Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Appendix 5(c)

For more information about the Lancashire and Blackpool Flood Risk Management Strategy please contact:-

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Lancashire Strategic Partnership Exec Summary to be completed and signed by Members of all 3 authorities

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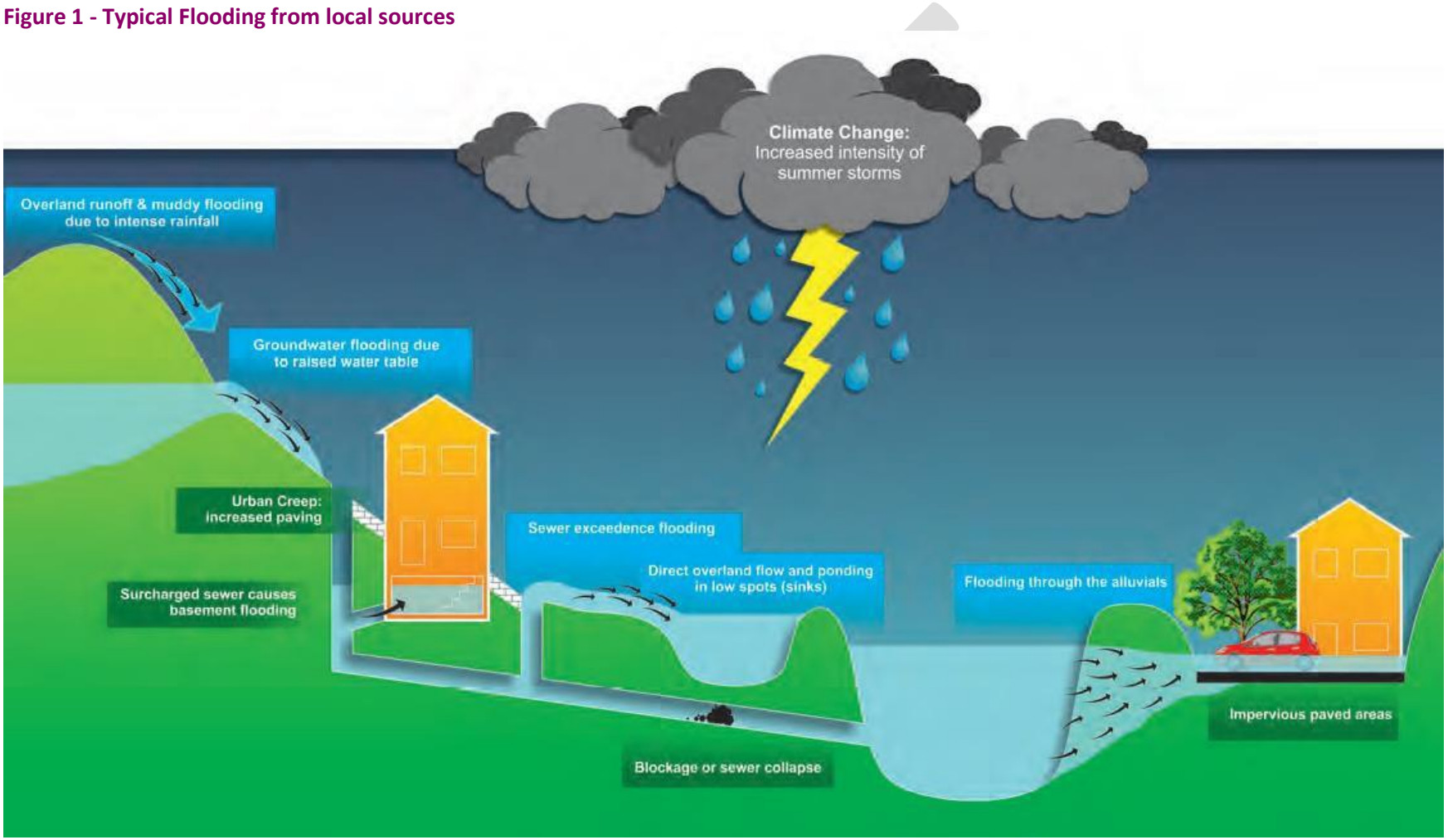
Figure 1 - Typical Flooding from local sources



By courtesy of Cumbria County Council

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

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Introduction

Flood & Water Management Act

The Flood and Water Management Act 2010 (FWMA) has put many of the recommendations made by the Pitt Review into legislation and as a result County Councils and Unitary Authorities have been designated as Lead Local Flood Authorities (LLFAs).

The FWMA places a range of powers, duties and responsibilities on the Councils and their partner Flood Risk Management Authorities (RMAs). The table presented in Appendix 1 provides an overview of the roles and responsibilities of the RMAs and the contact numbers for the RMA's. (This will be edited before publication)

Many of the LLFA's duties were new in 2014 and had not 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's or RMA's.

Details of Roles and Responsibilities are shown in Figure 2 which provides an overview from current National strategy to local delivery level.

The Environment Agency's National Flood Risk Management Strategy has been updated and therefore this refresh of our local strategy document has been updated in line with the National Strategy.

Objectives and Measures (actions) of the Strategy

The 2014-2017 Lancashire and Blackpool Local Flood Risk Management Strategy contained 19 objectives and measure, these are appended to this document in Appendix ….

In this Local Strategy (and in line with the RFCC Business Plan for Flood Risk Management) we have developed a business plan (Appendix No.) which presents a number of objectives and measures related to our flood risk management responsibilities for the next ten years. The objectives have been derived from the National Strategy and have been divided into 6 key themes:-

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

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- Roles and Responsibilities
- Understanding Risk
- Sustainable Flood Risk Management
- Communication and Involvement
- A Nation of Climate Champions
- Funding

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

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Insert Figure 2

Roles and Responsibilities to be included here.

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

A Joint Local Strategy

This Local Strategy has been written to meet the three high level ambitions set out in the National Strategy. With this in mind, Blackpool Council and Lancashire County Council have made the decision to develop a Joint Local Strategy that covers both areas.

The reasons that we have developed the Local Strategy together are:-

- Blackburn with Darwen and Blackpool border Lancashire and we share many of the same catchments. Therefore, decisions that are made in Blackburn with Darwin and Blackpool can affect flood risk in Lancashire and vice versa. This is in agreement with the guiding principle of the Current National Strategy to have a catchment based approach.

- Planning decisions are often made in conjunction with each other, particularly on major developments that sit on the border of all three councils. This helps ensure that partnership working is a fundamental aspect of our strategic decision making.

- We sit on many of the same flood risk management and coastal partnerships that exist in the North West. We can therefore present a consistent strategy to other Stakeholders in the region.

Because we are working together closely on the Local Strategy, 'Lancashire' will be used to describe the area covered by Lancashire County Council, Blackburn with Darwen and Blackpool Council.

Other Sources of Flooding

The Local Strategy has been written primarily to address local sources of flooding as described in Figure 1. However, there are many other potential sources of flooding within Lancashire. For example there are extensive areas that are known to be at risk of flooding from the sea and main rivers. There are also areas which are at risk from sewer flooding and others which could be affected by a reservoir breach.

The organisations involved in the management of these risks are discussed in more detail in Section 1 but it is important to understand that flooding does not happen in isolation. When a flood occurs it often happens from multiple sources at the same time.

It is therefore essential that flood risk is managed in a joined-up way and wider flood risks are taken into account when considering potential actions.

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Our Vision for Local Flood Risk Management

The likelihood and consequences of flooding can be minimised (but not eliminated) through the involvement of a number of responsible organisations and communities and through a mix of proactive and reactive approaches to risk management.

One of the key aims of this strategy is to improve local flood risk management in a sustainable way. In other words, the risk of flooding must be reduced now, but in a way which does not compromise the interconnected needs of the economy, society and environment in the future. Our overarching vision for local flood risk management has guided the development of the Local Strategy and is shown in Figure 3.

Figure 3 - The Lancashire and Blackpool Vision for Management of Local Flood Risk

"Use viable, sustainable and co-ordinated approaches to better manage the risk of local flooding, for the benefit of people, property and the environment, both now and the in the future."

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Figure – The Local Strategy Objectives by Key Themes

This to be moved to another area of the report

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Section One, Theme 1 - Roles and Responsibilities for Managing Flood Risk

An important part of the Local Strategy, and requirement of the FWMA, is the identification of who is responsible for managing the different types of flooding. In this section of the document we highlight the roles of the different Flood Risk Management Authorities (RMAs) within Lancashire. We also provide information on the role of Emergency Planning.

As discussed in the Introduction, Blackpool Council (BC) and Lancashire County Council (LCC) are LLFAs and are responsible for the management of local flood risks, which are defined as surface water flooding, groundwater flooding and flooding from Ordinary Watercourses.

There are however, a number of other sources of flooding and these are primarily managed by other bodies. These bodies are known as Risk Management Authorities (RMAs). The other RMAs in the Lancashire area are:-

- The Environment Agency
- Water companies and sewerage undertakers – United Utilities & Yorkshire Water
- The Highways Authority (also Blackpool Council and Lancashire County Council)
- Earby and Salterforth Internal Drainage Board
- District Councils

More information on what our role as LLFAs entails and on the role RMAs and others take is provided in this section.

1.1.1 The Lead Local Flood Authority (LLFA)

The primary purpose of the LLFA is to manage flood risk from local sources of flooding; defined as surface water, ground water and ordinary watercourses (see Figure 1). In addition Lancashire and Blackpool manage coastal flooding. Figure 4 provides a summary of the LLFA duties, powers and the relevant legislation.

1.1.2 The Environment Agency (EA)

The Environment Agency is a national organisation and has a strategic overview responsibility for all sources of flooding and coastal erosion. They are specifically responsible for managing flood risk from main rivers and on the coast.

It 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 river 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 watercourses that are not main rivers are classified as ordinary watercourses.

The work of the Environment Agency includes:-

- Identifying opportunities to improve the environment for people and wildlife;
- Developing long term approaches to Flood and Coastal Erosion Risk Management, for example by working with others to produce Catchment Flood Management Plans (CFMPs) and Shoreline Management Plans (SMPs);
- Regulating reservoir safety;
- Collate and review assessments, maps and plans to local flood risk management;
- Provide evidence and advice to support others including national flood and coastal erosion data;
- Inform Government policy;
- Provide advice on planning and development issues, including commenting on planning application;
- Work with other RMA's and stakeholders to share best practice;
- Monitor and report on flood and coastal erosion management, including on how the national strategy is having an impact across the county;
- Co-operating with LLFA including investigating flood incidents and complying with requests from LLFA Overview and Scrutiny Committees.

1.1.3 Water Companies

Water Companies are responsible for the management of flood risk from sewers. The sewerage providers serving Lancashire are United Utilities and Yorkshire Water and their responsibilities include:-

- Providing, improving, extending and maintaining a system of public sewers and works for the purpose of effectively draining the area;
- Regulatory private sewers and lateral drains which 'communicate' with the public sewers;
- Managing flood risk from their infrastructure such as water mains and reservoirs;
- Co-operating with the LLFA including investigating flood incidents and complying with requests from the LLFA's Overview and Scrutiny Committees.

1.1.4 The Highway Authorities

Under the Highways Act 1980, Highway Authorities (the Highways Agency and the Unitary or County Council) have the lead responsibility for providing and managing highway drainage and roadside ditches. Their work also includes:

- Working effectively with the EA, LLFAs and district councils to ensure flood management activities are well co-ordinated.
- Ensuring that new infrastructure complies with the requirements of legislation, guidance and relates to asset management requirements under the Flood and **Water Management Act (2010).**
- Co-operating with LLFA including investigating flood incidents and complying with requests from LLFA's Overview and Scrutiny Committees.

1.1.5 Earby and Salterforth Internal Drainage Board (IDB)

Internal Drainage Boards (IDBs) are independent public bodies responsible for managing water levels in areas of special drainage need. They are made up of elected members, and others nominated by the local authority, who represent land occupiers, the public and other interest groups.

Each IDB operates within a defined area known as a drainage district. In Lancashire there is one IDB – The Earby and Salterforth IDB which covers the upper reaches of the River Aire (the main catchment of which is in Yorkshire). They are the land drainage authority within their districts and their functions include:-

- Supervising land drainage and flood defence works on ordinary watercourses
- Managing water levels in watercourses and underground (groundwater)
- Improving and maintaining watercourses, drainage channels and pumping stations to reduce the risk of flooding
- Involving local people, encouraging volunteering and raising funds from those who benefit from their work
- Creating and managing natural habitats
- Respond to Local Planning Authority on development applications (non-statutory).

1.1.6 The District Council

There are twelve District Councils within the administrative area of Lancashire County Council, and historically a significant amount of land drainage and flood risk management work has been undertaken at this level under powers set out in the Land Drainage Act (LDA) 1991.

The FWMA replaced some sections of the LDA 1991 and has put more responsibility for flood risk management at a county and unitary council level with the introduction of the LLFA role. The District Councils still have an important role to play and will be involved in:-

- Attending local partnership meetings to discuss flood issues in their area (tactical meeting or Making Space for Water);
- Providing information regarding flood events which are reported to them by members of the public to the LLFA or other relevant RMA;
- Using their existing responsibilities to undertake works on ordinary watercourses
- Maintaining watercourses for which they have riparian responsibility, see also in 1.1.7.2 Riparian Owner Responsibilities.
- Developing policies relating to flood risk management in their local plans.

The twelve District Councils in Lancashire are:-

- Burnley Borough Council
- Chorley Borough Council
- Fylde Borough Council
- Hyndburn Borough Council
- Lancaster City Council
- Pendle Borough Council
- Preston City Council
- Ribble Valley Borough Council
- Rossendale Borough Council
- South Ribble Borough Council
- West Lancashire Borough Council
- Wyre Borough Council

1.1.7 Others with Responsibility for Managing Flood Risk

1.1.7.1 Coastal Protection Authorities (CPAs) **(more information to be added)**

Coastal Protection Authorities manage flood risk from the sea under the Coast Protection Act 1949. They also:-

- Work with the Environment Agency to develop and maintain coastal flood and erosion risk information. This information contributes to national information maintained by the Environment Agency and promotes understanding of these risks.
- Use information about flood risk when planning how to protect and manage the coast.

The Coastal Protection Authorities in Lancashire are:-

- Blackpool Council
- Fylde Borough Council
- Wyre Borough Council
- Lancaster City Council
- West Lancashire Borough Council

1.1.7.2 Riparian Owners

The term "Riparian Owner" describes anyone who owns property alongside natural watercourses. 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 the LLFA and consents secured before going ahead with any such work (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 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 LLFA or Local Council. This could include clearing obstructions, repairing the banks, and protecting vegetation/trees.

There are additional restrictions regarding siting of any kind of structural work on or near river banks, or anywhere within a flood river plain. This is regulated by the EA. 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.

1.1.8 Partner Organisations

In addition to the main RMAs Coastal & Riparian Bodies there are a number of other partners that are involved in flood risk management. They do not have a direct role, but their activities have an important contribution. These are:

- English Heritage
- Highways Agency
- Lancashire Resilience Forum (LRF)
- National Farmers Union and Country Land Association
- National Trust
- Natural England
- Network Rail
- Parish and Town Councils
- Canal and River Trust (North West Waterways)
- Lune River Trust, Ribble River Trust, River Irwell Trust, Wyre Rivers Trust
- National Flood Forum
- Local Flood Forums
- Wildlife Trust
- Local Nature Partnership
- Local Flags

1.1.9 Partnership Working

The way we communicate with our partner RMAs and the other organisations is a vital part of managing flood risk and part of our strategic leadership role. In order to do this we are involved with a number of partnership groups that meet regularly. An overview of the groups we are involved in is shown in Figure 5.

In order to deliver flood risk projects over the lifetime of this strategy we intend to work closer with our RMA's and Community Groups. This will enable us to share information and resources and therefore make more informed choices in respect of priorities for flood risk management.

1.2 The Role of Emergency Planning

Emergency Planning is an important part of flood risk management and involves a number of organisations. There are actions that the LLFA, our partners, and the public can do which can help with this process. In this Section we will explain the roles that the different organisations have, what the public can do to help themselves and what we are doing to help improve Emergency Planning for local flooding and providing support for others.

However, even the best planning or engineering solutions have limitations. The occurrence of future extreme weather events is uncertain (especially with climate change) and we may experience a flood event that is larger than expected, or has unexpected characteristics. Therefore, managing risk must also include plans to react to flooding and to work swiftly to minimise the consequences to people, property, businesses and the environment.

1.2.1 Who does what in Emergency Planning

The Civil Contingencies Act 2004 (CCA) requires Category One and Category Two responders to form a Local Resilience Forum (LRF). LRFs bring together Category 1 and 2 responders within a local police area for the purpose of co-operating in fulfilling their duties under the Civil Contingencies Act. There are also a number of LRF sub-groups that will cover specific subjects such as severe weather and flooding.

The CCA defines LCC, BC, the District Authorities, 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.

The LRF Flooding & Severe Weather Group (with membership from Category One and Two organisations) produces a Multi-Agency Flood Plan. This consists of Part 1 which contains the trigger levels, notification cascades and general county-wide information. Each district has a Part 2 which details the local arrangements for responding to flood events from any source in their area.

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 (2010) and this Strategy.

1.2.2 The Local Authority role in emergency planning

The local authorities, including LCC, Blackburn with Darwen, Blackpool and district authorities, have the following roles and responsibilities during a flood event:-

ALL

- Co-ordinate emergency support within their own function;
- Respond to emergencies of flooding from any source;
- Provide assistance with business continuity through advice and support to individuals, businesses, including service providers;
- Liaise with central government departments via the Department for Minister of Housing Communities and Local Government (MHCLG);
- Open emergency centres to provide humanitarian assistance;
- Co-ordinate the recovery process (a decision will be made early in the response stage whether it is more appropriate for LCC, Unitary or District to lead);

LCC and Blackpool in Emergency Planning

- Co-ordinate emergency support from the voluntary sector;
- Support the emergency services in the identification and analysis of contamination and pollution.

District and Blackpool

- Deal with environmental health issues
- Assistance
- Co-ordinate the recovery process (a decision will be made early in the response stage whether it is more appropriate for the County, Unitary or District to lead.)

1.2.3 The Emergency Services

The Emergency Services includes the Police, the Fire & Rescue Service, the Ambulance Service and the Maritime and Coastguard Agency. Their roles and responsibilities are summarised as:-

Police Force

- Save life
- Co-ordination and communication between emergency services and organisations providing support.

Fire and Rescue

- Save life rescuing people and animals
- Carry out other specialist work, including flood rescue services
- Assist people where the use of fire service personnel and equipment is relevant

Maritime and Coastguard Agency

- Prevent loss of life on the coasts and at sea
- Provision of a 24 hour maritime search and rescue service around the UK coast
- Mobilisation, organisation and tasking of adequate resources to respond to persons distressed at sea or the UK shoreline.

1.2.4 The Environment Agency role in Emergency Planning

- Issue Flood Warnings and ensure systems display current flooding information;
- Provide information to the public on what they can do before, during and after a flood event;
- Monitor river levels and flows and tidal conditions;
- Work with professional partners and stakeholders and respond to requests for flooding information and updates;
- Receive and record details of flooding and related information;
- Operate water level control structures within its jurisdiction and permissive powers;
- Respond to pollution incidents and advise on disposal;
- Assist with the recovery process.

1.2.5 The Met Office & Flood Forecasting Centre

The Met Office issues severe weather warnings and ensure their systems display the most up to date information;

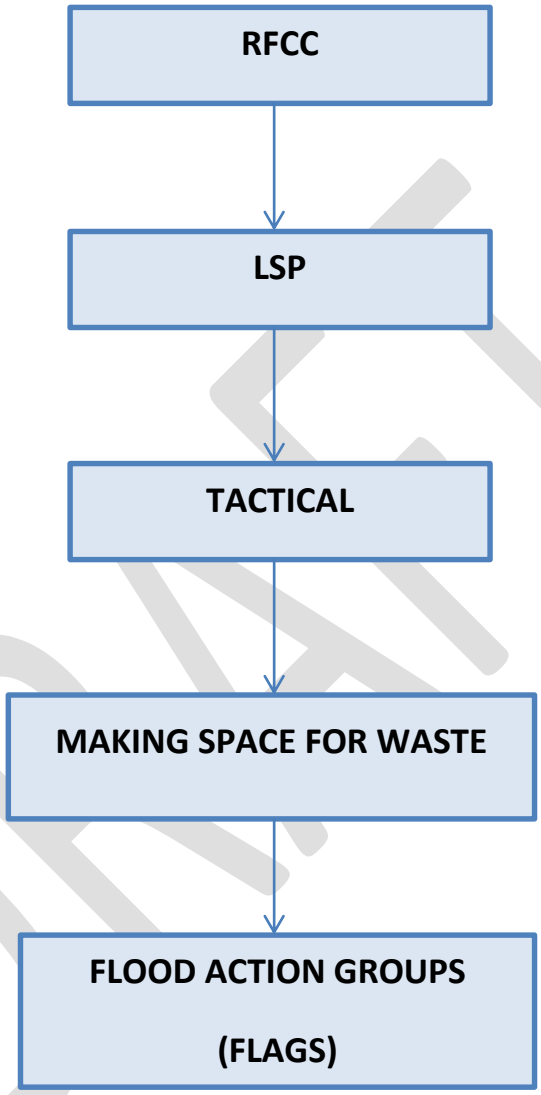
The Flood Forecasting Centre is an Environment Agency and Met Office joint venture that aims to provide emergency responders with longer lead time flood forecasts and targeted local information to prepare for flooding.

1.2.6 What Can Communities Do

It is important to note that when responding to flooding the emergency services prime objective is to save life – the responsibility for the protection of property lies with the property owner.

There are a number of measures which can be taken by the public to make their property more resistant (stop water entering) and resilient (better prepared to recover) to flooding. Local Flood Action Groups (FLACS) can be formed and can produce Emergency Plans which can inform the response of the Emergency Services and Local Councils. This is discussed in more detail in Section 4.

Fig 5 Structure of Defra down



1.3 Responsibilities of Lead Local Flood Authorities

A summary of key provisions of the FWMA and responsibilities of LLFA's are shown in Fig 7 and described in more detail below:-

1.3.1 Section 9-12 – Production of a Local Flood Risk Management Strategy
"The LLFA must develop, maintain, apply and monitor a strategy for local Flood Risk Management in its area."

1.3.2 Section 13 – A relevant Authority must co-operate with other relevant authorities in the exercise of their Flood & Coast Erosion Risk Management functions and share information.

1.3.3 Section 14 – "An Authority may request a person to provide information in connection with the Authorities Flood and Coastal Erosion Risk Management Functions."

1.3.4 Section 19 Flood Investigation

Section 19 of the FWMA requires that, where appropriate, LLFAs investigate and report on flooding incidents that occur within its administrative area. The aim of an investigation is to identify which of the RMAs have a role in managing the flooding and to ensure that this role is being carried out effectively.

The investigations that we undertake are anticipated to greatly improve our understanding of flood risk. It is likely that flooding will happen in locations that have not previously been affected where other studies have not identified a particularly high risk. In such instances, the flood investigations will be an invaluable tool for understanding the sources and mechanisms of flooding.

Follow on works and studies are likely to be necessary in some instances and these will be integrated into our business plan.

Flood investigations will also help us identify assets that have a flood risk management function that may need to be designated, this is discussed in Section 1.3.7.

The requirement to undertake an investigation is based upon locally important criteria and it is up to the LLFA to decide when an investigation is necessary or appropriate. With this in mind, we are currently using a risk based approach to undertaking investigations. We will, however, update our policies during the lifetime of this Strategy.

This means that there will be instances where no single RMA can solve a known flooding problem. We are therefore reliant on partnership arrangements to tackle these problems. It is our aim to identify these areas proactively and engage with our partners as early as possible.

An investigation is triggered based upon on the likelihood and consequence of flooding. Where the consequences of flooding are high, for example if a flood event occurred which affected internal property and there was evidence this could occur frequently, we would investigate this as a high priority. However, if the flooding event did not affect internal property, for example a path or a garden, and this was deemed to be a low frequency event, a flood investigation would be a low priority and in some instances may not be undertaken at all.

LLFA's have developed their own flood investigation policies which help inform investigation priorities. These will be reviewed in the lifetime of this Strategy.

1.3.5 Maintain an asset register (Section 21)

The Lead Local Flood Authorities are required to produce and maintain a flood risk management Asset Register.

Many types of structures and landscapes can have a flood risk management function and they may not be limited to those in close proximity to watercourses. However, there is a lack of detailed knowledge regarding these assets and their importance in relation to local flood incidents. The FWMA has given us a number of responsibilities and powers that will help us to record and manage local flood risk management assets.

Under section 21 of the FWMA, each LLFA in England and Wales has to establish and maintain:

1.3.5.1 A register of structures or features which, in the opinion of the authority, are likely to have a significant effect on flood risk in its area.

1.3.5.2 A record of information about each of those structures or features, including information about ownership and state of repair.

The Councils also have a duty to ensure the register is available for inspection at all reasonable times. This includes inspection by members of the public. The record may hold some information relevant to the asset which is not available to the public.

1.3.6 Consenting and Enforcing (section 23)

The FWMA transferred the powers for ordinary watercourse consenting and enforcement to Lead Local Flood Authorities unless in an area covered by an Internal Drainage Board (IDB). These consenting powers mean that anyone looking to carry out construction work or make alterations to an ordinary watercourse needs to obtain permission from the LLFA first. The Land Drainage Act 1991 (LDA) as amended by the FWMA 2010 (Schedule 2) underpins this regulation.

A LLFA can 'serve notice' on a private land owner or organisation if they have undertaken works on an ordinary watercourse without seeking the appropriate consent. This is particularly important where those works have led to a flood issue, usually further downstream.

When undertaking enforcement it is always preferable to speak to the person responsible for the watercourse prior to entering into formal correspondence and enforcement procedures. The focus of the conversation will be on making them aware of their responsibilities and agreeing any works necessary to resolve the problems. Enforcement procedures are prioritised using a risk based approach.

It is important to note that an offence is committed under the LDA 1991 by failure to comply with a notice and not by the deed itself. As LLFAs, we must serve notice before taking remedial action under the LDA 1991. The serving of the notice must follow the procedures set out by the appropriate legal representatives within the LLFA and be accompanied by the appropriate covering letter.

When serving notice fails to deliver a satisfactory outcome the Local Authority will consider implementing its powers under the LDA 1991 (c. 59) Section 25 to undertake works on behalf of riparian owners and reclaim costs.

The LLFA's have developed a consenting and enforcing policy to support these powers to minimise the detrimental effects of culverting.

1.3.7 Designation (Section 30)

Under the FWMA, LLFAs can formally designate assets or features that have a flood risk management function.

Designation 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 designated structure may be associated with the flood risk relating to watercourse or the sea, or with coastal erosion risk.

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 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 the asset that will significantly affect its flood risk management function, then they will have to apply for consent to the designating authority in order to undertake the works.

The objectives have been carefully chosen to meet the requirements of the FWMA and to follow the core principles set out in the National Strategy. An overview of the objectives is presented in figure 4. They also recognise and support relevant aims and objectives set out in the National Adaptation Programme and the third strategy for Climate Adaptation reporting (Defra 2018 -2023) which seeks to make the country more resilient to climate change.

The business plan supporting this strategy provides more detail on how each of these objectives will be delivered. Measures are presented as specific actions that we are committed to delivering

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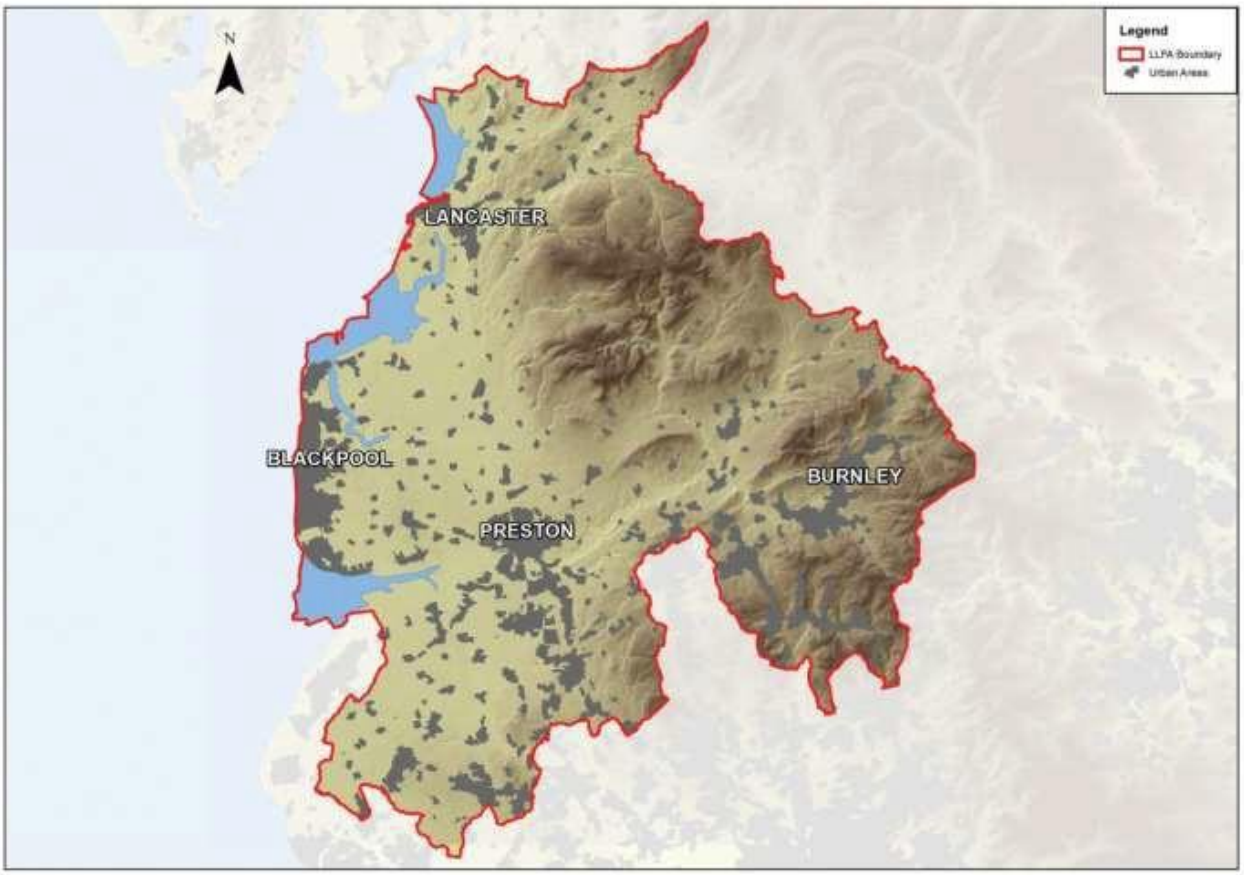
Figure 8 Summary Key Provision

FMWA Section 9-12	• **Produce a Local Flood Risk Management Strategy** • The new Lead Local Flood Risk Management Strategy for their area & for bringing together all relevant bodies to manage local flood risks.
FMWA Section 13	
FMWA Section 14	• **Powers to request information** • 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
FMWA Section 19	• **Investigate significant local flooding incidents** • The LLFAs have a duty to investigate and report on flooding incidents in its area. The significant flooding incidents must be published.
FMWA Section 21	• **Maintain a register of assets** • 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 as a record of information including ownership and state of repair.
FMWA Section 30	• **Designation of features** • LLFAs, District Councils, Internal Drainage Boards (DBs) and the EA have the power to designate third part features or structures which contribute to the flood and coastal erosion risk management system.
FMWA Section 39	• **Incidental flooding or coastal erosion: local authorities** • LLFA's are to manage flooding, water levels and coastal erosion in the interests of nature conservation, the preservation of cultural heritage or people's enjoyment of the environment.
Land Drainage Act Section 23 (as amended by the FWMA	• **Ordinary Watercourse Consenting** • Ordinary watercourse consenting which requires consent to be issued for altering, removing or replacing certain structures or features on ordinary watercourse is now the responsibility of the LLFA and not the EA.
Planning Consultation	
Develop Management	
Key Provision of the Act	

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Section 2 – Theme 2 – Understanding Risk – Local Flood Risk within Lancashire

In this section of the strategy we describe the level of flood risk across Lancashire from local sources and how it varies across the area.



Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

2.1 Introduction

Lancashire has experienced historical incidents of flooding in the past as well as several flood events in recent years. These events have resulted in flooding of homes, businesses and agricultural land as well as roads, railways and public services.

2.2 Existing Local Flood Risks

As past events demonstrate, Lancashire is at risk of flooding. However, the risks and mechanisms of flooding vary across the region.

In broad terms, Lancashire is divided in two by the M6 motorway, with steeper upland catchments in the east, where flooding can occur rapidly and be more localised, and flatter lowland catchments in the west.

Local Flood Risk in the West of Lancashire

In the low lying areas to the west, the risk of flooding is predominately linked to the capacity of the drainage networks, including piped networks in urban areas and open drainage ditches in both urban and rural areas. In many locations there is a complex relationship between drainage systems, open watercourses and the sea. Consequently, it is not always easy to identify the exact source of flooding. Indeed, flooding is frequently as a result of the interaction of a number of sources.

In the lowest areas near the coast, sea level has a large influence on flooding. High tides and storm surges can increase water levels in channels and cause drainage systems to stop discharging to the sea. In comparison to the upland areas, flooding in low lying flat land can be more predictable, when it is associated with high tides. When this occurs, localised flooding frequently results. If sea water is involved in the flood event, the impact can be more severe than cleaner freshwater flooding in upland areas, especially if agricultural land is affected.

In order to reduce the level of risk, there are a number of pumping stations throughout the lowland areas, particularly near the coast, where pumping is needed to ensure that water will discharge when sea levels are high. The extensive network of drainage ditches and pumping stations requires a considerable effort to maintain. If pumps fail, sizeable areas could flood, including urban and rural locations.

New development in low-lying areas has to be carefully managed as many of the drainage ditches and pumping stations are operating at or near full capacity. A small increase in the volume of flows or a change in the drainage regime could lead to a large increase in flood risk.

2.3 Local Flood Risk in the East of Lancashire

In the eastern uplands, flooding from local sources is predominantly as a result of intense rainfall events that cause surface water runoff and flooding from watercourses. The warning times for such events can be short and the entire flood event can be over within a matter of minutes. Such flood events are often teamed 'flash flooding'. The extent of flooding is typically constrained to main flow paths and flat floodplain areas next to the watercourse. In these areas, water can be relatively deep and fast flowing which can pose a significant hazard to people and property. The water could also contain foul water where there is a risk from sewers or agriculture.

The risk in many areas in the east has been exacerbated by development associated with the Industrial Revolution of the 18th and 19th Century. The mill buildings constructed during this time required water for industrial processes and in the early period flowing water was a source of energy. Consequently, mills and housing for employees, were built in close proximity to watercourses. This means that, today, there is a legacy of property located in high risk areas even though many of the mil buildings are no longer there or are used for other purposes.

In areas where mills were constructed, highly modified channels and culverts are common. Many of these were built over 100 years ago and as a result there are structures essential for the transfer of water that are in poor condition. Blockage and collapse of culverts and walls is a significant flood risk in some places.

As industry has moved on from many of these areas, there are places where re-development is on-going or planned. This has the potential to increase flood risk by replacing less vulnerable industrial mill buildings with more vulnerable residential and retail buildings. However, if done correctly there is a good opportunity to improve the flood resilience and sustainability of these areas.

2.4 Flood Risk by Local Authority

In order to understand local flood risk in more detail, we have undertaken a number of studies to support the Local Strategy e.g. surface water management plans have been put in place in the majority of districts and Blackpool.

These studies are aimed at achieving a high level of understanding around the main areas of risk across the region so that risk monitoring, further studies and works to reduce flood risk can be prioritised.

However, this Strategy recognises that flood management must not only be focused in the areas with the largest number of people or properties at risk but should also consider risk to the rural economy.

2.4 The Rural Economy

Lancashire contains some of the highest grade and most productive agricultural land in the UK. The rural economy plays a very important role in the region and employs a large number of people.

However, much of the land used for farming is located in low-lying areas to the west of Lancashire. These areas are drained by an extensive network of watercourses such as ditches, streams and river. Water levels are also managed in some locations with the aid of pumping stations.

Maintaining water infrastructure related to agriculture has a cost and in the current economic climate, funding for these activities is under significant pressure. This is especially true, when there is a strong focus on protecting people and property over agricultural land. We are working with our RMA partners to develop governance options or water management in rural areas, with a view to balancing the needs of agricultural productivity, flood risk management and sustainable drainage practices.

2.5 Future Risk from Local Sources of Flooding

Our understanding of the risk posed by local flooding is based on evidence of floods which have happened in the past and model predictions of which areas may be susceptible to flooding now or in the future. There are a number of changes that could affect our understanding of risk. These are discussed further below.

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

INSERT A3 PAGE WITH THE MAP OF LANCASHIRE ON AND WRITING

2.5.1 Climate Change

The fifth IPCC Assessment reported rising global sea levels, losses from glaciers and the Northern Hemisphere, shifting rainfall patterns, increased humidity and increasing incidences of extreme temperature and precipitation events. Despite much controversy, the consensus in the academic community is that the climate is changing as a result of human influence; approximately 95% of published climatologists say this is "extremely likely". As a result of this and other work, the policies to address the issues, include the Climate Change Act 2008 and Defra's National Adaptation Programme and Third Strategy for Climate Adaptation Reporting July 2018.

Already, we are experiencing trends in our weather patterns which are consistent with changes predicted by global climate models. These broadly state that, for the UK, we will experience warmer and wetter winters, hotter and drier summers, sea level rise and more severe weather. For example, the average temperature in central England has risen by about 1°C since the 1970's, all regions of the UK have experienced an increase in the amount of winter rain that falls in heavy downpours and sea levels around the UK have risen by about 1mm a year over the 20th century.

Seasonal rainfall is variable and some of the changes may reflect natural variation. However, past emissions of greenhouse gasses mean some climate change is inevitable in the next 20-30 years, although action now could reduce the amount of change we experience.

If emissions follow a medium future scenario, UK Climate Projections (UKCP09) projected changes in Lancashire by the 2050's relative to the recent past are:-

- Winter precipitation increases of around 14%
- Precipitation on the wettest day in winter will be up around 11%
- Relative sea level at Morecambe is highly likely to be increased by between 6cm and 36cm from 1990 levels.
- Peak river flows in a typical catchment are likely to increase between 11% and 18%.

Wetter winters and more rain falling in wet spells may increase river flooding especially in steep, rapidly responding catchments. More intense rainfall causes more surface runoff, increasing localised flooding and erosion. In turn, this may increase pressure on drains, sewers and water quality. Storm intensity in summer could increase even in drier summers.

The role of biodiversity and eco systems, are recognised extensively throughout this strategy and in our business planning.

Managing climate change should deal with the response of the natural environment, natural flood control, carbon sequestration through habitat creation and restoration, such as woodlands, bogs, ponds, wetland and coastal habitat such as saltmarsh, establishment of a diverse ecological network on a landscape/catchment scale to increase resilience to changing weather patterns.

This should include the opportunity of mapping within the strategic ecological network.

Rising sea levels, tidal storm surges and/or higher river levels may also increase local flood risk inland or away from major rivers because of interactions with drains, sewers and smaller watercourses.

The impact of increasing flood risk is reflected in increasing economic damages which have been widely reported in recent years. In 2004 the Association of British Insurers stated that insurance claims from storm and flood damages in the UK doubled to £6 billion over the period 1998-2003 and that this could further triple by 2050.

It is estimated that the probability of fluvial and tidal flooding in Britain could increase by between 2 and 20 times by 2080, increasing annual flood damages from £1 billion to £21 billion and doubling the number of people living in areas as risk from flooding. An update to the Foresight Future Flooding Report in 2008 (The Pitt Review) stated that future risk from what we term here local flooding may rise to be of the same order as fluvial and coastal flood risk.

In short, the risk of loss of life, the impacts to people, the costs of damage and long-term damage to the communities and economies of Lancashire could increase in the future unless appropriate action is taken now, including serious consideration of climate adaption.

The UKCP09 will cease in December 2018 and it will be replaced by UKCP18 project. Any changes to the local strategy as a result of this change will be considered via the business plan.

2.5.2 Urban Grown and Development

There is likely to be significant variation in the changing nature of flooding between rural and urban areas; urban areas could potentially suffer increased flood risk due to growing levels of urbanisation if this is accompanied by increased areas of impermeable surfaces which reduce the potential for land to naturally attenuate surface water runoff.

This impact of development and how we intend to control it is discussed in more detail in Section 5.

2.6 Local Flood Risk Management Plan

Central to our role is the management of flood risk at specific locations across Lancashire. In this Section we explain how we will do this.

As shown in this section, there are significant areas known or believed to be at high risk of flooding from local sources. There are a wide number of works, schemes, investigations and studies required to address these risks. Works and schemes are aimed at reducing flood risks where specific problems have been identified.

Investigations and studies are aimed at understanding the level of risk in more detail, particularly the likelihood and consequences of flooding. They can cover larger areas, such as towns and regions, or more specific areas. Works and schemes may follow as a result of their findings.

A careful balance is needed between works and schemes, and investigations and studies. Works and schemes are how we address known problems, or where we have a high confidence that there is a risk of flooding. However, we know from experience that there are likely to be numerous areas that we do not yet know about where flooding may occur during a storm event. Some of these areas could present an even higher risk than the known areas, particularly if they could affect vulnerable people or critical infrastructure such as hospitals. There, it is essential that we undertake such studies, so that works and schemes can be put in place before a flood happens.

Each district already has a local Multi Agency Flood Plan in place which covers strategic co-ordinated responses from emergency services during major flood events; however, Figure 9 gives an overview of how the different types of studies and schemes are related to each other. They are described in more detail in the following sub-sections.

It is also important to note that the focus of our studies is to reduce the impact of flooding. Therefore, at every level of investigation we will identify actions that can be implemented in the short term or at low cost. In this way we aim to ensure that even our strategic level investigations result in actions that reduce flood risk of people and property, either through engaging with the public, improving emergency planning or 'easy wins'. These are described further in Figure 10.

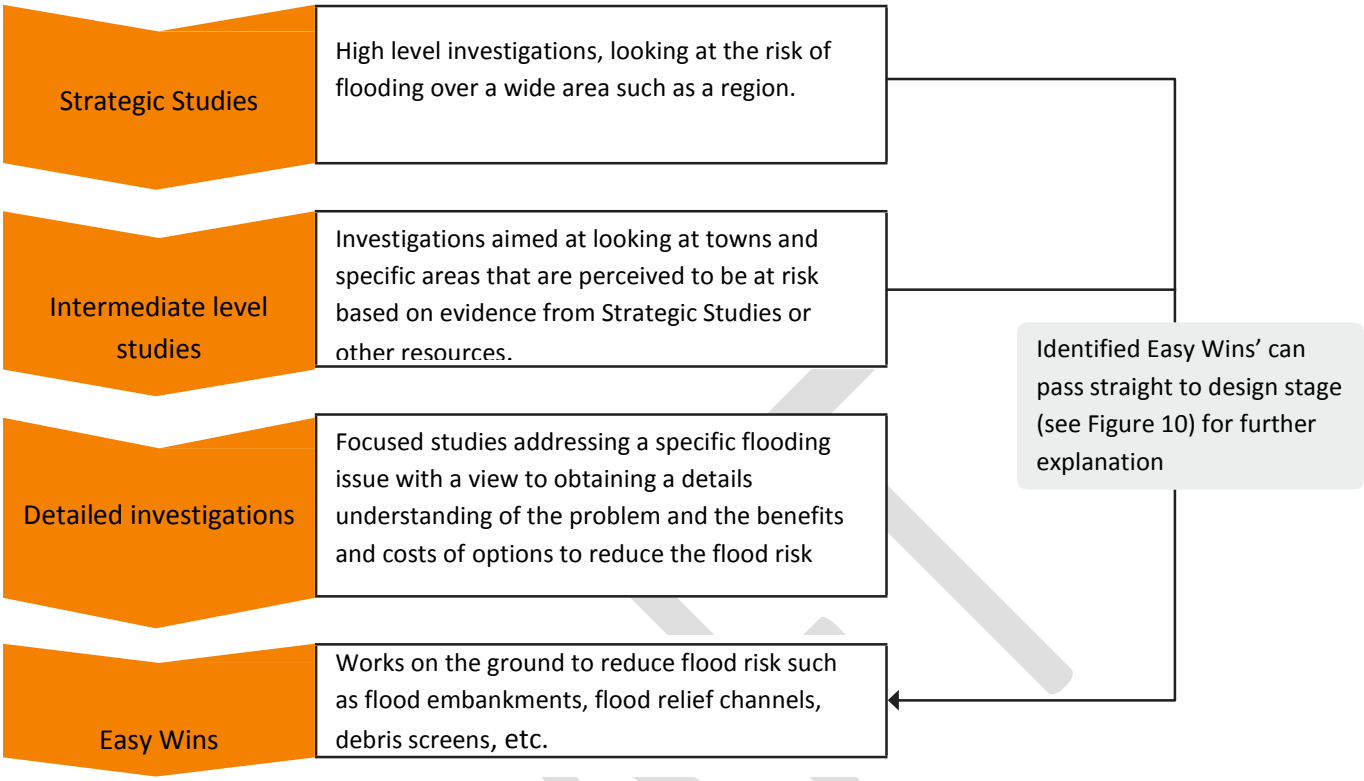


Figure 9 The links between flood risk studies and schemes

Figure 10 'Easy Wins'

'Easy Wins' are specific actions and schemes that could significantly reduce the risk of flooding to a number of properties, simply and at a low cost.

An example could be the installation of a new drain or a raised kerb to deflect water away from a group of houses.

Because these are 'Easy Wins' we aim to progress these as soon as possible. This means that in many instances we may not be able to state the precise benefit to cost ratio or the standard of protection covered by these schemes.

However, as they will clearly reduce flood risk we will still progress them.

2.7 Prioritising Our Actions

Given the size of Lancashire, the extent of local flood risk and our limited budgets, it is not practical to attempt to implement all the required works or studies across the whole of Lancashire in the short term.

It is, therefore, necessary to prioritise the potential actions and target resources towards the most significant risks and where interventions can offer the best value for money.

It is important that this prioritisation remains flexible to account for emerging opportunities and local and wider priorities. A schematic of how studies and schemes will be prioritised is shown above in Figure 9. Information on past flooding and future risk has been continually assessed since the LLFA's commenced their roles in 2010. This information will assist in the future prioritisation of schemes.

2.8 Strategic Level Investigations and Surface Water Management Plans

We have also successfully applied for funding to carry out more detailed investigations in key risk areas where the initial phases of the SWMP process has identified particularly high risk areas of flooding.

Studies have taken place and include areas in Preston, Blackpool, Pendle, Burnley, Rawtenstall, Haslingden, Stacksteads, Wyre and West Lancs.

2.9 Flood risk Management Studies by Others

In addition to the studies that we undertake, other RMA's carry out their own investigations. Details on these are as follows:-

Environment Agency Studies

- River Basin Management Plans
- Catchment Flood Management Plans
- Strategic Appraisal Reports
- Project Appraisal Reports

Water Companies

- Strategic plans and investigations based upon high risk areas

Coastal Protection Authorities and the Environment Agency

- Shoreline Management Plans
- Complete Strategic Appraisal Reports and Individual Project Appraisal Reports

2.10 Interaction

One of the key findings of the SWMPs, which is supported by the Environment Agency's studies, is that in many locations there are strong interactions between local sources of flooding and other sources of flooding such as main rivers and the sea.

Maps of the Districts to be added

Blackpool	
General Geography and Topography	The district has a distinctive town center area and The town is flanked by Wyre Council in the North and Fylde Council in the South. The district is serviced by the M55 and National rail serving Blackpool North and Blackpool South stations The district is generally low lying and protected from coastal erosion and flooding by concrete defences.
Potential Sources of Flooding	• Coastal/Tidal • Reservoirs (UU) • Surface water including direct rainfall (pluvial), ordinary watercourses, groundwater and Surcharging drainage systems and sewers
Superficial Geology/ General Soil Types	Superficial geology can influence surface water flood risk and in this area is a mixture of impermeable or slow-permeable clays, silts, sands and glacial deposits, and permeable sands and gravels.
Known Risks (during a major rainfall event)	Blackpool is likely to experience widespread shallow flooding due to the flat topography with less effective drainage systems in comparison to the more hillier locations. Drainage outfalls may suffer from tide-lock. This could cause surcharging and blockage of drains and ordinary watercourses. In flat areas the drainage of flood waters will be predominantly reliant on artificial drainage systems. These systems may be subject to silting, running full or tide-locking. Therefore flooding could be more prolonged. Many of the watercourses have been impacted by development over the years and the known risks are to address the future impact of development on combined sewer systems. There are many watercourses within the study area and a blockage or collapse could result in flooding at unexpected locations. Low-lying coastal areas have a potential for high groundwater levels.

Lancaster District	
General Geography and Topography	The district has three large distinct areas of residence and employment, Lancaster, Morecambe/Heysham and Carnforth. There are numerous other semi-rural and rural villages many of which have developed along the River Lune and other watercourses. The district is split divided by the M6/A6/West Coast main line and Lancaster Canal corridors. To the east are mainly villages to the west the larger population. The district has two distinct terrain types split roughly between the area to the south of the River Lune and the area to the north of the river. To the north of the Lune the land is predominantly flat or gently undulating to the south and east of the River Lune the ground is much steeper.
Potential Sources of Flooding	• Coastal/Tidal • Main Rivers • Mill Race • Canal • Reservoirs • Surface water including direct rainfall (pluvial), ordinary watercourses, groundwater and Surcharging drainage systems and sewers
Superficial Geology/ General Soil Types	Superficial geology can influence surface water flood risk and in this area is a mixture of impermeable or slow-permeable clays, silts, sands and glacial deposits, and permeable sands and gravels.
Known Risks (during a major rainfall event)	Morecambe and Heysham are likely to experience widespread shallow flooding due to the flat topography with less effective drainage systems in comparison to the more hillier locations. Drainage outfalls may suffer from tide-lock. This could cause surcharging and blockage of drains and ordinary watercourses. Lancaster and surrounding areas are likely to experience widespread flooding of flat areas alongside the River Lune, with high amounts of run-off along key flow paths. In areas with steeper topography there will be distinct flow paths. Flooding along these will be deeper and faster with ponding at low-points or pinch-points. The centre of Lancaster is at significant risk from surface water flooding from surface water runoff and flooding from drainage systems.

Lancaster District	
	The interactions of surface water drainage with water levels in Main Rivers and the sea are likely to be complex and will have a significant impact on flood risk in many areas. In flat areas the drainage of flood waters will be predominantly reliant on artificial drainage systems. These systems may be subject to silting, running full or tide-locking. Therefore flooding could be more prolonged. There are many watercourses within the study area and a blockage or collapse could result in flooding at unexpected locations. Low-lying coastal areas have a potential for high groundwater levels.

Wyre District	
General Geography and Topography	The district's main urban areas are Fleetwood, Thornton-Cleveleys, Poulton le Fylde and Garstang. The district is predominantly flat, rising in the east of the district towards the upland areas of central and eastern Lancashire. Wyre abuts the unitary authority of Blackpool and is a mixture of coastal, estuary, semi-rural and rural areas with smaller settlements having developed along the River Wyre and other watercourse. Due to the generally flat topography there are extensive networks of land drains and ponds. These are used to keep the mainly arable land drained and suitable for agriculture.
Potential Sources of Flooding	• Coastal/Tidal • Main Rivers • Canals • Reservoirs • Surface water including direct rainfall (pluvial), ordinary watercourses, groundwater and Surcharging drainage systems and sewers
Superficial Geology/ General Soil Types	Superficial geology can influence surface water flood risk and in this area is a mixture of sands, gravels and mudstone along the coast and glacial till deposits and peat alongside the River Wyre.
Known Risks (during a major rainfall event)	The Key urban areas are likely to be affected by widespread shallow flooding. Flooding from the incapacity of drainage systems and pumping infrastructure to cope with large volumes of run-off. This may be exacerbated by tide-locking of drainage outfalls during high fluvial flow or tidal events. Contaminated flood water from combined sewer systems being overwhelmed by surface water run-off. Rural areas are likely to suffer extensive shallow flooding. Likely cause being the inability of land drains and watercourses to cope with the large volumes of run-off generated. The flat topography is less likely to cause significant defined surface water flow paths to form. Therefore, flooding from run-off as well as flooding from drains and ordinary watercourse is likely to remain relatively local and drain away slowly. Where land drains become blocked or silted up as a result of high flows and are unable to discharge, flooding may be prolonged.

Wyre District	
	Interaction of surface water drainage with main Rivers, the sea and ordinary watercourse are likely to be complex. Drainage in many areas is likely to be reliant upon outflow into Main Rivers and then into the sea. Prolonged high flow conditions with the Main River can therefore significantly increase the risk of flooding from drains and prolong flooding for long periods after an extreme rainfall event. Due to the proximity of Blackpool Unitary Authority and the flat nature of the topography, many of the sewerage and other drainage networks encompass land within Blackpool or flow into Blackpool to discharge. As a result of this flooding within Thornton-Cleveleys and Poulton-le-Fylde will be cross-boundary in nature.

Ribble Valley District	
General Geography and Topography	The district is predominantly rural and dedicated to farming. However, there are large settlements in Longridge, Wilpshire and Whalley with Clitheroe being the main town. Villages are historically farming communities and as such have developed around ordinary watercourses and it is not uncommon to see buildings constructed (historically) immediately adjacent to a watercourse. Extensive networks of ordinary watercourses transfer water rapidly from hillsides to river valleys. In villages many of these watercourses have been culverted. The River Ribble is a relatively narrow floodplain within the wider valley bottom. Clitheroe is built on a series of flat or gently sloping terraces to the River Ribble.
Potential Sources of Flooding	• Coastal/Tidal • Main Rivers • Reservoirs • Surface water including direct rainfall (pluvial), ordinary watercourses, Surcharging drainage systems and sewers and groundwater (groundwater is not considered a significant risk due to the steep topography)
Superficial Geology/ General Soil Types	The superficial geology is relatively uniform. The majority of the area is covered by glacial till deposits. Within close proximity of the main rivers there are fluvial deposits of sands, gravels, silts and river terrace deposits. Till deposits often contain large amounts of clay and other relatively impermeable material.
Known Risks (during a major rainfall event)	Flood risk is not likely to be uniform across the district footprint. Flooding would typically be varied across the area with steeper areas being characterised by flooding along distinct flow-paths, whilst flatter areas would experience more widespread, shallow surface water ponding. Flood risk is highly localised because of the distributed nature of urban development. Damages are likely to be localised and occur in small clusters across the district footprint. Flooding in some areas is likely to pose a significant hazard particularly where major flow-paths or ordinary watercourse flow through urban areas or along busy transport routes.

Ribble Valley District	
	The Forest of Bowland has steep topography and large numbers of ordinary watercourse. Steep areas tend to produce surface water events that are characterised by shallow but high velocity flows, often concentrated within well-defined flow-paths. The onset is short, with a small amount of time between the rainfall event and generation of surface flows. The rapid nature makes it difficult to react to incidents. Flood risk in flatter parts do not produce the high velocity flows and instead suffer from widespread, shallow flooding. Concentration of flood water into localised low points can result in significant depths, particularly if a drainage system becomes blocked or surcharged. Due to the lack of gradient flooding can be prolonged. Many watercourses within villages and larger settlements have been culverted as settlements have expanded. This has introduced pinch points which can increase the risk of flooding in extreme events. In some areas the combination of impermeable superficial geology and steep topography increases the risk from surface water run-off as little rainfall is likely to infiltrate into the ground.

Fylde District	
General Geography and Topography	Fylde abuts the unitary authority of Blackpool. The main urban settlement is along the coast at Lytham St Annes and inland Kirkham. There are numerous smaller villages and hamlets spread across the district. The area is predominantly flat. Due to the flat topography there are extensive networks of land drains and ponds.
Potential Sources of Flooding	• Coastal/Tidal • Main Rivers • Surface water including direct rainfall (pluvial), ordinary watercourses, groundwater and Surcharging drainage systems and sewers
Superficial Geology/ General Soil Types	Superficial geology can influence surface water flood risk and in this area is a mixture of marine and windblown sands, gravels and mudstone along the coast and glacial till deposits and peat alongside the River Ribble. High groundwater levels in some localised areas.
Known Risks (during a major rainfall event)	Local flooding is likely to be widespread but shallow with low velocity. In many cases flooding will be contained within the highway but may impact on access and egress and travel in general. Drainage systems are less effective than in hillier areas as gradients are less and pipes may be affected by siltation. Rural areas are likely to suffer extensive shallow flooding. Likely cause being the inability of land drains and watercourses to cope with the large volumes of run-off generated. Two Main Rivers, Liggard Brook and Whitehill Watercourse, flow through and around Lytham St Annes before discharging to the sea. As a result, it is likely that some combined flooding will occur in the event of an extreme rainfall event, with surface water and sewer flooding combining with either tidal or fluvial flooding.

Preston District	
General Geography and Topography	Preston urban area is built across several watercourse catchments and the topography of these influence surface water flood risk across the area. Preston has become increasingly urbanised with many of the previously rural outskirt locations becoming developed with open fields with land drains and ditches being replaced with piped systems. xxxxxxxxxxxxxxxx
Potential Sources of Flooding	• Coastal/Tidal • Main Rivers • Canal • Surface water including direct rainfall (pluvial), ordinary watercourses, groundwater and Surcharging drainage systems and sewers
Superficial Geology/ General Soil Types	xxxxxxxxxxxxxxx
Known Risks (during a major rainfall event)	The Preston urban area is built across several watercourse catchments. The drainage system within the centre of Preston is mainly culverted and historic; much of the system is made up of combined sewers. Surface water flooding can occur during periods of heavy rainfall. Preston's industrial history has resulted in man-made flow-paths. The largest is the former Longridge railway line which runs from Longridge (Ribble Valley), approximately 10km to the north-east of Preston, to join the West Coast Main Line immediately to the north of Preston railway station. This man-made feature has the potential to act as a highly efficient "watercourse" for surface water flows, channeling flooding into Preston City Centre. As this dis-used railway line connects to the West Coast Main Line route which could potentially flood this route.

South Ribble District	
General Geography and Topography	The main urban settlements are Leyland, Penwortham, Walton le Dale and Bamber Bridge. Outside of these areas there are numerous rural settlements and farmland. The topography is predominantly flat.
Potential Sources of Flooding	• Tidal • Main Rivers • Surface water including direct rainfall (pluvial) • Ordinary Watercourses • Groundwater • Surcharging drainage systems and sewers combined
Superficial Geology/ General Soil Types	The superficial geology of the area is relatively uniform. The majority of the area is covered by glacial deposits of till and localised deposits of fluvially deposited sands, silt gravels and peat deposits.
Known Risks (during a major rainfall event)	Flooding is likely to be shallow but widespread leading to disruption. Internal property flooding is less likely but flooding contained within the highway or on land surrounding properties is more likely. Flooding may be prolonged and could be contaminated by foul sewerage where sewers are surcharged or tide locked. Low-lying western areas have potential for high groundwater levels, evidence by presence of ponds and network of land drains. High groundwater levels can cause flooding in localised low points such as road cuttings, basements or open land following extreme rainfall events. There are numerous Ordinary watercourses across the area many of which are culverted. Culverting can reduce capacity or introduce pinch points on drainage systems. Ordinary watercourses may be unable to discharge into Main River during an extreme event, when river levels are high. This may cause watercourses to back up or overtop. Interaction of surface water flooding with Main Rivers (combined flooding) is likely to be a key feature of local flood risk. Some Ordinary Watercourses may be poorly maintained and culverts and structures may be in a state of disrepair. The cost of carrying out remedial works can be high and may not be able to be met by the riparian landowner.

West Lancashire District	
General Geography and Topography	The main urban centres are Skelmersdale, Ormskirk, Hesketh Bank and Burscough. Much of West Lancashire is situated less than 10m above sea level. However, in the east of the borough the land begins to rise towards the uplands of south Lancashire. Outside of the urban areas there are small rural communities surrounded by mainly arable land. On this land there are numerous land drainage networks and ponds. Topography is generally uniform across the area and is flat in nature.
Potential Sources of Flooding	• Canal • Tidal • Main River/Trunk drains • Ordinary Watercourses • Land drains • Pump failure • Sewer capacity • Surcharging drainage • Groundwater
Superficial Geology/ General Soil Types	• Wind blown sands • Sandstone • Mudstone • Clay deposits • Peat deposits
Known Risks (during a major rainfall event)	There would be widespread flooding across the area. The lack of natural gradient means that drainage is less effective than in hillier areas and pipes are more likely to be affected by siltation. Many drainage systems are likely to be reliant on pumping networks to discharge effectively. Failure of these pumps, or blocked drainage systems, is likely to represent a significant flood risk. In the urban areas flooding would likely be shallow with low velocity. Deeper flooding will occur at localised low points. Flooding is unlikely to represent a serious hazard to people but may affect some properties internally. In Ormskirk the Main River has a significant flood plain and has the potential to flood large numbers of residential properties. There are also a large number of culverted watercourses which may have capacity or unknown defects which could lead to flooding.

West Lancashire District	
	In Skelmersdale there is likely to be extensive flooding of pedestrian walkways and underpasses below the natural ground level. These maybe affected by deep fast flowing flood water and represent a significant hazard to people. There are widespread issues with the capacity of drainage systems across West Lancashire. This is the case within Burscough and Hesketh Bank where an extreme rainfall event is likely to overwhelm the surface water drainage system and any pumping infrastructure. There are many land drains and Ordinary Watercourses across West Lancashire and these are likely to represent a significant flood risk due to siltation, lack of maintenance and unconsented development. The interaction of surface water with Main Rivers is likely to influence flooding characteristics in many areas. This is particularly true where surface water drainage outfalls into Main Rivers and maybe affected by tide locking or river levels. Due to the flat topography this could have wide-ranging impacts.

Chorley District	
General Geography and Topography	The main urban centre is Chorley with smaller centres in Clayton le Woods, Whittle le Woods, Adlington, Euxton, Buckshaw Village, Coppull, Croston and Eccleston. There are other semi-rural communities around the district and large areas of farm land/open countryside. The district has two distinct types of topography. To the west of the M61 the area is predominantly flat and to the east the topography rises gently at first but then more steeply. The settlements developed extensively during the industrial revolution with mills and factories being constructed close to rivers. Over time these watercourses have been culverted and canalised through the urban areas. Overtime these industries have disappeared leaving poorly maintained, hidden culverts. The excellent transport links have attracted new development both in terms of industry and housing.
Potential Sources of Flooding	• Main Rivers • Ordinary Watercourses • Canal • Reservoirs • Groundwater • Surcharging drainage systems and sewers •
Superficial Geology/ General Soil Types	• Predominantly glacial till • Localised fluvially deposited sands, silt gravels and peat deposits. • Mainly peat over high ground in the east.
Known Risks (during a major rainfall event)	The flat topography west of the M6 motorway is likely to experience widespread shallow flooding which would result in disruption to people and services as a result of standing water. It is unlikely that large number of properties would suffer from internal flooding. Internal flooding may occur in localised low points where deeper flooding may occur. There are many land drains and ordinary watercourses that are culverted, reducing capacity or introducing pinch points on drainage systems. Overland flows of surface water run-off are not usual and where they do occur are likely to be related to Ordinary Watercourse of Main Rivers where deeper and faster flowing flood water may be encountered. This has potential to pose a greater hazard to people and property. There is potential for flooding through the interaction of Main Rivers, Ordinary Watercourse and sewers and surface water drainage systems. Flooding would occur because Ordinary
Chorley District	

	Watercourse and field drains would be unable to discharge into Main Rivers. Combined sewers (foul and surface water mixed in a single system) are likely to pose a significant risk. Surcharging combined sewers can result in surface water becoming contaminated with untreated sewage. Historic culverts may have capacity issues or may be in poor condition. Flooding from these watercourses represent a hazard as surcharging, blockage or collapse of a culvert can result in deep, fast flowing flooding. Flooding in the eastern part of the district is likely to be significantly different than that seen in the west as a result of the steeper terrain. There are likely to be distinct flow-paths and whilst flooding is expected to be less extensive run-off will be deeper and fast flowing along distinct flow paths. This will present a greater hazard to people and properties as flooding may occur with little or no warning. Deeper flood depths will also result in more properties suffering internal flooding, although in the steepest areas there is less concentrated development. Flow-paths are likely to follow roads and other artificial paths. This will represent a significant hazard to users of these routes. Ordinary watercourse in the east of the district will likely have a flash response to extreme events with water levels rising and also falling rapidly. This has a potential to cause flooding downstream particularly in areas that are culverted.

Hyndburn District	
General Geography and Topography	There are a number of urbanised areas within Hyndburn with Accrington being the main centre. Smaller centres are Rishton, Oswaldtwistle, Clayton le Moors, Great Harwood and Church and these tend to lie within the foothills and valleys. Accrington is located in the upper reaches of the River Hyndburn catchment and the topography is very steep. The area is heavily urbanised with high density terraced houses and former mill buildings. The southern part of the district is mainly open moorland and part of Oswaldtwistle Moor falls within the West Pennine Moors SSSI area.
Potential Sources of Flooding	• Main River • Ordinary Watercourses • Groundwater • Surcharging drainage systems and sewers • Culvert capacity or condition
Superficial Geology/ General Soil Types	• Underlying geology of limestones and millstones and coal although the superficial geology is made up of mainly glacial deposits, sands and gravels. • In low lying areas there is potential for high groundwater level.
Known Risks (during a major rainfall event)	The topography means the area is at high risk of surface water flooding with high velocity, shallow flooding of streets and widespread flooding of valley bottoms. Flash flooding is likely to represent a significant hazard. Historic culverts may have capacity issues or may be in poor condition. Flooding from these watercourses represent a hazard as surcharging, blockage or collapse of a culvert can result in deep, fast flowing flooding. Sewer flooding reflects higher population concentration but may also be linked to aging sewer and drainage networks.

Burnley District	
General Geography and Topography	The main urban areas are Burnley and Padiham. Urban development advanced significantly during the industrial revolution as centres for coal mining and cotton spinning expanded. These centres exploited the hydropower available from the many watercourses. These non-residential developments were constructed immediately alongside, and in some cases, over watercourses. These former mill buildings have now been vacated, reoccupied, redeveloped or demolished. Many sites have been replaced with residential developments, which are more vulnerable to flood events. Outside of the urban centres, there are small settlements within the foothills and valleys and beyond these there is open moorland. The topography consists of flat valley floors and rising hills to upland moorland.
Potential Sources of Flooding	• Main Rivers • Ordinary watercourses • Reservoirs • Surface water • Groundwater • Surcharging sewers and drainage networks
Superficial Geology/ General Soil Types	• Clay • Silt, sand and gravel
Known Risks (during a major rainfall event)	Areas of steep topography where direct run-off is likely to result in shallow high velocity flooding. Flooding is likely to occur with little warning but likely to be short in duration. Flooding of this kind can be hazardous to people and may be affected as a result of the velocity of flows channelled down roads and around buildings. The shallow nature may result in less risk to property. Minor watercourses within culverts in densely developed urban areas are a risk if there was to be a collapse or blockage. This could result in deep, high velocity surface water flows along the former natural course of the watercourse. Flooding may occur with little warning and will be along a defined flow path. This may result in damage to properties within the flow path. The velocity and depth will be hazardous to people. Areas of flatter topography, typically in valley bottoms or on river floodplains, are likely to experience widespread flooding with localised areas of deep ponding. This flooding occurs from direct run-off from steeper areas or as a result of surcharging or blocked drainage systems. This type of flooding is less hazardous to people but may result in higher levels of property damage. Complex interactions with watercourses, including Main Rivers are likely.

Pendle District	
General Geography and Topography	The urban areas are Nelson and Colne with smaller settlements of Brierfield, Barnoldswick, Earby and Trawden. The landscape is diverse with historic industrialisation in the urban areas. The smaller settlements tend to be located within the foothills and valleys. Beyond the valleys there is upland farmland and moorland.
Potential Sources of Flooding	• Main Rivers • Ordinary Watercourses • Surface water • Groundwater
Superficial Geology/ General Soil Types	• Clay • Sands, silt and gravels • Peat
Known Risks (during a major rainfall event)	Areas of steep topography where direct run-off is likely to result in shallow high velocity flooding. Flooding is likely to occur with little warning but likely to be short in duration. Flooding of this kind can be hazardous to people and may be affected as a result of the velocity of flows channelled down roads. Minor watercourses within culverts in densely developed urban areas are a risk if there was to be a collapse or blockage. This could result in deep, high velocity surface water flows along the former natural course of the watercourse. Flooding may occur with little warning and will be along a defined flow path. This may result in damage to properties within the flow path. The velocity and depth will be hazardous to people. Areas of flatter topography, typically in valley bottoms or on river floodplains, are likely to experience widespread flooding with localised areas of deep ponding. This flooding occurs from direct run-off from steeper areas or as a result of surcharging or blocked drainage systems. This type of flooding is less hazardous to people but may result in higher levels of property damage. In low lying areas there is a potential for high ground water which could lead to flooding in localised low points such as road cuttings, basements and on open land.

Rossendale District	
General Geography and Topography	
Potential Sources of Flooding	
Superficial Geology/ General Soil Types	
Known Risks (during a major rainfall event)	

The objectives have been carefully chosen to meet the requirements of the FWMA and to follow the core principles set out in the Strategy. An overview of the objectives is presented in figure 4.

They also recognise and support relevant aims and objectives set out in the National Adaptation Programme and the third strategy for Climate Adaptation reporting (Defra 2018 -2023) which seeks to make the country more resilient to climate change.

The business plan supporting this strategy provides more detail on how each of these objectives will be delivered. Measures are presented as specific actions that we are committed to delivering.

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Theme 3 – Sustainable Flood Risk Management including Spatial Planning

In this section we explain why managing development is important and how we intend to interact with the local planning authorities, it also explains how we intend to address the environment and sustainability issues relevant to flood risk management.

1. Current Planning Guidance

The National Planning Policy Framework (NPPF) 2018 contains specific guidance on development in areas identified as being at risk of flooding from main rivers or the sea.

The areas at risk are identified through Flood Zone Maps and a development in Flood Zone 2 (medium risk) and Flood Zone 3 (high risk) requires a formal Flood Risk Assessment (FRA) as part of the planning application. FRAs are also needed for certain types and/or sizes of development proposals in Flood Zone One.

The Environment Agency review and comment on FRA's submitted to the Local Planning Authority (LPA).

Whilst the above process makes provision for the risk of flooding from main rivers or the sea, the NPPF does not contain a robust mechanism to prevent development in areas at risk from local flood sources, such as surface water run off or smaller watercourses.

As a result the LPA could without knowing approve a planning application without appropriate consideration of local flood risk.

How we address Development Applications as a LLFA

Flooding and coastal erosion cannot be eliminated but can be managed. Climate change is increasing the risk of flooding and coastal erosion and it is likely overtime that more people are likely to be living in affected areas. Therefore we will work to reduce the risk to individuals and communities and to protect economic growth.

The first Lancashire and Blackpool Local Flood Risk Management Strategy (2014-17) was written with the expectation that the LLFA's would become a SuDs Approval Body (SAB). The Government decided not to invoke the legislation and instead appointed LLFAs as a statutory consultee to the planning process for all major developments. LLFA's undertake a statutory consultee role providing technical advice on surface water drainage to local planning authorities on major developments of 10 dwellings or more.

This came into effect in April 2015. The LLFA's provide the LPAs with substantive written responses advising whether or not a development proposal is acceptable and whether any residual risk is appropriately managed. It is important to assess these planning proposals to ensure that the proposed drainage proposals are adequate for the size, type of development and location. Ultimately we are assessing the flood risk associated with the development proposals and in particular the LLFA is looking at surface water, ordinary watercourses and groundwater. The developer must show that the risk is considered and mitigated for and any residual risk is managed appropriately. The LLFAs assess proposals against national and local planning policies and planning guidance. Industry best practice is also considered.

The original SAB would have placed the responsibility for adoption and maintenance of SuDs with the LLFA. The change to the role of statutory consultee removed the control of maintenance from the LLFA and maintenance for the lifetime of the development is now controlled by the use of planning conditions and planning enforcement. Where possible United Utilities are developing the feasibility of adopting suitable SUDs solutions as appropriate.

Lancashire County Council, in its capacity of LLFA responds to 12 local planning authorities.

The LPAs are the determining authority. The 12 LPAs are:-

- Lancaster City Council
- Wyre Borough Council
- Ribble Valley Borough Council
- Fylde Borough Council
- Preston City Council
- South Ribble Borough Council
- West Lancashire Borough Council
- Chorley Borough Council
- Hyndburn Borough Council
- Burnley Borough Council
- Pendle Borough Council
- Rossendale Borough Council

Lancashire County Council is the planning authority for mineral and waste applications and the LLFA will comment on such applications too. The county council has agreed with the LPAs that if there are concerns with minor applications, and resources allow, then a non-statutory response can be requested.

Blackpool Council is a unitary authority and therefore is both the statutory consultee and determining authority. Blackpool Council works in Partnership with Fylde, Wyre and Lancashire County Council in managing flood risk in particular where Development can have an effect on all Authorities.

Pre-application advice

The Lancashire County Council has recently introduced a charged for, pre-application service for flood risk and land drainage consents. This service provides a developer with advice in advance of the formal application to the LPA to state evidence requirements, comments on initial proposals, site constraints and land drainage consent advice (Land Drainage Act 1991) as consenting can impact on site layout. Blackpool Council will also commence pre-application advice and charge for this service.

Local Plans

In line with Defra's 25 year plan LLFA's will work alongside the Strategic Planning Authority to ensure that New Development is in the right place and delivers maximum economic benefit and protects high risk flood areas.

LPAs are required to develop local plans and the LLFAs have a duty to co-operate in the process. We are consulted and offer advice at various stages of the plan development. This may include providing advice on potential site allocations, general flood risk (from surface water, ordinary watercourse and groundwater), Strategic Flood Risk Assessments (level 1 and 2) and proposed policies (check against other strategies and poach if necessary.)

Sustainable Drainage

Surface water flooding poses a significant and increasing risk which can lead to sewer flooding and environmental pollution. We are working with other RMAs to manage this risk. Sustainable drainage systems such as permeable surfaces, storage tanks or ponds reduce the risk of surface water flooding. Some of these features also support additional benefits such as improved amenity, wildlife and water quality. The National Planning Policy Framework and Planning Practice Guidance both support the use of sustainable drainage and the LLFA will be looking for evidence that these principles have been incorporated into development proposals. The ongoing management of these systems is a recognised concern and we will work with LPAs to manage this risk.

The revised NPPF and DEFRA's 25 year Environment Plan highlight the multiple benefits of sustainable drainage principles. We will work with LPAs to ensure appropriate local policies are developed to support the need for sustainable drainage.

DEFRA's 25 years Environment Plan also encourages the separation of surface water, the Fylde Peninsula Water Management Partnership has evidence of the benefits of surface water separation in the development at Rigby Road and continue to work in partnership to further address surface water separation.

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Environment and Sustainability

In this section we state how the Local Strategy will address the environment and sustainability issues that are relevant to the management of local flood risks.

3.1 Introduction

Flood risk management schemes that integrate environmental, social and wider economic benefits are more likely to obtain buy-in from stakeholders and communities. This may encourage funding contributions and is likely to make works easier to implement in the long term.

The primary focus of flood risk management will always be reducing flood risk to people, property and land, but the benefits from sustainable measures are themselves a desirable outcome. These include:

- **Environmental:** water quality improvements, biodiversity enhancement, adaptation, climate change, e.g. aquifer recharge.
- **Social:** public amenity enhancement, more cohesive communities, healthier environment.
- **Economic:** promote development and business growth, encourage more visitors to the area, increased land values.

Natural Flood Risk Management

In certain circumstances working with natural processes can help reduce the impact of flooding. Examples of this may be tree planting, river bank restoration or storing water temporarily on open land. We should not expect that these measures alone will offer 100% protection to areas of greatest risk or during the most significant flood events but good integrated flood management will see these measures incorporated alongside more traditional measures, where appropriate. We will develop a deeper understanding of this type of solution and work with partner and voluntary organisations to develop local projects that would offset the risk of flooding.

Defra 25 year plan

This strategy recognises the importance of partnership working and ensuring that the partnership must include membership from ecologists so that the biodiversity and eco systems form part of the decision making process in relation to flood risk management.

The following principles should be considered in addressing environmental and sustainability in relation to flood risk management:-

- New development ideally to be located outside areas of flood risk
- A water cycle study completed at the Master planning stage to inform layout and design
- High standard homes which maximise water efficiency
- Blue-green corridors which create channels for surface water to collect, be treated and flow

- Wetland areas
- On-site water recycling
- Water harvesting and storage
- Local management of water services
- Natural flood control
- Enhancing the resilience of the ecological network through habitat creation and enhancement
- Carbon sequestration through habitat creation and restoration
- Maintaining and enhancing habitat connectivity

This strategy recognises Defra's 25 year plan and the need to use a natural capital approach when making key choices and decisions.

Defra definition of Natural Capital

"Natural Capital is the sum of our ecosystems, species, freshwater, land soils, minerals, our air and our seas. These are all elements of nature that either directly or indirectly bring value to people and the country at large. They do this in many ways but chiefly by providing us with food, clean air and water, wildlife, energy wood, recreation and protection from hazards."

Relevant Legislation, Directives and Guidance

The objectives and actions outlined in our business plan will assist in the delivery of requirements of the following legislation, directives and guidance:-

- Climate Change Act 2008
- Water Framework Directive (WFD) (England and Wales) Regulations 2017 – Legislation.gov
- Bathing Water Directive 2006/7/EC
- Strategic Environmental Assessment (SEA) Directive 2001/42/EC
- Habitats Directive Council Directive 92/43/EEC
- Natural Environment and Rural Communities (NERC)Act 2006
- Defra 25 Year Plan to improve the Environment (2018)
- Conservation of Habitats and Species Regulations 2017
- The National Adaptation Programme and Third Strategy for Climate Adaptation Reporting (July 2018)
- National Planning Policy Framework (July 2018)

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Local Flood Risk Management Strategies take a wider catchment based approach, and work at a landscape scale as advocated by legislation and guidance. Throughout the lifetime of this strategy we will integrate flood risk management options that maximise flood risk benefits in combination with other biodiversity, WFD, catchment, and green infrastructure opportunities. This will ensure wider environmental benefits are actively considered.

Overall, this Local Flood Risk Management Strategy aims to impact positively on everyone who lives, works or visits Lancashire.

The Equality Act 2010 introduced the term "protected characteristics" and makes it unlawful to discriminate against a person who belongs to one of the groups who are protected under the act (check with EQ & D Officers). The groups identified by the Equality Act 2010 are: age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex and sexual orientation.
Consultations required *****

These groups with protected characteristic may require further consideration and consultation as the strategy is implemented. It is important to ensure the needs of these groups are considered as part of the Flood Risk Management for example some groups may have difficulty in accessing interpreting or acting on flood warnings and we need to ensure that flood risk management schemes do not have a negative impact on the ability of people to use the highway and pathways. Everyone in Lancashire including those with protected characteristics, could benefit from the implementation of this strategy through:-

- An improved public realm
- An improved environment through planning for emergency flooding situations
- Improved mental well being
- More social inclusion and engagement
- Increased social capital and community cohesion, giving more power to local people, local innovations and solutions to benefit communities who face the greatest risk but who are least able to help themselves.
- Sustainability – working to benefit people (including those with protected characteristics), the environment and economy
- Improved flood risk management can help to achieve other targets, for example health and well-being. Reducing the incidence of flooding reduces the social, economic physical and psychological burden on the community as well as potentially improving the amenity value of shared community spaces.

Strategic Environmental Assessment

This strategy is being informed by the Strategic Environmental Assessment (SEA) 2014. The SEA seeks to ensure that the objective and actions in the strategy's business plan take into account the

environment, social and socio-economic and health concerns and take advantage of opportunities for wider benefits at the same time. The SEA process will run concurrently with development of this

Strategy and aims to identify the likely significant effects of the objectives and actions and make recommendations to change or improve where appropriate.

The scoping of the SEA has determined that the following issues should be investigated further in the assessment phase:-

- Bio-diversity: flood risk to designated sites; other habitats and associated species; changes to habitats and direct and indirect species mortality; natural flood control, enhancing the resilience of the ecological network through habitat creation and enhancement; carbon sequestration through habitat creation and restoration; maintaining and enhancing habitat connectivity.

- Local Community: flood risk to properties community facilities and businesses, or their connectivity; flood risk to environments in deprived areas.

- Recreation: flood risk to recreational facilities or features; access to recreational routes/facilities.

- Geology and soils: flood risk to geological features; land use conflict with soils; land use conflict with geological features.

- Water Environment: compliance with River Basic Management Plan; risk of water pollution; long term ability to achieve "good" status or "good potential."

- Climatic factors; construction CO^2 emissions.

- Landscape and Townscape: flood risk to landscape and townscape character.

- Historic Environment: access to land use or design conflict with historic features designated or non-designated historic feature; flood risk to historic assets.

In order to maintain a future perspective the environmental impacts associated with the strategy, the SEA will ensure environmental monitoring is incorporated as part of the overall approach to monitoring the delivery of the strategy's objectives and measures.

The SEA assessment will also address the requirements of the Habitats Regulation Assessment (HRA) under the conservation of Habitats and Species Regulations 2010. The HRA will consider the potential effects of a development plan on the biodiversity of Designated European Sites including Special Protection Areas and Special Areas of Conservation. We have already highlighted the benefits of Partnership Working and the need to ensure that Ecologists should be an integral member of Partnerships particularly when discussing proposed flood risk management projects.

Improving Resilience of Properties at Risk of Flooding

Not all flooding can be prevented. Properties at risk should be more resilient. We will assist with advising individuals and communities regarding improving their preparedness, and resilience with regards flooding.

This will be carried out in Partnership with the Environment Agency to deliver flood warnings and other RMA's.

The Lancashire Strategic Partnership will also work with New Ground to work with it's Communities to deliver resilience measures to Lancashire Residents and Businesses.

The national flood and coastal erosion risk management strategy will be updated during 2019 and it is envisaged that this will strengthen joint delivery across organisations.

The objectives have been carefully chosen to meet the requirements of the FWMA and to follow the core principles set out in the National Strategy. An overview of the objectives is presented in figure 4.

They also recognise and support relevant aims and objectives set out in the National Adaptation Programme and the third strategy for Climate Adaptation reporting (Defra 2018 -2023) which seeks to make the country more resilient to climate change.

The business plan supporting this strategy provides more detail on how each of these objectives will be delivered. Measures are presented as specific actions that we are committed to delivering.

Theme 4 – Communication and Engagement

"Between now and 2050 the nation will be resilient to future flooding and coastal risks".

4.1 Introduction

The National Strategy believes we need a national suite of resilient tools to help places to avoid, prevent, protect, respond and recover from the future threat of flooding and coastal change. The tools in respect of communities should include:-

- **enhancing community resilience** by providing effective warnings and emergency response services, and by encouraging and supporting volunteers and community groups so people take action to move their possessions, stay safe and evacuate when needed;

- **adapting property and services** to boost their resilience, by reducing the damage and disruption and making recovery quicker when a flood does happen. This includes designing and altering property and infrastructure so that they are less easily or less seriously damaged when there is a flood, and making sure that the people most at risk are mentally and physically prepared for what could happen;

- **responding quickly and effectively to flood and coastal erosion events** by forecasting and monitoring to assess the risks as well as warning and informing communities and local responders;

- **recovering quickly after a flooding or coastal change event** by repairing damages, restoring the economy and supporting community wellbeing. This includes effective use of insurance to transfer recovery costs between parties;

- **accepting that some areas will flood and erode** and enabling local areas to achieve a managed transition. There are already areas of managed realignment on the eroding coast. Increasingly in coming years there will need to be a similar approach in some areas of high flood risk from rivers. This will mean identifying some areas of flood plain which need to be clear for flood waters, and creating and sustaining more wetlands.

As discussed in previous sections of this strategy, effective communication between relevant stakeholders and with local communities will be a key part of successful flood risk management.

4.2 What it will involve locally

Ensuring successful flood risk management will involve working closely with the other RMA's and stakeholders to ensure information concerning the results of investigations, proposed actions and future schemes of work are communicated. This should identify opportunities or sharing information about where flooding is occurring and working together on schemes to address flooding issues.

We will also work with our partners to ensure effective communication with local communities, for example promoting the Environment Agency's Extended Floodline Service and working with the district councils to make information available.

A key 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 (see Figure 10).

Appendix 1 provides some information about the responsibilities of the various RMA's and how they can be contacted.

It will also be important to ensure local communities have the opportunity to be involved in planning for and implementation of flood risk management. This will include supporting the development of local flood action groups in affected areas to give local residents the opportunity to share information and comment on priorities and suggested improvement schemes.

When working with our local communities it is important to remember that Lancashire is made up of people from a variety of different backgrounds. This may affect how they want or need to be communicated with or how they access information.

Flooding in Ribchester

Figure 11 describes how we deliver our flood risk communication, general communication following enquiries post incident and investigation action

LLFA working with the Environment Agency to support community groups and districts.

The Environment Agency offer the following to establish and support community groups:-

Support for Community Groups:

- EA prioritise Main River/Tidal Flooding Community Groups, but can attend joint-partner meetings/one off Town Council/Parish Council meetings to support communities.

- EA attend LRF meetings and are looking to standardise Emergency Planning Templates for community groups via the Community resilience LRF.

- Keen to use SPOC (single point of contact) once groups are established otherwise it is best for individuals to contact Customer Services with general enquiries.

Post Flood Co-ordination

- The EA have Flood Support Officers that can visit communities to support/FAQ's, gather data (collector app), promote events and help partners prioritise Main River/Tidal and can try and offer assistance to partners for surface water flooding.

- The EA can provide staff to attend post-flood drop in events at the Wyre and Lancaster City Council areas with all RMA partners.

- They also have an Incident Command Unit to co-ordinate response with communities.

- Incident Room visit at EA offices

- The FloodHub website**. (put in website link here)**

Opportunities for closer working:

Site walkover of flooding hotspots – Can bring IPads/colleagues to record key issues etc. and invite partners, and elected members similar to what we did at Thornton recently. This was due to a request from MP following a previous meeting, so ideally could prioritise Paul Maynard's constituency (we promised feedback on progress). Will be useful for ourselves building up knowledge of the area including around Bispham Dyke (Main River).

Figure Actions that Individuals and Communities Can Do

There are a number of measure which can be taken to make your property more resistant (stop water entering) and resilient (better able to recover) to flooding. See the National Flood Forum's independent Blue Pages directory at http://www.bluepages.org.uk/, the Homeowners Guide to Flood Resilience available at http://www.knowyourfloodrisk.co.uk and the EA's advice at http://www.environemt-agency.gov.uk/homeandleisure/floods/31644.asx

Take steps to prepare for a flood as recommended by the EA (www.environment-agency.gov.uk). These include registering for the EA Floodline Warnings Direct service if flooding from rivers may be involved, keeping a 'grab-bag' of essential items ready and having a plan to turn off electricity, gas and water supplies.

Reporting incidents of flooding to the council helps build evidence for action to be taken –water companies cannot take action in response to flooding related to sewers unless they have evidence direct from the property owner that flooding has occurred. Find contact details on the LCC (www.lancashire.gov.uk and BC (www.blackpool.gov.uk) websites.

The combined effect of many people paving over their front gardens can increase the amount of surface runoff which adds to the risk of flooding. Since 1 October 2008, planning permission is required if more than five square metres of a new or replacement driveway is to be covered with

Traditional impermeable materials that do not provide for the water to run to a permeable area. See "Guidance on the permeable surfacing of front gardens" leaflet: http://www.communities.gov.uk/publicationsplanningandbuilding/pavingfrontgardens.

If you own land adjoining a watercourse then you are a riparian owner and you have a responsibility to pass on flow without obstruction or pollution, including maintaining the banks of the channel and any vegetation so they remain clear of debris.

If your property is served by separate surface water and foul sewers, you have a responsibility to fix any pipes which may be wrongly connected. For example, dirty water from sinks, baths, showers, appliances and the toilet should go to the foul sewer to be treated, otherwise watercourses can be polluted.

Gutters and gullies collecting rainwater should connect to the surface water sewer – if these are wrongly connected to the foul sewer then flooding from the foul sewer can result.

United Utilities also has information about how members of the public can prepare for a flood – www.unitedutilities/gotaproblemflooding

Involvement of the Voluntary Sector

There are a number of activities which could be undertaken by local communities, supported by the Councils, the EA and others, that could make local communities less vulnerable to the consequences of flooding. These include maintenance of watercourses, reporting flood events, volunteering as flood wardens and being involved in the development of local management responses to flooding.

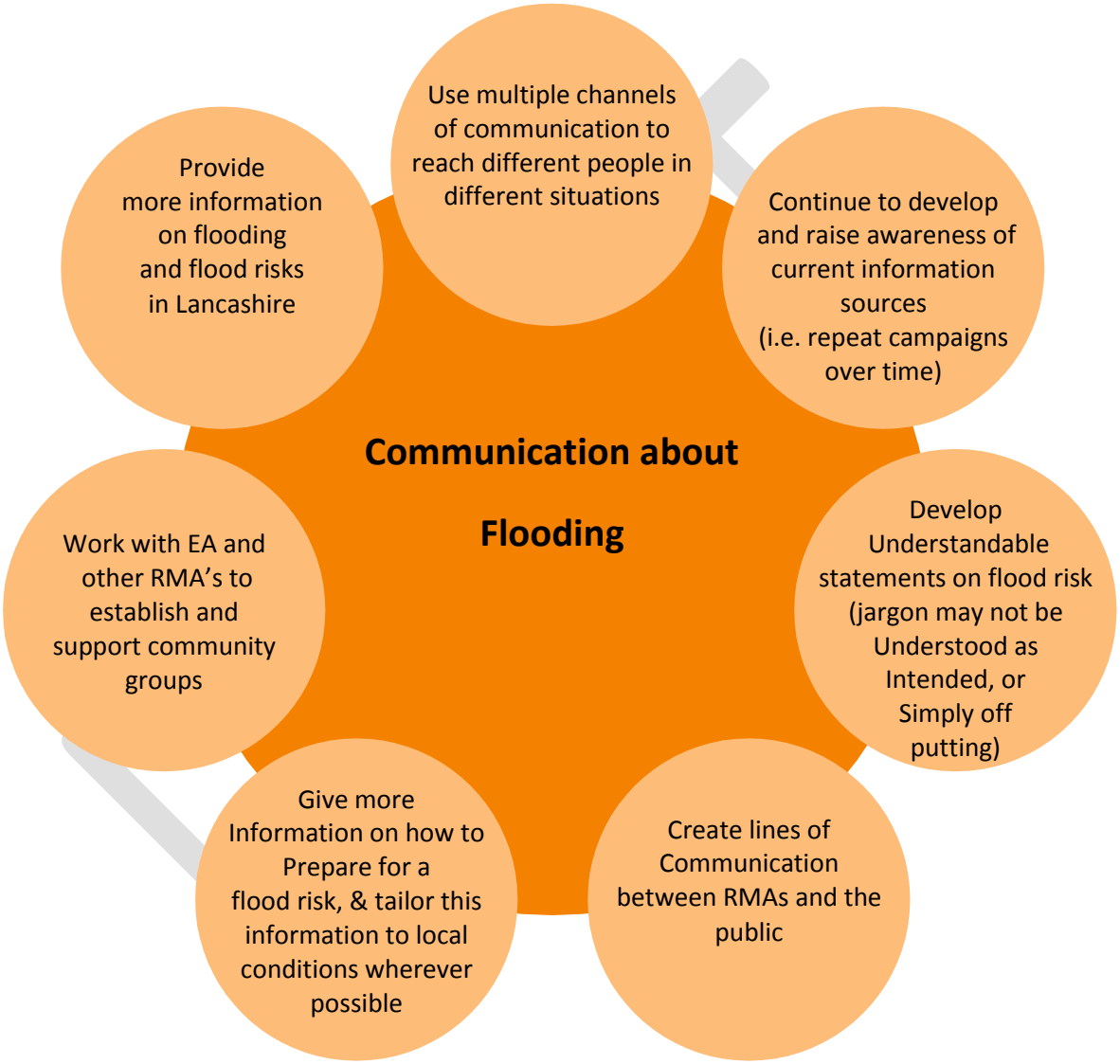
In this section we explain how we intend to communicate and engage with stakeholders and local communities with regards to flood risk management.

Add information and web site for Ground work/RFCC presentation

The objectives have been carefully chosen to meet the requirements of the FWMA and to follow the core principles set out in the National Strategy. An overview of the objectives is presented in figure 4.

They also recognise and support relevant aims and objectives set out in the National Adaptation Programme and the third strategy for Climate Adaptation reporting (Defra 2018 -2023) which seeks to make the country more resilient to climate change.

The business plan supporting this strategy provides more detail on how each of these objectives will be delivered. Measures are presented as specific actions that we are committed to delivering.


Communication about Flooding
Use multiple channels of communication to reach different people in different situations
Continue to develop and raise awareness of current information sources (i.e. repeat campaigns over time)
Develop Understandable statements on flood risk (jargon may not be Understood as Intended, or Simply off putting)
Create lines of Communication between RMAs and the public
Give more Information on how to Prepare for a flood risk, & tailor this information to local conditions wherever possible
Work with EA and other RMA's to establish and support community groups
Provide more information on flooding and flood risks in Lancashire

Theme 5 – Funding

5.1 Funding

The management of local flood risk places significant responsibilities and duties on councils. The Government committed to provide funding to assist with fulfilling these responsibilities.

Funding is provided to deliver our duties under the FWMA 2010 via MHCLG Local Government Financial Settlement and a supplementary section 31 grant; this also includes our duties for consulting on surface water for major development.

The National Strategy states that, "*Between now and 2030 risk management authorities will use funding and financing from new sources to invest in making the nation resilient to flooding and coastal damage*."

Previously local schemes received funding from any of the following sources:-

- FCRM GIA
- Local Levy
- Water Company
- LEP
- Local Authority
- Those directly benefiting
- Voluntary Sector
- Partnership Projects

The 2020 National Strategy states that in addition to the funding listed above, new sources of funding would be available including:-

- Green Finance Strategy
- Upfront finance for adaptive approach
- Working with farmers and landowners to identify opportunities or using agricultural practices through funding advice and regulation
- Alignment with other businesses identifying joint opportunities.
- We will also need to align funding with our strategies e.g. the national infrastructure strategy

5.1.1 Regional Funding

Lancashire and Blackpool Lead Local Flood Authorities are represented on the North West Regional Flood and Coastal Committee (RFCC). Funding is raised by the RFCCs by way of a levy on the LLFAs in their areas and payments are supported by grants for Central Government. The RFCCs are responsible for making decisions on how the local levy is spent.

The local levy can be used to support locally important flood risk management projects that are not considered to be national priorities and hence may not attract full central Government funding.

Contributions from private beneficiaries (e.g. Trust and utility companies) may also be considered.

5.1.2 Local Funding

When new development occurs, a levy can be charged by the Council (LPA) which is designed to cover the cost of new public facilities required as a result of the development. Larger strategic developments could have the potential to generate Community infrastructure Levy (CIL) and section 106 funds which could be used to contribute to some schemes, and especially those which will have multiple benefits, e.g. pond or wetlands which can attenuate surface water as well as providing improved amenity value.

Grant in aid funding

"*The National Strategy has identified a long term investment scenario overview; with optimum investment it is possible to prevent a rise in property damages over the next 50 years even with high climate change and many more homes in the flood plain*."

The Coastline of Lancashire stretches from Morecambe in the North of the County to West Lancashire in the South of the County.

The UK coastline is divided into a series of coastal areas known as "cells" to ensure there is a co-ordinated approach.

Strategies have been developed or will be developed over the lifetime of this local strategy for future projects and we would anticipate that applications will be made for grant in aid funding, however this will also include contributions from beneficiaries.

Shoreline management plans will have to be reviewed to ensure that funding needs are met and adaptation addressed where necessary to meet funding criteria.

The funding objectives have been carefully chosen to meet the requirements of the FWMA and to follow the ambitions set out in the National Strategy; in particular the objective to use funding and finance from new sources. An overview of the objectives is presented in figure 4.

They also recognise and support relevant aims and objectives set out in the National Adaptation Programme and the third strategy for Climate Adaptation reporting (Defra 2018 -2023) which seeks to make the country more resilient to climate change.

The business plan supporting this strategy provides more detail on how each of these objectives will be delivered. Measures are presented as specific actions that we are committed to delivering.

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Theme 6 – Achieving a Nation of Climate Champions

Section to be included

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Summary Moving Forward – Implementing Reviewing our Strategy

In this final section of the strategy we address how we will start to implement the business plan.

Introduction

Throughout the course of this Lancashire and Blackpool Local Flood Risk Management Strategy we have stated our intent on what we want to achieve over the next ten years in line with the Regional Flood and Coastal Action Plans and the National Strategy.

The business plan may be refined in future as the Local Strategy is implemented and reviewed. However, it will remain consistent with the requirements of the FWMA and the EA publication of National Strategy. The Strategy we have developed has been drawn together to form a business plan. (See Section …….)

We believe that by delivering the stated business plan, we will fulfil our overarching vision for local flood risk management in Lancashire which is given in Figure… in Section 1. However, processes are needed to ensure that we are meeting our own targets and that other RMAs are contributing to our objectives in accordance with the FWMA.

Accountability

Reviewing our Progress

There are processes in place that will ensure that we are meeting our own strategic objectives and those set out in the National Strategy and the FWMA. These processes include external review of the Local Strategy and our progress which is monitored by the Environment Agency and other stakeholders. Progress on the Business Plan will be monitored by the Lancashire Strategic Partnership Group which meets at least four times a year.

The Business Plan will be fully reviewed annually to identify completed actions and include new ones. Completed actions will be recorded in a monitoring report to highlight progress and celebrate success.

Accountability of Other RMAs

The multi-agency Lancashire Strategic Partnership Group is chaired by the local authorities and the actions taken by this partnership related to better management of local flooding. The actions of this group and, individually, each of the RMAs are accountable to both Lancashire County Council's and Blackpool Council's Overview and Scrutiny Committees.

Under the Flood Risk Management Overview and Scrutiny regulations 2011, the Committee is empowered to request reports or attendance at meetings to allow scrutiny of the delivery of flood risk management functions. In order to maintain transparency and compliance with our Statutory Duties these reports are a critical action during the lifetime of this strategy.

Blackburn with Darwen, Blackpool and Lancashire Local Flood Risk Management Strategy (Local Strategy)

Accountability to the Public

Improved management of local flooding is a service we and our partners provide to the people of Blackpool and Lancashire. Through implementing this Local Strategy, our aim is that those at risk are better protected and more informed.

As such, we are committed to keeping the public informed about key information and we will involve the public in formulating and shaping decisions. This will continue to be through consultation with individuals, letters to groups, local displays, stakeholder workshops, web-based consultations, media announcements and any other relevant means as judged appropriate on a case-by-case basis.

The National Strategy

How long will this Strategy be Relevant

This Strategy will be reviewed after ten years, however, this is dependent on the publication of the new or revised National Strategies following which it may need to be realigned.

We also have a good relationship in terms of the wider Flood Risk Management roles we have as Lead Local Flood Authorities (Lancashire County Council and Blackpool Council are the Lead Local Flood Authorities and throughout this strategy will be referred to as "the Councils".) Our close proximity to each other means that in many instances we work together to manage developments, wider strategic infrastructure and issues such as flooding and water quality. Due to the cross border nature of flooding and the on-going relationship we have there are many benefits in working closely with each other to manage local flood risks and a decision was made to produce a joint document, the Lancashire and Blackpool Local Flood Risk Management Strategy (the 'Local Strategy'). This strategy ensures a catchment based approach and promotes effective partnership working as advised by the principles laid out in the Environment Agency's National Strategy.

The Scrutiny Committee will focus on both proactive decisions being made by the Strategic Flood Risk Management Group and RMAs, as well as services provided in reaction to flooding which has occurred. The process will help lessons to be learned from past experiences and set decisions in the wider context of council and Partner activities. It will also help flooding to be given the appropriate focus within the councils.

We will continue to support the activities of the North West Regional Flood and Coastal Committee (RFCC) and work to prioritise the management of risk to balance both strategic and local needs.

How Long will this strategy be Relevant?

This Strategy will be reviewed after ten years.