



Local Flood Risk Management Strategy 2014

**Blackburn with Darwen
Borough Council**

Blackburn with Darwen Borough Council - Local Flood Risk Management Strategy 2014

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Exec Summary

This Local Flood Management Strategy has been produced Blackburn with Darwen Borough Council to show how we intend to manage the risk from local sources of flooding.

The Flood and Water Management Act (2010) has designated the Unitary and County Councils as Lead Local Flood Authorities, placing a number of legal duties and responsibilities on them in managing flood risk in their constituency. This strategy is has been produced following the introduction of the Act.

The strategy shows how we intend to undertake our new duties and responsibilities, though some of these duties and responsibilities are existing. As a result of the act, Lead Local Flood Authorities will be required to develop new approaches, systems and policies to manage flood risk.

Flooding may occur from a variety or a multiple of sources, occurring over short and long timespans. We realise that in order to successfully manage local flood risks, there is a need to work closely with other organisations responsible for managing flood risk from other sources of flooding, such as the Environment Agency, who manage flood risk on national scale, and United Utilities, as the water company for the north west of England.

Water does not follow administrative boundaries, and as a result, water will flow where it wants to and natural catchments can channel water from one council's area to another. We have good relationships in terms of the wider Flood Risk Management roles we have as Lead Local Flood Authorities. In many instances we can work together with neighbouring authorities to manage developments, wider strategic infrastructure and issues such as flooding and water quality.

This strategy proposed a series of strategic objectives with a view to achieving the objectives through specific actions or measures. An action plan has been formulated to summarise the actions and timescales we feel are realistic in achieving each of the actions.

The risk of flooding will not be completely eradicated, however we can work to reduce this risk and support our communities. This strategy aims to do that in bringing our stakeholders and local communities together in managing flood risk.

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1 Introduction

1.1 Background

Flood incidents can seriously affect people's lives and businesses, with its effects being devastating. The summer of 2007 resulted in widespread flooding causing devastation across England and Wales. It is estimated that 55,000 homes and businesses, with the majority of these properties being flooded from surface water flooding¹.

It was viewed that the flooding exposed significant gaps in the way that flood risk was assessed and managed by the Environment Agency, Local Authorities and Water Companies.

Following the flooding the Government commissioned Sir Michael Pitt to undertake an independent review to 'learn lessons' from the floods. The report included a review into the role of the organisations involved in the management of flood risk. Pitt's report called for fundamental changes to the way in which flooding was managed, outlining 92 recommendations, of which 21 were specifically related to Local Authorities and their responsibilities. The report recommended that Local Authorities should play a major role in the management of local flood risk, taking the lead in tackling local flooding and co-ordinating all relevant agencies.

The Blackburn with Darwen Borough has experienced major flood incidents across the borough, especially throughout the summer of 2012. Much of this is as a result of culverted watercourses and aging infrastructure, as well as the topography of the borough, leading to River Darwen and River Blakewater. There are also many localised

¹ Pitt, M. (2008) 'Learning Lessons from the 2007 Floods', The Pitt Review

spots prone to surface water flooding or the emergence of groundwater.

Flooding is a natural process which shapes our environment, but it can also pose a threat to the safety and wellbeing of communities.

The impacts of flooding include:

- Damage to residential and commercial property, key services and infrastructure such as roads and hospitals;
- Damage to agricultural land and crops;
- Increases in the cost of, or an inability to gain access to, flood insurance;
- Health related impacts (both physical and psychological); and
- Environmental impacts such as the pollution of watercourses harming wildlife and habitats.

Flooding from local sources cannot be tackled in isolation as multiple sources often combine to produce a flood event. It is not possible to prevent all flooding but BwDBC will work, with its stakeholders, to manage and limit the impacts of local flooding on communities across the borough.

1.2 Flood Water Management Act 2010

The Flood and Water Management Act (2010), which formed part of Government's response to the Pitt review, provides a new framework for the management of flood risk. The Act has placed a number of the recommendations from the Pitt Review into legislation, resulting with Unitary Authorities and County Councils being designated as Lead Local Flood Authorities (LLFAs). This has enabled Local Authorities to have greater powers in helping manage local flood risk in a more coordinated way. These new responsibilities relate primarily to 'local' flood risk, namely from surface water, groundwater and ordinary

watercourses (smaller rivers, streams and ditches). Flood risk from all other rivers (known as main rivers) remains the responsibility of the Environment Agency.

As part of the Act, a number of new duties have been introduced having never been undertaken by any organisation before. Others may have been undertaken by different bodies in some areas, but are now the responsibility of the LLFA.

1.3 Local Flood Risk Management Strategy

The legislation places a legal duty on Blackburn with Darwen Borough Council, as the Lead Local Flood Authority for the borough, to develop and implement a Local Flood Risk Management Strategy (LFRM Strategy), aimed at managing local flood risk.

The LFRM Strategy provides a set of objectives, reflecting the requirements of recent legislation including:

- Flood and Water Management Act 2010 (FWMA)
 - Aimed at providing comprehensive management of flood risk for people and businesses
- The Flood Risk Regulations 2009 (FRR)
 - Transposes the EU Floods Directive into UK law
- The National Flood and Coastal Erosion Risk Management Strategy for England (2011) (FCERM)
 - LFRM strategies must be consistent with the National FCERM Strategy in managing flood risk and coastal erosion

The Lead Local Flood Authority (LLFA) has a statutory duty to produce this Local Flood Risk Management (LFRM) Strategy. This strategy provides the platform to work together with other Flood Risk

Management Authorities (RMAs) in reducing the flood risk to the residents and businesses within the Borough and prepare for the future.

It is a high level, statutory document which sets out the Council's approach to reducing the impacts of local flooding across the borough. It also promotes greater partnership working arrangements between those organisations with a responsibility for managing local flood risk and provides a strategic framework within which the various 'Risk Management Authorities' must work.

The LFRM Strategy must be consistent with the Environment Agency's National Flood and Coastal Erosion Risk Management Strategy (National Strategy)², while creating an outline structure for managing flood risk in the borough.

Our vision for managing flood risk in the borough is to coordinate with other RMAs and the residents of the borough using sustainable and practical approaches to benefit the borough, its people and the land. This development of the strategy has drawn on six principles for how flood risk management decisions should be made to realise our vision for the borough:

² www.environment-agency.gov.uk



Illustration 1

2 Objectives and Measures of the Strategy

The LFRM Strategy for the Blackburn with Darwen Borough has been developed based on the guidance from the Local Government Association³.

A strategy is a plan of action designed to achieve a single, or a series of, objectives. Strategies tell you how you're going to get there, the overall direction you are going to take.

Objectives are the ends toward which effort and action are directed or coordinated.

Strategic performance measures monitor the implementation and effectiveness of the strategies, providing a way to see if our strategy is working. The measures also provide a common language for communication for all stakeholders to understand how the objectives have been implemented.

The Council undertook a consultation exercise of 9 objectives with the Risk Management Authorities and the public between 15th April 2013 and 3rd May 2013. The comments were reviewed following this consultation exercise, and used to develop the Local Flood Risk Management Strategy for the borough of Blackburn with Darwen. This strategy presents the reviewed 9 objectives, aiming to follow the core principles set out in the National Strategy. The objectives are presented in *Section 3*.

Each objective is presented and detailed, followed by actions we feel will achieve this objective. A summary of each of the objectives and actions are presented in *Section 4* in the form of an Action Plan.

³ www.local.gov.uk

3 Objectives

This Local Flood Risk Management Strategy includes the following 9 objectives: -

Develop Partnerships with RMAs	<ul style="list-style-type: none">•Section 3.1•Roles & Responsibilities
Understand Local Flood Risks	<ul style="list-style-type: none">•Section 3.2•Key Local Flood Risks
Enable RMAs to Make Efficient & Effective Decisions	<ul style="list-style-type: none">•Section 3.3•Effective and Efficient Decisions
Manage Future Development Works	<ul style="list-style-type: none">•Section 3.4•Development and Improvement Works
Engage with Communities	<ul style="list-style-type: none">•Section 3.5•Community Involvement and Ownership
Effectively Manage Flood Risk Assets	<ul style="list-style-type: none">•Section 3.6•Asset Management
Develop a Strategy for Funding	<ul style="list-style-type: none">•Section 3.7•LLFA Funding and Staff Resources
Integrate Economic, Social and Environmental Benefits	<ul style="list-style-type: none">•Section 3.8•Economic, Social and Environmental Benefits
Review the Local Flood Risk Management Strategy	<ul style="list-style-type: none">•Section 3.9•Local Flood Risk Management Strategy

3.1 Roles & Responsibilities

As part of the Flood and Water Management Act, all RMAs should cooperate in the exercise of their FCERM functions. Each RMA has its own distinctive roles and responsibilities. The legislation defines the responsibilities of RMAs, however it is prudent to clarify the roles & responsibilities of all RMAs to ensure there are no gaps in the understanding of what is required. This understanding and knowledge of future planned works can provide the foundation for future strategic co-ordination activities.

3.1.2 Lead Local Flood Authority

Blackburn with Darwen Borough Council

Prior to the introduction of the FWMA, Blackburn with Darwen Borough Council undertook activities in reducing flood risk, though was not active in having an overarching lead in managing flood risk. The Council, as a Highways Authority maintained the highway drainage network; as a Planning Authority assessed planning applications; and plays a lead role in emergency planning and recovery after a flood as part of its duties under the Civil Contingency Act 2004. Responsibility for these areas will continue, however further duties have been placed upon the Council.

Under the Flood and Water Management Act 2010, Blackburn with Darwen Borough Council (BwDBC), as LLFA, has a responsibility for flooding from local sources, i.e. flooding caused by:

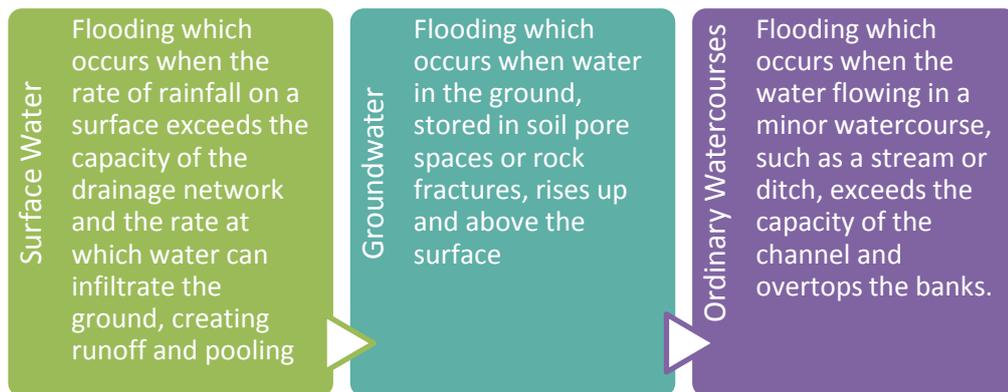


Illustration 2

The Act also establishes a number of duties, powers and responsibilities upon LLFAs:

<p>FWMA Section 9 to 12</p>	<ul style="list-style-type: none"> • Produce a Local Flood Risk Management Strategy <ul style="list-style-type: none"> • The new Lead Local Flood Authorities (LLFA) will have overall responsibility for development a Local Flood Risk Management Strategy for their area and for bringing together all relevant bodies to manage local flood risks.
<p>FWMA Section 14</p>	<ul style="list-style-type: none"> • Powers to request information <ul style="list-style-type: none"> • LLFAs and the EA have greater powers in requesting information in connection with that body's flood risk management function, in line with the guidance provided by Defra.
<p>FWMA Section 19</p>	<ul style="list-style-type: none"> • Investigate significant local flooding incidents <ul style="list-style-type: none"> • The LLFAs have a duty to investigate and report on flooding incidents in its area. The significant flooding incidents must be published.
<p>FWMA Section 21</p>	<ul style="list-style-type: none"> • Maintain a register of assets <ul style="list-style-type: none"> • LLFAs have a duty to develop and maintain a register of assets of physical features that have a significant effect on flooding in their area, as well a record of information including ownership and state of repair.
<p>FWMA Section 30</p>	<ul style="list-style-type: none"> • Designation of features <ul style="list-style-type: none"> • LLFAs, District councils, Internal Drainage Boards (IDBs) and the EA have the power to designate third party features structures or features which contribute to the flood and coastal erosion risk management system
<p>FWMA Section 32</p>	<ul style="list-style-type: none"> • Establish a SuDS Approving Body (SAB) for the design, building and operation of Sustainable Drainage Systems (SuDS) <ul style="list-style-type: none"> • LLFAs will be required to approve most types of rain-water drainage systems before any construction work with drainage implications prior to starting. The Act introduces standards for the design, construction, maintenance and operation of new rainwater drainage systems, and an "approving body" – a SAB.
<p>FWMA Section 39</p>	<ul style="list-style-type: none"> • Incidental flooding or coastal erosion: local authorities <ul style="list-style-type: none"> • LLFA's are to manage flooding, water levels and coastal erosion in the interests of nature conservation, the preservation of cultural heritage or peoples enjoyment of the environment.
<p>Land Drainage Act Section 23 (as amended by FWMA)</p>	<ul style="list-style-type: none"> • Ordinary Watercourse Consenting <ul style="list-style-type: none"> • Ordinary watercourse consenting which requires consent to be issued for altering, removing or replacing certain structures or features on ordinary watercourses is now the responsibility of the LLFA and not the EA.

Illustration 3

3.1.2 Environment Agency

The Environment Agency (EA) is responsible for managing flood risk from main rivers, reservoirs and the sea, and also has a strategic overview role over all flood and coastal erosion risk management. It also has a key role working in partnership with the Met Office in providing flood warnings to the public and protecting and improving the environment and promoting sustainable development.

River flooding, also known as fluvial flooding, occurs when a watercourse cannot accommodate the volume of water that is flowing into it. Rivers are categorised into main rivers and ordinary watercourses. Main rivers are usually large watercourses but also include smaller watercourses of strategic drainage importance. The EA's powers to carry out flood defence works apply to main rivers only. All other smaller watercourses, ditches and streams are classified as ordinary watercourses.

The EA's work includes the following:

- Flood and Coastal Erosion Risk Management (FCERM)
 - The EA monitor and report on FCERM, reporting on how the national FCERM strategy is having an impact across the country. It looks to develop long-term approaches to FCERM, including working with others to prepare and carry out sustainable Catchment Flood Management Plans (CFMPs) to address flood risk in each river catchment, and Shoreline Management Plans (SMPs) to assess the risks of coastal flooding and erosion and propose ways to manage them.

- Support LLFAs
 - The EA assists LLFAs by collating and reviewing assessments, maps and plans for local flood risk management. The EA also provides evidence and advice to support others where required. This includes national flood and coastal erosion risk information, data and tools to help other risk management authorities and inform Government policy, and advice on planning and development issues.

- Collaboration
 - Working with others to share knowledge and the best ways of working. This includes work to develop FCERM skills and resources.

3.1.3 Highways Authorities

Highways Agency and Blackburn with Darwen Borough Council

The Highways Agency (HA) and BwDBC Highways Department are responsible for managing flood risk on roads and highways within the borough. For motorways the responsibility lies with the HA, which in the borough of Blackburn with Darwen only refers to the M65; all other roads, the responsibility lies with the BwDBC Highways Department. The relevant highways authority has a duty to provide and manage highway drainage and roadside ditches under the Highways Act 1980, and to exercise their functions in a manner consistent with local and national strategies.

3.1.4 Water Companies

United Utilities

Water companies are responsible for the management of flood risk from their water supply infrastructure and sewers. In the borough of Blackburn with Darwen, United Utilities (UU) has the responsibility of the water supply, sewers and some reservoirs.

The introduction of the FWMA has resulted in UU required to maintain a register of properties at risk of flooding due to a hydraulic overload in the sewerage network. The Act has also placed a responsibility on the water company to have a regard for the LLFA-produced Local Flood Risk Management Strategy, while remaining consistent with the EA-produced National Strategy.

3.1.5 Riparian Owners

The term "Riparian Owner" describes anyone who owns property alongside a natural watercourse. These people are key players in the management of local flood risk.

Under common law they possess rights and responsibilities appertaining to the stretch of the watercourse which follows or falls within the boundaries of their property. A riparian owner is responsible for accepting water from the section of watercourse owned by their upstream neighbour and transferring this, together with drainage from their own property, to their neighbour immediately downstream.

Riparian owners are entitled to:-

- protect their property from flooding; and
- protect their banks from erosion.

These rights are modified by a duty to the rest of the community and to the environment. Environmental issues including wildlife conservation, fisheries, reshaping of the river and landscape must all be considered. Plans for any works other than general cleaning and routine maintenance must be approved by BwDBC and consents secured before going ahead with any such works (Section 23, Land Drainage Act 1991). This applies to any modifications which might affect the flow characteristics or capacity and include installation of dams, weirs, mills, channel diversions and in particular, culverting or piping.

Riparian Owners have a duty of care towards their neighbours upstream and downstream and must avoid any action likely to cause flooding of their neighbour's land or property.

The ultimate responsibility for maintenance of the watercourse, including the banks, rests in perpetuity with the riparian owner, regardless of whether such works have occasionally in the past and without prejudice, been carried out by, and at the expense of the Council. This could include clearing obstructions, repairing the banks, and protecting vegetation/trees.

There are additional restrictions regarding the siting of any kind of structural work on or near river banks, or anywhere within a river flood plain. This is regulated by the Environment Agency from whom approval is required in addition to planning and building consents from the Local Authority. Other amenity considerations may apply, such as fishing, boating and conservation of the natural environment.

Water abstraction from and discharges into a watercourse are also regulated by the Environment Agency. It is important that riparian owners preserve access to the banks of rivers and streams for maintenance and safety purposes. This will influence fencing and the

control of undergrowth and vegetation on and around the banks and the provision of access tracks.

3.1.6 Other Risk Management Authorities

Other authorities and stakeholders, with no designated role under the FWMA, also have a key responsibility for flood risk management in their own areas of discipline. These include:

- Network Rail
- Canal and River Trust
- Met Office
- Natural England
- English Heritage
- Association of British Insurers
- National Farmers Union
- National Trust
- Parish and Town Councils
- National Flood Forum
- Local flood partnerships, forums and community groups

It is expected that these authorities will undertake their activities in a manner which is consistent with this strategy.

3.1.7 Working with Partners

Managing flood risk requires a common understanding amongst us and our RMA partners. We meet our partners at a variety of levels to co-operate at the different levels in achieving common and co-ordinated goals, including jointly working to prepare Preliminary Flood Risk Assessments (PFRAs) in 2011. The structure can be seen in Illustration 4.

North West Regional Flood and Coastal Committee (RFCC)

- Regional governance and funding decisions
- The North West RFCC is responsible for reviewing flood defences in the Region and for determining how the defences will be managed in years to come. It is a committee established by the Environment Agency under the FWMA which brings together members appointed by the LLFAs and independent members with relevant experience for three purposes:
 - to ensure there are coherent plans for identifying, communicating and managing flood and coastal erosion risks across catchments and shorelines
 - to promote efficient, targeted and risk-based investment in flood and coastal erosion risk management that optimises value for money and benefits for local communities
 - to provide a link between the Environment Agency, LLFAs, other risk management authorities, and other relevant bodies to engender mutual understanding of flood and coastal erosion risks in its area

The Lancashire Strategic Partnership Group

- Strategic planning and co-ordination between RMAs
- These meetings are attended by elected members and senior representatives from the RMAs in the Lancashire region, which includes Blackburn with Darwen. The group meets to discuss the strategic direction of flood risk management in the region and any wide spread flooding events which affect more than one local authority area. They also agree the regional priorities to be taken to the RFCC meeting.
- The RFCC has a North West wide membership and the Lancashire Strategic Partnership Group is tasked with ensuring that the flooding issues which are important to the region are well represented at a North West level.

Partnership Management Group

- Technical and operational meetings to address specific issues across Lancashire
- The Partnership Management Group is attended by technical and operational lead officers from the Environment Agency, Water Companies and all of the local authorities, (including representatives Blackburn with Darwen, Blackpool and Lancashire County Council, including from its' borough councils). This group will address priority flooding incidents, co-ordinate delivery, share skills and establish priorities for joint working.

Making Space for Water Meetings

- Operational meetings to address issues at the district and borough level
- There is a Making Space for Water Meeting in Blackburn with Darwen, as well in Blackpool and Lancashire. The meetings are attended by those officers from the Environment Agency, Water Companies and both Lancashire County Council and the borough council who have specific local knowledge about flooding incidents. The meetings are used to identify local flood hotspots and discuss potential solutions. They also enable partners to identify larger schemes which can be put forward into the bidding process for funding opportunities.

Illustration 4

3.1.7 Objective – Develop Partnerships with RMAs

In order to fulfil this objective the following specific actions need to be undertaken

Define Roles & Responsibilities

- Each of the RMA's roles & responsibilities need to be identified, defined and agreed in writing through a Memorandum of Understanding. An internal consultation between all the RMAs will develop agreed responsibilities and will include any delegation of responsibilities. This Memorandum should include an understanding of the expectations of the RMAs involved. This will enable and guide works towards delivering benefits for each RMA.

Define Consenting Process

- The process for Consenting works on Ordinary Watercourses needs to be defined, and made available for the public. By defining and promoting the BwDBC approach to Consenting on Ordinary Watercourses as well as the relevant enforcement, it will lead to a direction reduction in misunderstandings and ensure works are progressed in a defined process.

Build Strong Partnerships

- Mutual understanding can be gained by developing strong partnerships between all the RMAs. All the relevant RMAs should seek opportunities visit partner sites, schemes and risk areas which would foster closer working, improving that understanding. By developing stronger links with RMAs and other organisations, such as the Met Office, the RMAs are presented with the best possible chance of reacting to flooding. Communication amongst the RMAs will improve understanding of what other organisations can and cannot deliver.

Improve co-ordination of future works

- Sharing information about planned FRM works and schemes may lead to identifying opportunities for joint delivery, consistency and partnership working. This would also create a better public image for all bodies.

3.2 Key Local Flood Risks

3.2.1 Managing Key Local Flood Risks

The Flood and Water Management Act states that the Local Flood Risk Management Strategy must contain information on how flood risk will be assessed. To do so requires understanding of the key local flood risks, flood history and local knowledge. As stated in *Section 1.3*, LFRM Strategies must be consistent with the National Flood and Coastal Erosion Risk Management Strategy in its approach to managing flood risk and coastal erosion. The National FCERM uses a catchment based approach in managing the risks of flooding. Therefore, it is imperative to undertake an assessment using this catchment based approach of flood risks, as well as using information on recent flooding events and flood history within the borough. Developing a flood model to identify key local flood risk areas will also help in developing a plan for future developments and improvement works.

3.2.2 Investigations

As prescribed by the Flood and Water Management Act, Blackburn with Darwen Borough Council, as the LLFA, has a duty to investigate flood events that within its area “to the extent that it considers it necessary or appropriate” in identifying the relevant RMA functions and whether the RMA has exercised those functions in response to the flood. The results of which should be published and the relevant RMA notified. Information from flooding incidents can provide valuable data that can be used to significantly improve the accuracy of hydraulic model. In turn, this can be used to identify cost effective improvements.

3.2.3 Objective – Understand Local Flood Risks

In order to fulfil this objective the following specific actions need to be undertaken

Local Flood Risk Management (LFRM) Plan and Surface Water Management Plans (SWMPs)

- Creating an LFRM Plan will help develop a prioritisation model across the borough, detailing how local flood risk will be managed over the short, medium and long term. Embedding SWMPs into the LFRM Plan will improve that local understanding.

Mapping

- Producing an updatable map, using the best available mapping and annually reviewing this, can be used to highlight zones of likely interaction and focus for joint working. There is a need to record information on past flooding within the map based on extensive experience of drainage engineers so that the information is preserved, further improving the understanding of the local flood risk.

Investigations Procedure

- The FWMA requires significant floods to be investigated and published. The criteria for undertaking flood investigations needs to be agreed with the other RMAs for when, how and by whom Section 19 flood investigations will be undertaken. It would be ideal for the flood investigations to be developed into a GIS-based flood incident reporting database, which can be linked to an asset register. The database must hold personal information in a secure way and arrangements for use and any sharing of the information must be clearly defined, and this must be communicated.

3.3 Effective and Efficient Decisions

3.3.1 Framework for Decision Making

A clear, efficient and effective decision making framework will enable RMAs to make decisions without excessive regulation, which otherwise may hinder efficient decision making. This will also allow RMAs to take swift advantage of opportunities as they arise, such as maximising the value of works by other organisations or bodies by incorporating flood improvement works.

“No-regrets” actions are actions by households, communities, and institutions that can be justified from economic, and social, and environmental perspectives whether natural events occur or not. A “no-regrets” approach should be campaigned for FRM works as they will increase resilience, which is the ability of a “hydraulic system” to deal with different types of hazards in a timely, efficient, and equitable manner. Improving the resilience can be the basis for sustainable growth in a world of multiple hazards. RMAs should be free from excessive regulation and are able to undertake the required works based on a tiered level of governance related to the amount of money being.

Large volumes of specialist data are required for effective local flood risk management, which is not collected or held by any single organisation. Under the FWMA, RMAs have a duty to share flooding data, which will help gain a better understand of local flood risks, improving the management of flood risks across RMAs. The sharing of good practice and data is vital in quality improvement and can ultimately improve services, productivity and efficiency for the RMAs.

3.3.2 Emergency Planning

Emergency Planning is an important part of flood risk management, involving a number of organisations. Although, planning and engineering solutions can lead to the risk of flooding, the possibility of flooding still exists, while solutions will have their limitations. With climate change affecting our weather, there will always remain an uncertainty as to how the weather will affect the chance of flooding. Emergency planning helps to manage the consequences of a flood event by allowing RMAs and communities to prepare effectively for a flooding event to trigger Emergency Plans.

The Civil Contingencies Act 2004 (CCA) requires Category One and Category Two responders to form a Local Resilience Forum (LRF). The CCA defines BwDBC, the emergency services, the EA and other organisations as Category 1 responders who will be at the core of the emergency response of any flooding emergency. Category 2 responders include utility companies and transport operators who are less likely to be involved in the heart of planning work but will be heavily involved in incidents that affect their sector.

It is important to note that the scale of response by each organisation is proportionate to the scale of the emergency. These responsibilities are not influenced by the source of flooding and remain unchanged by the FWMA and this Strategy.

Blackburn with Darwen Borough Council has a number of roles and responsibilities during a flooding event including liaising with essential service providers, central and regional government departments, and providing emergency assistance. The Council coordinates the recovery process and manages public and environmental health issues.

Current emergency planning is based on flood risk from main rivers and seas using information from the EA and the Met Office, as well as using information from recent flooding events and local knowledge. As greater accuracy and resolution of flood risks improve, modelling of extreme rainfall can improve, thereby increasing the understanding of flood risk. This technological improvements need to be integrated into future Emergency Plans to ensure that emergency planning is accurate, up-to-date and effective.

3.3.3 Objective – Enable RMAs to Make Efficient & Effective

Decisions

In order to fulfil this objective the following specific actions need to be undertaken

Develop a Decision Making Framework

- A decision making framework should be developed, defining how flood risk management actions will be progressed will enable RMAs to make the effective and efficient decisions without excessive regulations, and allow RMAs to take advantage of opportunities as they arise. Defining how such actions will be scrutinised needs to be included, and when the process will be applied to the RMAs. Through education and raising awareness, BwDBC can promote and set the framework for a 'no regrets' culture of sensible works.

Share Information

- Share relevant information held by flood managers with emergency planning managers and vice versa to ensure localised flood vulnerability is based on the updated Flood Map for Surface Water and/or locally improved information. Sharing this information and the flood risk data with other RMAs will also enable them to make decisions efficiently and effectively.

Inform Communities

- Develop the use of social media and a more interactive emergency planning service to share information with the general public and define the processes involved for emergency response to major flooding involving the RMAs and how overall service provision should operate.

3.4 Development and Improvement Works

3.4.1 Sustainable Drainage Systems (SuDS)

Sustainable drainage systems (SuDS) seek to manage rain water runoff in a natural way by replicating natural processes. SuDS may include green roofs, soakaways, ponds, wetlands, shallow ditches or swales, permeable pavement and underground storage. Sustainable drainage systems also aim to:

- Improve water quality through treatment
- Improve biodiversity by providing habitat
- Provide recreational spaces

The use of SuDS on developments and works wherever possible can help to minimise local flood risks, while meeting sustainability and ecological and environmental targets. By making improvements to water quality, the use of SuDS can also help contribute to Water Framework Directive requirements. The use of SuDS will become mandatory as part of the FWMA, however the scope and extents to which SuDS will be required has not yet been defined (additional guidance is due to be published soon). At present, the Department for Environmental Food and Rural Affairs (Defra) is working towards a finalised version of SuDS guidance. Section 32 of the FWMA states that SuDS designs are to be regulated by a SuDS Approval Body (SAB), which is also yet to be defined.

Once this process becomes mandatory, the SAB is required to exert this function for all major developments (10 or more dwellings and/or 0.5 hectares or greater) and redevelopments, and determine such applications within a 12 week period. Blackburn with Darwen Borough Council, as the LLFA, will also have a duty to adopt and

maintain, for the life of the development, those SuDS serving more than one property.

LLFAs are not a statutory consultee to Local Planning Authorities, however the planning system is an essential tool in the long term management of flood risk. Encouraging the implementation of a local planning policy will enable the LLFA to be consulted and influence development proposals in terms of reducing flood risk. This falls in line with the National Strategy in promoting sustainability.

Promoting water sensitive urban design, using a “No regrets” approach and applying a variety of resilience and resistance measures to new and existing developments as a medium term strategy will create a system of measures to assist in minimising flood risks. SuDS will become the preferred form of drainage installed in all new developments or replace old pipe systems in existing developments.

Developing a register or a masterplan of local flooding issues, incorporating Strategic Flood Risk Assessments (SFRAs) will improve understanding of local flood risk in the long term, building visibility. As a result, ‘Local Flood Zones’ could be established which would trigger ‘Local Flood’ Risk Assessments in areas at high risk of flooding from local sources so that inappropriate development is prevented and/or identified risks are mitigated early in the planning process.

3.4.2 Improvement Works

There are a number of areas at risk of flooding within the borough of Blackburn with Darwen, which will require a wide number of works, schemes, investigations and studies to address them.

We are also aware that there are likely to be numerous other areas that we don't yet know about where flooding will occur if a storm event occurs. Some of these areas could present an even higher risk than the known areas, particularly if they could affect vulnerable people or critical infrastructure.

The development of a register or a masterplan of local flooding issues will allow the development of a better understanding of local flood risk in the long term, building visibility. This information can provide the data required to improve hydraulic models, can help target projects and raise awareness in areas most affected. This may also be used to identify more cost effective and targeted mitigation measures.

The maintained asset register and monitoring system will also be able to provide an accurate overview of the state of the hydraulic system for all stakeholders.

Sharing information about planned flood risk management works will provide an opportunity for RMAs to identify opportunities for joint delivery and partnership working. Effective communication of FRM activities and problems occurred should be sought regularly so that RMAs can keep be abreast of the issues in the borough.

Using the various tools and data available, RMAs should create a prioritisation model, targeting opportunities to reduce flood risk. The management of local flood risks will place increased demands on BwDBC in terms of resources and funding. Therefore, it is imperative

that we deliver effective flood risk management while seeking opportunities to reduce its cost. Lowering the costs of FRM works through innovation will increase benefit-cost ratios, and increase the number of schemes that might obtain funding.

Buy in and joint working with RMAs, stakeholders and the wider community will increase the potential for funding contribution for FRM works from beneficiaries. The greater the FRM schemes which are approved to be proceed, the greater the number of communities which can be protected. By encouraging funding and contributions from beneficiaries, the cumulative saving over several schemes could free up further funds to reduce the flood risk in other areas.

Under the Flood and Water Management Act, RMAs have powers under Section 14A of the Land Drainage Act 1991 to undertake works as necessary to reduce the risk of flooding from Local Sources. A policy may be needed to state how and this power would be used to enable RMAs to undertake works on 3rd party land and properties to minimise localised flooding.

While there is an understanding that all risk of flooding cannot be eliminated, continually reviewing what we have will build resilience within the hydraulic system over time.

3.4.3 Objective – Manage Development and Improvement

Works

In order to fulfil this objective the following specific actions need to be undertaken

Provide Sustainable Drainage System (SuDS) Guidance

- The FWMA is instilling the requirement for developments to use SuDS in their design. Promoting the use of SuDS through SFRA's when reviewed, Supplementary Planning Documents and planning guidance will guide developers in designing SuDS appropriate to Blackburn with Darwen. BwDBC need to lead by example by using SuDS for council-led developments. A specific SuDS Guide for Blackburn with Darwen, embedded with climate change impacts and good surface water management principles, would provide the SuDS guidance needed for developers.

Establish a SuDS Approval Body (SAB)

- Agree and define how the Sustainable Approval Body function will operate for the borough, and when flood officers should be consulted on developments. This role needs to be implemented based on the draft National SuDS Standards, which may be prior to formal enactment and issue of the final National Standards.

Develop a Hydraulic Masterplan

- Undertaking detailed SWMPs and drainage studies in priority areas will improve local understanding, creating a hydraulic masterplan in flood risk areas and derive site-specific actions for flood risk officers, as well as developers. A masterplan should display a broad understanding of the current flood risk areas, what it should be in the future and what is required to get there.

Works Monitoring System

- The development of a hydraulic masterplan through a register of local issues across the multiples RMA's responsibilities will provide a long term understanding of local flood risk and should be used to identify more cost effective and targeted mitigation measures. Developing a works monitoring system to improve the local issues will enable the RMA's to effectively plan for future works, while providing an overview of all works undertaken to improve the hydraulic system. The monitoring system should build in a prioritisation model, targeting the opportunities to reduce flood risk, using the "no regrets" approach discussed in *Section 3.3.1*.

Improvement Works Policy

- Developing a policy to define how and when powers can be used by each RMA will shape the decisions and activities of the RMA's when looking to improve the hydraulic system. This will promote consistency and upholds our vision of coordination with other RMA's in managing flood risk in the borough. Using the Decision Making Framework (*from Section 3.3.3*), RMA's will be able to use the framework for support so that decisions are made effectively and efficiently and taking advantage of opportunities as they arise.

3.5 Community Involvement and Ownership

Effective communication between relevant stakeholders and with local communities is key in successfully managing flood risk. Part of communicating with local communities is ensuring that they are able to prepare for incidents of flooding and have the necessary information before, during and after a flood event. This includes ensuring local communities are able to access information about when flooding might occur and how they can protect themselves if flooding does occur.

The FWMA requires LFRM Strategies to be consistent with the national strategy, in particular the guiding principles for managing flood and coastal erosion risk set out in the National Strategy. Therefore, we, as BwDBC, have a duty to include community involvement. Encouraging community involvement can reduce the reliance on public services while providing the rapid response required to respond effectively to flooding events.

Through a community resilience program, engagement activities, such as workshops, community stalls and residential consultations, can increase the awareness of flood risk. This can enable the identification of key contacts/ flood champions within communities to enable community flood action groups to be established. By providing support to community flood action groups, the relationship between the LLFA and communities can also be improved. It is important to educate communities in high risk flooding areas so that they are aware of the level of flood risk, and actions they can take to reduce the impact of flooding.

3.5.1 Objective – Engage with Communities

In order to fulfil this objective the following specific actions need to be undertaken

Flood Awareness Programme

- Developing and delivering a flood awareness programme, which includes public drop-in events and a campaign of direct messaging to raise the awareness of flood risk will improve the public understanding, especially of those who live or work in flood risk areas.

Communication & Engagement Plan

- There is a need to develop, implement and regularly review a communication and engagement plan that identifies who, when and how different community and stakeholder groups will be involved. Making the best possible information available on flood risk and opportunities to the public through websites and direct media e.g. social media, radio, etc., will enable a community to be more prepared in the event of a flood. The engagement plan could investigate the feasibility for flood warden schemes and local warning services, particularly in isolated high-risk communities.

3.6 Asset Management

Managing flood risk from watercourses can include structural and landscape features which may have a function to reduce flood risk. There is a lack of detailed knowledge of these assets in relation to local flooding and in order to understand the local flood risk, that knowledge of the assets is required. The FWMA requires RMAs to maintain a register of its assets, identify those responsible for them and its state of repair.

An asset register should include an identification of privately held assets. A prioritised programme of contact with land owners could be instigated to discuss the current state of their assets, the benefits they should be providing and outline their duties.

Under the FWMA, LLFAs can formally designate assets or features that have a flood risk management function, which is a form of legal protection or status reserved for certain key structures or features that are privately owned and maintained but which make a contribution to the flood and coastal erosion risk management of people and property.

A designation is a legally binding notice served by the designating authority to the owner of the feature and the notice is also a local land charge. This means that the notice will also apply to successive owners or occupiers of the land or property automatically.

If the owner of the asset wants to do works or alterations to asset that will significantly affect the flood risk management function of the assets then they will have to apply for consent to the designating authority in order to undertake the works.

Encouraging the maintenance of privately owned assets and structures which exert an influence on flood risk can help in reducing

the risk of flooding. Riparian owners have a duty under the LDA to undertake the necessary works required to maintain the flow of water through their land. Many landowners are unaware of their duties, and therefore not undertaking the required works. Under the LDA and FWMA, the LLFA can issue enforcement notices and use legal proceedings to impose the required improvements upon the riparian owner. By encouraging the maintenance of assets by the asset owners, the risk of flooding can be reduced, reducing the reliance on public funding.

3.6.1 Objective – Effectively Manage Flood Risk Assets

In order to fulfil this objective the following specific actions need to be undertaken:

Develop an Asset Register and Share

- The FWMA requires the RMAs to maintain a register of flood related assets, which will satisfy the FWMA and enable a better understanding of the flood risk in borough. Ideally the register will be GIS-based and linked to other flood risk management data e.g. records of past flooding, flood maps etc. Recording information on past flooding events or assets from drainage engineers is essential so that that the information is preserved in a visual manner. The database will need to be continuously updated with new data from flooding incidents. Sharing the information on flood risk assets will enable all RMAs to collaborate and identify opportunities for joint working to reduce the flood risk in the borough. All the relevant RMAs will need to agree which asset lists to share, and what format this will be in.

Develop an Asset Management Plan

- Developing an asset management plan will lead to the creation of a maintenance programme of the assets, and allow a better monitor for the condition of assets. This should be linked to encouraging private owners to maintain their assets and monitoring this. As a result, it will be important to raise the awareness of the responsibilities asset owners have of their assets. Within this, a pro-active approach of instigating a prioritised programme of contact with land owners to discuss the current state of their assets will improve communication and coordination with asset owners.

Develop an Enforcement and Designation Policy

- The development of an enforcement policy and procedure for the maintenance and designation of drainage assets will create a greater transparency and accountability for the maintenance of flood risk assets. The procedures must define when and how BwDBC could use powers to enforce the maintenance of private assets and Ordinary Watercourses. To develop this would require working with the Council's legal team before being published.

3.7 LLFA Funding and Staff Resources

Under the FWMA, LLFAs have been assigned a number of duties and responsibilities relating to the management of local flood risk. There are key duties that are non-optional, powers that will need to be exercised and management functions in implementing effective LFRM.

The Government has committed to provide funding to assist with fulfilling these responsibilities, at least in the short term. Defra is, therefore, currently providing us with an annual formula grant.

Defra split the current annual budget of £36m between all LLFAs, and is related to the level of local flood risk as assessed from national mapping. As a result, DEFRA is currently providing £ 150,000 funding for Blackburn with Darwen Borough Council to assist with fulfilling these responsibilities until March 2015.

An understanding of the FRM functions and duties is required under the FWMA, which needs to be defined so that the allocation of finance and resources can be addressed. The skills and resources required to deliver and manage effective LFRM needs to be identified as part of the same exercise so that the allocation is sustainable.

National funding or central government funding is allocated to flood risk management projects, encouraging communities to invest in locally-appropriate measures which protect them. Instead of meeting the full costs of a limited number of projects, a variable amount of central government money is available towards any worthwhile scheme. The funding for a scheme relates to the number of households protected plus other benefits a scheme would deliver, such as the creation of habitat, etc.

Contributions from local partners and/or beneficiaries are required to meet the full costs of the scheme if a proposed scheme is not able to qualify for full central funding. This gives each community more of a say in which schemes are taken forward to protect them.

The criteria for attracting the most central government funding include:

- Number of households protected
- Number of businesses protected
- Agricultural activity protected
- Infrastructure (national and local) protected
- Environmental benefits

3.7.1 Objective – Develop a Strategy for Funding

In order to fulfil this objective the following specific actions need to be undertaken

Understand the FRM functions and duties

- Defining the resource requirements to fulfil the statutory obligations over the next 5 years will provide an understanding of the minimum resources required. This can then be extended to creating a profile for implementing other recommended measures, as well as gauging an understanding of the investment required to develop flood risk management officers through training and encouraging good practice sharing within the industry, etc.

Develop Funding Strategy

- Assess potential funding streams and resource pools to develop a prioritised strategy for accessing these. Use the partnership arrangement to apply for funding for integrated flood risk management from a broad range of sources. Being aware of upcoming funding opportunities will enable this funding strategy to be reviewed and improved.

Raise awareness

- Through education and campaigns, encourage the public, businesses, landowners etc. to understand their level of vulnerability and take responsibility for their own protection against flooding. The Communication & Engagement Plan (Objective 5) will detail how and when potential beneficiaries will be involved in scheme planning and contributions sought.

3.8 Economic, Social and Environmental Benefits

Integrating economic, social and environmental benefits within FRM schemes will increase the likelihood of obtaining buy in from stakeholders and communities. This could also lead to contributions from beneficiaries, making future FRM works easier to implement in the long term. Environmental benefits are a key objective of the National Strategy. As a result, the LFRM Strategy must show how it contributes to wider objectives:

- Economic
 - promote development and business growth, encourage more visitors to the area, increased land values, etc.

- Social
 - public amenity enhancement, more cohesive communities, healthier environment, etc.

- Environmental
 - water quality improvements, biodiversity enhancement, adaptation to climate change, etc.

Obtaining FRM funding from national funding bodies, such as Defra, requires considerations of the impacts of climate change. There is an increasing demand to increase the sustainability of construction practices to help mitigate the impacts of climate change. RMAs should be encouraged to consider the impacts on the wider range of social, economic and environmental benefits, such as lowering emissions and better planning for sustainability when undertaking works.

Sustainable flood risk management will help the LLFAs to meet the requirements of the various legislations:

- Climate Change Act
- Water Frame Directive
- Bathing Waters Directive
- Strategic Environmental Assessment (SEA) Directive
- Habitats Directive
- Natural Environment and Rural Communities Act (NERCA)
- The Fisheries Act

3.8.1 Objective – Integrate Economic, Social and Environmental Benefits

In order to fulfil this objective the following specific actions need to be undertaken

Undertake a Strategic Environmental Assessment (SEA)

- This is a requirement under the EC SEA Directive (2001/42/EC), implemented in England through the Environmental Assessment of Plans and Programmes Regulations (SI 1633 2004) to undertake an SEA. This is to ensure that the objectives and measures in the Strategy take into account the environment, social and socio-economic and health concerns

Promote Adaptive Practices

- Promoting adaptive practices in flood risk management such as rainwater harvesting, water sensitive urban design, etc., will create a more diverse and sustainable hydraulic system for the future. Incorporating such practices as fully as possible into planning and development proposals will further improve the borough's hydraulic system. Disseminating up to date information and guidance of adaptation and climate change as widely as possible will raise the awareness and benefits of such practices within local authority teams and with the public (e.g. information on websites).

Consult with Experts

- Seeking expert involvement to deliver sustainability by ensuring involvement of appropriate officers or other experts will enable flood risk management proposals to integrate appropriate economic, social and environmental. Consultation with the relevant Council departments would ensure that BwDBC does not overlook its duties to comply with the requirements of other acts.

3.9 Reviewing the Strategy

Reviewing a strategy allows us to reflect on progress, priorities and problems that need to be resolved. Reviewing the strategy and its progress provides an opportunity to adjust the strategy to reflect what's happening on the ground and implement things we have learnt.

It is proposed to review the strategy with other RMAs, so that the strategy can maintain its relevance, and be incorporated with new and emerging technologies and practices. This review should be undertaken by BwDBC and consulted with all the RMAs and stakeholders so that the strategy is common and agreed. The review also provides the opportunity for RMAs to be reminded of their duties so that each RMA can continue delivering the agreed strategy successfully.

This is the first Local Flood Risk Management Strategy produced for the borough of Blackburn with Darwen, and as such, it will be reviewed after three years so that the establishment of new roles and responsibilities is reflected. Subsequently, reviewing the strategy is proposed to follow the same six year cycle as required to update the Preliminary Flood Risk Assessment. This will enable the changing level and understanding of risk to be reflected in the approach to improved risk management.

3.9.1 Objective – Review the Local Flood Risk Management

Strategy

In order to fulfil this objective the following specific actions need to be undertaken:

Review Relevant Council Procedures

- The existing flood risk related procedures need to be identified, updated where appropriate, and defined.

Review Roles and Responsibilities

- The roles and responsibilities of the RMAs need to be reviewed initially in 3 years' time, with subsequent reviews every six years to fit in with revisions to the Preliminary Flood Risk Assessment. This will ensure that adjustments are made to incorporate any procedural or responsibility changes made by any of the RMAs.

Review Flood Works Policy and Process

- Once some experience of implementing the policy and process has been gained, review their appropriateness and check that there remains the necessary degree of accountability.

Review Each Objective

- Each objective will need to be reviewed in 3 years' time to ensure its relevance for the forthcoming six years. The objectives will each need to be assessed against its measure to gauge its implementation, the effect and the relevance it would have going forward, as well as understanding if there is a need to produce further objectives to achieve a new strategy.

4 Action Plan

This Local Flood Risk Management Strategy for the Blackburn with Darwen Borough has proposed a number of objectives to be implemented, and provides measures enabling us to assess how we have implemented the strategy. We believe that by delivering the stated objectives, we will be able to fulfil our overarching vision for managing the local flood risk in the borough of Blackburn with Darwen.

Each objective will be achieved once its associated actions are delivered. A summary of each of the objectives has been detailed in this section. Some of these actions are a continuation of what the RMAs already do or are undertaking.

Due to limited funds and the availability of resources within BwDBC and other RMAs, it is not possible to deliver all of the measures immediately. Therefore, we must prioritise the actions from this strategy. The measures have been assigned as follows:

- Short term
 - <1 year
- Medium term
 - 1-3 years
- Long term
 - >3 years

It is worth noting that the priority of the measures may change. The prioritisation of these measures will effectively provide the 'Action Plan' for delivering the Local Flood Risk Management Strategy – i.e. when we will be implementing the measures.

1 - Develop partnerships with RMAs

- Define Roles and Responsibilities
 - Short term (<1 year)
- Define Consenting Process
 - Short term (<1 year)
- Build Strong Partnerships
 - Medium term (1-3 years)
- Improve co-ordination of future works
 - 1 Year

2 - Understand Local Flood Risks

- LFRM Plan and SWMPs
 - Medium term (1-3 years)
- Mapping
 - Medium term (1-3 years)
- Investigations Procedure
 - Short term (<1 year)

3 - Enable RMAs to Make Efficient & Effective Decisions

- Develop a Decision Making Framework
 - Medium term (1-3 years)
- Share Information
 - Medium term (1-3 years)
- Inform Communities
 - Medium term (1-3 years)

4 - Manage Future Development Works

- Provide Sustainable Drainage System (SuDS) Guidance
 - Short term (<1 year)
- Establish a SuDS Approval Body (SAB)
 - Short term (<1 year)
- Develop a Hydraulic Masterplan
 - Medium term (1-3 years)
- Works Monitoring System
 - Medium term (1-3 years)
- Improvement Works Policy
 - Medium term (1-3 years)

5 - Engage with Communities

- Create and Deliver a Flood Awareness Programme
 - Short term (<1 year)
- Develop a Communication & Engagement Plan
 - Short term (<1 year)

6 - Effectively Manage Flood Risk Assets

- Develop an Asset Register and Share
 - Medium term (1-3 years)
- Develop an Asset Management Plan
 - Medium term (1-3 years)
- Develop an Enforcement and Designation Policy
 - Medium term (1-3 years)

7 - Develop a Strategy for Funding

- Understand the FRM functions and duties
 - Short term (<1 year)
- Develop Funding Strategy
 - Medium term (1-3 years)
- Raise Awareness
 - Long term (>3 years)

8 - Integrate Economic, Social and Environmental Benefits

- Undertake an SEA for this Strategy
 - Short term (<1 year)
- Promote Adaptive Practices
 - Long term (>3 years)
- Consult with Experts
 - Medium term (1-3 years)

9 - Review the Local Flood Risk Management Strategy

- Review Relevant Council Procedures
 - Medium term (1-3 years)
- Review Roles and Responsibilities
 - Medium term (1-3 years)
- Review Flood Works Policy and Process
 - Medium term (1-3 years)
- Review Each Objective
 - Medium term (1-3 years)

5 Glossary

Glossary of abbreviations and phrases	
Asset Register	Register of structures or features which are considered to have an effect on flood risk.
BwDBC	Blackburn with Darwen Borough Council
Catchment	The extent of land which catches and holds rainwater
CFMP	Catchment Flood Management Plan, produced by the EA to give an overview of the flood risk in the primary catchments in the Lancashire region.
Civil Contingencies Act 2004	Defines Category 1 and 2 responders to flooding emergencies
Consenting	Process of obtaining permission to add/amend structures in/near a watercourse or flood defence structure
Defra	Department for Environment, Food and Rural Affairs, responsible national emergency planning for flooding
EA	Environment Agency, responsible for the strategic overview role for flood and coastal erosion risk management
FCERM	Flood and Coastal Erosion Risk Management
Foul flooding	Flooding that is contaminated with sewage
Flood and Water Management Act 2010	Act introduced in response to Sir Michael Pitt's Review on the Summer 2007 floods
Flood Risk Regulations	Transposition of the EU Floods Directive into UK law.
Fluvial flooding	Flooding from rivers
FRM	Flood Risk Management
FRR	Flood Risk Regulations 2009
FWMA	Flood & Water Management Act 2010
Groundwater flooding	Flooding when water levels in the ground rise above the surface
HA	Highways Authority
LA	Local Authority
LDA	Land Drainage Act, introduced to consolidate the functions of local authorities in relation to land drainage
LFRM	Local Flood Risk Management
LLFA	Lead Local Flood Authority, responsible for taking the

	lead on local flood risk management
Local Flood Risk	Flooding from sources other than Main Rivers and the sea
LRF	Local Resilience Forum
Ordinary Watercourse	A statutory type of watercourse including river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) that is not classified as main river
NERC	Natural Environment and Rural Communities
Pitt Review	Comprehensive independent review of the 2007 summer floods by Sir Michael Pitt, which provided recommendations to improve flood risk management in England.
PFRA	Preliminary Flood Risk Assessment
Pluvial Flooding	Flooding causing from direct rainfall runoff (before it enters drains or watercourses).
Risk	Risk = probability of an occurrence x its potential consequence
RMA	Risk Management Authority, organisations that have a key role in flood and coastal erosion risk management as defined by the Flood and Water Management Act 2010.
SAB	SuDS Approval Body
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage System
Surface water flooding	Flooding caused by high intensity rainfall that generates flows over the ground and collects in low lying areas. Also known as pluvial or flash flooding.
UU	United Utilities