential for blockages.

8.3 The LLFA will also monitor and ensure that privately owned structures and features significant for flood risk management are appropriately maintained and managed working where appropriate with the Environment Agency i.e. on Main Rivers and for larger reservoirs and water bodies subject to regulation under the Reservoirs Act 1975. Many owners are unaware of their responsibilities for flood risk management or in some cases may not know that they are the owner of particular structures for example as a riparian owner. The Council will consider which privately owned assets should be listed on its register of flood risk management assets and ensure that owners and managers are aware of their duties and responsibilities and what is required in terms of appropriate management and maintenance. Where necessary the LLFA will consider whether assets which provide protection against significant flood risk should be designated under powers provided through the Flood and Water Management Act 2010.

8.4 The LLFA will also ensure that activities which may impact on flood risk management on Ordinary watercourses is subject to an application for consent and appropriate conditions for approval. Where unauthorised works are carried out, the LLFA will carry out enforcement works to ensure that works are

removed or where consent is subsequently given that they are compliant with any conditions imposed.

Flood risk in Rochdale Town Centre increased by floating debris (2008)

9 Development and sustainable drainage

9.1 Spatial planning aims to ensure development is sustainable and delivers social, economic and environmental benefits. Spatial planning whilst promoting development must also ensure the appropriate safeguarding and protection of the natural environment including agricultural land, biodiversity and land which helps to manage and protect our communities from current and future environmental risks such as those from climate change which includes for example our natural flood plains and other land which is important for managing current or future flood risks.

9.2 One of the principal influences on flood risk is the impact of development. Development which is poorly located and designed may result in significant flood risk for its occupants or users and also significant disruption to its use e.g. for habitation or for work. There may also be downstream impacts. Development can also contribute to improved drainage and flood risk management where it is well located and incorporates or provides appropriate flood risk management measures based on a robust flood risk assessment. It is important that early advice is sought through the Local Planning Authority, the Environment Agency and others to help inform the location and design of development through pre-application discussions and use of available flood risk data which will inform more detailed site assessments, site selection and design.

9.3 Rochdale borough's Core Strategy recognises the importance of good flood risk management and has taken account of existing studies for fluvial and surface water flooding and national planning policy in its production. The impact of flood risk in future Development Plan Documents such as relating to allocating land for categories of use will also take full account of flood risk management matters in terms of risk and also opportunities to better manage that risk in the future for example through flood water storage or other sustainable drainage measures. The Council will produce a Supplementary Planning Document setting out the Council's planning approach to flood risk management and the role of the Local Flood Risk Management Strategy in delivering sustainable development and land use.

9.4 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 is awaited. 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.

9.5 Sustainable drainage systems can include one or more of the following:

- permeable surfaces which allow water to infiltrate the ground or into underground drainage;
- drainage ditches such as swales;
- temporary storage basins which can be specific or have multiple open space functions outside of a flood event;
- ponds; and
- wetlands

9.6 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 so that drainage will be effective and not increase risks of contamination. This should include seeking appropriate early advice and carrying out site investigations where required.

10 Protecting and improving our environment

10.1 Flood risk management is one of the ways by which we can help deliver the requirements of the Water Framework Directive (WFD) for sustainable water management including its protection, improvement and usage.

10.2 It is important to ensure that measures for flood risk management do not have an adverse effect on biodiversity, soils and geodiversity, pollution control and water quality for example by altering drainage and water supply which could impact on land and water bodies with specific biodiversity interest or which would increase the risk of pollution or erosion. Many flood risk management activities have the potential to protect and increase biodiversity and improve water quality through de-culverting, creation of new habitats, tree planting and a range of other measures. The Lead Local Flood Authority (LLFA) will work with the Environment Agency to ensure that all of its actions are compliant with the requirements of the WFD through avoiding deterioration to water bodies and both delivering improvements and creating and safeguarding opportunities for future beneficial actions.

10.3 Many of our rivers and other water bodies such as mill lodges and ponds are an important part of our townscape and rural landscape heritage often providing visual evidence of the industrial and agricultural past in our borough. Many features and structures such as bridges, lock gates and other features have an important role in water body management and can also have historic and architectural value, in some cases being statutorily or locally listed as being of historic or architectural importance. In designing and carrying out flood risk management proposals the impact on landscape and townscape heritage and specific heritage features will be given full consideration to ensure that such features and their setting are conserved and wherever possible enhanced.

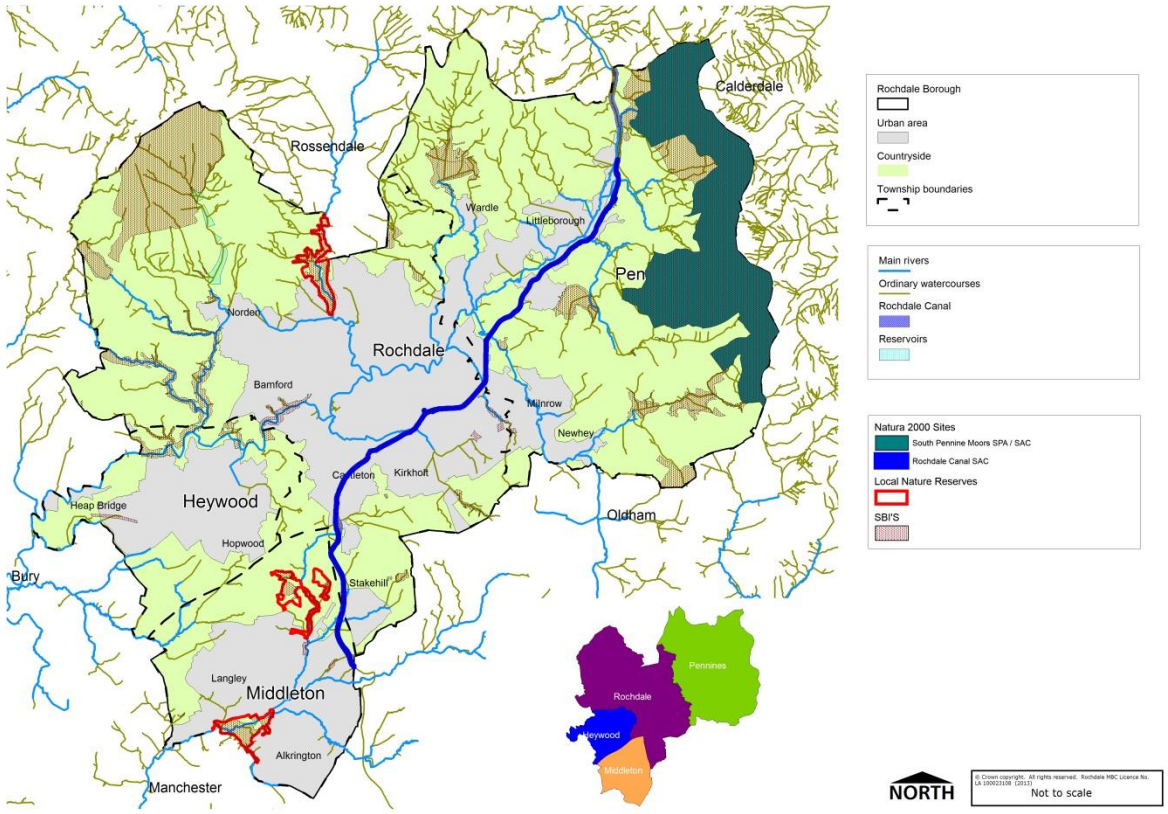
10.4 The Environment Agency working with a wide group of stakeholders has established a catchment partnership 'Rivers Return' for the Irwell from the South Pennine uplands into the core of Manchester and Salford to help highlight Water Framework Directive priorities and ways in which failing or deteriorating watercourses can be turned around and improved to meet WFD objectives. Rochdale Council is a partner in this initiative and supports its objectives and delivery through a range of environmental actions including flood risk management proposals around the Rivers Roch and Irk and their key tributaries.

10.5 The LLFA will also ensure that flood risk management activities help to protect and enhance biodiversity in the borough and areas outside the borough where our activities could impact on species and habitats. These include:

- Natura 2000 sites including the South Pennine Moors Special Area of Conservation (SAC) and Special Protection Area (SPA) and the Rochdale Canal SAC where avoidance of damaging impacts will be a priority;
- Sites of Special Scientific Interest – the South Pennine Moors and Rochdale Canal;
- Local Nature Reserves – currently located at Alkrington Woods, Healey Dell and Hopwood Woods;
- Sites of Biological Importance; and
- Species protected by law and their habitats.

10.6 An illustration of designated nature conservation sites can be seen in Figure 9 below.

Figure 9 Designated nature conservation sites within Rochdale borough (2013)



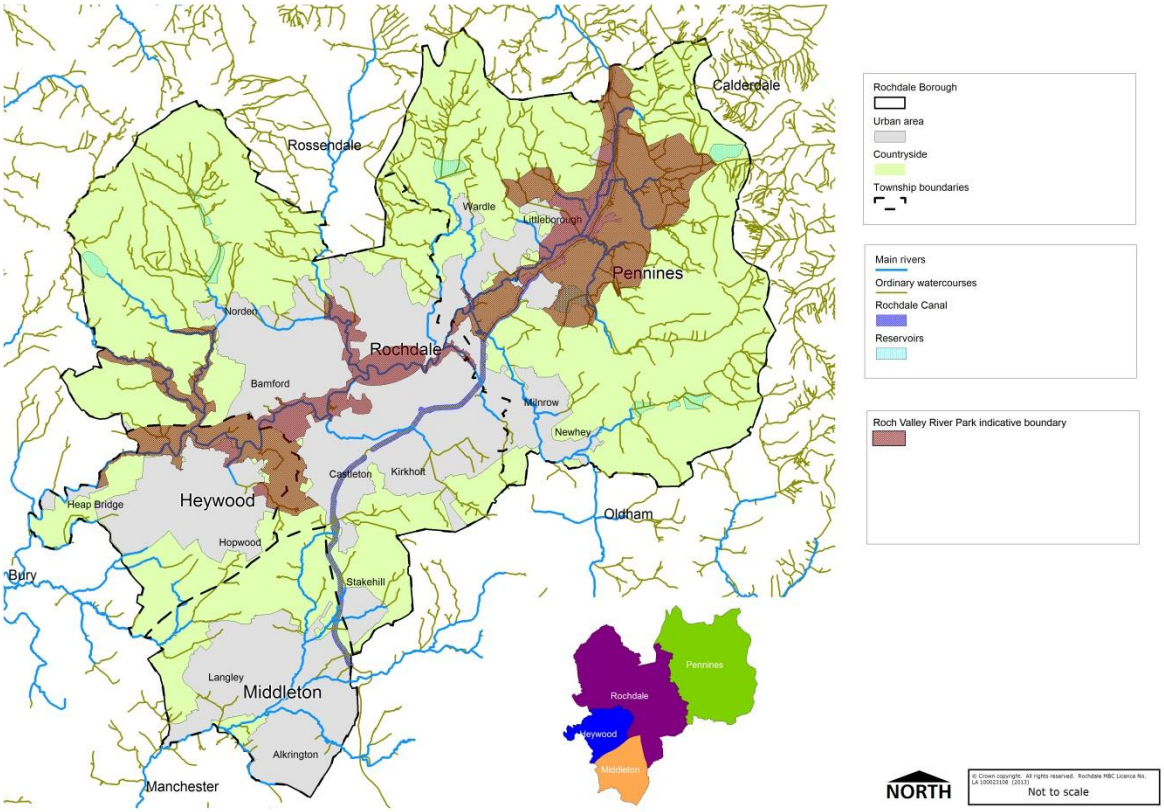
10.7 Rochdale Council has prepared a series of Green Infrastructure Plans for each of the borough's Townships which together will help to deliver the borough Green Infrastructure Strategy. These plans will help to identify where flood risk management actions can achieve multiple benefits for example biodiversity or improved recreational opportunities. The Pennine Edge Forest Action Plan also includes objectives for promoting and delivering tree and woodland planting and management activities in the borough's river valleys and areas where surface water risk is greatest.

10.8 A proposal to establish a Roch Valley River Park from the South Pennine watershed above Littleborough to Heywood has been developed by the Council supported by a wide stakeholder partnership including the Environment Agency, Natural England, the Forestry Commission, the Pennine Edge Forest, Pennine Prospects and a range of community groups and interests active in seeking to improve the Roch Valley. The River Park project includes proposals for:

- A linear Roch Valley trail and connecting routes;
- Enhancing biodiversity corridors and sites of interest based on a biodiversity enhancement framework;
- Opportunities for woodland creation and management;
- Opportunities to enhance the natural character and quality of the river and its landscape through removal of culverts and weirs in appropriate locations;
- Improved flood defences, flood water storage and sustainable drainage systems; and
- Increasing local community participation in stewardship of the river valley environment.

10.9 An illustration of the Roch Valley River Park indicative boundary can be seen in Figure 10 below.

Figure 10 Roch Valley River Park indicative boundary



11 Civil contingencies and resilience

11.1 Flooding is one of the main risks to communities and business continuity in Greater Manchester. The Greater Manchester Civil Contingencies and Resilience Unit (CCRU) works with all Greater Manchester local authorities, emergency services and key partners such as the Environment Agency and United Utilities to ensure that organisations, people and places are well prepared for an event such as flooding and that appropriate response and recovery plans are in place. The CCRU maintain the Greater Manchester Community Risk Register which lists a range of flood events amongst the key risks to Greater Manchester which in Rochdale district include flooding from the River Roch, surface water and a number of reservoirs.

11.2 Duties on local authorities and other front line responders are set out in the Civil Contingencies Act 2004. Duties include co-operation and sharing data, risk assessment and maintaining public awareness to warn and inform communities during times of emergency. Flood risk assessment such as provided by the Environment Agency and Lead Local Flood Authority (LLFA) are hugely important in helping to determine where risk is highest and the emergency plans that should be in place to manage and respond to that risk for example in flash flooding areas of high surface water flood risk. The work carried out by the Environment Agency, LLFA and others to engage with communities raising awareness and increasing preparedness is also of great importance to ensure that wherever possible risk is reduced in communities and that communities are better prepared to respond to and recover from flooding. A Multi Agency Flood Plan has been produced which sets out the response measures that will be activated in a flood risk emergency event including support for vulnerable people and the roles of key response organisations.

11.3 The LLFA will work closely with the CCRU, Environment Agency and emergency services to ensure flood risk assessment data and reports of flood event investigations are shared effectively and will help to target communities and properties at significant risk of flooding. The LLFA will also work with CCRU to increase awareness and preparedness through work with the Environment Agency and the National Flood Forum including through the Rochdale borough Flood Resilience Community Pathfinder.

Flash flooding at Wilton Grove, Heywood (2004)

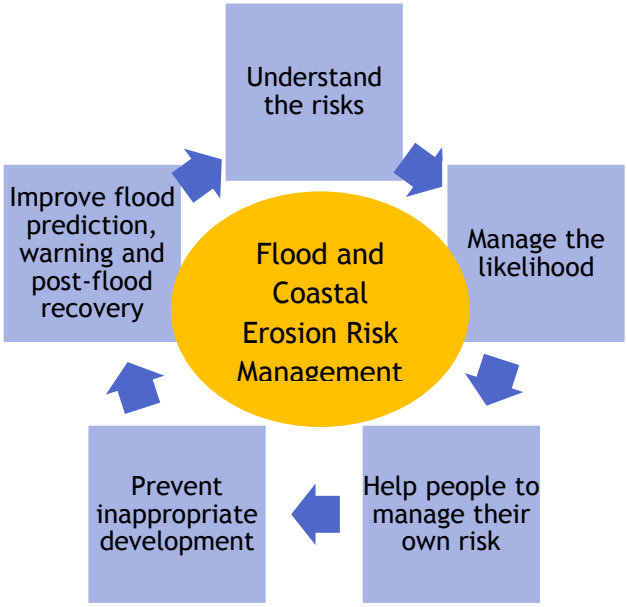
12 Priorities for the Lead Local Flood Authority

12.1 Rochdale Council as a Lead Local Flood Authority (LLFA) has a series of key priorities for flood risk management to ensure its key objectives are delivered, challenges are effectively met and that opportunities to deliver positive change for all of our residents and businesses are maximised. Flood risk cannot be fully eliminated from our borough but we can manage that risk better and reduce its impact in many areas where the effects of flooding could be significant. The LLFA will take a proactive and inclusive approach to managing flood risk and will support innovation and partnership approaches to ensure resources are well targeted and that ownership of better flood risk management is widened. An illustration of managing flood risk can be seen in Figure 11.

12.2 The guiding principles underpinning our approach are:

- Consistency with national strategy and other local plans and strategies;
- Working together with people and organisations in an inclusive, well co-ordinated approach to addressing and managing flood risk;
- A whole catchment approach ensuring risk is not transferred or increased elsewhere and that effective measures can be delivered;
- Maximising economic, environmental and social benefits;
- Delivering sustainable solutions which meet the needs of all communities at risk of flooding including the most vulnerable members of our communities;
- Flood risk management should be proportionate, well targeted and represent good value for money; and
- Encouraging and securing a wide range of investment in flood risk management from risk management authorities and beneficiaries.

Figure 11 Managing the risk of flooding



12.3 Key challenges for flood risk management in Rochdale borough include:

Widening ownership and awareness of flood risk management in affected communities.

12.4 Flood risk is often accepted more by people who have experienced a flood in their personal lives such as the damage and disruption to their property and the surrounding community. For many who have not experienced flooding, it is difficult for them in some cases to identify with increasing data and evidence which may suggest that the probability they could experience a damaging flood is high. There is also a stigma attached to flood risk based on the concern about the effect on property values and sales, potentially higher insurance premiums or in more extreme cases the inability to get affordable insurance. It is possibly the case that many flooding incidents go unreported.

12.5 It is a priority to encourage people to report flooding when and where it occurs and to provide a simple and straightforward approach for doing this. Only by more complete awareness of where and when flooding occurs can risk management authorities more fully understand its causes and what can be done to better protect properties and communities.

12.6 It is important to make people more aware of their flood risk and its meaning for them i.e. their property and community and their lives. In many cases often simple steps can reduce the risk to property and where communities band together to help address their flood risk their resilience to flooding and its impacts can dramatically increase. The National Flood Forum provide advice on property level resilience and the University of Manchester has recently published a guide to property level flood residence based on six steps that property owners can take to reduce their risk (see paragraph 17.7).

12.7 In raising awareness and ownership of flood risk it is important to understand that communities are diverse and one approach alone will not always be sufficient. The message should be one that everyone can understand on their own terms and one which gets to more vulnerable or harder to reach members of the community due to age, mobility or language and those with an interest in the community such as property landlords and others who may not live in the communities at risk. The Council will work with the National Flood Forum and other partners to develop a range of awareness and engagement activities and materials which will help us to reach all parts of our local community more effectively.

Areas with significant flood risk are in many cases amongst the most socially and economically disadvantaged in the North West and England.

12.8 In Rochdale borough, there is a high co-incidence of communities at high risk of flooding who are also amongst the most deprived in both the North West of England in particular parts of inner Rochdale and Heywood. For an illustrative map of this relationship see Appendix 2. The challenges for flood risk management include a potential lack of disposable income to invest in property maintenance and flood protection measures that could limit the impact of a flood event on their property. There may also be a greater impact of the cost of appropriate home insurance and its affordability and therefore the ability to repair property and replace possessions as part of a post flood recovery. There is also a high incidence of elderly people and people with health or mobility problems who may require additional help and support in a flood event to ensure they and their property are safe for example where flood protection needs to be put in place.

12.9 Rochdale Council is working with communities in Inner Rochdale (Wardleworth) and Heywood as part of its Flood Resilience Community Pathfinder project with the National Flood Forum and other partners to build their capacity to make positive changes and help them prepare and deliver local community flood risk action plans which will seek to identify local challenges in more detail and identify how to address them more effectively. Opportunities to extend this approach in Rochdale borough will be taken where resources allow.

Improving our understanding of flood risk, where it happens and its causes and the likely future pressures from our changing climate.

12.10 Data and key evidence to tell us more about flood risk, why and where it could happen and what its affect could be is constantly improving so that risk management authorities and communities can plan better to help manage or reduce it more effectively. The Environment Agency has a continual process of updating its data and assessment of risk from rivers and other water bodies and through the Agency, Rochdale Council, United Utilities and others there is also

on-going investment into the investigation of local risk from surface water, local watercourses, sewerage networks and reservoirs and how this can be reduced or better managed. Reports from flood events can also provide important intelligence about causes of flooding at particular locations and what can be done to prevent or reduce future risk. It is therefore important to ensure that all reported incidents are investigated to an appropriate level and any results shared as necessary. Greater Manchester's agreed procedure for investigating reported flood events from surface water and waterbodies is included as Appendix 1.

12.11 Factors affecting flood risk can be influenced by a number of issues including patterns and types of development, the condition of drainage infrastructure and land management and as such there is a need to review and extend our knowledge of risk as part of an on-going process. The impact of climate change is as yet not fully understood but it is clear that more unpredictable and extreme weather events will significantly affect flood risk and an allowance has been made in forecasting future flood risk and its potential impacts. The impacts of climate change on local flood risk will form part of an on-going review of data by the LLFA and other risk management authorities.

Managing, protecting and enhancing our flood risk management infrastructure for the future.

12.12 Although there is significant investment in our drainage infrastructure including that for the sewerage and highways network, there is still a legacy of ageing assets or assets which do not have the capacity to deal with current flood risk from for example surface and foul water. Better understanding of flood risk from current and future investigation and assessment work will help to provide evidence for increased resources and better targeting of priorities but investment may be over many years due to cost which can be high. Use of Flood Defence Grant in Aid, partnership between risk management authorities and the role of development in providing enhancement of flood risk management infrastructure can help to maximise available opportunities for investment.

12.13 In addition to more traditional approaches to conveying and storing flood water, sustainable drainage based on green infrastructure may provide increasing opportunities for reducing pressure on drainage and sewerage systems and extending the capacity for flood risk management. In addition to the natural flood plain for rivers, the location of appropriate green infrastructure which could include specifically designed green spaces and water bodies or enhancing existing green spaces and water bodies to act as a sustainable drainage resource in times of flood is important. It is also important to ensure they are appropriately protected from inappropriate development and suitably managed for that purpose.

Reducing flood risk in our urban areas whilst also promoting and delivering essential growth and regeneration.

12.14 It is important to ensure our urban areas continue to provide the houses, businesses and services we need for a prosperous and dynamic borough. Understanding flood risk will help decision making about where to develop and what would be appropriate so that development does not compromise or reduce key flood risk assets for example existing drainage infrastructure, functioning flood plain or green spaces and water bodies important to local flood risk management. Development should be safe for its lifetime but also not lead to increased flood risk locally or further downstream. Development where it is well planned can provide real benefits for flood risk management through good design and investment in new or existing drainage infrastructure.

Managing and reducing flood risk whilst also helping to protect and improve the ecology of our water environment and to make it cleaner and accessible for leisure, sport and quiet enjoyment.

12.15 When planning and delivering flood risk management it is important to recognise the wider role that the water environment has within our local communities and also our regional and national environmental infrastructure. It is important to ensure that ecology and water quality are not compromised and wherever possible enhanced. It is also important to ensure that uses of water bodies and their wider environment such as for angling, water sports, walking and more active pursuits are taken into account in how flood risk management is planned, delivered and managed for the future so that it provides a sustainable, safe and enjoyable environment with a wide range of public benefits wherever possible.

Flooding can have disruptive effects on local businesses and the borough's economy

13 Delivering our strategic objectives

13.1 Rochdale borough's flood risk management strategy will underpin its approach to delivering the role of Lead Local Flood Authority (LLFA) including working with communities at risk of flooding and all organisations that have a role in managing and reducing flood risk. Flood risk is dynamic and how our towns and countryside are managed can influence the extent and severity of risk in addition to our changing climate.

13.2 Our approach will consist of a series of longer term investments and partnership projects and on-going activities around maintaining drainage assets, improving awareness of flood risk in communities and engaging with local residents and businesses to increase local resilience. Opportunities to address flood risk and its consequences are a mixture of major infrastructure projects with a range of parties involved requiring detailed investigation, and advance planning, on-going maintenance and engagement projects and 'quick wins' for small projects where funding or an urgent need is found.

13.3 Detailed proposals to manage flood risk will be published separately to this strategy as a series of short, medium and long term projects delivered by all relevant Risk Management Authorities individually and in partnership and reviewed annually based on the availability of funding or changing patterns of flood risk priorities.

13.4 Understand our flood risks better

13.5 The LLFA will:

- Ensure that its flood risk management activities are based on the most up to date available data from national, regional and local data sources;
- Work with other Risk Management Authorities to ensure that all sources of risk (including from rivers and other water bodies, surface water and the sewer network) and how the causes, impacts and solutions interact are understood and incorporated into flood risk management activities and future planning;
- Work with the Environment Agency and other Greater Manchester LLFA's to prepare risk and hazard mapping and a Local Flood Risk Action Plan for the Greater Manchester Flood Risk Area which meets the requirements of the Flood Risk Regulations 2009 by 2015;
- Using the GM Surface Water Management Plan and best locally available data, identify locations where further investigation of flood risk from surface water, groundwater and Ordinary watercourses in areas of significant flood risk is required, working with the Environment Agency

and United Utilities and others as appropriate to develop deliverable measures to manage or reduce flood risks;

- Carry out an assessment of the highway drainage system under its management to understand where risk is highest and to identify maintenance and improvement priorities where required;
- Identify and assess where appropriate privately owned assets which have a significant flood risk management value and ensure that their function is appropriately safeguarded;
- Ensure that appropriate investigation of all reported flood events is carried out and the results of any investigation shared as necessary with relevant Risk Management Authorities and published where it is a significant flood event (involving more than 5 residential properties with internal flooding to the main dwelling); and
- Support and facilitate data sharing between Risk Management Authorities and emergency services and responders to encourage a more joined up and comprehensive approach to flood risk management;

Communicate flood risks more effectively with those who are potentially at risk from flooding and with those who can help manage and respond to flood risk and its consequences

13.6 The LLFA will:

- Work with the Environment Agency, United Utilities, Greater Manchester Civil Contingencies and Resilience Unit and the National Flood Forum to provide appropriate and well co-ordinated support for communities and businesses at risk of flooding, especially in locations where risk is higher. This will include flood alert and warning initiatives, information road shows and providing information and activities to promote and enable improved understanding, preparedness and flood resilience;
- Develop targeted activities for harder to reach members of our local communities so as to make flood risk management inclusive for all of our residents and visitors;
- Working with partners to establish specific activities to encourage greater flood risk awareness for children and young people and promote flood resilience in the home through cross generational learning;
- Maintain an up to date public register of assets which have a significant flood risk management value in the borough;
- Provide accessible, up to date and easily understood data about flood risk in Rochdale borough which is well co-ordinated with other sources of data such as the Environment Agency and other Greater Manchester LLFAs; and
- Use the Rochdale Flood Resilience Community Pathfinder to develop good practice engagement and communication tools to use across the borough as a whole.

Help people, communities and businesses to take greater ownership of flood risk where they can manage and where possible reduce their risk and be better prepared to respond to and recover from flood events

13.7 The LLFA will:

- Work with the National Flood Forum and Risk Management Authorities to encourage and support communities in working together to take greater ownership of their flood risk and take a more active part in its management;
- Provide training and support to build capacity and capability in local communities and businesses to manage their flood risks and business continuity more effectively;
- Encourage greater take up of flood alert and warning schemes and identify ways for establishing and strengthening working relationships with all risk management authorities and emergency services;
- Engage with children and young people through education and participation activities to help ensure improved flood risk awareness and resilience in future generations;
- Using the experience of our Flood Resilience Community Pathfinder project, explore the potential for establishing local flood groups and action plans, environmental stewardship and volunteering initiatives including Community Flood Wardens;
- Promote increased property level resilience through targeted guidance, product and scheme demonstrations;
- Identify opportunities for property level flood protection and potential funding to help deliver it; and
- Ensure riparian owners are fully aware of their responsibilities and work with them to ensure appropriate land management and assets and structures that have been identified as having a significant role in flood risk management are appropriately maintained.

Work as a Lead Local Flood Authority and with other flood risk management agencies to manage flood risk better, reduce the impact of flooding and wherever possible reduce or remove risk through investing in our drainage infrastructure and its future management

13.8 The LLFA will:

- Ensure that flood risk management is well co-ordinated and delivered through appropriate partnerships and catchment scale approaches where required including where the causes, effects and solutions for flood risk management extend beyond Rochdale borough's LLFA boundary;
- Work with other LLFA's and Risk Management Authorities, principally the Environment Agency and United Utilities to ensure that flood risk is

not passed on through flood risk management activities carried out upstream;

- Prepare specific flood risk management plans for all identified areas of high flood risk in conjunction with other Risk Management Authorities where appropriate including the River Roch and its principal tributaries in Littleborough and central Rochdale and for surface water flood risk in Heywood;
- Identify partnership projects and joint working arrangements to address significant flood risks for all water bodies in the borough including all principal rivers and tributaries;
- Develop strategic projects and partnership actions with a particular focus on the River Roch and tributaries and surface water flood risks in Heywood, Littleborough and central Rochdale;
- Prepare and deliver asset management and improvement programmes for highways drainage and flood risk management assets in the ownership of Rochdale Council; and
- Establish a funding strategy for short, medium and long term projects to maximise opportunities for Flood Defence Grant in Aid and other sources of funding to deliver the LLFA's priorities.

Ensure that development and land management do not increase flood risks and contribute to sustainable drainage and reduction of flood risk

13.9 The LLFA will:

- Ensure that the requirements for flood risk management set out in the National Planning Policy Framework and local Development Plan Documents are delivered through well located development which does not increase flood risk on site or downstream;
- Support production of Supplementary Planning Guidance by the Local Planning Authority to ensure the objectives and priorities of the flood risk management strategy are clearly recognised in planning policy and decisions and site and area based briefs and masterplans;
- Ensure the establishment of a Sustainable Drainage Approval Body compliant with government guidelines to ensure that proposals for sustainable drainage systems which require consent meet required standards and are appropriate for the development and location;
- Promote sustainable drainage systems wherever technically feasible and cost effective; and
- Ensure that all works on watercourses which could affect flood risk management have formal consent of the LLFA where required and that appropriate enforcement action is taken to ensure that unauthorised works are made compliant or are removed.

Ensure that how we manage and reduce flood risk helps our local communities, economy and environment to be more resilient to climate change impacts and helps to deliver a clean and safe water environment, rich in wildlife and opportunities for its enjoyment.

13.10 The LLFA will:

- Ensure all of our flood risk management projects and maintenance activities are compliant with Water Framework Directive requirements and help to deliver priorities established for the River Irwell catchment including through the Rivers Return partnership;
- Support delivery of green infrastructure projects which provide new or improved sustainable drainage assets including tree planting and flood storage;
- Support environmental stewardship proposals which seek to reduce litter and fly tipping and poor land management that can cause obstructions in watercourses;
- Deliver flood risk management projects which help to provide safe recreational access to our rivers and other water bodies;
- Ensure that flood risk management protects and wherever possible enhances and creates habitat and supports the conservation and improvement of landscape heritage;
- Support partnership working such as through the Irwell Rivers return project; and
- Work with delivery organisations such as the Pennine Edge Forest and Pennine Prospects and the Environment Agency and Greater Manchester Ecology Unit to identify appropriate green infrastructure and ecological enhancements.

14 Our Strategic Projects

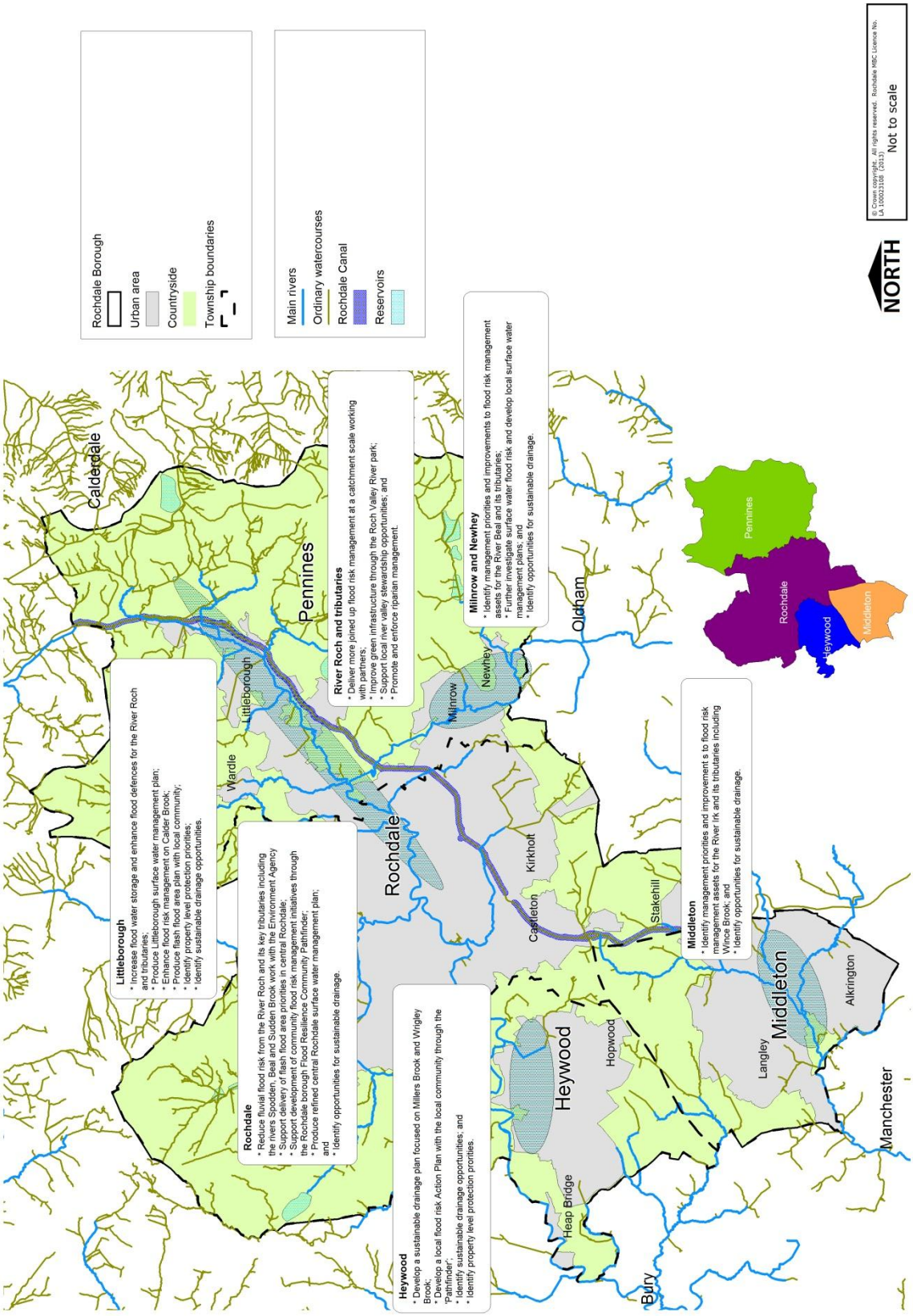
14.1 The Local Flood Risk Management Strategy will be delivered through a separate delivery plan including an annually reviewed work programme consisting of a range of actions both strategic and very local neighbourhood actions. Together they will help to manage and reduce flood risk in the borough. The strategy will involve a range of delivery approaches and timescales and it will include:

- Studies and investigations to ensure targeting of activities and proposals are well planned and based on good evidence;
- On-going maintenance activities for flood risk management assets, land and water bodies and highways;
- Partnership projects with other Risk Management Authorities including the Environment Agency and United Utilities to ensure more effective and integrated drainage and flood resilience strategies can be delivered for all sources of flood risk;
- Development led sustainable drainage systems and flood defence measures;
- Local authority asset improvement programmes; and
- Local community projects including environmental improvements, property level flood resilience, awareness and preparedness activities which may be included in local community flood risk action plans and green infrastructure plans.

14.2 The work programme will be reviewed annually to take account of updated flood risk data, availability of funding and flood risk events and their impact where they have taken place.

14.3 The Lead Local Flood Authority (LLFA) will adopt a proactive and responsive approach and will take opportunities to manage flood risk better wherever opportunities arise based on robust evidence of flood risk and its impact on people and their properties, business and the potential for disruption to highways and other essential infrastructure. Particular focus will be targeted on the areas of highest flood risk in the borough where need is greatest and the opportunity to attract resources working in partnership with the Environment Agency, United Utilities, land owners and developers to help manage or reduce that flood risk are most significant. These priority areas are set out in brief below and more detailed project plans for each will be produced. An illustration of the strategic flood risk management priorities in Rochdale borough can be seen in Figure 12 below.

Figure 12 Strategic flood risk management priorities in Rochdale borough



The River Roch – Littleborough to Rochdale Town Centre

14.4 The River Roch and its tributaries form the principal river system in Rochdale borough. They represent the highest source of fluvial flood risk in Rochdale borough which also contributes to downstream flood risk in the River Irwell catchment. Particular areas of high flood risk are located in Littleborough, and Smithy Bridge, Heybrook and Wardleworth and Rochdale town centre where the risk to residential properties and for severe disruption to business and travel is high. Risk from surface water flooding in these locations as identified in the Greater Manchester Surface Water Management Plan is also high creating a combined flood risk in many locations. The Environment Agency has designated parts of Littleborough and central Rochdale as a flash flooding area where water levels can rise quickly in heavy rainfall. The River Roch is a priority catchment for the Environment Agency who are currently undertaking a study of flood risk and opportunities for enhanced flood defences and flood storage in Littleborough which will help to manage and reduce risk more effectively.

14.5 The LLFA's objectives for the River Roch are to:

- develop a strategic approach to flood risk management for the Roch Valley building effective partnerships with the Environment Agency and other stakeholders;
- reduce flood risk to communities in Littleborough and central Rochdale in particular the numbers of properties assessed as being at significant risk;
- reduce risk to business and essential infrastructure;
- increase community and business awareness of flood risk and preparedness for flood events and their aftermath;
- empower people to be more actively involved in flood risk management within their communities, developing new skills and capacity ;
- develop robust and long term structures for the continued active involvement of local people in flood risk management through Flood Action Groups and associated Flood Action Plans working with Risk Management Authorities; and
- support economic growth and community regeneration through more effective flood risk management which helps to unlock regeneration and growth opportunities and is embedded in future development and environmental management proposals.

14.6 Rochdale Council is currently developing proposals for reducing flood risk along Calder Brook in Littleborough, one of the main upstream tributaries for the River Roch and is working with the Environment Agency to develop a catchment based approach to flood risk management including de-culverting measures in Rochdale town centre and supporting a package of measures for the River Roch in Littleborough and downstream towards Rochdale based on

the results of the Agency's flood risk study. The Council will also work with the Environment Agency to ensure measures to deal with residual risk which may include property level resilience measures are identified and is also working with the Environment Agency and the National Flood Forum to develop increased flood risk awareness and resilience in Wardleworth and Heybrook through the Flood Resilience Community Pathfinder outlined below. Flood risk management is also a priority for the Roch Valley River Park proposal which will also be used to ensure multiple environmental benefits are secured and to help maximise access to resources and engagement with communities.

Central Heywood

14.7 Heywood includes several locations where flood risk is high due to surface water flood risk as identified in the Greater Manchester Surface Water Management Plan. In addition there are pressures on the sewer network in primarily the same locations. Significant flood events have been experienced in recent years at locations including Pilsworth Road, Wilton Grove and Millers Brook Close which are part of the corridors of Wrigley Brook and Millers Brook.

14.8 The LLFA's objectives for Heywood are to:

- understand the causes of flood risk from all sources better;
- develop sustainable drainage solutions to reduce flood risk to residential properties and businesses at significant risk of flooding working in partnership with United Utilities, the Environment Agency and other stakeholders;
- increase community and business awareness of flood risk and preparedness for flood events and their aftermath;
- empower people to be more actively involved in flood risk management within their communities; and
- support economic growth and community regeneration through more effective flood risk management which is embedded in future development and environmental management proposals.

14.9 The LLFA will work with United Utilities to further investigate flood risk in Heywood and to identify measures for improved sewerage infrastructure and sustainable drainage systems. The need for further measures to deal with residual risk such as property level resilience will also be identified. As with central Rochdale, Heywood is also a part of the borough's Flood Resilience Community Pathfinder and work is underway with the National Flood Forum to increase flood awareness and community resilience to flood risk.

Flood Resilience Community Pathfinder

14.10 The Rochdale borough Flood Resilience Community Pathfinder project is funded through Defra to help increase awareness and preparedness in communities significantly affected by flood risk where behavioural change can be achieved and flood risk reduced in quantifiable ways.

14.11 The LLFA has established a partnership with the National Flood Forum to deliver a programme of engagement and capacity building with communities in Heywood and central Rochdale around Wardleworth and Heybrook to:

- raise awareness and understanding of local flood risk and how it can affect their lives;
- Increase local ownership of flood risk and responsibility for managing it within the community;
- Work with all sections of the community including local businesses, schools, neighbourhood and faith groups;
- increase property level protection, community resilience and preparedness and help support access to more affordable insurance in areas characterised by multiple deprivation, in particular for properties and locations identified as being at significant risk;
- create a positive and robust forum for working with risk management authorities where local communities are more empowered and engaged in planning and managing flood risk solutions that affect them;
- foster greater participation in local environmental stewardship; and
- develop an approach which can be used with other communities at risk.

14.12 The National Flood Forum are a national charity dedicated to supporting and representing communities at risk of flooding. Working with Rochdale Council, the National Flood Forum and supported by Groundwork Oldham and Rochdale and the University of Manchester, the project will support local communities in establishing local flood risk action groups and preparing locally produced action plans for flood risk management that they can deliver with the support of the LLFA, Environment Agency and United Utilities. Communities and individuals will be empowered and supported in achieving innovative, sustainable and deliverable solutions to flooding and reducing its impact and occurrence. The formal project will be completed in March 2015 but is expected to have an established legacy in the project communities through improved engagement between flood risk management authorities and communities with a shared delivery plan and established community champions. The project will also establish a model for working with other flood affected communities in the borough such as in Littleborough.

15 Funding

15.1 The Lead Local Flood Authority (LLFA) will ensure that flood risk management is carried out in a cost effective way based on a series of key principles:

- ensuring appropriate maintenance programmes to limit the need for costly replacement work wherever possible;
- maximising use of external funding and in kind resources such as through partnership projects, grant funds and developer contributions;
- wherever possible securing contributions from beneficiaries of improved flood resilience whilst ensuring that more deprived communities are not disadvantaged;
- embedding flood risk management where required as an essential part of development and environmental improvement projects and management regimes; and
- clearly focusing the strategy on reducing flood risk which affects people's homes and local business thereby reducing the full cost of flood risk to the borough, its communities and economy.

15.2 Opportunities for 'quick wins' will be identified on a continual basis using all available funding sources which will primarily be for small scale projects.

15.3 Most flood risk management projects require a lead in time where a business case for funding or a formal application must be submitted. In some cases projects will require a number of funding phases to be identified for example investigation of flood risk and developing options for addressing that risk prior to a bid for funding to deliver the final project. The LLFA's work programme will take account of the timescales required for project development and delivery including where necessary the investment processes and timescales relevant to our partners and key funding sources by establishing short, medium and longer term actions.

15.4 The LLFA is working with partners such as the Environment Agency and United Utilities to identify partnership funding opportunities for more strategic investigations and capital investment projects with particular focus on the River Roch corridor and central Heywood where flood risk is highest and opportunities to share investment priorities are greatest. The LLFA is also working with all Greater Manchester districts through AGMA and the Greater Manchester Flood and Water Management Board to develop an 'investment pipeline' including projects with a higher economic value to Greater Manchester, helping to deliver the Greater Manchester Strategy and a programme of investigations, drainage asset improvements and flood resilience projects seeking Flood Defence Grant in Aid and Local Levy funding.

15.5 The main sources of potential funding for our flood risk management work programme will be:

- Local authority capital investment programmes;
- Local authority Local Services Support Grant;
- Fees and charges relating to statutory flood risk management functions including SAB applications and consent for works on Ordinary watercourses;
- Flood Defence Grant in Aid through Defra and the RFCC;
- Local Levy through the RFCC;
- Defra Flood Resilience Community Pathfinder Programme;
- Development related funding such as Section 106 contributions and subject to its introduction, Community Infrastructure Levy;
- United Utilities Asset Management Plan;
- European Regional Development Fund; and
- Environmental and community grant programmes

15.6 Opportunities for funding will be constantly reviewed and updated through the Flood Risk Management Strategy delivery plan and work programme updates.

16 Monitoring and review

16.1 It is important that our strategy takes full account of changing flood data affecting our borough and wider catchment areas of which it forms a part, legislative requirements, recent flood events, and their impacts, locally determined priorities and the various policies, programmes and funding opportunities relevant to this agenda which can change through time.

16.2 The Lead Local Flood Authority (LLFA) will establish a monitoring and evaluation framework for this strategy and its associated work programme identifying quantifiable changes in flood risk reduction that will be measured including:

- Numbers of properties and businesses moved to a lower band of flood risk through flood resilience measures;
- Numbers of property and business owners better informed about flood risks affecting them and their community;
- The condition of local authority assets which have a significant role for flood risk management;
- Numbers of local community flood groups and initiatives established and their achievements; and
- Numbers of sustainable drainage systems delivered in the borough.

16.3 The LLFA will carry out a quarterly review of established work programmes for flood risk management and an annual review of progress against delivering the objectives of the strategy. A full review of the Flood Risk Management Strategy will be carried out through Rochdale Council no later than 5 years after approval to ensure it remains fit for purpose and clearly focused on flood risks affecting the borough and is an effective tool in delivering better flood risk management and a reduction in risk for communities at significant risk and our local economy.

16.4 The Strategy will be supplemented over time by a range of appendices which assist the clarity and delivery of the strategy. Future supplementary elements to the strategy will address new national, regional and local policy, guidance and standards where appropriate or provide greater detail or clarity to the delivery plan for the strategy. Future appendices will be included with the version of the strategy available through the Rochdale Council website and include:

- The delivery plan and subsequent annual reviews;
- Supplementary Planning Documents;
- Further supporting documents for the Sustainable Drainage Approval Body when established (expected April 2014);

- Local Flood Action Plans where produced through the Rochdale Flood Resilience Community Pathfinder and any subsequent initiatives supported by the LLFA;
- Relevant further studies and research; and
- New or revised policy, guidance and standards relevant to the strategy and its delivery including those produced by the LLFA, other Risk Management Authorities, the Regional Flood and Coastal Committee and the Association of Greater Manchester Authorities/Greater Manchester Combined Authority.

17 Further information

17.1 The list of references included below is not exhaustive but provides a starting point to find out more about flood risk and flood resilience. If you have a specific enquiry you should in the first instance contact Rochdale Council or the Environment Agency for further advice.

17.2 Rochdale Council as Lead Local Flood Authority can provide further information on flood risk issues and projects in Rochdale borough and can advise on issues relating to the Local Flood Risk Management Strategy, planning proposals, local flood risk management projects and improving local flood awareness and preparedness. Once approved the Local Strategy and its supplementary documents and further relevant local documents will be available through the Council's website www.rochdale.gov.uk. Please contact 01706 924252 or email strategic.planning@rochdale.gov.uk

17.3 Details of legislation relating to flood risk management and other publications including consultation on new plans and guidance is available through Defra and can be viewed and downloaded through their website www.gov.uk

17.4 The Environment Agency can provide details of the most up to date flood mapping for rivers, surface water and reservoirs and other advice about flooding for Rochdale borough. The Agency also publishes various plans, strategies, advice and guidance such as 'Living On The Edge' a handbook for riparian owners about their responsibilities. Much information including flood maps can be viewed or downloaded through their website www.environment-agency.gov.uk

17.5 The Association of Greater Manchester Authorities (AGMA) website includes access to plans, strategies and studies relating to flood risk including the GM Strategic Flood Risk Assessment and also, under the 'Greater Manchester Prepared' section of the website advice which refers to reservoir, surface water and river flooding and relevant emergency response matters. Visit www.agma.gov.uk

17.6 The National Flood Forum are a national charity dedicated to providing support and advice to communities and individuals at risk of flooding. Amongst other matters they can advise about flood insurance, setting up local flood groups and provide advice about property level flood resilience. The Flood Forum publishes its 'Blue Pages' directory of flood protection products and services. Visit their website at www.floodforum.org.uk

17.7 The University of Manchester in collaboration with Manchester Metropolitan University and the Building Research Establishment has produced a guide to

property level flood protection for property owners 'Six Steps To Property Level Flood Protection' which can be obtained through the National Flood Forum website.

17.8 The EcoCities project is a joint initiative between the University of Manchester and property company Bruntwood and looks at climate change impacts and adaptation responses in Greater Manchester. The key findings are available at www.adaptingmanchester.co.uk which includes a web based spatial portal enabling users to visualise climate change hazards and vulnerabilities.

18 Appendix 1 - AGMA policy for investigating flood incidents

THE LEGISLATION

Section 19 of the Flood and Water Management Act 2010 states that:

(1) On becoming aware of a flood in its area, a lead local flood authority (LLFA) must, to the extent that it considers necessary or appropriate, investigate:
  (a) Which risk management authorities have relevant flood risk management functions, and
  (b) Whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood
(2) Where an authority carried out an investigation under subsection (1) it must –
  (a) Publish the results of its investigation, and
  (b) Notify any relevant risk management authorities

NB. The term 'flood' includes any case where land not normally covered by water becomes covered by water (from natural sources). It does not include flooding from a burst water main or any part of the sewage network (unless caused by the volume of rainwater entering the system).

1.0 RATIONALE

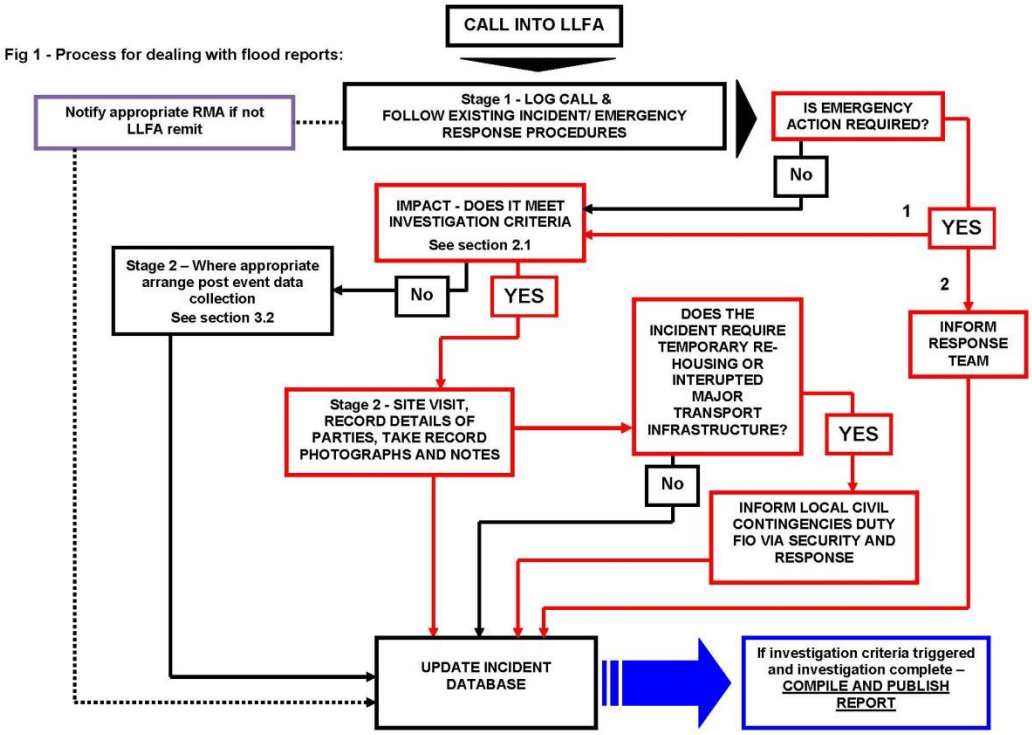
There has been no guidance provided on how to discharge this duty and many elements remain highly subjective. As a result, and to avoid inconsistency across the conurbation; this policy has been drafted for local implementation to improve the understanding of flood risk and flood risk management uniformly.

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.

1.1 REPORTING PROCEDURES

Depending on the circumstances, flooding may be reported to the LLFA through a number of different sources, including: The Contact Centre; Highways and Engineering Service; Emergency Planning Service; Housing Management Services and the Emergency Services, any of which may take the initial notification of the incident. It is therefore vital to ensure that one nominated contact (the Lead Local Flood Officer or the relevant team) is identified, and that training and awareness sessions are put in place to ensure reports and details of the incident are all correctly directed and are not missed. A secondary contact should also be nominated to ensure cover during absences, and a system should also be put in place to cover flood incidents which occur outside of normal office hours.

Fig 1 - Process for dealing with flood reports:



2.0 CRITERIA FOR UNDERTAKING INVESTIGATION

Not all flood incidents will justify a full investigation. Despite this, it is necessary to collect focal information from all incidents, even where the impact of the incident is minimal. All 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.

2.1 IMPACT/CONSEQUENCE

It is recommended that an incident be defined as 'significant' based on any of the following factors and would potentially trigger a full investigation (see assessment matrix section 5.0):

Trigger	**Consequence.**
Risk to life	Death, accident/ injury.
Weight of public, media, political and planning interest	Reputation.

Impact on critical services	Critical services include schools, hospitals, nursing homes and emergency services.
Internal residential property flooding - ≥ 5/6	'Internal' flooding includes flooding inside the main property and any outbuildings which provide living accommodation. Any flooding of other outbuildings and garages etc. should be classed as 'external', except where they are integral to the main property and accessible via an internal door. – It is important to collect accurate records of internal property flooding, to support any decisions on flood defence funding. This information may be requested in regards to future property purchases, any inaccurate data could potentially prejudice a sale resulting in legal action.
Economic disruption	Consider the relative impacts of flooding of **commercial property**. In some cases, flooding of a single commercial property could no more warrant investigation than flooding of a single residential property; but in other cases, the serious flooding of a large, single property could be extremely disruptive to the economic functioning of a community or have significant impact on a local or regional economy, and would therefore certainly trigger an investigation. Other causes of economic disruption should be covered by consideration of impacts upon infrastructure.
Impact on critical infrastructure and installations	Critical infrastructure includes motorways, 'A' roads, rail links, port facilities, utility installations, bridges, flood defences etc.
Frequency of flooding	Also consider depth of flooding, were residents displaced and the duration of such.

- Effective deployment of defensive measures should also be recorded.
- Consideration should also be given to any locally significant flood incidents which the LLFA may choose to investigate regardless of the criteria above.

3.0 SCOPE OF EVIDENCE GATHERING

Regardless as to whether a flood incident will result in a full and formal published investigation gathering information relating to the cause and impact of the flooding is necessary at all stages of the event.

Whilst the amount of data required to provide an insight into the cause of the flooding should remain **proportionate** to the size of the event it is imperative that all LLFA's ensure a process is embedded to support this. It is each districts responsibility to nominate a Lead Flood Officer and provide training and incident response procedures which align with this policy.

If there are issues around the nominated Flood Officer having the capacity or correct training to attend, this should be overcome through training and awareness sessions between all involved directorates and a strong Flood Risk Management Working Group.

Part of the process should also identify the means of capturing this data and in what format it should be recorded and stored to ensure the information can be viewed and shared for use by any relevant parties. This will not only ensure relevant data is captured in a timely manner but evidence is available to support future bids within the GM investment programme.

3.1 STAGE 1 – Incident Recording

The following information should be gathered at the time the incident is reported:

Information type	Information required
Caller details:	• Name • Address • Telephone number • e-mail

By what route was the call received:	• Direct from the caller
	• 3rd party
	  ○ family or friends of the person affected
	  ○ other RMA's
	  ○ Emergency services
	  ○ Councillor on behalf of their constituency
	  ○ Other – please state

Incident details:	• Reference no: • Address/ location: • Date and Time of incident:
What is/has flooded:	• Property – internal – If Yes, ask whether basement or Ground floor • Property – external • Level of flooding (if already occurred) – approximate depth • Highway • Open space (define) • Other (define)
Where is/was the water coming from:	• Overflowing Manhole/Drain • Overflow from a river or stream • Water running off the highway • Water running off a field • Other (define) • Don't Know
Additional risk information:	• Is/was there a danger to life? (if yes advise caller to contact the emergency services immediately) • Is/was there a foul smell? • Is/was there evidence of sewage in the water? • Is the water still rising? If so, how deep is it? • Is there a watercourse nearby? If so, what is it called? • Is there on-going traffic disruption? • Other factors (define)

3.2 STAGE 2 - Site Information Data Gathering

This information whilst again being proportionate to the size of the event is necessary to validate initial reports received from the public or 3rd parties including the media and would be included in the final report if a full investigation is required. Each LLFA should aim to gather the following information:

Information type	Information required
Incident details:	• Reference no: • Location: • Date and time of incident: • Date and time of site visit
What is/has flooded:	• number and type of receptors affected; • extent, depth and velocity of flooding • extent of damage to critical infrastructure
Where is/was the water coming from:	• source and cause of flooding and any interactions with other sources of flooding;
Additional risk information:	• duration of event; • topographic / land use / drainage infrastructure information associated with the affected site; • any immediate resolution, and any links to longer term mitigation / management measures; • previous similar and historic incidents • any measures taken during the event to limit damage and their apparent effectiveness • photographic evidence of flooding

4.0 PUBLISHING

If a Formal Investigation has been undertaken, the LLFA has a legal Duty to publish a report of its findings. Local procedures for approval and publishing of public documents should apply.

Special consideration should be made for cross-boundary incidents, and the format of reporting and sharing of information should be agreed between neighbouring LLFAs.

5.0 ASSESSMENT MATRIX

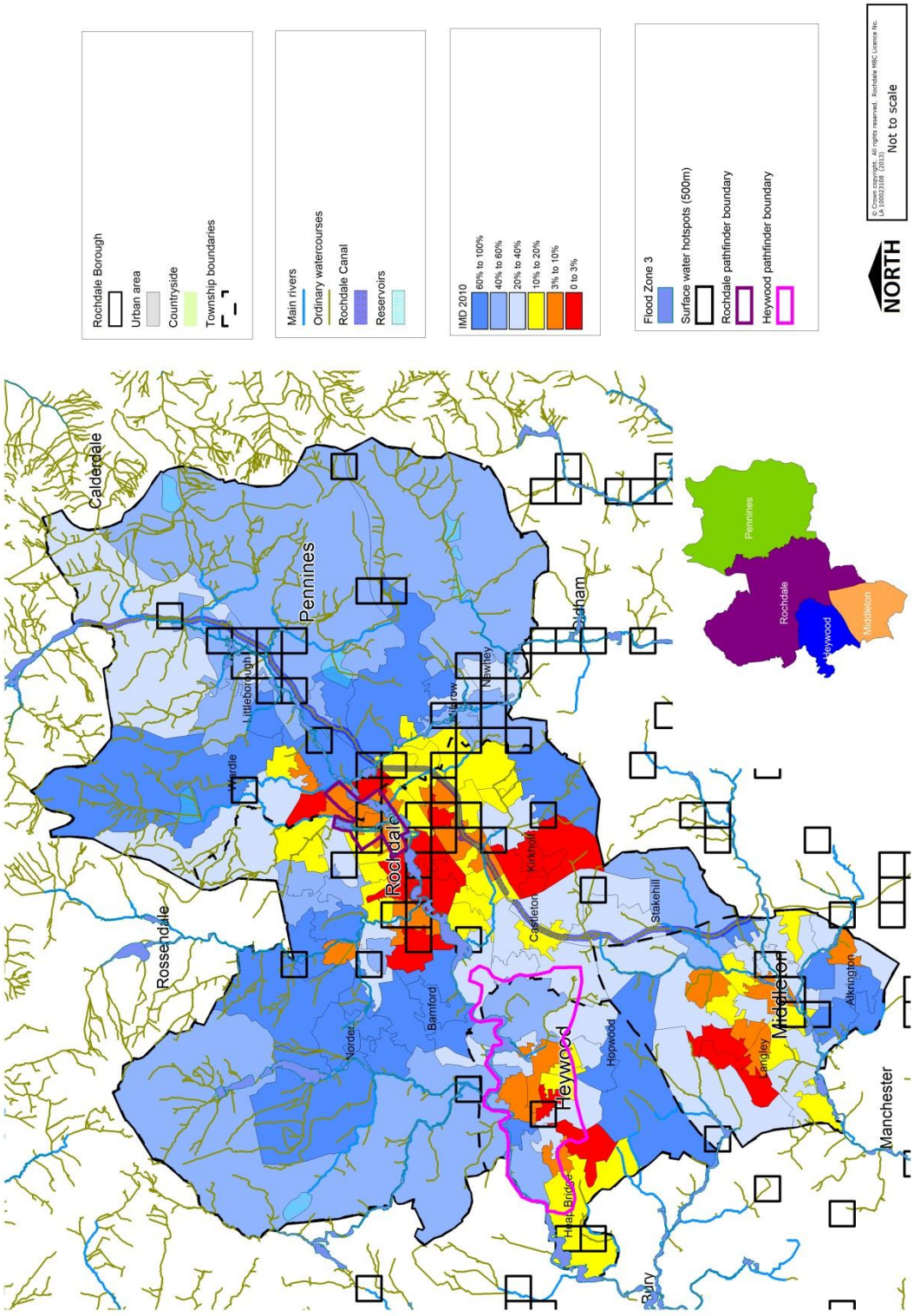
The following table provides guidance as to determine whether a full investigation is required:

NUMBER	FLOODING IMPACT	IF 'YES' GO TO:	IF 'NO' GO TO:
1	Has a flood incident occurred? • Internal property flooding - residential/commercial • Economic disruption • Risk to life or public health • Affecting critical services, infrastructure and or installations • Deployment of defensive measures	4	2
2	Has a flood incident occurred to; • Non-priority highways? • Parks, gardens or open space (posing no threat to life or	3	---

	public health)?		
3	Is there a local/ political desire to investigate the incident?	**4**	**12**
4	Have you identified the relevant risk management authority? If necessary, arrange a meeting of the local flood risk management partnership (A meeting may only be necessary for major events – minor events may only need information circulated by phone or email between LLFA, the Environment Agency and United Utilities)	**8**	**5**
5	Notify the relevant flood risk management authority	**6**	**---**
6	Is the risk management authority exercising their functions in relation to this incident?	**7**	**4**
7	Log the correspondence in the incident file and request copies of the outcome if/ when appropriate.	**---**	**---**
8	Is there a history of flooding in the area?	**9**	**13**
9	Has this been investigated before?	**10**	**13**
10	Is the cause and extent the same as previous incidents?	**11**	**13**
11	Log incident details; promote self-help and community resilience.	**12**	**---**
12	**REVIEW SITE VISIT & DATA COLLECTION** Is a full investigation required based on information available?	**13**	**11**
13	**FULL INVESTIGATION – AND PUBLISH** *Consider scope for Flood Defence Grant in Aid application for property-protection scheme.*	**---**	**---**

19 Appendix 2 – Flood risk in Rochdale borough and its relationship to multiple deprivation

Figure 13 Flood risk in Rochdale borough and its relationship to multiple deprivation



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