Flintshire Local Flood Risk Management Strategy

Strategy Document

03/04/2025 (Draft for public consultation)

Flintshire County Council

CYNGOR
Sir y Fflint
Flintshire
COUNTY COUNCIL

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Foreword

To be completed prior to publiciation of final document.

Prepare for flooding and what to do if your home or business has been flooded

Welsh Government provides guidance on what to do before, during and after a flood.

Welsh Government: Flood Warnings and Help

During a Flood

- If you are in danger call 999.
- Follow the advice of the emergency services.
- Get more advice and check flood warnings on the Natural Resources Wales 'What to do in a flood' webpage.

Before and After a Flood

- Check flood warnings on the Natural Resources Wales 'Flood warnings' webpage.
- You can also sign up to receive flood warnings on the Natural Resources Wales 'Sign up to receive flood warnings' webpage.
- You can find out if your area is generally at risk of flooding from the Natural Resources Wales 'Check your flood risk by postcode' webpage.

Who to contact for further information

Flintshire County Council (FCC) Flooding and Drainage

Information relating to the following areas can be found on this webpage below:

- FCC's Sandbag policy;
- Preparing for a Flood;
- When a Flood Happens;
- After a Flood.

https://www.flintshire.gov.uk/en/Resident/Emergency-Planning/Floods.aspx

Information relating to the following areas can be found on the webpage below:

Flooding on a highway;

- Flooding from a burst water main;
- Responsibility for drains and sewers;
- Watercourses and land drainage;
- River and coastal flooding.

https://www.flintshire.gov.uk/en/Resident/Streetscene/Flooding-and-Drainage.aspx

1. Introduction

1.1 The need for a Local Strategy

The Flood and Water Management Act 2010 requires all 22 Lead Local Flood Authorities (LLFAs) in Wales to produce a Local Flood Risk Management Strategies (Local Strategy).

The Welsh Government's National Strategy for Flood and Coastal Erosion Risk Management (FCERM) in Wales (National Strategy) sets out that over 245,000 properties across Wales are at risk of flooding from rivers, the sea and surface water, with almost 400 properties also at risk from coastal erosion. The National Strategy explains that, as the climate changes, we can expect those risks to increase, with more frequent and severe floods, rising sea levels and faster rates of erosion of the coast.

The National Strategy sets out the legislative context to FCERM activities in Wales. In certain cases, Local Authorities are also required to produce Flood Risk Management Plans (FRMP), under the 2009 Flood Risk Regulations (revoked under the Retained EU Law Act). A summary of the legislative context to FCERM activities in Wales is provided in Appendix B – legislative context.

Different Risk Management Authorities (RMAs) in Wales are responsible for different sources of flood risk. LLFAs are responsible for "local flood risk" which is defined as flood risk from:

- Surface water runoff
- Groundwater; and,
- Ordinary watercourses (generally smaller watercourses).

This Local Strategy focuses on these local sources of flood risk, but acknowledges and considers other sources of flood risk (including the sea, larger watercourses and sewers) and associated RMAs.

All terms referred to in this strategy are described in the Glossary, provided as Appendix E.

1.2 The purpose of this Local Strategy

We published our first Local Strategy in 2013, setting out our overarching approach to managing local flood risk. Alongside the Local Strategy, a Flood Risk Management Plan (FRMP) for Western Wales was published by NRW. The FRMP developed the objectives and high level actions outlined in our Local Strategy into a more detailed plan for managing flooding in our communities.

This document is our second Local Strategy. Whilst we previously published our Local Strategy and FRMP separately, this new Local Strategy integrates the two documents into one. This reduces complexity and enables us to communicate and manage local flood risk more effectively.

In this document we explain how flooding will be managed across our Local Authority area, consistent with the objectives, measures and related policies and legislation set out in the National Strategy.

1.3 Targets within this Local Strategy – Objectives, Measures and Actions

This Local Strategy sets out our flood risk management Objectives, Measures and Actions. These three groupings provide different levels of detail on how flood risk will be managed. The meaning of each is summarised below in Figure 1:

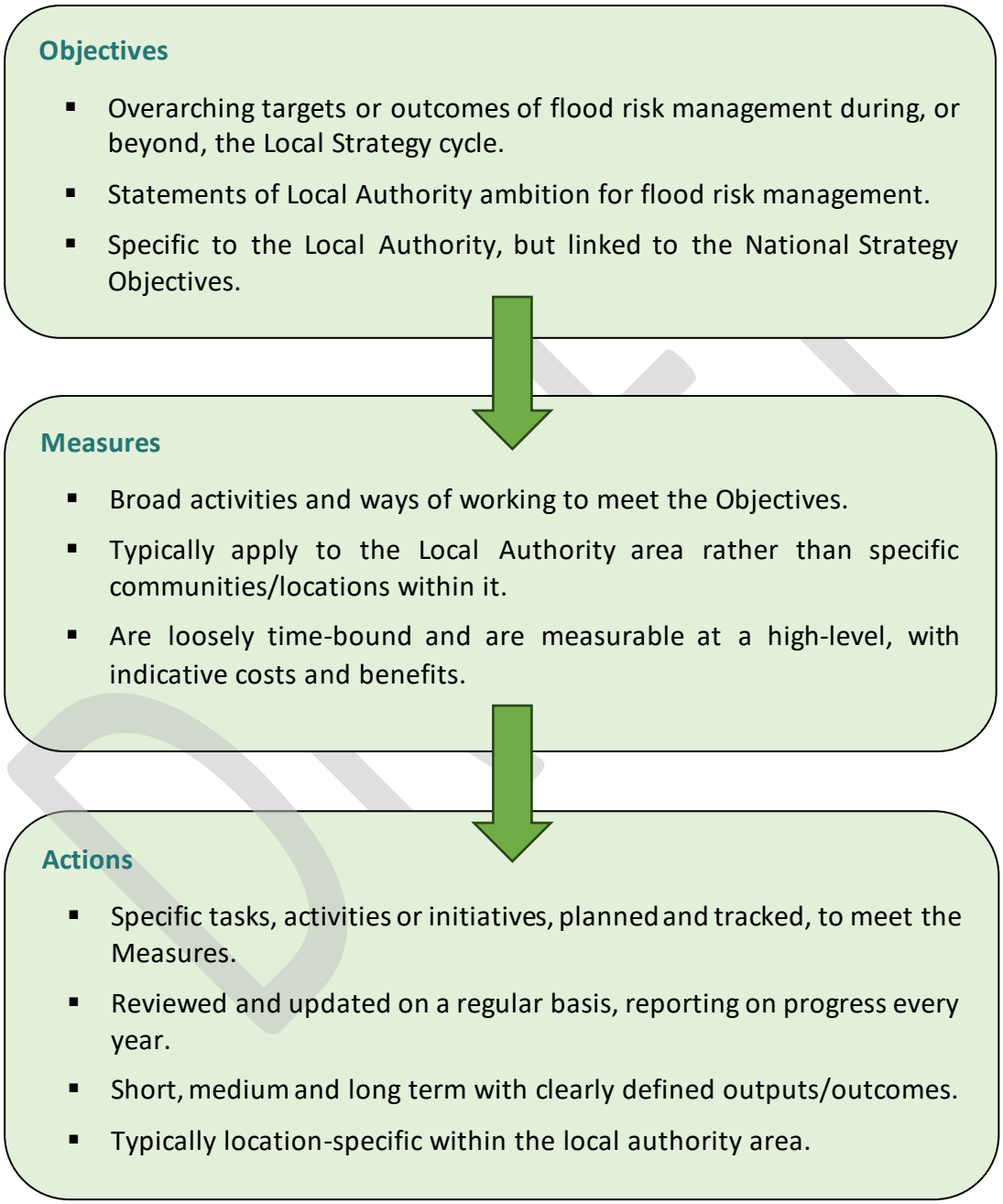


Figure 1 -Definitions of Objectives, Measures and Actions for delivering Flintshire's Local Strategy

1.4 Legislative Context

The management of flood risk within Flintshire County Council is guided by European and national legislation and regional and local plans and policies regarding flood and water management. The key information is shown in Figure 2 below and is detailed in Appendix B.

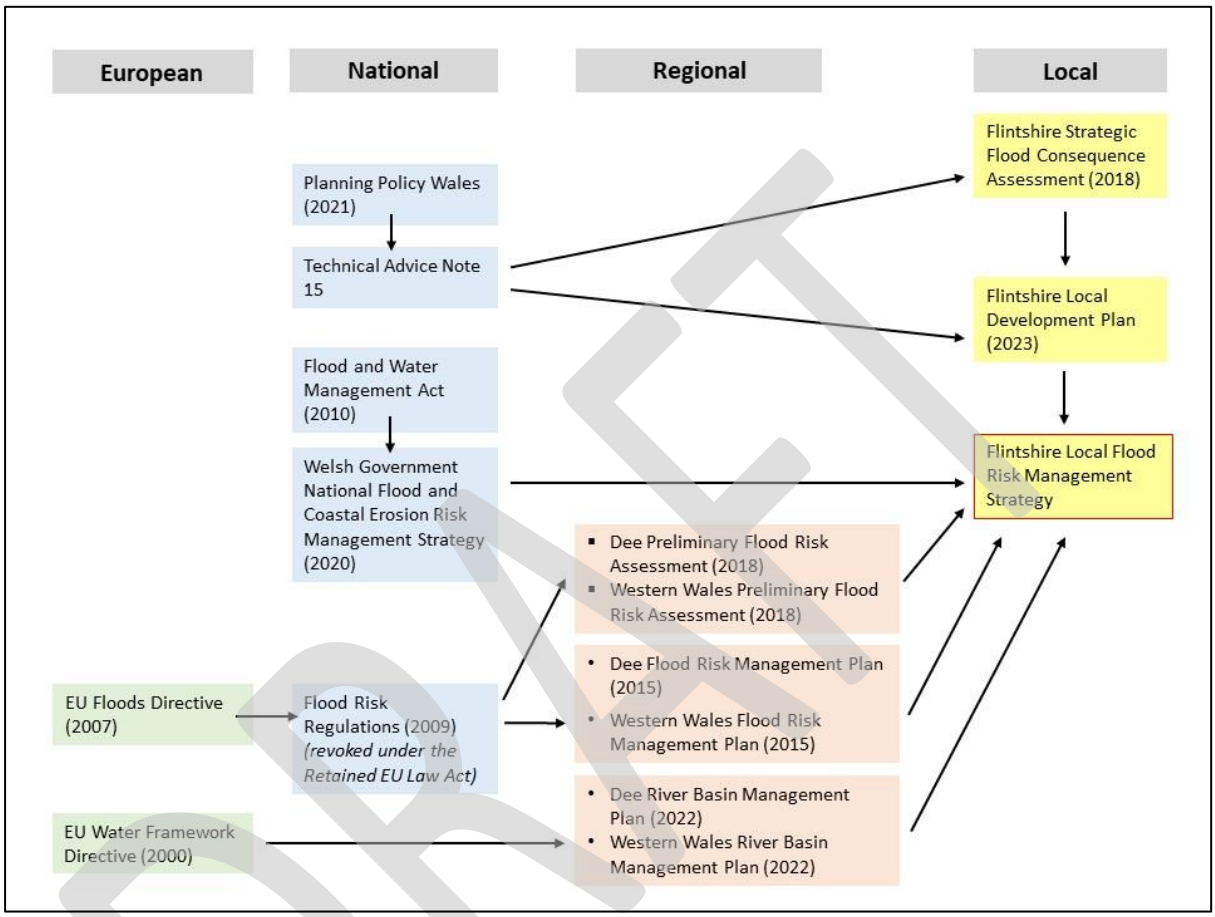


Figure 2 – Legislative Context

2. How this strategy responds to climate change

2.1 Climate change in our area

Sea level rise

Flintshire is a county of hills that frequently reach 200m, and in parts 400m, that easily protect from sea level rise, but significant urbanisation has grown-up along the Dee Estuary, known for a high tidal range, by reason of convenient coastal trade routes, flatter terrain for development and links to Cheshire. This coastal urbanisation is also strongly biased towards commercial building with significant infrastructure compared to other North Wales coastal counties.

Numerous communities are at risk along the coast, some by their position are more vulnerable to high tides, sea level rise and surge, e.g. Sandycroft and Garden City; whereas others on more open coast are vulnerable to high tides, sea level rise, surge and increases in significant wave height, e.g. Ffynnongroyw and Lower Gronant.

Tidal ranges and their astronomical peaks are well known and predictable, but sea level rise is less predictable. Storminess resulting in surges and wave height increases is much less predictable from climate change models.

The Dee estuary is well known for ecological richness with Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs) and Ramsar sites; they are vulnerable from the predicted permanent sea levels rises.

Rainfall

Uncertainties in rainfall projections under the various climate change scenarios remain much higher than sea level rise or temperature rise uncertainties in the UKCP18[1] suite of models.

UKCP18 states that the average temperature over the decade 2009-2018 has been on average 0.3°C warmer than the 1981-2010 average and 0.9°C warmer than the 1961-1990 average. All the top ten warmest years for the UK, in the series from 1884, have occurred since 2002. Winters in the UK, over the decade 2009-2018, have been on average 5% wetter than 1981-2010 and 12% wetter than 1961-1990. Summers in the UK have also been wetter, by 11% and 13% respectively. Long term records do show similar rainfall levels to the period 2009-2018 in the earlier part of the historical record, so it is important to consider long term variations. Total rainfall from extremely wet days increased by around 17% in the decade 2008-2017, for the UK overall. Mean sea level around the UK has also risen by about 17 cm since the start of the 20th century.

Flintshire has numerous small coastal facing catchments that are large enough to cause local damage from flash floods and vulnerable to any increase in intense rainfalls or topographic rainfall. Some lower lying areas drain via tidal flats and are vulnerable to permanent sea level rise, increasing combined probability of tide-locked flooding events.

Inland a broad band of limestone with mining drainage reduces flooding potential except in prolonged periods of rainfall (days to weeks) when groundwater storage is at full capacity. Any increase in prolonged rainfall frequency from climate change has the potential to affect

[1] UK Climate Projections: Headline Findings (August 2022)

those inland communities. Similarly, the Afon Alyn with a history of flooding Mold and smaller villages is partly buffered by limestone but will also respond to any increase in prolonged rainfall periods.

Generally, Flintshire has a significant covering of impermeable glacial till promoting a flashy flood response although often at a local level. These areas are also vulnerable to any climatically induced increase in intense rainfalls, particularly in late Autum to early Spring. On the positive side soils from glacial till are clayey and more resistant to rainfall erosion.

Communities along the flood plains of the Afon Dyfrdwy (River Dee) are vulnerable to climate change induced prolonged rainfall increases, sea level rise and tidal surge.

Many flood storage and Natural Flood Management (NFM) techniques will become impacted by any change in the frequency of heavy rain, particularly if that frequency is close to the draw-down time of any flood storage. Currently, total rainfalls are projected to decrease in summer and increase in winter but with more intense and variable rainfalls, including the more damaging convective events embedded in frontal systems.

The British Red Cross report 'Every Time it Rains: British Red Cross Research on Flooding in the UK (December 2022)[2]' explores experiences and perceptions of flooding, levels of resilience in vulnerable communities and investigates levels of social flood risk across the UK. The Social Flood Risk Index is a measure of the probability of flooding, the number of people who are likely to be affected and the vulnerability of the community (eg. age, health, income). Flintshire shows areas with a low to very high Social Flood Risk Index for fluvial and coastal flooding but a low to extreme Social Flood Risk Index for surface water flooding.

Heatwaves

Heatwaves of higher frequency and intensity are expected to increase, and evidence of their arrival is accumulating over the past few decades. Although flooding is not directly related to heatwaves, their indirect effects can be significant to flood risk planning, including increased flash floods from convective events, negative changes in soil permeability, damage to flood retention structures made of clay-rich fill and damage to ecological areas or NFM flora additions/and or flood storage, by completely drying up.

Land use

Climate change may induce incremental changes to farming land use, from extra cropping of winter beet to switching to arable on certain soils, altering infiltration and runoff with more intense rainfalls.

Uncertainty

The change in variability of climate variables, particularly the already very variable rainfalls, is projected to become more extreme as the century progresses, although with significant uncertainty at present.

The Dee Estuary will be influenced by climate change, in terms of sedimentation and water depth which affects wave heights and sea defences. Models predicting the estuary bathymetry changes from climate change are likely to be very uncertain.

Currently, there are a range of climate models based on worldwide, regional and local grid

[2] Every Time it Rains: British Red Cross Research on Flooding in the UK (December 2022)

sizes. Although the local grid sizes (2.2km) offer better resolution for predicting climate change in Wales and the county, their link to the larger regional and worldwide weather systems (teleconnections) remains weaker and the use of RCP8.5 in many model scenarios is considered to be the prudent option given the uncertainties.

Sea level rise is still accelerating, predictions by models less than 40 years ago have proved to be underestimates of the current rise, although a better understanding with current models should reduce uncertainties over the coming decades.

The Senedd was the first Parliament in the world to declare a climate emergency. Climate change is likely to increase the risk of flooding across Wales, not only through sea level rise but also from more frequent and intense storms, flash flooding and storm surges.

This Local Strategy will help to manage some of the effects of climate change in our area. The objectives, measures and actions it identifies will help us to reduce the risk of flooding where we can, as well as adapt our communities and infrastructure to become more resilient to flooding when it occurs.

2.2 How our strategy addresses these risks

The Strategy has been developed with a long-term strategic view, recognising the challenges climate change presents in relation to flood risk.

There are a number of national, regional and local plans and strategies which have been considered when developing the Objectives, Measures and Actions to manage flood risk and address climate change within Flintshire. Table 1 identifies how these address climate change and how they have been considered in the development of this Local Strategy.

Table 1 – National, Regional and Local Strategies and Plans relating to Climate Change

Strategies and Plans	How this addresses the risk of climate change
FCC Council Plan 2023-2028	This Plan contains a number of Themes including 'Green Society and Environment' and 'Personal and Community Well-being'.
FCC Local Development Plan 2015 – 2030	Sets out the planning strategy, policies and proposals for Flintshire for the period up to 2030. The plan contains policy relating to climate change.
Welsh Government 'National Strategy for Flood and Coastal Erosion Risk Management in Wales' (October 2020)	Places emphasis on consideration of the challenges of climate change and is considered within four of the five Objectives.
Welsh Government 'Well-being of Future Generations Act (Wales) 2015'	Identifies the challenges of climate change which Wales faces.

Strategies and Plans	How this addresses the risk of climate change
A Well-being Plan for Flintshire 2017-23	Public Services Board Plan to assess the well-being of the area and create a well-being plan, relating to the national Well-being of Future Generations Act (Wales) 2015. One of the themes relates to 'Reducing the impacts of climate change'.
FCC Climate Change Strategy 2022-2030	Sets out FCC's initial route map towards a net zero carbon Council by 2030.
NRW 'Wales Marine Area Statement'	Identifies the risks posed by climate change including rising sea levels and increased storm events and the need to adapt.
NRW 'North East Wales Area Statement'	Discusses the climate emergency including resilience and adaptation.
Welsh Government 'Prosperity for All: A Climate Conscious Wales' (2019)	Demonstrates an understanding of climate change and takes steps to prepare for and adapt to these changes.
North West Shoreline Management Plan (2016)	Provides a large-scale assessment of the risks associated with coastal evolution and presents a policy framework to address these risks in a sustainable manner. Supports the DEFRA Strategy 'Making Space for Water' (Defra 2005) aim 'to reduce the threat of flooding and coastal erosion to people and their property'.
Welsh Government 'Technical Advice Note 15: Development and Flood Risk'	Provides technical guidance in relation to development and flooding, including consideration of climate change.
NRW 'Flood Map for Planning'	Provides information on flood risk to inform local planning. The maps include an allowance for climate change.
Welsh Government Guidance on Climate Change Allowances and Flood Consequence Assessments	Sets out the climate change allowances to be used in flood consequence assessments submitted in support of relevant planning applications and to inform development plan allocations.

3. Coordination

3.1 How this strategy aligns with our other strategic plans

In addition to the Welsh Government's National Strategy for Flood and Coastal Erosion Risk Management (FCERM) in Wales, there are a number of other national, regional and local plans which align with this Strategy.

Flintshire Council Plan 2023-28

This plan sets out the Councils priorities up to 2028. The Councils primary emphasis for this plan is to continue to recover from the pandemic and support the most vulnerable.

The Council Plan aims to limit and enhance the impact of the Council's services on the natural environment and supporting the wider communities of Flintshire to reduce their own carbon footprint. In relation to flood risk specifically the Plan strives to:

- Provide a coordinated and strategic approach to flood risk management in Flintshire
- Move to a pro-active approach to Flood Risk management • Maximise the use of staffing and budget resource National Issues
- Fulfil the role of Flintshire as the Lead Local Flood Authority
- Alignment with National Flood Risk Management Strategy

Flintshire Local Development Plan 2015 - 2030

The Planning and Compulsory Purchase Act 2004 makes it a requirement for local planning authorities to prepare a Local Development Plan (LDP) for their areas. The Plan sets out the planning strategy, policies and proposals for Flintshire for the period up to 2030.

The aim of the Plan is to enable the delivery of sustainable development in a manner that balances all of the Well-Being requirements in a sensible and proportionate way, to allow the right development to occur in the right places. The Plan forms part of the statutory development plan for the County within the framework set by the Future Wales National Plan.

The Plan covers the following themes:

- Creating Sustainable Places and Communities
- Supporting a Prosperous Economy
- Meeting Housing Needs
- Valuing the Environment

All of these themes link to flood risk management and this Strategy and are taken into account within this Strategy's Objectives, Measures and Actions.

Flintshire County Council Climate Change Strategy 2022 – 2030

This Strategy and Action Plan sets out Flintshire's initial route map towards a net zero carbon Council by 2030.

In 2019, the Welsh Government declared a Climate Emergency in Wales and on 30 June 2021 the Welsh Parliament further declared a nature emergency. The Council has been committed to reducing carbon emissions and managing and enhancing biodiversity for some time, however the importance of the link between climate change and nature recovery brings this work to the fore and therefore both areas must work together to reduce the impact we are having on our planet.

Figure 3 shows the Key Theme Objectives and Aims within the Strategy.

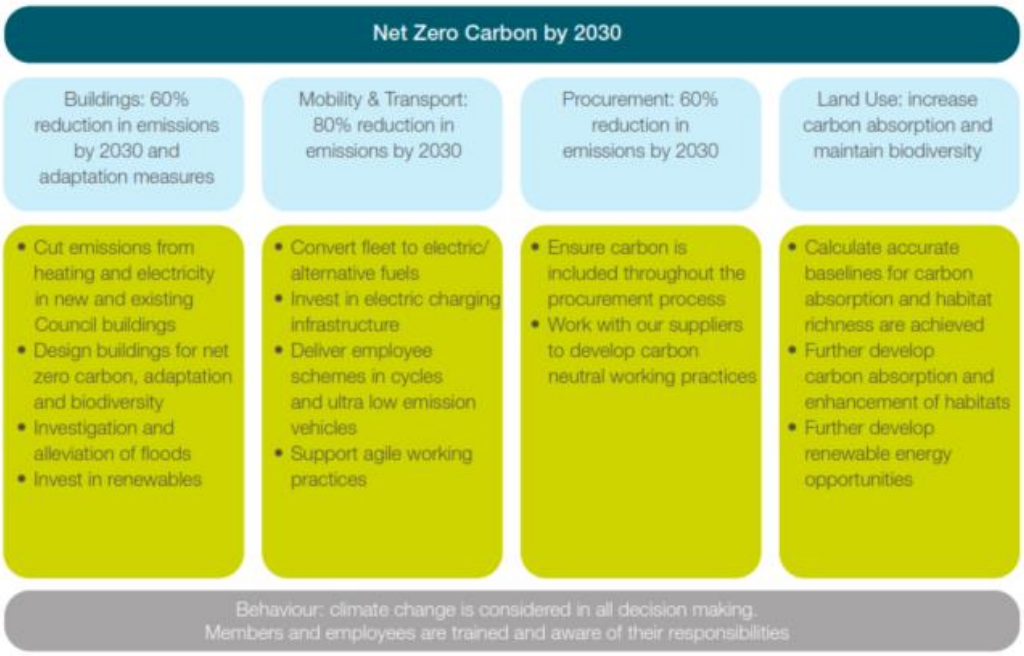


Figure 3 – Key Objective Themes and Aims within the Flintshire County Council Climate Change Strategy.

Climate change will impact on flood risk within Flintshire and so the role of this Strategy within the context of flood risk is significant.

Western Wales & Dee River Basin Management Plan 2021-2027

Under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 a management plan is required for each River Basin District (RBD). This plan, undertaken jointly by NRW and the EA, sets the objectives for rivers, lakes, estuaries, coastal and ground waters and includes:

- Classification of waterbodies – the baseline status for each waterbody.
- Statutory objectives – for each quality element in all waterbodies, including an objective for the waterbody as a whole.
- Programme of measures to achieve the objectives – including statuory objectives for

Protected Areas.

The programme sets out the actions over this planning cycle and forward planning.

The statutory objectives are:

- Prevent deterioration in status.
- Achieve the objectives for Protected Areas.
- Aim to achieve good overall status/potential for surface waters and groundwaters.

The Dee and the Clwyd have been identified as Opportunity Catchments, two of the ten areas in Wales which represent the best suite of opportunities to deliver sustainable management for water and contribute to the well-being goals.

Many of the areas covered in the RBMP relate to this Strategy. Objectives 3 and 4 of this Strategy in particular relate to the aims of the RBMP.

North West and North Wales Coastline Shoreline Management Plan (SMP)

The Shoreline Management Plan (SMP) is a non-statutory, high level policy document for coastal flood and erosion risk management planning that was formally adopted in August 2016. It provides a large scale assessment of the risks associated with coastal processes, and helps to reduce these risks to people and the environment by identifying the most sustainable policies for managing flood and coastal erosion risks in the short-term (0-20 years), medium-term (20-50 years) and long-term (50-100 years). SMPs form an important part of the Department for Environment, Food and Rural Affairs (Defra) and Welsh Assembly Government (WAG) strategy for managing risks due to flooding and coastal erosion.

The SMP is driven by a wider national concern with:

- Ensuring that managing coastal change is conducted in a manner that demonstrates cooperation between risk management authorities;
- Promoting understanding of coastal management issues; and
- Embedding climate change adaptation and resilience into local flood and coastal erosion risk management planning.

There are four policy options within the SMP:

- **Hold the Line** by maintaining or changing the current standard of protection. This policy includes those situations where work is carried out in front of the existing defences (such as beach recharge, rebuilding the toe of a structure, building offshore breakwaters and so on) to improve or maintain the standard of protection provided by the existing defence line. It also includes work behind existing defences (such as building secondary flood defences) that would form an essential part of maintaining the current coastal defence system.
- **Advance the Line** by building new defences on the seaward side of the original defences. Use of this policy is limited to those policy units where significant land reclamation is considered.
- **Managed Realignment** by allowing the shoreline to move backwards or forwards, with

management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences).

- **No Active Intervention** where there is no investment in coastal defences or operations.

The majority of the Objectives within this Strategy apply to coastal areas and relate to aspects of the SMP.

Flintshire Strategic Flood Consequence Assessment (SFCA) (July 2018)

The main purpose of the SFCA is to identify the strategic flood risks to key communities in Flintshire to support the preparation of the Local Development Plan. Flintshire has some significant areas which are at risk from tidal and fluvial flooding, which correspond with highly populated and developed areas where there is also significant employment land and infrastructure, such as Deeside and the Dee Basin, and the coast from Deeside to the county boundary with Denbighshire in the north, and settlements along the catchment of the River Alyn including Mold. There are several main settlements at fluvial and / or tidal flood risk, including Talacre, Mostyn, Flint, Connah's Quay, Shotton, Mold and a number of smaller settlements.

3.2 Coordination with others

FCC is committed to working in partnership with other Risk Management Authorities (RMAs), stakeholders and local communities to achieve the Objectives, Measures and Actions within this Local Strategy. FCC is considering catchment based approaches and NFM where applicable and is committed to delivering wider social, economic and environmental benefits as well as a reduction in flood risk.

This Strategy has been developed in coordination with the strategic planning processes of other RMAs. In addition to the Plans and Strategies discussed above, the Dŵr Cymru Welsh Water (DCWW) Drainage and Wastewater Management Plan (DWMP) 2025-2050 and the Hafren Dyfrdwy Drainage and Wastewater Management Plan (DWMP) 2025-2050 are also of relevance to this Strategy.

The DWMPs provides a basis for planning of drainage and wastewater services over the next 25 years.

The DCWW DWMP assesses the level of risk we face from climate change, urban development, and a changing population. One of the themes identified within the Plan is 'Water quantity - Reducing the risk of flooding to communities'. The DWMP aims to enable DCWW to work collaboratively with local authorities to tackle current and future challenges.

The Hafren Dyfrdwy DWMP sets out seven long-term priorities, including 'Lower the risk of flooding and pollution' and 'Protect and enhance our environment'.

FCC recognises the importance of public consultation in the production of this Strategy. The outcomes of the public consultation activities are included in Appendix D.

4. Roles and responsibilities

4.1 Sources of flooding and key points of contact

The figure below has been taken from the National Strategy. It summarises the different types of flooding and the key points of contact in each case.

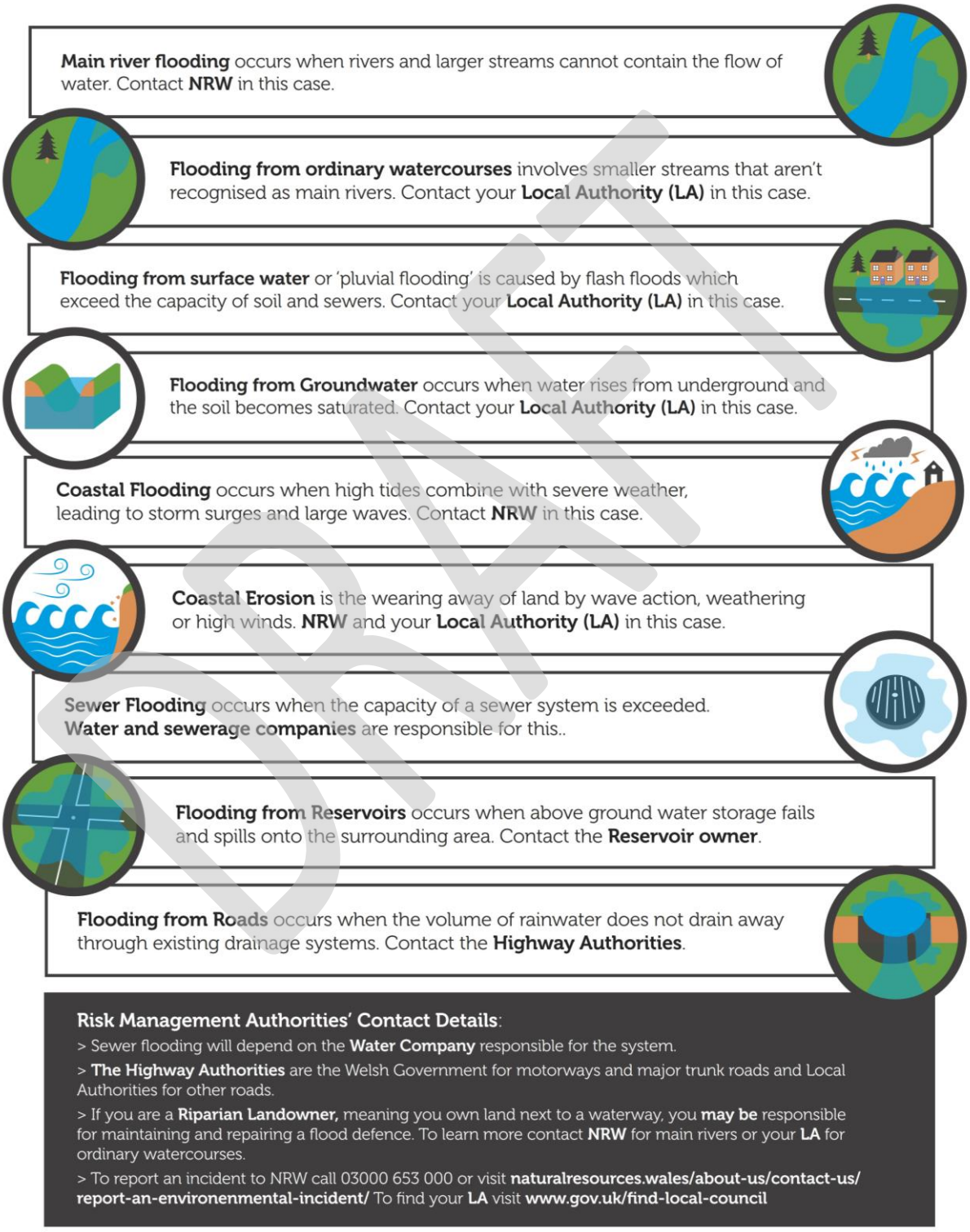


Figure 4 – NRW Types of Flooding and Points of Contact.

NRW information on Main Rivers and Ordinary Watercourses

Natural Resources Wales: Main Rivers and Ordinary Watercourses

Main rivers are usually larger streams and rivers but also include some smaller watercourses. In Wales, main rivers are legally designated by Natural Resources Wales.

Every other open watercourse in Wales is known as an 'ordinary watercourse'. Local authorities (as the lead local flood authorities) or Natural Resources Wales (as the internal drainage board) carry out maintenance, improvement or construction work on ordinary watercourses in Wales to manage land drainage.

4.2 Risk Management Authorities and their functions

Risk Management Authorities (RMA) across Wales include NRW, the 22 Local Authorities, water companies, and the Welsh Government. Each RMA is required to fulfil a number of statutory duties, as defined under the FWMA. In addition to these statutory duties, the Act sets out a range of permissive powers for RMAs, enabling them to undertake defined activities if they so wish.

Natural Resources Wales (NRW) is responsible for managing flood risk from main rivers and the sea, and also has a strategic overview role over all flood and coastal erosion risk management and for regulating the safety of reservoirs. NRW also has a key role in providing flood warnings to the public. NRW as manager of Malltraeth Marsh Drainage District is responsible for managing water levels and reducing flood risk through the management and maintenance of drainage channels, ordinary watercourses, pumping stations and control structures.

Flintshire County Council (FCC) as a lead local flood authority is responsible for taking the lead in managing flood risk from all local sources, including surface water, groundwater and ordinary watercourses.

The role of LLFA at FCC is led by the Environment Directorate.

Flintshire County Council (FCC) as SuDS Approval Body (SAB) is responsible for the approval of SuDS and, with the exception of single curtilage sites, also has a duty to adopt the SuDS.

Flintshire County Council (FCC) as a Highways Authority is responsible for managing flood risk

on roads and highways within the area. Local Authorities in Wales act as highway authorities in respect of local roads.

Flintshire County Council (FCC) as a Planning Authority produces and monitors the Local Development Plan (LDP) and processes and determines planning applications, which includes the consideration of flood risk assessments. The Planning Authority also works alongside the SuDS Approval Body (SAB) to assess planning applications and complementary drainage applications.

Flintshire County Council (FCC) also has roles in Emergency Planning and Flood Reponse.

Dŵr Cymru Welsh Water (DCWW) is a regional water and sewage treatment company serving the Flintshire area. DCWW is responsible for flood risk from sewers and burst pipes.

Hafren Dyfrdwy is a regional water and sewerage company also serving part of the Flintshire area. Hafren Dyfrdwy is responsible for flood risk from sewers and burst pipes.

North and Mid Wales Trunk Road Agent (NMWTRA) is responsible for managing, maintaining and improving the strategic road network within the Flintshire area on behalf of the Welsh Government.

All of the risk management authorities identified above have the following new responsibilities under the Act:

- A duty to co-operate with other risk management authorities within the function of their flood and coastal erosion risk management role, which includes sharing flood data and information; and
- Authority to take on flood and coastal erosion functions from another risk management authority when agreed by both sides.

Co-operation with other risk management authorities includes the following:

- Discussing with other risk management authorities before designating structures;
- Report local flooding incidents to the FCC Flood Investigation Officer on a monthly basis;
- Report flood assets, as defined by agreed criteria, as and when they are made known;
- Assist with Flood Investigation Reports when required;
- Provide local knowledge on SuDS regarding applications in their area;
- Ensure that members of the public are guided to the appropriate authority or organisation; and
- Share expertise, data, information and local knowledge and work jointly to understand and reduce flood risk across Flintshire.

Each RMA also has specific responsibilities under the FWMA which are described in Appendix C.

4.3 Role of Other Stakeholders

4.3.1 Responsibilities of Flintshires Citizens (Businesses, Landowners and Property Owners)

It is important to note that flood risk management is not solely the responsibility of certain organisations. Households, businesses and landowners have their part to play too. Even if this Strategy was being devised at a time of substantial public sector budgets, the organisations would still not be able to prevent all floods or solve all concerns. That is why the powers and responsibilities of Flintshire's citizens are also recorded in this section.

It is the responsibility of property owners and businesses to protect their property from flooding. While in some circumstances organisations or property owners may be liable due to neglect of their own responsibilities, there will be many occasions when flooding occurs despite all parties meeting their responsibilities. Consequently, it is important that householders, whose homes are at risk of flooding, take steps to ensure that their house is protected. There are several measures which can be taken to make your property more resistant (stop water entering) and resilient (better prepared to recover) to flooding.

These include:

- Check whether your household is at risk from flooding from the river, coast or local flood sources.

NRW Check your Flood Risk by Postcode

NRW Flood Warnings and Alerts

- Ensure that preparations have been made for the event of a flood. These include registering for NRW Flood Warnings, keeping a 'grab bag' of essential items ready and having a plan to turn off electricity, gas and water supplies;

NRW Sign up to Receive Flood Warnings

- Take measures to ensure that their house is protected from flooding, either through permanent measures such as sealants in the wall or temporary measures such as flood sacks or flood guards. See the National Flood Forum's independent Blue Pages directory: http://www.bluepages.org.uk/
- 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. See the 'Guidance on the permeable surfacing of front gardens' leaflet.
- Take measures to make sure the house is resilient to flooding so that if it does occur it does not cause too much damage;
- Where possible, take out flood insurance, and consider Flood Re. Flood Re is a joint industry and government initiative and is a flood re-insurance scheme which provides reinsurance to a) promote affordability and availability of insurance for UK households at high flood risk and b) to manage the transition to risk-reflective pricing of flood insurance for household premises; https://www.floodre.co.uk/
- 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 gulleys 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. See the 'DCWW Misconnected Sewers' webpage.
- 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. See NRW's 'Guide to Rights and Responsibilities of Riverside Ownership in Wales': A guide to your rights and responsibilities of riverside ownership in Wales (naturalresources.wales)

NRW provides information on what to do to prepare a household for emergencies. This includes how to make a flood plan which will help you decide what practical actions to take before and after a flood.

Natural Resources Wales / What to do in a flood

The National Flood Forum is a national charity dedicated to supporting and representing communities and individuals at risk of flooding. As detailed in the following link: http://nationalfloodforum.org.uk

The National Flood Forum has several roles:

- Help people to prepare for flooding in order to prevent it or mitigate its impacts;
- Help people to recover their lives once they have been flooded; and
- Campaign on behalf of flood risk communities and working with government and agencies to ensure that they develop a community perspective.

4.3.2 Utility and Infrastructure Providers

Within Flintshire most of the defence assets are the responsibility of FCC, NRW, DCWW, Network Rail or private landowners. Utility and infrastructure providers such as Network Rail, energy companies and telecommunication companies have a crucial role to play in flood risk management as their assets can be an important consideration in planning for flooding.

Moreover, they may have assets such as culverts, information about which needs to be shared with flood risk management authorities. They already maintain plans for future development and maintenance of the services they provide, and it is important that they factor in flood risk management issues into this planning process. This will ensure that their assets and systems are resilient to flood and coastal risks and that the required level of service can be maintained in the event of an incident.

4.3.3 Reservoir Undertaker

Citizens and or RMAs including FCC, who own or operate a reservoir have ultimate responsibility for the safety and the maintenance as a reservoir undertaker. Under the FWMA, all undertakers with reservoirs over 10,000 m^3 must register their reservoirs with the NRW and all undertakers must report any flood incidents. The reservoir owner is responsible for producing on-site emergency plans which detail how reservoir owners will respond to a potential or real reservoir failure. All undertakers must prepare a reservoir flood plan. It is good practice for all reservoirs to have on-site plans and all reservoir owners are recommended to prepare one.

4.3.4 Additional Stakeholders

This is an non-exhustive list and subject to future legislative and policy change.

- Emergency Services
- National Flood Forum
- National Surface Water Management and SuDS Group (Wales)
- North Wales Regional Flood Risk Group
- National Farmers Union
- North Wales Local Resilience Forum
- Housing Associations
- Association of British Insurers
- CADW
- National Trust
- RSPB
- North Wales Wildlife Trust
- Flood Partnership Groups
- Local community groups

4.4 Responsibilities of Flintshire County Council (FCC)

The Flood and Water Management Act 2010 identified FCC as the Lead Local Flood Authority for the district. FCC are responsible for taking the lead in managing flood risk from local sources. This includes surface water, groundwater and ordinary watercourses and also where there is an interaction between these sources and main rivers or the sea. FCC also has other related roles in emergency planning, regulatory services and road drainage; detailed in the following sections.

Following implementation of the Act, the management team for FCC chose the Environment Directorate to take the lead in ensuring the Council's compliance with legislation and to ensure that all relevant departments and external agencies assist to fulfil the requirements of this Act. The department already carried out similar duties and had formed the necessary relationships with other departments and external bodies to undertake this role. The Head of Service for the Environment Directorate has the delegated authority for the operational implementation of the Strategy.

4.4.1 As a Lead Local Flood Authority

The LDA gives FCC permissive powers, in addition FWMA identifies FCC as the LLFA for Flintshire. This gives the council a number of statutory duties in overseeing the management of local flood risk from surface water, groundwater and ordinary watercourses such as streams and ditches (including lakes and ponds). It also gives FCC a number of permissive powers which allow them to do something, but do not compel them to and are defined in Table 2 below.

Table 2– Statutory and Permissive Powers of FCC

Statutory Powers	Permissive Powers
• Strategic leadership[3]; • Comply with the National Strategy[4]; • Co-operate with other authorities[5]; • Recording and investigating flood incidents[6]; • Keep a register of assets likely to affect flood risk[7]; and • Contribute to sustainable development[8].	• Powers to designate structures and features that affect flood or coastal erosion risk; • Powers to request information; • The expansion of powers to undertake works to include broader risk management actions; and • The ability to cause flooding or coastal erosion under certain conditions.

[3] Section 10(1) of the Flood and Water Management Act 2010
[4] Section 10(5) of the Flood and Water Management Act 2010
[5] Section 13 of the Flood and Water Management Act 2010
[6] Section 19 of the Flood and Water Management Act 2010
[7] Section 21 of the Flood and Water Management Act 2010
[8] Section 27 of the Flood and Water Management Act 2010

A number of Local Authorities in Wales are also designated coastal erosion risk management authorities under the Coast Protection Act 1949, providing them with certain responsibilities in respect of coastal erosion and coastal protection. Formally referred to as Coastal Protection Authorities they may also be referred to as Coastal Local Authorities or Maritime Authorities and retain their current permissive powers in relation to coastal erosion risk management.

Some of these duties and powers which require more detail have been explained in the following section.

4.4.1.1 Strategic Leadership

FCC is responsible for co-ordinating and overseeing Flood and Coastal Erosion Risk Management on a day to day basis. This involves developing this Strategy which will set out FCC's approach to dealing with flooding identified under the Act. It also involves ensuring all flood risk authorities are aware of their responsibilities, monitor progress and activity by all organisations involved and communicating with the public and between organisations.

4.4.1.2 Recording of Flood Incidents

To assemble an accurate record of flood risk across Flintshire requires the collection of information relatingto flood incidents which have occurred across the County.

Under Section 19 of the FWMA, LLFAs have a duty to record all sources of significant flooding events. The national definition of significant is unavailable therefore the decision to record a flood is at the discretion of the LLFA.

FCC propose to set a standard to record and assess every known flood incident that occurs in the county. A detailed investigation will be carried out when certain criteria are met, which is explained in more detail in the next section.

FCC proposes to record and manage all future drainage investigations and flood incidents occurring across the county by importing them into a database. When combined with mapping of predicted flood risk in the county the historic records will help provide a picture of the highest flood risk areas in Flintshire.

FCC's aim is to obtain comprehensive information on flooding incidents that occur across Flintshire and in order to do this we encourage the public to use the Council's website to provide relevant information.

In order to build consistent and accurate records of local flooding in Flintshire we need as much information as possible on historical and recent floods from individuals, businesses and stakeholders.

If you become aware of a flood in your area, please contact Floodline on 0345 988 1188 or the Streetscene Contact Centre on 01352 701234 and provide us with the following information.

- Your name and contact details:
- Date of flood;
- Location of the flood (map references or precise address);
- The duration of flood;
- The depth of flood at its worst;
- Where did the water come from? e.g. overflowing river;
- What was the weather preceding the flood, rainfall if known;
- Did water enter a property? Which property?
- What damage did the flooding cause? e.g. blocked road for several hours;
- Was any action taken at the time to reduce the flood risk? e.g. flood gates;
- Any other relevant information; and
- Photographs and videos of the flood and damage preceding the flood.

4.4.1.3 Investigation of Flood Incidents

An LLFA has a duty to investigate flooding events as it considers necessary or appropriate under section 19 of FWMA. This states:

"(1) On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate –

(a) which risk management authorities have relevant flood risk management functions, and

(b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood."

The aim of flood investigations is to bring all useful information together in one place, providing an understanding of situations, outlining possible causes of flooding and potential long-term solutions to protect people and their homes from flooding. Further recommendations will also be made to highlight potential flood risk management actions. It is intended that these reports will provide a clear understanding of flooding situations, but the duty to investigate itself does not guarantee that problems will be resolved and cannot compel other RMAs to take action.

Flood Investigation Thresholds

The LLFA has a duty to record all sources of significant flooding events. The national definition of significant is unavailable therefore the decision to record a flood is at the discretion of the LLFA.

In Flintshire, Flood Investigation Reports (FIRs) will be prepared if the flood extent exceeds 20 no. of internally flooded properties, provided the affected properties are within the same geographic location or within close proximity to each other. The LLFA may choose to carry out FIRs for fewer properties at their discretion.

The LLFA may choose to carry out a flood investigation for incidents where no internal property flooding has occurred. This is subject to known local flood risk or potential flooding implications to critical infrastructure such as hospitals. Subject to WG policy updates, the LLFA may be required to reevaluate their FIR procedure.

A flood investigation will involve consultation with the relevant risk management authorities, landowners and private organisations involved, all of whom will be expected to cooperate and provide comments.

There are 3 stages of flood investigations for flooding incidents and land drainage issues in Flintshire:

Stage 1: Carry out an initial assessment; including a site inspection to identify what the problem is; and

Stage 2: Carry out a detailed investigation (Flood Investigation Report) to identify the source of flooding, how many properties are affected, and what tasks can be carried out to prevent a reoccurrence. This report will be published.

Stage 3: Where appropriate, apply for funding to assess, design and/or consider installation / modification of flood alleviation measures.

Stage 1 – Initial inspection

Once an incident of flooding or drainage issue has been reported and recorded, if is has been identified that Flintshire is the responsible authority; a site inspection will be carried out to identify the extent and cause of the problem.

When an inspection is carried out, it will ascertain which authority has an involvement in the flood incident, and inform them accordingly. FCC will record every reported flood incident that occurs in the county using a Site Inspection Report and officer notes. The Asset Management System will then be updated with this information.

If there has been a report of internal flooding historically in the same location, an investigation needs to be prioritised and Stage 1 and 2 will be completed simultaneously.

Stage 2 - Detailed Investigation

For Stage 2 investigations, a Flood Investigation Report (FIR) is required, which aims to bring all relevant information together to provide an understanding of the incident, outline possible causes of the flooding. The report will also identify which other authority should have an involvement, including responsibility for the flooding incident and identifying possible prevention measures or potential long-term solutions.

It is intended that the FIR will be published within 6 months of a qualifying flood event being reported to FCC. However there will be cases where this time frame will have to be extended (e.g. widespread flooding across the county or resource issues).

During widespread flooding, the method for prioritising flood investigations will be prioritised; mainly taking into account the following flood characteristics:

- The number of properties flooded internally; and
- The frequency of flooding based on historical records from the past 10 years considering the storm intensity over such a period.

Once completed all FIR's will be published on the FCC website at http://www.flintshire.gov.uk

Stage 3 – Application for Funding

The purpose of stage three is to identify if any of the potential long-term solutions identified in Stage 2 are feasible as future alleviation projects.

If a flood incident has been identified which has affected several properties, a major transport route, and critical infrastructure and/or where it is likely to occur again, a Stage 3 investigation is initiated to apply for Welsh Government and FCC funding. This is to be applied at the discretion of the LLFA.

Funding can be made available for small scale improvement works, business cases, flood risk pilots (such as NFM), scheme designs, or construction works.

4.4.1.4 Register of Flood Risk Assets

Section 21 of the FWMA gives LLFAs a duty to establish and maintain a register of structures and features which in the authority's opinion are likely to have a significant effect on flood risk it its area. The register should contain information about ownership and the state of repair of the structure.

An asset in the context of flood risk management is an artificial or natural structure that operates as a signficant flood defence or as part of a drainage system or other feature considered likely to have a significant impact on flood risk. Examples could be a trash screen, culvert, pumping station, walls or banks of a river channel embankment etc.

Flintshire County Council is required to keep an asset register of structures or features which it considers are likely to have a significant effect on flood risk. The register will be made available for inspection by the public at all reasonable times.

The register will take the form of a live database, which will be updated in the light of flood incidents, flood investigations and changes to infrastructure. New sustainable drainage assets will be registered and asset data may also be captured through local drainage studies. The recording of assets will be prioritised by its location; future flood risk mapping and known

flood risk areas taken from the Preliminary Flood Risk Assessment will be used to analyse the 'significance' of each flood risk asset. The vulnerability of the asset's surroundings will also be a factor in determining the consequences of its failure.

Assets require inspection and maintenance in order to prevent failure, which otherwise may result in flooding. There has often been much confusion over the ownership and maintenance responsibility of local flood risk assets. This is likely to be due to local drainage infrastructure commonly being hidden underground or along land boundaries, where landowners either do not realise or acknowledge that they have any responsibility.

Within Flintshire the coastal defence assets can be the responsibility of FCC, Network Rail or private land owners. Network Rail only has a responsibility to protect the railway line although their defences in effect do provide protection to properties and highway infrastructure. Natural Resources Wales have defences and embankments on the River Dee which provide tidal protection.

Flintshire County Council has created a register of all existing information on structures that are likely to have a significant effect on flood risk. These assets include:

- Coastal defences;
- Ordinary watercourses on FCC owned land;
- Fluvial assets on privately owned land;
- Demountable defences;
- SuDS Schemes;
- NFM Schemes;
- Maintenance Schedules;
- Pumping stations and mechanical control devices;
- Other flood risk management assets.

FCC will develop a standard inspection form to be completed when an inspection or maintenance operation is carried out. An example of how each asset will be assessed is:

Stage 1: Review all existing information relating to an asset and transfer into the Asset Management System ;

Stage 2: Carry out a visual survey of each asset to establish dimensions, structural condition, construction details and layout;

Stage 3: Confirm who is responsible for each asset by way of land searches and discuss the maintenance regime with the landowner;

Stage 4: Carry out a risk assessment for each asset;

Stage 5: Consider any improvement works that are required for each asset; and

Stage 6: Develop an appropriate maintenance plan for each asset.

The register will be published on the FCC website at http://www.flintshire.gov.uk.

4.4.1.5 Sustainable Development

FCC has a duty to aim to contribute towards the achievement of sustainable development in the exercise of flood or coastal erosion risk management functions and to have regard to the Welsh Ministerial guidance on this topic.

Sustainable development is discussed within the National Strategy (2020) in the context of Planning and SuDS.

4.4.1.6 Designating Assets

Schedule 1 of the Flood and Water Management Act 2010 (FWMA) sets out the legal powers to address and reduce the risk of altering or removing structures and features on private land that contribute to flood or coastal erosion risk management. The schedule includes the following conditions:

- The designating authority must have flood or coastal erosion risk management functions for the affected risk.
- The structure or feature cannot be designated by another authority for the purposes of the schedule.
- The owner of the structure or feature cannot be the designating authority.

FCC and NRW are 'designating authorities'. That is, they have the permissive powers to 'designate' features or structures which they consider affect flood risk and are not owned by the LLFA or NRW.

If an asset becomes 'designated' its owner cannot alter, remove or replace a designated structure or feature without the consent of the designating risk management authority. The aim of designating flood risk assets is to safeguard them against unchecked works which could increase flood risk in the area.

Designation of features or structures is not something that will be done regularly but only conducted when it is deemed that there are concerns about the asset.

Note: designation of an asset does not mean there is a duty on anyone to maintain it in its current condition.

4.4.1.7 Consenting Works on Ordinary Watercourses

FCC are responsible for the regulation of ordinary watercourses. This includes issuing consents for any changes or obstructions that may affect the flow and enforcement action etc. action to rectify unlawful and potentially damaging work that has been undertaken to a watercourse. This role was previously carried out by the EA but has been transferred to LLFA's to enable them to implement their new roles and responsibilities in respect of local flood risk. NRW still retain their responsibility for consenting works on main rivers.

If riparian owners or other bodies wish to culvert an ordinary watercourse or insert any diversion or obstruction, then consent is required. The purpose of ordinary water course regulation is to control activities that may have an adverse impact on flooding.

It is essential that anyone who intends to carry out works either temporary or permanent in, over, under or near a watercourse or flood defences (including sea defences) should obtain any necessary consents before commencing works.

Riparian owners are encouraged to contact the Council to discuss any proposals and consent application forms will be provided

4.4.2 FCC as a SuDS Approval Body (SAB)

Sustainable drainage systems (SuDS) are a change of approach from conventional drainage which aimed to convey water as quickly as possible from a development, often causing watercourses downstream to overload and potentially cause flooding. The key principles that influence the planning and design of SuDS are:

- Harvesting and using the rain close to where it falls;
- Allowing water to soak into the ground (infiltration);
- Storing runoff and releasing it slowly (attenuation);
- Slowly transporting (conveying) water on the surface;
- Filtering out pollutants; and
- Allowing sediments to settle out by controlling the flow of the water[9].

SuDS are also an opportunity to ensure that amenity and biodiversity are considered with the same importance as managing volumes of water.

Schedule 3 of The Flood and Water Management Act 2010 assigns FCC the role of a SuDS Approval Body (SAB) for the county. The SuDS approval process is integrated with the planning process; with discussions commencing at the earliest possible stage.

The SAB is a statutory function delivered by the local authority to ensure that drainage proposals for all new developments of more than 1 house or where the construction area is 100m^2 or greater are designed and built in accordance with the national standards for sustainable drainage published by Welsh Ministers.

The roles of the SAB are to:

- Evaluate and approve drainage applications for new developments where construction work has drainage implications;
- Adopt and maintain sustainable surface water drainage systems according to Section 17 of Schedule 3 (FWMA);
- Hold powers of inspection and enforcement; and
- Use discretionary powers to offer non-statutory pre-application advice.

Where applicable, the statutory consultees are; DCWW, NRW (also the Internal DrainageBoard), the local Highway Authority, and the Canal and Rivers Trust.

[9] www.susdrain.org

4.4.2.1 SuDS Adoption

The SAB will adopt a drainage system which satisfies the following conditions:

- That the drainage system was constructed in pursuance of proposals approved under paragraph 7 of Schedule 3 of the Flood and Water Management Act 2010.
- That the drainage system was constructed and functions in accordance with the approved proposals.
- That the SAB can issue or has issued a certificate under paragraph 12(2) of Schedule 3 of the Flood and Water Management Act 2010.
- That the drainage system is a sustainable drainage system, as defined by regulations made by the Minister.

The adoption duty does not apply to a drainage system which is designed only to provide drainage for a single property.

The adoption duty does not apply to any part of a drainage system which is a publicly-maintained road. SuDS draining public roads will be adopted by the Highway Authority.

Further information about FCC as SAB can be found here: Sustainable Drainage Systems (flintshire.gov.uk)

4.4.3 FCC as a Highways Authority

As well as leading on delivering the requirements of the Act, FCC Streetscene is responsible for the network of non-trunk roads on the island. The Welsh Government is responsible for trunk roads and motorways in Wales, in Flintshire these are maintained by the North and Mid Wales Trunk Road Agent (NMWTRA) on behalf of the Welsh Government.

All Highways Authorities are Risk Management Authorities according to the FWMA and must adhere to all the responsibilities of risk management authorities. There is a duty to co-operate with other risk management authorities to take on Flood and Coastal Erosion Risk Management functions from another risk management authority when agreed by both sides.

In addition to their responsibility as a risk management authority, highways authorities also have further responsibilities:

4.4.3.1 Responsibility to Maintain the Highways

Under the Highways Act 1980, the Highway Authority has a duty to maintain the Highway and as part of this duty, roads and bridges are regularly inspected and maintained. This includes ensuring that Highway drainage systems are clear and that, where reasonably practical, obstructions caused by flooding on the highway are cleared. Arisings, which are free of pollutants, as a result of ditch maintenance works will be deposited on nearby highway verges. This reduces the need for costly waste transfer and pressure on landfill sites. Therefore, allowing the Authority to maximise the ditching works programme with the available budget and in turn reducing the risks of flooding to highways and properties.

4.4.3.2 Adoption of SuDS

Highways Authorities currently have the power to adopt SuDS that serve the highway through Section 38 of the Highways Act but are under no obligation to do so. Under the Flood and Water Management Act, highways authorities are required to adopt any SuDS approved by the SuDS Approval Body which exist within the highways boundary and serve the highway and estate roads.

4.4.3.3 Powers to Deliver Works

The Highway Authority can deliver works that they consider necessary to protect the highway from flooding. These can be on the highway or on land which has been acquired by the highway authority in the exercise of highway and acquisition powers for that purpose. Highway Authorities may divert parts of a watercourse or carry out any other works on any form of watercourse if it is necessary for the construction, improvement or alteration of the highway or provides a new means of access to any premises from a highway.

4.4.3.4 Response in an Emergency Flooding Event

In the event of an emergency or major incident Flintshire's Highway Authority will aim to provide:

- The means to transport people through its contacts with local bus, coach and taxi operators and the in house fleet to assist with evacuations and helping uninjured survivors at the scene of a major incident to travel home or to a place of safety; and
- Assistance in management of the transportation network to restore the flow of traffic in the event of an evacuation or away from the area of an incident. This includes providing equipment such as barriers, cones and signs and setting up and marking route diversions (service provided by Works Contractors in conjunction with the Police) and changing traffic signal controls to improve the flow of traffic.

4.4.4 FCC as a Planning Authority

The functions of FCC Planning Authority in relation to flood risk is to produce and monitor a Local Development Plan (LDP) and process and determine planning applications, which includes the consideration of flood risk assessments.

The LDP is supported by a number of Background Papers and Supplementary Planning Guidance (SPG) documents. For all land allocations in the LDP, statutory bodies are consulted. The comments of NRW and the Council's 'Regulation and Economic Development' department (including Countryside and Environment) in relation to flood risk are considered in the assessment of development and whether sites are allocated or not.

The Planning Authority affects Flood Risk Management in the following key ways:

- Writing policy in the LDP regarding SuDS issues;
- Providing input into the 'Regulation and Economic Development' department plans such

as Shoreline Management Plan;

- Identify links and potential land use allocations as part of the LDP considering flood risk;
- Assessing flood elevation works; and
- Responding to WG or NRW on consultations involving flooding issues as a service.

The Planning Authority also works alongside the SuDS Approval Body (SAB) to assess planning applications and complementary drainage applications.

When considering flooding issues in the preparation of Local Plans, the Planning Authority needs to do the following:

- Produce a Strategic Flood Risk Assessment (SFRA). This should consider not just fluvial and coastal flooding but also local flood risk issues. Where Critical Drainage Areas have been identified these will need to be included;
- Develop a LDP that carefully considers flood and coastal erosion risks. This is a statutory planning document which can be used to control inappropriate development in the floodplain. Consequently the LDP should support the SFRA, the Preliminary Flood Risk Assessment and Surface Water Management Plan (where applicable). This should allow the LDP to assess and record the flood risks for new developments and steer development to areas of lowest flood risk. Equally there is requirement to assess risks from coastal erosion and permanent tidal inundation and where appropriate designate coastal risk management zones where permanent development will not be permitted;
- When assessing development, Planning Authorities should consider the following aspects: (a) the risk of all forms of flooding in the area, flood protection measures and the impact of climate change; (b) the justification for the location of development in a flood risk area; (c) the consequences of flooding in terms of risk to life, damage to property, safe access and aggress, and disruption; (d) the form and layout of development, use of appropriate SuDS and water efficiency measures such as rainwater harvesting or use of local land drainage water where practicable;
- Consider the allocation of land for development accordance with the requirements of TAN 15 – Development, Flooding and Coastal Erosion.
- Safeguard land for critical infrastructure; and
- Develop action plans, where necessary, to support sustainable spatial planning and ensure all plans are integrated and firmly linked to local strategies.

In its role as SuDS Approval Body (SAB), the Planning Authority:

- Alerts developers and land owners at the pre-application stage of the need to consult with the SuDS Approval Body (SAB) about drainage issues on the site;
- Sends SAB applications and drainage strategies (submitted with the planning application) to the SuDS Approval Body;
- Provides local guidance for the assessment of drainage matters in planning applications; and
- Advises Developers to discuss with the Lead Local Flood Authority whether land drainage

consent is required for alterations or new structures within an ordinary water course.

4.4.5 The Council's Emergency Planning Role

FCC is a key participant in the North Wales Councils Regional Emergency Planning Service (NWC-REPS), a collective service involving all six North Wales local authorities. This service ensures compliance with regulations such as the Civil Contingencies Act 2004 and the Control of Major Accident Hazard Regulations 2015. The primary responsibilities include identifying potential threats, developing emergency response plans, providing training, and conducting regular tests of the plans.

The Council has in place an Emergency Management structure led by an Emergency Management Response Team to plan and prepare the local authorities response to major flood events. The internal structure is detailed in Figure 5 below.

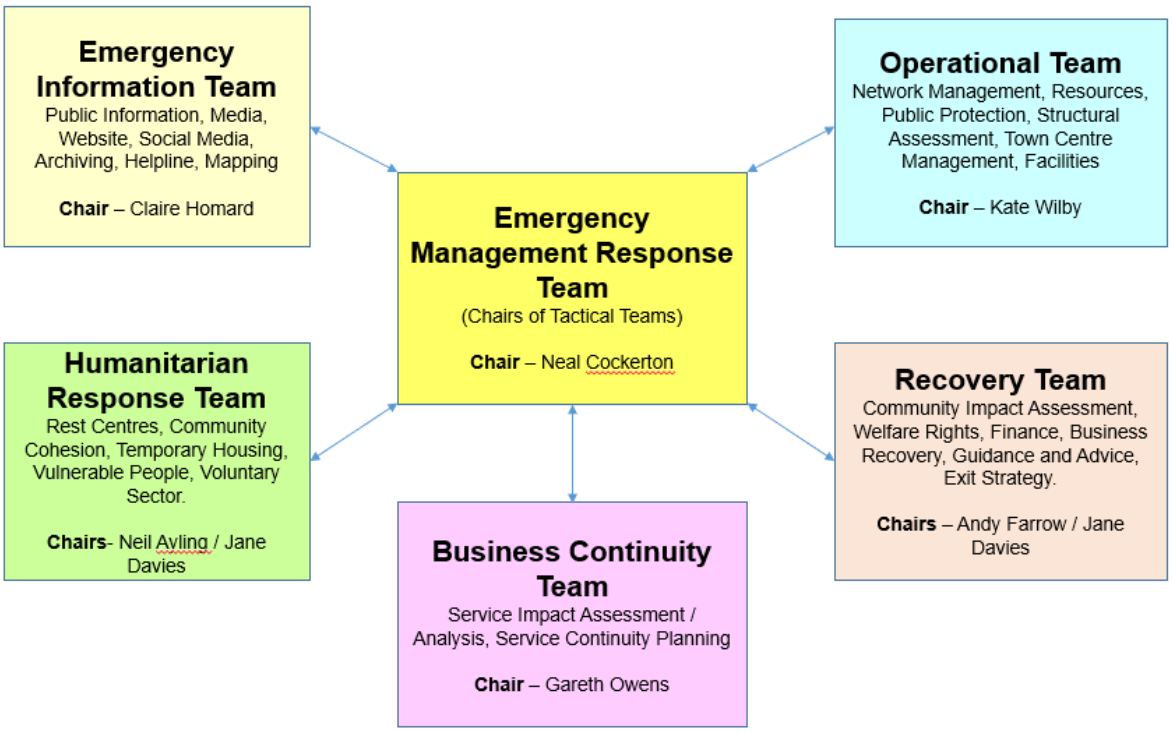


Figure 5 - Departments within FCC which are involved in post flood event emergency response

Emergency Management Response Team (EMRT)

The EMRT will coordinate the response to a major incident will be made as well as setting out the plans for a return to normality once the incident has been brought under control.

The team will commence meetings either in response to a major threat i.e. forecast of a extreme weather event / rising tide etc. or as soon as possible after the declaration of a major incident. This could be through physical or virtual (Teams) means. The Team is chaired by a Chief Executive and is attended by the chair of the EMRT subgroups described below.

Humanitarian Response Team (HRT)

This team establishes welfare needs of people affected by an emergency. The HRT will set up rest centres, contact volunteers to staff the centres, provide counselling and support to the community.

The team is chaired by the Chief Officer, Social Services and the Senior Manager, Safeguarding and Commissioning who are members of the Emergency Management Response Team.

Emergency Information Team (EIT)

This team provides the interface between the Council and the community involved with the emergency. The EIT establishes immediate lines of communication for the dissemination of information, advice and guidance including liaison with the media. The EIT ensures arrangements are developed and maintained to keep the media, the public and other stakeholders informed prior, during and after an emergency.

The group is chaired by the Chief Officer, Education and Youth who is a member of the Emergency Management Response Team.

Emergency Operations Team (EOT)

This Team ensures arrangements are in place to deliver an effective and appropriate resource to deal with an emergency affecting Flintshire County. The EOT has responsibility for the Environmental issues associated with an emergency.

The EOT is chaired by The Chief Officer, Street Scene and Transportation who is a member of the Emergency Management Response Team.

Emergency Recovery Team (ERT)

This Team leads the recovery process alongside and following the emergency response. Following on from the immediate emergency, the Team takes over from the Emergency Response Teams and provides the interface between the Local Authority and the community involved with the emergency. It also helps to establish priorities and longer-term recovery needs. The Team is chaired by the Chief Officer, Environment and Economy and the Senior Manager, Safeguarding and Commissioning who report to the Emergency Management Response Team.

Business Continuity Team (BCT)

The primary responsibilities of the Corporate Business Continuity Team are:

- To develop an all-encompassing business impact analysis of the Council's services;
- To determine the risks threatening the organisations essential services;
- To identify, recommend and apply risk reduction measures;
- To oversee the development of service continuity plans for all the key service areas;
- To develop and apply a corporate business continuity process to facilitate the rapid recovery of the Council in the event of an emergency affecting its key business areas;
- To validate and exercise the corporate business and service continuity plans for appropriateness;
- To manage the overall operation of the business continuity plans in the event if a business

continuity emergency.

The Team is chaired by the Chief Officer, Head Of Legal & Democratic Services who is a member of the Emergency Management Response Team.

4.4.5.1 The Council's Flood Response Role

During a major event the Emergency Planning Unit would assist with co-ordinating the local authority's overall response to any emergency affecting the county.

A number of documents give information on how to respond to flood events including the role of local authorities:

The **Welsh Government 'Wales Flood Response Framework' (December 2016)** document explains and summarises the generic response to flooding in Wales. It is intended primarily for those who participate in, and support, the response of communities affected by flooding but it will also help inform the public on how responder agencies plan for, respond to and recover from, flooding incidents.

The **North Wales Resilience Forum 'North Wales Preparing for Emergencies' (Autumn, 2020)** document provides information on the biggest emergencies that could happen in the region, including flooding, and considers consequences, individual actions and what North Wales Resilience Forum is doing in regards to the risk.

The **North Wales Resilience Forum 'Multi-Agency Flood Plan (June 2017)** document has been developed to describe the multi-agency response and coordination of resources during a flooding incident

The **North Wales Resilience Forum 'Multi Agency Severe Weather Plan' (February 2023)** provides a framework for organisations to be suitably prepared to respond to an actual or potential to severe weather incident or emergency, with a coordinated overall response.

The **North Wales Resilience Forum 'Multi-Agency Response Plan for Reservoirs' (March 2019)** document has been developed to describe the multi-agency response and co-ordination of resources during an incident involving a reservoir within North Wales.

5. Our strategic Objectives

5.1 National Strategy Objectives

The National Strategy sets out an overarching aim to reduce the risk to people and m form from flooding and coastal erosion. It identifies 5 objectives for delivering this aim. These are summarised below in Figure 6.

Figure 6- National Strategy (2020) Objectives

For this Local Strategy, we have developed our own strategic objectives which both align with the National Strategy objectives and reflect our local context and priorities.

5.2 Objectives in our area

For this Local Strategy, we have developed our own strategic objectives which both align with the National Strategy objectives and reflect our local context and priorities. Table 3 below presents FCC's local strategic objectives and their inter-relationship against the National Strategy objectives.

Table 3- Local Strategy Objectives

Local Strategy Objectives	**National Strategy Objectives**				
	A	B	C	D	E
Objective 1 Improve understanding of local flood and coastal risks.	✓				
Objective 2 Improve communication of risk and to increase preparedness and resilience.		✓			
Objective 3 Collaborate with other RMAs, stakeholders and the public to reduce flood and coastal risk.	✓	✓		✓	✓
Objective 4 Reduce exposure to risk and to manage the impacts and consequences of flooding and coastal erosion to individuals, communities and businesses in Flintshire.		✓		✓	
Objective 5 Consider the contribution flood risk management can make to providing multiple benefits.					✓
Objective 6 Develop a prioritised investment programme based on the most at risk communities.			✓		
Objective 7 Ensure the development of skills required to implement effective and innovative flood risk management measures.		✓		✓	✓
Objective 8 Ensure information relating to local flood risk is used to inform planning decisions.				✓	

6. What is the risk of flooding in our area?

Flooding is a hazard as it has the potential to cause harm to human health and life, as well as impact the natural and built environment. It can occur from various sources, including (main) rivers, the sea, small local (ordinary) watercourses, below ground drainage systems and direct surface water run-off. By understanding these sources and the reasons for flooding, FCC can take proactive measures to manage and reduce flood risk.

Flood risk is the product of the likelihood or chance of flooding, multiplied by the consequences or impacts of flooding. The predicted impacts could include:

- Risk to life (people and animals)
- Damage to property, businesses, agricultural land, roads, structures and infrastructure.
- Pollution and contamination of local environments
- Long term damage to tourism, businesses and agriculture.

Flintshire has experienced a notable increase in flood risk, exemplified by the severe flooding from Storm Babet in October 2023. This event led to over 100 properties being inundated, highlighting the escalating vulnerabiltiy of the region to extreme weather events.

Stats Wales outlines that the following numbers of properties are at risk of flooding from the following main flooding sources based on the Flood Risk Assessment Wales (FRAW) modelling and the latest National Receptor Database 2023 (NRD 2023) :

- **Rivers = 5,070**
- **Surface Water & Small Watercourses = 7,222**
- **Tidal = 11,074**

6.1 How we assess flood risk

The methods used to assess flood risk in Flintshire are critical to reducing and managing flooding. Since the publication of the first Local Strategy in 2013 and the Flood Risk Management Plan in 2015, there have been improvements in Flintshire.

The following section sets out how flood risk in Flintshire has been assessed and the methods used to define risk levels for communities.

In summary, defined community boundaries have been prepared to predict flood risk based on low medium and high-risk scenarios for different types of flood risk.

We have used a combination of recorded and predicted flood risk data to estimate where and why flooding may occur.

The outputs have been used to inform a Community-specifc Action Plan to reduce flood risk in the areas identified at risk over the life of the Strategy.

Flood risk has been assessed through the following list of criteria:

- **Datasets** – Information used to calculate flood risk
- **Designation of Area / Community** – How community boundaries have been defined
- **Scenario –** The scenario used to define the type of event used to predict flood risk (low, medium and high).
- **Flood Type** – The flood source used to predict risk (coastal, rivers and surface water)
- **Output** – Summary of flood risk to inform Action Plan

A possible limitation to this methodology is that properties have been represented as points. This approach assumes a single representative point for each property, typically the centroid, which may not accurately reflect the full spatial extent of the building footprint. This simplification was adopted as a proportionate approach given the high-level nature of this Strategy.

6.1.1 Datasets

In order to assess flood risk across Flintshire, recorded and predicted data has been collated and formatted for use as part of the assessment.

National Receptors Dataset

The National Receptors Dataset (2023) is a spatial dataset which contains several GIS layers categorised into themes of information including; buildings, environment, heritage, transport and utilities.

Flood Risk Assessment Wales (FRAW) Map

NRW flood map showing:

- Flood risk from the sea, rivers, surface water and small watercourses and reservoirs.
- The location of flood defences and areas benefitting from defences.
- Information on shoreline management plans and areas at risk of coastal erosion.
- Flood Warning and Alert areas.

The flood risk map has been used to assess High Medium and Low flood risk for the categories of receptors.

Coastal and Inland Catchment Boundaries

A catchment area is an area of land which drains into a single river system. The area often contains interconnected waterbodies such as rivers, lakes and groundwater.

The Inland catchment areas allow FCC to assess flood water within a whole catchment, rather than be constrained my administrative boundaries.

The Coastal catchment areas approximate to the Shoreline Management Plan zones, based on the coast's geomorphological characteristics.

Communities at Risk Register (CaRR) Areas

GIS boundary data for Wales where all communities have been given unique regional boundaries.

The CaRR areas have been used for data collation and to define individual communities.

Recorded Flood Incidents

Flood incident data recorded by FCC for all incidents logged during the Storm Babet event. They have been grouped according to the Inland FRAs as these cover the whole of Flintshire.

This data provides an addition to the data from the FRAW map, potentially identifying areas at risk which are not shown on the flood map.

6.1.2 Designation of Area / Community

CaRR areas and Coastal and Inland Catchment Boundaries have been used to create the regional and local boundaries for each scenario assessed.

Fourteen coastal and inland catchment areas have been defined.

The Coastal and Inland Catchment Boundaries have been used for the flood type estimates and the CaRR areas been used to define the communities at risk within each catchment.

For example, Coastal Flood Risk Area A encompasses the CaRR Areas Gwespyr and Gronant.

6.1.3 Scenario

FRAW has been used to define the scenarios which incident counts will be plotted against.

The scenarios are listed below:

- High Risk: Chance of flooding greater than 1 in 30 (3.3%) each year.
- Medium Risk (Sea): Chance of flooding between 1 in 30 (3.3%) and 1 in 200 (0.5%) each year.
- Medium Risk (Rivers, Surface Water and Small Watercourses): Chance of flooding between 1 in 30 (3.3%) and 1 in 100 (1%) each year.
- Low Risk (Sea): Chance of flooding between 1 in 200 (0.5%) and 1 in 1000 (0.1%) each year
- Low Risk (Rivers, Surface Water and Small Watercourses): Chance of flooding between 1 in 100 (1%) and 1 in 1000 (0.1%) each year

6.1.4 Flood Type

FRAW has been used to define the following flood risk types which inform the FRMP:

- Flood Risk from the Sea
- Flood Risk from Rivers
- Flood Risk from Surface Water and Small Watercourses

6.1.5 Output

The information discussed above has been used to prepare outputs from the FRMP. The methodology applied to the available datasets has allowed FCC to present charts and tables to show which areas are predicted to be at flood risk against each scenario from each flood type.

The results can be sub-summarised based on National Receptor type.

6.1.6 Applied Example - What is the flood risk to Bretton?

Bretton is situated in Coastal Flood Risk Area 'K' and Inland Flood Risk Area 'M'

County Level Flood Risk

On a county level, Table 4 below presents the predicted flood risk in Flintshire.

Table 4 - Predicted Flood Risk in Flintshire - Residential properties

Residential properties at risk of internal flooding			
Flood Type	**High Risk (chance of flooding greater than 1 in 30 each year)**	**Medium Risk (chance of flooding between 1 in 30 and 1 in 200 each year)**	**Low Risk (chance of flooding between 1 in 200 and 1 in 1000 each year)**
Flood Risk from the Sea	4	133	6834
Flood Risk from Rivers	269	218	437
Flood Risk from Surface Water and Small Watercourse	170	92	449
Total	443	443	7720

Catchment Level Flood Risk

On a catchment level, Table 5 below presents the predicted flood risk to Bretton (Coastal Area K and Inland Flood Risk Area M).

Table 5 - Predicted Flood Risk in Bretton- Residential properties

Residential properties at risk of internal flooding			
Flood Type	**High Risk (chance of flooding greater than 1 in 30 each year)**	**Medium Risk (chance of flooding between 1 in 30 and 1 in 200 each year)**	**Low Risk (chance of flooding between 1 in 200 and 1 in 1000 each year)**
Flood Risk from the Sea	0	0	194
Flood Risk from Rivers	0	0	0
Flood Risk from Surface Water and Small Watercourse	6	23	26

Analysis

Although Bretton is not at risk of flooding from rivers, there appears to be risk to residential property from tidal and surface water flood risk. On this basis, it is likely that FRM actions will be put forward in IoACC' s Action Plan, specifically for Bretton. The data used to make this assessment is included in Appendix F.

If further analysis of the National Receptors Dataset identifies flood risk to critical infrastructure, an asset survey may be recommended to map any assets that could have an impact on local flood risk.

6.2 Overview of flood risk in our area

Based on the methodology discussed above, a Flood Risk Management Plan (FRMP) has been prepared for Flintshire. Detailed information and definitive outputs have been included in Appendix F.

The following sections set out key information for each flood type.

6.2.1 Flood risk from Sea

The map below (Figure 7) displays the coastal flood areas in Flintshire.

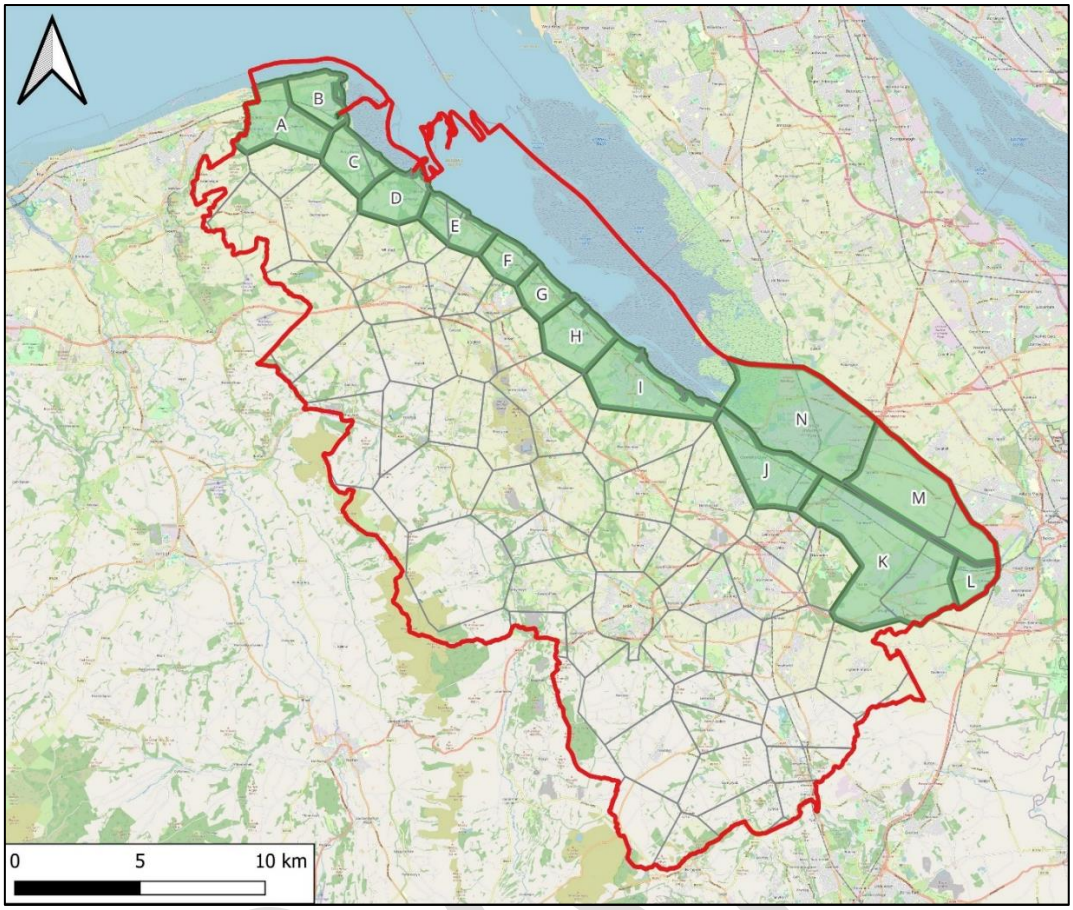


Figure 7 - Coastal Flood Risk Areas in Flintshire

The chart below (Figure 8) presents the predicted flood risk to risk receptors (residential properties, non-residential properties and essential services) at risk of flooding from the sea for the high-risk event scenario.

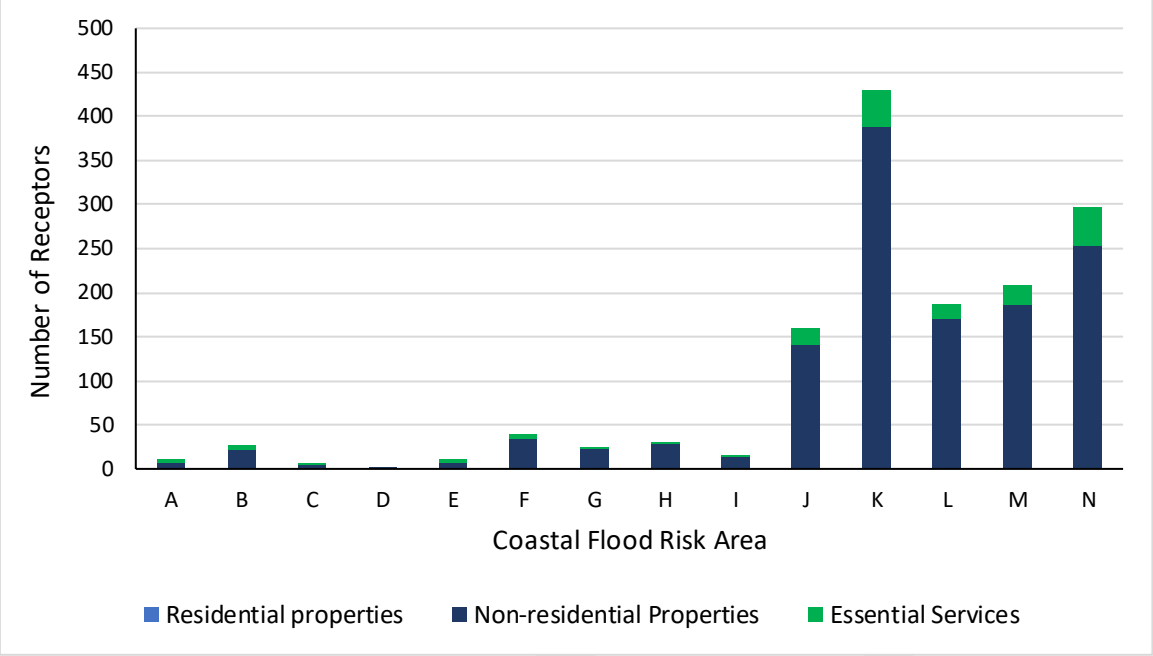


Figure 8- Risk Receptors (Residential Properties, Non-Residential Properties and Essential Services) at Risk of Flooding from the Sea during the High Risk Event (Coastal Flood Risk Areas)

6.2.2 Flood Risk from Rivers and Surface Water and Small Watercourses

The map below (Figure 9) presents the inland flood areas in Flintshire.

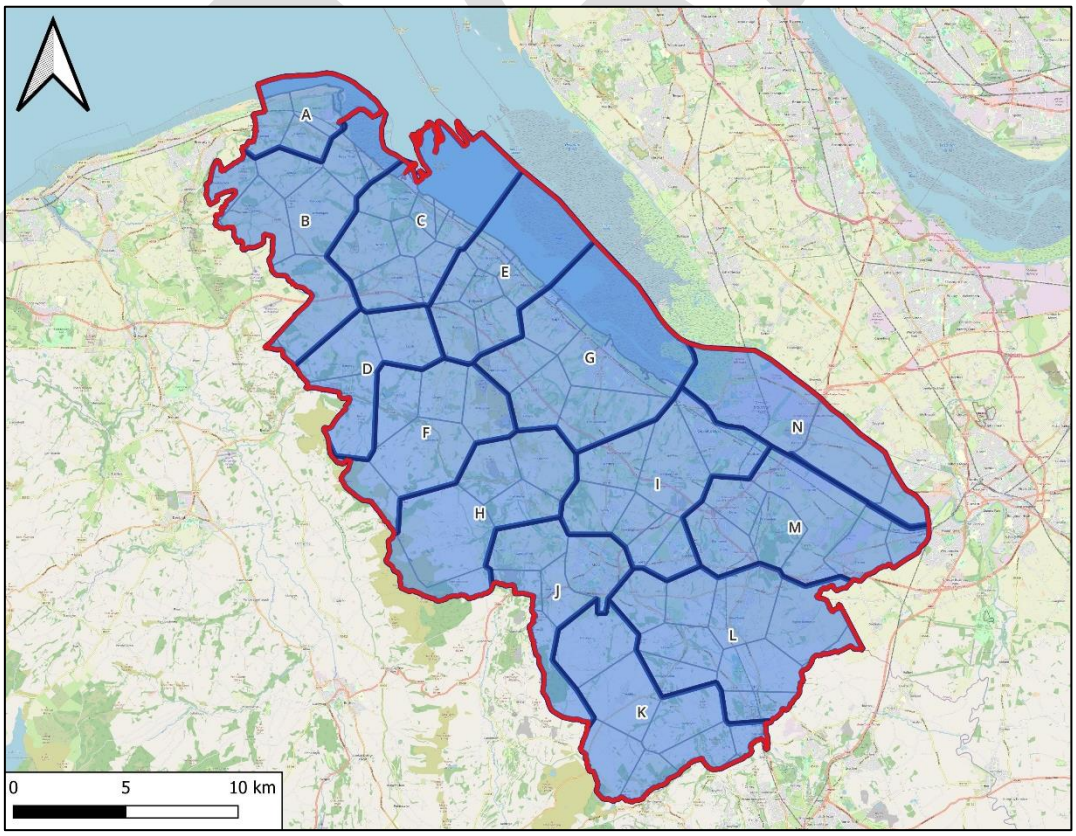


Figure 9- Inland Flood Risk Areas in Flintshire

The charts below (Figures 10 & 11) present the predicted flood risk to risk receptors (residential properties, non-residential properties and essential services) at risk of flooding from rivers and surface water for the high-risk scenario.

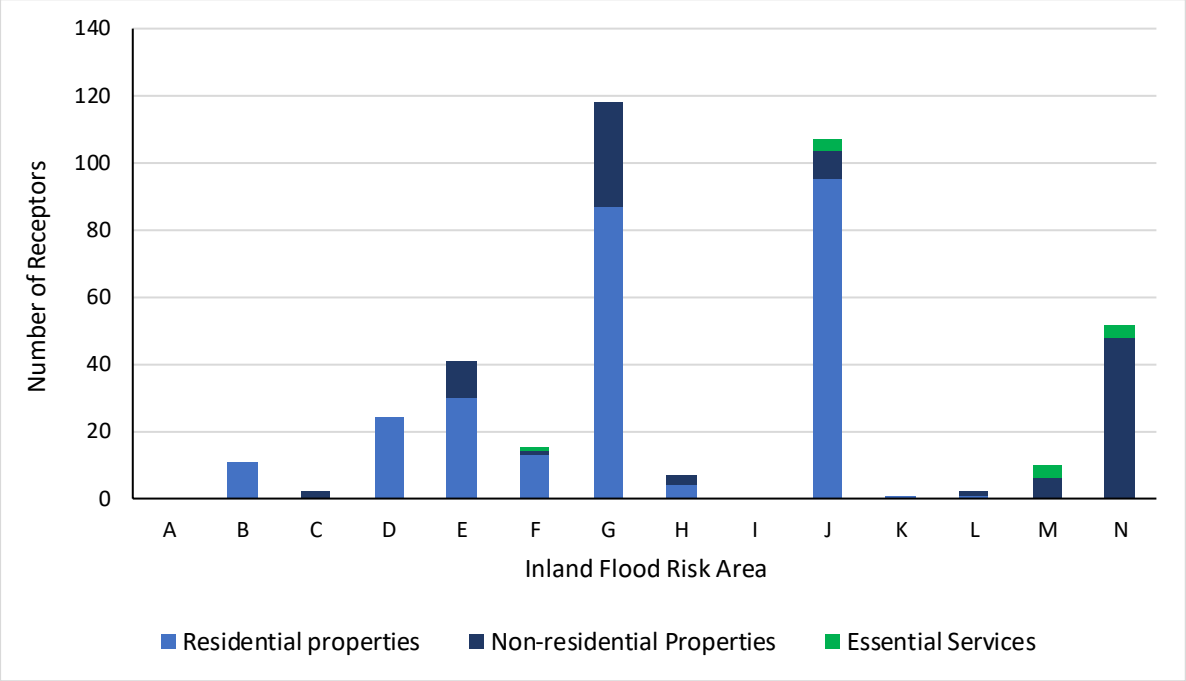


Figure 10- Risk Receptors (Residential Properties, Non-Residential Properties and Essential Services) at Risk of Flooding from Rivers during the High Risk Event (Inland Flood Risk Areas)

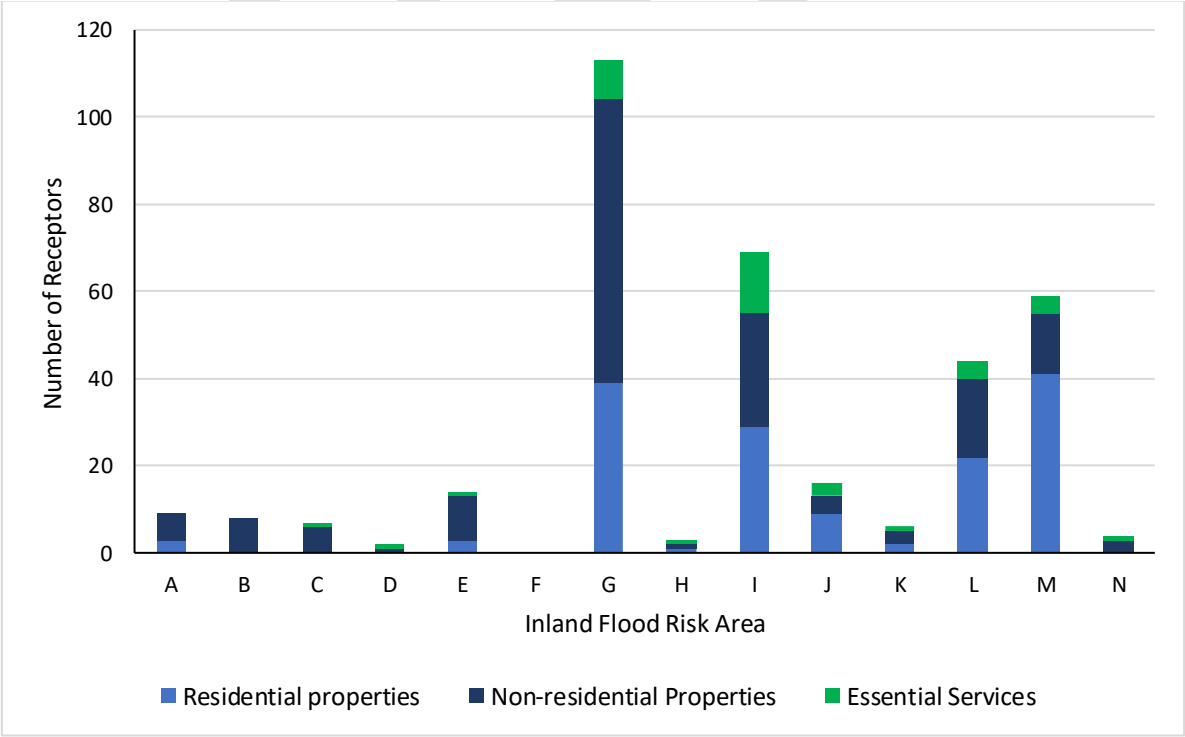


Figure 11- Risk Receptors (Residential Properties, Non-Residential Properties and Essential Services) at Risk of Flooding from Surface Water and Small Watercourses during the High Risk Event (Inland Flood Risk Areas)

6.2.3 Recorded Flood Incidents

The number of recorded flood incidents (defined as any recorded flood incident) in each of the 'Inland Flood Risk Areas' from the Storm Babet 2023 event has been totalled (Table 6).

This data captures affected locations and can be used as an accurate indicator of flood risk, with the asumption that areas flooded during this storm event likely represent those that have be historically prone to flooding.

The 'Inland Flood Risk Areas' have been used because they cover the whole of Flintshire.

These flood records could relate to flooding from any source (e.g surcharging of sewers, blocked culverts or groundwater flooding) whereas the data presented above only relates to flood risk from the sea, rivers and surface water and small watercourses.

Table 6 - Number of Recorded Flood Incidents in Flintshire (Inland Flood Risk Areas)

Flood Risk Area	A	B	C	D	E	F	G
Number of Recorded Flood Incidents	2	3	0	0	0	0	6

Flood Risk Area	H	I	J	K	L	M	N
Number of Recorded Flood Incidents	5	5	17	6	16	88	0

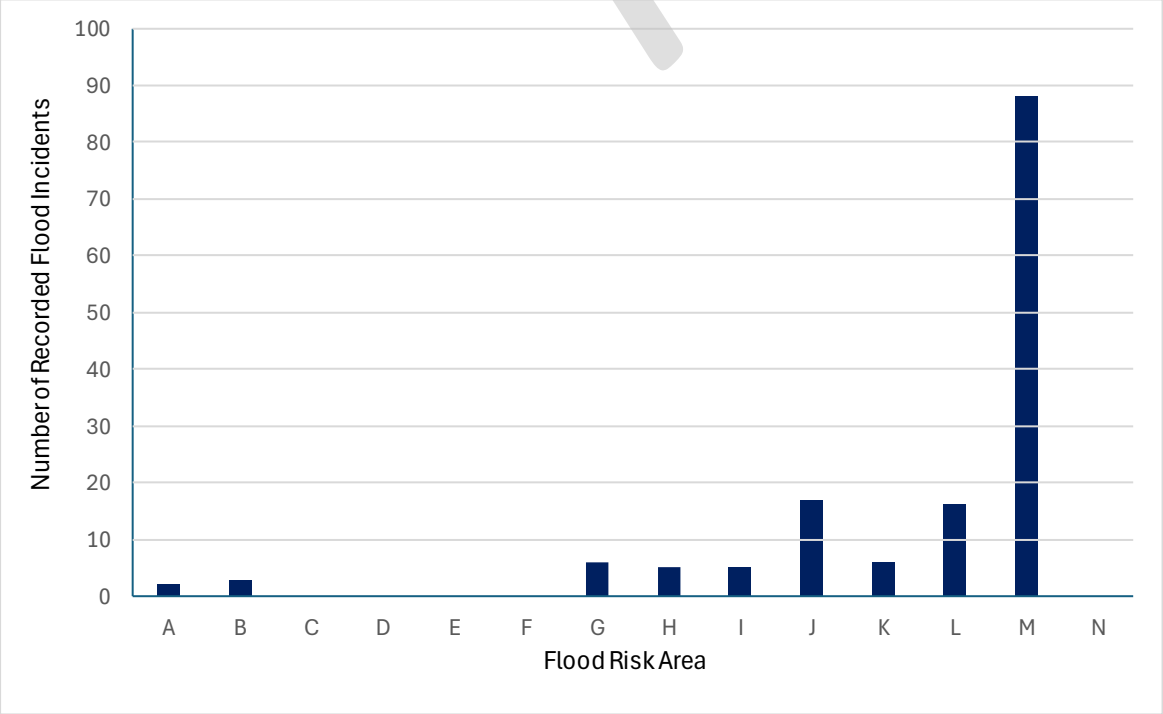


Figure 12- Number of Recorded Flood Incidents in Flintshire (Inland Flood Risk Areas)

6.2.4 Summary of Flood Risk Areas

Based on the data methodology described above, Table 7 shows a summary of the areas at most risk of flooding in Flintshire. The data used to inform this assessment is included in Appendix F.

Table 7- Summary of Flood Risk Areas in Flintshire.

CaRR Area	Source of Flooding	Receptors at Risk
Bagillt	Surface Water & Small Watercourses	Residential, Non-residential
	Sea	Residential
Bretton	Surface Water & Small Watercourses	Residential
	Sea	Residential
Buckley	Surface Water & Small Watercourses	Residential
Connahs Quay	Rivers	Residential
	Surface Water & Small Watercourses	Residential, Non-residential
	Sea	Residential, Non-residential
Drury	Surface Water & Small Watercourses	Residential
Ewloe	Surface Water & Small Watercourses	Residential
Flint	Rivers	Residential, Non-residential
	Surface Water & Small Watercourses	Residential, Non-residential
	Sea	Residential
Garden City and Deeside Industrial Estate	Sea	Residential & Non-residential & Key Services
Lache	Sea	Residential & Non-residential
Mold/Yr Wyddgrug	Rivers	Residential
	Surface Water & Small Watercourses	Residential

CaRR Area	Source of Flooding	Receptors at Risk
Penyffordd	Surface Water & Small Watercourses	Residential
Queensferry-Sandycroft-Manor Lane	Rivers	Non-residential
	Sea	Residential & Non-residential
	Flood Incident Records	
Sealand	Sea	Residential & Non-residential
Sealand Basin Wales	Rivers	Non-residential
Talacre	Sea	Residential
Walwen and Whelston	Rivers	Residential

7. Funding and prioritisation

7.1 Funding options

Measures to manage local flood risk are funded from a range of sources.

Welsh Ministers may provide revenue and capital grants in relation to FCERM activities. Welsh Government will work with RMAs to develop a 5 to 10 year investment programme of future FCERM capital schemes, justified in accordance with the FCERM Business Case Guidance.

The Welsh Government prioritises FCERM schemes which primarily reduce risk to homes. Businesses and public buildings can also benefit from schemes, in particular those which reduce risk to a mix of development types such as homes and shops along a high street or local district centre. Schemes which only reduce risk to businesses remain eligible but should not be prioritised over schemes which reduce risk to homes. Funding is not available to enable new development. RMAs applying for funding are encouraged to identify wider benefits such as regeneration opportunities, improvements to habitats/biodiversity, mental health or recreational benefits. Early consideration of aligning multiple benefits to secure wider funding is encouraged. Where significant benefits are identified to third parties, it is expected RMAs will work both internally and externally (for example with infrastructure providers, utilities, industry and commerce) to identify and secure appropriate partnership funding contributions from those benefitting from a scheme.

The Small Scale Works Grant supports Local Authorities carry out smaller works, resilience measures on a community scale, NFM and essential maintenance through a simplified process. Funding is available annually for works up to £150,000 and has proved successful in driving delivery and risk reduction, with £4.3 million allocated for such schemes in 2020-21.

7.1.1 Current FCERM Funding Sources

The following potential funding sources were considered for the development of the Local Flood Risk Management Strategy and Action Plan

- **Revenue Funding** – FCC have an annual revenue funding stream for FCERM functions. This funding is used to cover staff costs, surveys, investigations, assessments and contributes towards all statutory and non-statutory duties in relation to flood risk management.
- **Small scale grant scheme (Welsh Government)** – Welsh Government invite funding applications for LLFAs to carry out assessments, design and construction works for proposed minor flood alleviation works.
- **Capital Funding (Welsh Government)** – Welsh Government invite funding applications for LLFAs to carry out all stages of capital FCERM works including business cases, design and construction. Subject to the stage of a project, LLFAs are required to contribute towards deliver of the capital works (currently set to 15%).
- **External Funding Streams** – LLFAs can consider working in collaboration with funding partners such as RMAs or private developers and landowners to deliver FCERM works.

8. Flood Measures

8.1 Introduction to Flood Measures

The Objectives outlined in Section 5.2 will be delivered through the implementation of the Measures detailed in Section 8.2. Each measure has been provided with an indicative timescale and cost category. The indicative costs and timescales are detailed below.

Timescales

- **Ongoing:** Whole life of Strategy
- **Short Term:** 0 - 2 years
- **Medium Term:** 3 - 5 years
- **Long Term:** 6 - 10 years

Costs

- **Existing Resources (ER):** No cost implication, within current budgets
- **Very Low Cost:** £0 - £10,000
- **Low Cost:** £10,001 - £30,000
- **Medium Cost:** £30,001 - £100,000
- **High Cost:** £101,000 - £500,000
- **Very High Cost:** £500,000 +

8.2 Measures

National Strategy Objective A: Improving our understanding and communication of risk

- Local Strategy Objective 1: To improve understanding of local flood (surface water, groundwater and ordinary watercourses) and coastal risks.
- Local Strategy Objective 3: Collaborate with other RMAs, stakeholders and the public to reduce flood and coastal risk.

Measure A-1	Develop a county wide map-based record of flood risk assets, Flood Investigation Reports, historical flooding and areas at risk of flooding to allow a proactive risk management approach to be taken by the flood authority.
Description	Review and collate all known flood risk management data into a single centralised system. System to be made available to all internal service and used to inform National Asset Database (NAD).
Benefits including multiple/wider benefits	Accurate county wide map-based system Historical data (sketches, pdfs, etc) to be converted and purged into new system, reducing archive needs. Information to be used to inform FRM decision making Can be shared with other services. Can be used to update NAD. Live system easily updated.
Indicative timescale	Medium term
Indicative cost	Medium Cost
Funding options	Revenue Small scale grant scheme (Welsh Government)
Delivery partners	N/A

Measure A-2	Increase public awareness and engagement in flood risk management
Description	FCC will share information on flood risk management through, for example, in person events, the website and social media.
Benefits including multiple/wider benefits	Easy access to relevant FRM data. Utilising all suitable social media platforms. Increased preparedness and resilience Enhanced public trust and confidence
Indicative timescale	Short term
Indicative cost	Very low cost
Funding options	Revenue
Delivery partners	TBC

Measure A-3	Develop an effective Communication Plan to ensure collaborative working and data sharing.
Description	As part of the development of a Communication plan, FCC will aim to streamline data sharing and improve collaborative working to ensure that all parties are well informed and aligned towards mitigating flood risk.
Benefits including multiple/wider benefits	Easy access to relevant FRM data. Sharing of expertise and best practice methods Can lead to cross service improvements including centralised GIS system and revised maintenance schedules. Information to be used to inform FRM decision making. Can be shared with other services and RMAs.
Indicative timescale	Medium term
Indicative cost	Very low cost
Funding options	Revenue
Delivery partners	N/A

Measure A-4	Promote and work together with groups including community flood partnership groups
Description	FCC will review existing community and regional working groups and encourage collaboartion with these groups.
Benefits including multiple/wider benefits	Improve community engagement and local awareness Local communities to take ownership of local flood risk management.
Indicative timescale	Medium term
Indicative cost	Low cost
Funding options	Revenue
Delivery partners	TBC

Measure A-5	Identify responsibilities of riparian owners for managing their assets, through public engagement.
Description	FCC to work with riparian land owners to ensure that they are aware of their responsibilities e.g to keep watercourses flowing freely.
Benefits including multiple/wider benefits	Defined roles and responsibilities Improved local resilience Reduced flood risk Better managed water systems
Indicative timescale	Ongoing
Indicative cost	Very low cost
Funding options	Revenue
Delivery partners	Riparian land owners, home owners, businesses.

Measure A-6	Ensure effective use of databases
Description	Optimise utilisation of FCC databases and information systems to store, manage and analyse flood risk management data.
Benefits including multiple/wider benefits	Accurate records of local flood history Increased efficiency Enhanced delivery of council services Improved transparency and accountability.
Indicative timescale	Medium term
Indicative cost	Low
Funding options	Revenue and Small Scale Grant
Delivery partners	N/A

Measure A-7	Continue to engage with the North-West & North Wales Coastal Group
Description	Ongoing engagement with the North-West & North Wales Coastal Group to deliver sustainable coastal management.
Benefits including multiple/wider benefits	Encourages a proactive approach to flood risk management. Ensure communities are involved in decision making Sharing of local knowldege and information Educational opportunities
Indicative timescale	Ongoing
Indicative cost	Existing Resources
Funding options	Revenue
Delivery partners	North-West & North Wales Coastal Group

National Strategy Objective B: Preparedness and Building Resilience

- Local Strategy Objective 2: Improve communication of risk and increase preparedness and resilience in Flintshire Communities.

Measure B-1	Provide appropriate and effective support and guidance to local communities, pre, during and post flood events.
Description	Support and guidance should be given to communities before, during and after flood events. This may be through the media or in person and may involve sharing of and signposting to relevant information and provision of support where appropriate.
Benefits including multiple/wider benefits	Improved resilience Improved knowledge of roles and responsibilities Improved preparedness
Indicative timescale	Medium term
Indicative cost	Very low cost
Funding options	Revenue
Delivery partners	National Flood Forum, Community flood groups

Measure B-2	Support communities to better understand flood risk, to become more resilient to flooding and to manage their own flood risk.
Description	FCC will strengthen its role in supporting communities through improving access to information via awareness-raising activities and digital improvements. Council website to be reviewed and periodically updated with relevant information and clear signposting.
Benefits including multiple/wider benefits	Improved local resilience Improved knowledge of roles and responsibilities Improved preparedness of a potential flood event
Indicative timescale	Short term
Indicative cost	Low cost
Funding options	Revenue Small scale grant scheme (Welsh Government)
Delivery partners	TBC

Measure B-3	Target areas at risk of flooding to increase awareness of emergency procedures in the event of a flood.
Description	Prepare Flood Risk Management Plan (FRMP) to consider all sources of flood risk.
Benefits including multiple/wider benefits	Ensure proactive approach is taken to flood risk management. Risk based approach following national template. 'live' action plan to be updated on annual bases to include recent flood events.
Indicative timescale	Ongoing
Indicative cost	Low cost
Funding options	Revenue Small scale grant scheme (Welsh Government)
Delivery partners	TBC

Measure B-4	Continue to meet with the Local Resilience Forum to share knowledge, data and resources to develop best practice
Description	Hold regular meetings with the Local Resilience Forum to facilitate exchange of information, coordination and efforts to effectvively manage and mitigate local flood risks and emergencies
Benefits including multiple/wider benefits	Encourage a proactice approach to FRM Efficient resource allocation Improved community engagement and coordination
Indicative timescale	Ongoing
Indicative cost	Exsting Resources
Funding options	Revenue
Delivery partners	Local Resilience Forum

Measure B-5	Utilise collaboration platforms such as 'North Wales Flood Risk Management Group' to identify roles and responsibilities. Clarify local issues as investigated along with county wide roles and responsibilities including:- • Flood response • Assessment management • Maintenance
Description	FCC to consult with all relevant stakeholders to clarify and delineate each partners role and responsibitles in flood risk management
Benefits including multiple/wider benefits	Reduced flood risk Better managed water systems Defined roles and responsibilities
Indicative timescale	Medium term
Indicative cost	Very low cost
Funding options	Revenue
Delivery partners	Local authorities, Emergency services and Community groups

Measure B-6	Work with other RMAs to develop regular maintenance schedules for flood and coastal erosion risk management assets.
Description	FCC to work with other RMAs to ensure that all FCERM assets are maintained effectively and consistently.
Benefits including multiple/wider benefits	Efficient allocation of maintenance budgets Roles and responsibilties defined Improved knowledge Reduced flood risk
Indicative timescale	Medium term
Indicative cost	Low cost
Funding options	Revenue
Delivery partners	TBC

Measure B-7	Continue to engage with the SuDS Community Practice Group (CoP).
Description	Ongoing engagement with the SuDS CoP to foster collaboration and knowledge sharing in the field of SuDS.
Benefits including multiple/wider benefits	Encourages a proactive approach to flood risk management. Innovation of SuDS technologies and approaches Ensure communities are involved in decision making Educational opportunties
Indicative timescale	Ongoing
Indicative cost	Existing Resources
Funding options	Revenue
Delivery partners	SuDS Community Practice Group (CoP)

National Strategy Objective C: Prioritising investment to the most at risk communities

- Local Strategy Objective 6: Develop a prioritised investment programme based on the most at risk communities.

Measure C-1	Undertake full lifecycle cost benefit analysis for projects including social, and environmental benefits.
Description	FCC to use current best practice cost-benefit guidelines to assess and prioritise potential flood risk management schemes, including social, and environmental benefits.
Benefits including multiple/wider benefits	Informed decision-making Optimal allocation of resources Sustainable flood risk management
Indicative timescale	Medium term
Indicative cost	Medium cost
Funding options	Revenue funding Existing resources
Delivery partners	N/A

Measure C-2	Investigate opportunities for match funding and grants.
Description	FCC to explore opportunites for match funding and grants to obtain different sources of financial support
Benefits including multiple/wider benefits	Increased financial resources towards FRM Financial stability and sustainability Valuable networking opportunities and partnerships
Indicative timescale	Medium term
Indicative cost	Very low cost
Funding options	Revenue
Delivery partners	TBC

Measure C-3	Develop a capital cost investment programme to reduce flood risk to the most at risk areas.
Description	Develop a proactive investment programme on a risk based approach. Consideration to be given to FRMP outputs, managed assets, S19 investigations and critical gullies.
Benefits including multiple/wider benefits	Reduced flood risk Informed decision making Proactive and transparent approach to FRM
Indicative timescale	Medium term
Indicative cost	Low cost
Funding options	Revenue Funding Small Scale Grant Scheme
Delivery partners	TBC

Measure C-4	Strive to achieve partnership funding with relevant Risk Management Authorities and other sources to support schemes.
Description	Partnership funding will be explored and encouraged to attract further investment in FAS for FCC
Benefits including multiple/wider benefits	Increases collaboration Multiple benefit proposals Opportunity for additional funding streams
Indicative timescale	Short
Indicative cost	Very low cost
Funding options	Revenue Funding
Delivery partners	TBC

Measure C-5	Utilise S19 reports to guide investment.
Description	FCC to ensure flood events are appropriately investigated and documented. Use the information from S19 reports to inform and prioritise capital and revenue investment.
Benefits including multiple/wider benefits	Prioritisation of investments Proactive approach Reduced flood risk Informed decision making
Indicative timescale	Ongoing
Indicative cost	Medium cost
Funding options	Existing Resources Revenue Funding
Delivery partners	TBC

Measure C-6	Provide strategic leadership and direction at a local level.
Description	Prepare Local Flood Risk Management Strategy which has been fully consulted within Flintshire. Prepare and manage action plan to ensure strategy objectives are delivered. Setup appropriate committee to oversee delivery of strategy. Review and update council website to ensure helpful flood risk management information available.
Benefits including multiple/wider benefits	Ensure proactive approach is taken to flood risk management Appropriate funding and resources available to successfully deliver LFRMS and action plan Regular reporting on delivery of LFMRS and action plan
Indicative timescale	Short term
Indicative cost	Existing Resources
Funding options	Revenue funding
Delivery partners	N/A

National Strategy Objective D: Preventing more people being exposed to risk

- Local Strategy Objective 4: Reduce exposure to risk and to manage the impacts and consequences of flooding and coastal erosion to individuals, communities and businesses in Flintshire.
- Local Strategy Objective 8: Ensure information relating to local flood risk is used to inform planning decisions.

Measure D-1	Identify areas at risk of flooding and prioritise flood risk management in those areas.
Description	Where 'most-at-risk' flooding locations have been identified through the local flood risk assessment, FCC will look to carry out detailed studies to understand and address the causes and mechanisms of flooding.
Benefits including multiple/wider benefits	Risk based decision making Improved flood risk knowledge Forward investment planning Clarity of decision making when investing in specific areas
Indicative timescale	Ongoing
Indicative cost	Medium cost
Funding options	Revenue Small scale grant scheme (Welsh Government) Capital Funding (Welsh Government)
Delivery partners	N/A

Measure D-2	Develop clear guidance for the Planning Department when assessing planning applications.
Description	Develop clear guidance to ensure that planning decisions are based on standardised criteria
Benefits including multiple/wider benefits	Reduced flood risk FRM alignment to planning policies Improved information and clarity for developers
Indicative timescale	Long term
Indicative cost	Low Cost
Funding options	Revenue Funding
Delivery partners	National Flood Forum, Community flood groups

Measure D-3	Develop guidance for developers on FRMS and drainage
Description	Develop a process with the Planning Department to create clear advice and direction to developers on FRMS and drainage (including incorporation of SuDS into new developments).
Benefits including multiple/wider benefits	Greater clarity and consistency to streamline decision-making process Compliance with regulation Improved knowledge and understanding
Indicative timescale	Medium term
Indicative cost	Low cost
Funding options	Revenue funding
Delivery partners	Other RMAs eg NRW & DCWW.

Measure D-4	Ensure that the planning process is properly informed by considering relevant plans and policies such as the Flood Risk Management Plan, River Basin Management Plan and Shoreline Management Plans
Description	Use local knowledge of flood risk and known issues to inform planning process. Ensure planning decisions align with FRM policies. Provide applicant feedback where appropriate
Benefits including multiple/wider benefits	Reduce delays in development with a proactive response approach. Ensure development does not increase flood risk and where appropriate reduce risk.
Indicative timescale	Ongoing
Indicative cost	Existing resource
Funding options	Revenue funding
Delivery partners	N/A

Measure D-5	Ensure requirements for works in and around ordinary watercourses are clear and transparent.
Description	Provide guidance and administer a process for consenting of new structures and maintenance of existing structures on watercourses.
Benefits including multiple/wider benefits	Clearer understaning of requriements Reduced flood risk Cost savings Environmental enhancement
Indicative timescale	Medium term
Indicative cost	Low cost
Funding options	Revenue
Delivery partners	N/A

Measure D-6	Ensure that all stages of the SAB process are effective and efficient
Description	Review and improve current SAB in Flintshire
Benefits including multiple/wider benefits	Ensure development enhances environmental and is compliant with FRM legislation Improved system Clearer requirements for applicants
Indicative timescale	Short term
Indicative cost	Low cost
Funding options	Revenue funding Small scale grant scheme (Welsh Government)
Delivery partners	N/A

Measure D-7	Ensure that coastal adaptation is applied appropriately to reduce risk to individuals, communities, businesses and the environment.
Description	Coastal adaptation measures should be applied appropriately to reduce risk to individuals, communities and businesses and to enhance the environment. Ensure consistency with the Shoreline Management Plan (SMP)
Benefits including multiple/wider benefits	Compliance with the SMP Risk reduction Enhanced environmental management
Indicative timescale	Long term
Indicative cost	Medium - High
Funding options	Revenue Funding Small Scale Grant scheme (Welsh Government) Capital Funding (Welsh Government)
Delivery partners	TBC

Measure D-8	Incorporate SuDS where appropriate and consider retro-fitting of SuDS.
Description	FCC acting in its role as the SAB should ensure that new development and re-developments, including its own projects, comply with mandatory national standards for sustainable drainage, promoting effective water management and environmental protection.
Benefits including multiple/wider benefits	Sustainable FRM Water quality & biodiversity improvements Regulatory compliance
Indicative timescale	Ongoing
Indicative cost	Existing Resources
Funding options	Revenue
Delivery partners	**N/A**

Measure D-9	Encourage environmental and socially sustainable designs within FCERM projects.
Description	FCC will promote sustainable development taking into account environmental, social and economic considerations within FCERM projects.
Benefits including multiple/wider benefits	Sustainable FRM FRM to account for preservation and restoration of natural ecosystems Reducing the Councils negative impact on Climate Change Cost-effective
Indicative timescale	Medium term
Indicative cost	Low cost
Funding options	Revenue
Delivery partners	TBC

National Strategy Objective E: Providing an effective and sustained response to events

- Local Strategy Objective 5: Consider the contribution flood risk management can make to providing multiple benefits
- Local Strategy Objective 7: Ensure the development of skills required to implement effective and innovative flood risk management measures.

Measure E-1	Record all flooding incidents and where appropriate carry out flood investigations.
Description	When made aware of a flooding or potential flooding incident, FCC will log and record within their GIS management system.
Benefits including multiple/wider benefits	Accurate records of local flood history Improved local knowledge of potential flooding issues Recorded information to inform future funding opportunities
Indicative timescale	Ongoing
Indicative cost	Existing Resources
Funding options	Revenue
Delivery partners	N/A

Measure E-2	Record all appropriate structures/assets on watercourses so that ownership and responsibility can be identified in the event of a problem with flooding.
Description	Upon being made aware of an issue, FCC will record all appropriate structures/assets on watercourses and will identify ownership so that appropriate responsibility can be taken for these assets. Data will be logged within the GIS system and be included within the asset register.
Benefits including multiple/wider benefits	Improved asset register. Roles and responsibilities defined. Asset condition noted. Recorded information to inform future funding opportunities. Inform National Asset Database (NAD)
Indicative timescale	Ongoing
Indicative cost	Low Cost
Funding options	Revenue Small scale grant scheme (Welsh government)
Delivery partners	N/A

Measure E-3	Identify and assess the condition of existing drainage assets within the County, to prioritise capital investment.
Description	All known assets managed by FCC will be logged and inspected to confirm their general arrangement and condition.
Benefits including multiple/wider benefits	Accurate record of asset data Evidence based asset management and investment Can lead to cross service improvements including centralised GIS system and revised maintenance schedules. Information can be considered to update Flood Risk Management Plans (FRMP).
Indicative timescale	Long term
Indicative cost	Medium Cost
Funding options	Revenue Small scale grant scheme (Welsh Government)
Delivery partners	N/A

Measure E-4	Explore new and innovative technologies for flood defence and flood management.
Description	Ensure that FCC as the Local Lead Flood Authority (LLFA) keep up to date with new and innovative technologies for flood defence and flood management.
Benefits including multiple/wider benefits	Enhanced flood protection Improved early warning and monitoring Utilising industry-leading techniques in sustainable drainage Transfer of knowledge and expertisre
Indicative timescale	Medium term
Indicative cost	Medium cost
Funding options	Revenue Small scale grant scheme (Welsh Government) FCERM Capital (Welsh Government)
Delivery partners	N/A

Measure E-5	Minimise disruption to essential services and critical infrastructure
Description	During and after a flood event, disruption to essential services and critical infrastructure, such as emergency services, hospitals, roads, railways and electricity power networks, should be minimised. This may require working with other RMAs.
Benefits including multiple/wider benefits	This is essential for the functioning and wellbeing of the residents of Flintshire County.
Indicative timescale	Medium term
Indicative cost	Medium cost
Funding options	Revenue
Delivery partners	Other RMAs and emergency responders

Measure E-6	Continue to help protect and enhance the natural and historic environment of Flintshire.
Description	FRM schemes should protect and enhance the natural and historic environment of Flintshire.
Benefits including multiple/wider benefits	Preservation of cultural heritage Protect heritage at risk
Indicative timescale	Ongoing
Indicative cost	Existing resource
Funding options	Revenue
Delivery partners	N/A

Measure E-7	Where feasible, promote nature based solutions (NBS) within FCERM projects
Description	NBS to be an important consideration at optioneering stage for all FCERM projects. Wider funding streams will also be explored to identify areas suitable for NBS through collaboration with landowners, the community and other RMAs
Benefits including multiple/wider benefits	Sustainable FRM Promotes biodiversity enhancement Enhance the natural environment and create areas for people to use. Contributes towards the council net-zero carbon target Improved community health and wellbeing Explore opportunities for additional funding streams
Indicative timescale	Medium term
Indicative cost	Very low cost
Funding options	Revenue Small Scale grant schemes (Welsh Government) Capital Funding (Welsh Government) External Funding Streams
Delivery partners	TBC

Measure E-8	Promote catchment wide approaches to flood risk management where appropriate.
Description	FCC to utilise a catchment based approach for assessing local flood risk, which seeks to provide a more collaborate approach to managing flood risk
Benefits including multiple/wider benefits	Holistic and integrated FRM solutions Promotes collaborative working Better understadning of flood mechanisms, which is not constrained by administratve boundaries Cost-effective
Indicative timescale	Long term
Indicative cost	Existing Resources
Funding options	Revenue
Delivery partners	Other LLFAs and RMAs

Measure E-9	Develop staff expertise to deliver the requirements of Flood Risk Management in Flintshire
Description	FCC will promote and facilitate training opportunities for staff, and ensure succession planning is incorporated into future planning. Skills audits will be conducted to assess current staff capabilities and identify areas for development.
Benefits including multiple/wider benefits	Improved knowldege and understaning of FRM Staff retention Informed decision-making Improved collaboration with community
Indicative timescale	Medium term
Indicative cost	Low cost
Funding options	Revenue
Delivery partners	TBC

Measure E-10	Invest in appropriate software and hardware.
Description	Ensure FCC have correct software and hardware to undertake statutory and non-statutory FRM functions
Benefits including multiple/wider benefits	Efficiency Clear understanding of roles and responsibilities Reduced flood risk Improved project execution
Indicative timescale	Ongoing
Indicative cost	Low cost
Funding options	Revenue funding
Delivery partners	N/A

Measure E-11	Outsource specialist skills to deliver specific projects.
Description	Engage with external experts and/or firms with specialist knowledge and expertise to carry out certain aspects of FRM projects.
Benefits including multiple/wider benefits	Access to expertise Enhanced capacity Improved information Improved project execution
Indicative timescale	Ongoing / Short term
Indicative cost	Medium cost
Funding options	Revenue funding
Delivery partners	TBC

Measure E-12	Ensure there is effective co-ordination between FCC departments and with other organisations.
Description	There should be effective co-ordination between FCC departments in terms of flood management and with other RMAs.
Benefits including multiple/wider benefits	Explore opportunities for additional funding streams Multiple benefit proposals Value for money Collaboration opportunities
Indicative timescale	Ongoing
Indicative cost	Existing Resources
Funding options	Revenue
Delivery partners	Other RMAs eg NRW & DCWW.

9. Flood Actions

9.1 Flintshire Flood Action Plan

The Flood Action Plan details actions at a range of scales; across Flintshire, within Catchment Areas and at the community level (as detailed in Section 6.2).

The Flood Action Plan is included in Appendix A.

10. Environmental Assessments

Assessments have been undertaken alongside the development of this Local Strategy to ensure the Objectives, Measures and Actions presented take into account the environment within the local authority area, including important designations.

The NRW Environmental assessment website provides advice for SEAs and HRAs.

Note: the SEA and HRA reporting is required at the consultation phase for the Local Strategy. The SEA requires consultation, which should happen at the same time as the Local Strategy.

10.1 Strategic Environmental Assessment (SEA)

A Strategic Environmental Assessment (SEA) is a way of assessing and monitoring the likely effects (positive and negative) of plans, programmes and strategies on the environment. It applies at the level of the plan or strategy (i.e. Local Strategy) which sets the direction for future development projects.

An SEA is a legal requirement to accompany a Local Strategy. Such assessments help to enable informed and transparent decision-making for the benefit of plan makers and the wider community in Wales.

The SEA was developed alongside this Local Strategy and is contained within a separate report which is available on the Flintshire County Council wesbite.

10.2 Habitats Regulations Assessment (HRA)

A Habitats Regulations Assessment (HRA) considers the possible harm a project or plan could cause to certain specially protected sites, with the aim of ensuring damage to these sites is avoided.

Due to the potential of this Local Strategy to impact the Natura 2000 network of protected sites, namely Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites, a HRA needs to be undertaken in parallel with the SEA as soon as possible in the process. Named protected sites can be deleted here if not applicable to the Local Authority area.

The full HRA is contained within a separate report which is available on the Flintshire County Council wesbite.

10.3 Water Framework Directive (WFD) Assessment

The Water Framework Directive (WFD) imposes legal requirements to protect and improve the water environment (including our rivers, coasts, estuaries, lakes, ground waters and canals).

River Basin Management Plans describe how the WFD will be achieved, by outlining the actions and measures needed to implement the objectives of the WFD. Flintshire falls into two river basin districts, the Dee River Basin District, which covers the majority of the county and drains over 85% of the county and the Western Wales River Basin District which covers the remaining 15% of the county which is located within the north western corner of the

county. Table 8 demonstrates how the Objectives within this Local Strategy aim to meet the Objectives of the Western Wales and Dee River Basin Management Plans.

Table 8- Compatibility of the Local Strategy Objectives with the Western Wales & Dee Western Wales RBMP Objectives

No.	Local Strategy Objectives	How the Local Strategy Objective meets the RBMP Objectives
1.	Improve understanding of local flood and coastal risks.	Improves our knowledge and understanding of local flood risk across Flintshire, considering the impacts of climate change. This also allows the Council to identify ecological areas at greatest risk and prioritise measures to address known risks.
2.	Improve communication of risk and to increase preparedness and resilience.	Provides opportunity to communicate the effects on and protection of the water environment.
3.	Collaborate with other RMAs, stakeholders and the public to reduce flood and coastal risk.	Provides opportunity to work with a range of partners including residents, businesses, landowners to enhance the natural environment including aquatic ecosystems.
4.	Reduce exposure to risk and to manage the impacts and consequences of flooding and coastal erosion to individuals, communities and businesses in Flintshire.	This also benefits the natural environmet as reduced flooding minimises contaminated flows, which in turn supports achiveing a good overall status of waterbodies
5.	Consider the contribution flood risk management can make to providing multiple benefits.	Provides pportunities to protect, restore, and mimic the natural functions of catchments. This includes implementing nature based solutions, promoting green infrastructure, sustainable land management techniques and adopting a catchment-based approach to flood risk management.
6.	Develop a prioritised investment programme based on the most at risk communities.	Investment should prioritise solutions that provide multiple benefits including enhanced aquatic environments as well as reduced flood risk.
7.	Ensure the development of skills required to implement effective and innovative flood risk management measures.	Enhancing staff skills will contribute to more effective FRM schemes with increased enviornmental awareness.
8.	Ensure information relating local flood risk is used to inform planning decisions.	Planning decisions and policy should consider environmental stewardship and sustainability as well as reduced flood risk.

11. Monitoring Progress

This second Strategy will continue to provide the framework for FCC's delivery of its flood risk management responsibilities and aspirations.

The Strategy will be reviewed in 6 years, or in the event of any major legslative change. The Flood Action Plan is appended to the Strategy and is a "living document". It will continue to develop as new information, expertise and resources influence the delivery of the measuresand actions. The Strategy will be reviewed on a regular basis to monitor progression on the implementation.

The Strategy should be reviewed in conjunction with the next review of the National Strategy and the Action Plans within this Strategy should be updated every year.

Appendix A Our Flood Action Plan

Appendix B Legislative Context

The information and links below give the legislative context for this Local Flood Risk Management Strategy.

Flood and Water Management Act 2010

Flood and Water Management Act 2010 (legislation.gov.uk)

Following Royal assent in April 2010 the Flood & Water Management Bill became an Act of Parliament. The Act reinforced the need to manage flooding in a holistic and sustainable manner and placed a number of new roles and responsibilities on councils such as Anglesey, which is designated as a Local Lead Flood Authority under the FWMA extending their previous responsibilities for flood risk management. The preparation of this second LFRMS is just one of the duties placed upon IoACC under this piece of legislation.

There are two key drivers behind the new legislation; one being the review into the summer 2007 floods by Sir Michael Pitt, most often referred to as the Pitt Review. The other key driver behind the Act is the EU Floods Directive which has been transposed into UK law by the Flood Risk Regulations, 2009 (revoked under the Retained EU Law Act). Both of which are summarised in the following sections:

The Pitt Review

Sir Michael Pitt carried out an independent review of national Flood and Coastal Erosion Risk Management practices after the widespread and catastrophic floods during the summer of 2007, in which over 55,000 households were affected and damages exceeded £4 billion[10]. The Pitt Review was published in June 2008 and called for urgent and fundamental changes to the way flood risk was being managed. The report contained 92 recommendations for the Government, Local Authorities, Local Resilience Forums and other stakeholders which were based around the concept of Local Authorities playing a major role in the management of local flood risk, through coordinating with all relevant authorities. Many of the recommendations contained in the Pitt Review have been enacted through the Flood and Water Management Act.

Flood Risk Regulations 2009

These have been revoked under the Retained EU Law Act.

The Flood Risk Regulations 2009 (legislation.gov.uk)

The Flood Risk Regulations (FRR) came into force in December 2009 and transpose the EU Floods Directive into law for England and Wales. The Flood Risk Regulations require three main pieces of work:

Preliminary Flood Risk Assessment (PFRA) – This involves collecting information on past and

[10] The Costs of the summer 2007 floods in England – Environment Agency (Project: SC070039/R1) Published January 2010.

future floods from main rivers, reservoirs, the sea, surface water, groundwater and ordinary watercourses, assembling the information into a PFRA report and identifying Indicative Flood Risk Areas. This report should be reviewed on a 6 yearly basis.

Western Wales River Basin District PFRA (2018)

Dee River Basin District PFRA (2018)

Flood Hazard and Flood Risk Maps – Any authorities identifying an Indicative Flood Risk Area are required to produce hazard and risk maps for those areas on a 6 yearly cycle.

Flood Risk Management Plans – The final stage is for authorities with an Indicative Flood Risk Area to produce a Flood Risk Management Plan and to review this on a 6 yearly basis.

One Flood Risk Area was identified within Flintshire, including the communities of Queensferry-Sandycroft-Manor Lane; Lache; Garden City and Deeside Ind Est; and Connah's Quay and Shotton.

Flood Risk Areas termed in the PFRA have been defined by Welsh Government guidance as an affected population greater than 5,000 people at risk.

Flood Risk Management is affected by a range of other legislation, including (but not limtied to) the following:

- Land Drainage Act 1991

  Land Drainage Act 1991 (legislation.gov.uk)
- Coast Protection Act 1949

  Coast Protection Act 1949 (legislation.gov.uk)
- Water Framework Directive 2000

  Water Framework Directive (europa.eu)
- Environment (Wales) Act 2016

  Environment (Wales) Act 2016 (legislation.gov.uk)
- Wellbeing of Future Generations (Wales) Act 2015
- Well-being of Future Generations (Wales) Act 2015 – The Future Generations Commissioner for Wales.
- Planning (Wales) Act 2015

  Planning (Wales) Act 2015 (legislation.gov.uk)
- The Civil Contingencies Act 2004

  Civil Contingencies Act 2004 (legislation.gov.uk)
- The Climate Change Act 2008

  Climate Change Act 2008 (legislation.gov.uk)
- The Strategic Environmental Assessment (SEA) Directive 2001

  Strategic environmental assessment (europa.eu)
- The Conservation of Habitats and Species Regulations 2017 (www.legislation.gov.uk)

- The Wildlife and Countryside Act 1981

  Wildlife and Countryside Act 1981 (legislation.gov.uk)
- Countryside and Rights of Way Act 2000

  Countryside and Rights of Way Act 2000 (legislation.gov.uk)
- Natural Environment and Rural Communities Act 2006

  Natural Environment and Rural Communities Act 2006 (legislation.gov.uk)
- Public Health Act 1936

  Public Health Act 1936 (legislation.gov.uk)
- Highways Act 1980

  Highways Act 1980 (legislation.gov.uk)

Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 – requirement for a Strategic Environmental Assessment (SEA)

A Strategic Environmental Assessment (SEA) is an approach used to ensure environmental issues are assessed and integrated at the earliest opportunity in the decision making process when developing this Local Strategy.

It is a legal requirement in the UK for certain plans and programmes stipulated by the SEA Directive (2001/42/EC), to undergo Strategic Environmental Assessment (SEA). The SEA Directive is implemented in Wales by the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004.

As the Local Strategy is a 'statutory plan', a Strategic Environmental Assessment is needed, which will appraise the potential environmental impacts of the Local Flood Risk Management Strategy and its objectives, prior to its approval and formal adoption.

The purpose of Strategic Environmental Assessment is to provide for a high level of protection of the environment, by ensuring the integration of environmental considerations into the preparation of the Local Strategy and to contribute to the promotion of sustainable development and environmental protection.

Conservation of Habitats and Species Regulations 2017 – requirement for a Habitats Regulations Assessment (HRA)

In Wales, the Conservation of Habitats and Species Regulations (SI 1012, 2017), often known as the Habitats Regulations, implements the EU Habitats Directive (Directive (92/43/EEC) on the Conservation of natural habitats and of wild flora and fauna) and certain elements of the Birds Directive (2009/147/EC). This legislation provides the legal framework for the protection of habitats and species of European importance in Wales and England. Regulation 9(5) of the Habitats Regulations requires that a competent authority must consider the requirements of Habitats Directive in exercising any of its functions. Article 6(3) of the Habitats Directive defines the requirements for assessment of plans and projects potentially affecting European sites.

Measures to address specific flood risk identified during the implementation of this Strategy may also require separate Habitats Regulations Assessment, depending on the measure proposed.

Appendix C RMA Functions

Responsibilities of Natural Resources Wales (NRW)

Natural Resources Wales (NRW) leads on the management of the risks of flooding from main rivers and the sea. However, in recognition of the links between coastal flooding and coastal erosion, particularly in terms of consequences, and as an objective of the FWMA, NRW has operational responsibilities in relation to coastal erosion as well as operational responsibilities for flooding from rivers and the sea. NRW also has a wider oversight role for all flood and coastal erosion risk management in Wales. As part of their oversight role the NRW lead on the provision of technical advice and support to the other Risk Management Authorities. They are the single point of contact for enquiries and information on flood risk.

The Flood and Water Management Act 2010 places a number of statutory duties on NRW including:

- Reporting to the Minister on flood and coastal erosion risk in Wales including the application of the National Strategy; and
- The establishment of Regional Flood and Coastal Committees.

NRW is the sole Risk Management Authority charged with monitoring and reporting on the National Strategy's implementation. In undertaking this role they will:

- Collect data on progress from Risk Management Authorities using existing avenues wherever possible;
- Report factual information to Welsh Government; and
- As requested, provide interpretive advice to the Welsh Government.

It will be for the Welsh Government to determine what, if any, action should be taken if the reports from NRW suggest the National Strategy is not being implemented or that actions being taken are increasing levels of risk.

In addition to their statutory duties, NRW has a number of what are called permissive powers. These are powers that allow them to do something, but do not compel them to and include:

- Powers to request information;
- The ability to raise levies for local flood risk management works, via the Regional Flood and Coastal Committees;
- Powers to designate certain structures or features that affect flood or coastal erosion risk;
- The expansion of powers to undertake works to include broader risk management actions; and
- The ability to cause flooding or coastal erosion under certain conditions.

This allocation of responsibilities is also consistent with the NRW's role in relation to the Flood Risk Regulations 2009 (revoked under the Retained EU Law Act), which allocates specific responsibility for conducting assessments in relation to mapping the risks of flooding from main rivers, the sea and reservoirs, as well as providing guidance to Local Authorities on these matters for flooding from other sources.

Under the Regulations NRW also carries out an assessment and coordination role at a national level.

Coastal Erosion Risk Management Authority

NRW is a coastal erosion risk management authority with the power to protect land against coastal erosion and to control third party activities on the coast. This includes the construction of private defences or the removal of beach material. Since October 2011 Lead Local Flood Authorities have required NRW approval to undertake coastal protection works.

Emergency Planning

NRW contributes to the development of multi-agency flood plans, which are developed by Local Resilience Forums (LRFs) to help the organisations involved in responding to a flood to work better together. They also contribute to the Wales Flood Response Framework (Wales) which explains the generic response to flooding in Wales.

They are responsible for providing advice to planning authorities in development and flood risk; providing fluvial and coastal flood warnings; monitoring flood and coastal erosion risks and supporting emergency responders when floods occur.

They work with the Met Office to provide forecasts and warnings of flooding from rivers and the sea in England and Wales.

NRW and other asset operating authorities also have a role in proactive operational management of their assets and systems to reduce risk during a flood incident.

Main Rivers

Main rivers are a statutory type of watercourse. A main river is defined as a watercourse marked as such on a main river map designated by Defra (Under the Water Resources Act 1991), and can include any structure or appliance for controlling or regulating the flow of water in, into or out of a main river. NRW has powers to carry out flood defence works apply to main rivers only. The overall responsibility for maintenance of Main Rivers, however, lies with the riparian owner.

NRW can also bring forward flood defence schemes through the Regional Flood and Coastal Committees, and it will work with Lead Local Flood Authorities and local communities to shape schemes which respond to local priorities.

Coastal Flooding

NRW is the lead organisation responsible for all flood and erosion risk management around the coastline of Wales, including tidal flood risk. NRW leads the country in developing a coastal management plan that works at local, regional and national level, with partner organisations, including local authorities, putting agreed plans into practical action.

NRW also has a regulatory role in consenting works carried out by others in, or adjacent to water courses and sea/tidal defences to ensure that they have regard to flood risk and do not cause unnecessary environmental damage or impacts.

Reservoirs

NRW enforces the Reservoirs Act 1975, which is the safety legislation for reservoirs in the United Kingdom. NRW is responsible as the Enforcement Authority for reservoirs that have a storage capacity greater than 10,000m³ (above the natural level of the surrounding land).

As the Enforcement Authority NRW are responsible for:

- Maintaining a register of reservoirs, and making this information available to the public;
- Ensuring that reservoirs are designed and constructed using the correct design standards;
- Ensuring that the owner (undertaker) has appointed an engineer to inspect the reservoir periodically;
- Ensuring that the owner commissions regular inspections of the reservoir by an inspecting engineer;
- Ensuring that the owner carries out essential works required in the 'interests of safety' as soon as practicable under the supervision of a qualified civil engineer (from an inspecting engineer panel);
- Influencing, warning, cautioning and ultimately prosecuting non-compliant owners;
- Commissioning construction engineers, supervising engineers, inspecting engineers and essential works required in the 'interests of safety' in the event of non-compliance and recouping costs incurred from the owner;
- Producing a biennial report about our enforcement and operational activities to the Department for Environment, Food and Rural Affairs (Defra) and to the Welsh Government; and
- Acting in an emergency if the owner fails to take appropriate action.

NRW has produced reservoir flood maps which show the effects on the downstream catchment of a dam breach for approximately 2000 large raised reservoirs which they regulate under the Reservoirs Act 1975. These have been sent to reservoir owners and the relevant local authorities.

Responsibilities of Dŵr Cymru – Welsh Water and Hafren Dyfrdwy

Dŵr Cymru – Welsh Water (DCWW) and Hafren Dyfrdwy are two companies who serve Flintshire, providing both water supply and wastewater services. DCWW and Hafren Dyfrdwy are responsible not only for the provision of water, but also for making appropriate arrangements for the drainage of foul water, the treatment of waste, surface water sewers and combined sewers. They have primary responsibility for floods from water and sewerage systems, which can include sewer flooding, burst pipes or water mains or floods causes by system failures.

The Flood and Water Management Act 2010 places a number of statutory duties on water and sewerage companies including:

- A duty to act consistently with the National Strategy;
- A duty to have regard to the content of the relevant Local Strategy; and
- A duty to co-operate with other relevant authorities in the exercise of their flood and coastal erosion risk management functions.

Water and sewerage companies often hold valuable information which could greatly aid the understanding of flood risks faced by communities across Wales.

Water and sewage companies have the following responsibilities around flood risk management:

- Respond to flooding incidents involving their assets;
- Produce reports of the flood incidents;
- Maintenance of a register of properties at risk of flooding due to a hydraulic overload in the sewerage network (DG5 register)
- Undertake capacity improvements to alleviate sewer flooding problems on the DG5 register;
- Provide, maintain and operate systems of public sewers and works for the purpose of effectually draining an area;
- May be subject to scrutiny from lead local flood authorities' democratic processes;
- Have a duty for the adoption of private sewers; and
- Statutory consultee to the SAB when the drainage system is proposed to communicate with the public sewer.

Reducing Sewer Flooding

DCWW and Hafren Dyfrdwy are responsible for flooding from their foul and surface water sewers, and from burst water mains.

When sewage escapes from a pipe, through a manhole, drain or by backing up in the toilet this is known as sewage flooding. Sewage flooding can be caused by; blockages in the sewer pipe caused by root growth, a collapse or misuse, or vandalism; equipment failure, for example the pumps at a pumping station not operating due to electrical or other problems; and when the sewer is overloaded either because it is too small to deal with the amount of sewage in it (possibly because of increased development in the area) or during storm conditions when too much rainwater from roads and fields ends up in the sewer. The cause may be some distance away from where the flooding happens.

The majority of flooding is reported into the DCWW call centre on 0800 085 3968 or the Hafren Dyfrdwy call centre on 0800 085 8033 (the lines are open 24 hours a day, 7 days a week). The call centre agent will check that the flooding incident involves their assets. If it does not they will redirect the call if necessary. If assets are identified a job is raised and dispatched to field teams. The advisors will tell you when you can expect the field team to arrive at your property. This will usually be within 3 hours. An initial clean up will be undertaken and they will return later if necessary. Priority is given to frequent internal flooding problems where a cost beneficial and sustainable solution is available.

If flooding is present or evidence of flooding present details will be recorded on the 'DG5 Form' and investigated as appropriate which may lead to recording on the DG5 Register. The DG5 register is a register of properties and areas that have suffered or are likely to suffer flooding from public foul, combined or surface water sewers due to overloading of the sewerage system. Investment in the alleviation of sewer flooding is closely allied to the DG5 register.

System of Public Sewers and Works

An essential flood risk management duty is defined under Section 94 of the Water Industry Act 1991, which states that Water and Sewerage Companies have a duty to provide, maintain and operate systems of public sewers and works for the purpose of effectually draining their area. They also have a duty under the same Act relating to premises for 'domestic sewerage purposes'. In terms of wastewater this is taken to mean the ordinary contents of lavatories and water which has been used for bathing, washing and cooking purposes and for surface water removal from yards and roofs. However, there is no legal duty or responsibility relating to highway drainage, land drainage and watercourses, with the exception that Water and Sewerage Companies can accept highway drainage by agreement with a highway authority.

Since the commencement of Section 16 of Schedule 3 of the FWMA 2010, connection to a public sewer is only permitted only after the drainage Strategy associated with a new development is approved by the SuDS Approving Body (to which DCWW and Hafren Dyfrdwy are statutory consultees). This will only apply to surface water; the 'right to connect' will still apply to foul water.

Reservoir Undertaker

DCWW and Hafren Dyfrdwy own reservoirs in Wales and as such they are responsible for their maintenance as reservoir undertakers. All undertakers with reservoirs over 10,000 m^3 (above the natural level of the surrounding land) must register their reservoirs with NRW as they are subject to regulation and all undertakers must report any flood incidents.

North and Mid Wales Trunk Road Agent (NMWTRA)

NMWTRA is responsible for managing, maintaining and improving the strategic road network in Flintshire on behalf of the Welsh Government.

Appendix D Public Consultation Outcomes

Appendix E Glossary of Terms used within this Local Strategy

Term	Definition
Act	A Bill approved by both the House of Commons and the House of Lords and formally agreed to by the reigning monarch (known as Royal Assent).
Asset Register	Register of structures or features which are considered to have an effect on flood risk.
Bill	A proposal for a new law or a proposal to change an existing law that is presented for debate before Parliament.
Biodiversity	Biological diversity. The variety of all living things in a particular area, including plants, animals, bacteria, and fungi.
Catchment	An area that serves a river with rainwater; that is, every part of land where the rainfall drains to a single watercourse is in the same catchment.
Climate Change	The change in average conditions of the atmosphere near the Earth's surface over a long period of time.
Coastal Erosion	The wearing away of coastline, usually by wind and/or wave action.
Coastal Erosion Risk	Measures the significance of potential coastal erosion in terms of likelihood and impact.
Coastal Erosion Risk Management	Anything done for the purpose of analysing, assessing and reducing a risk of the wearing away of coastline.
Coastal Flooding	Occurs when coastal defences are unable to contain the normal predicted high tides that can cause flooding, possibly when a high tide combines with a storm surge (created by high winds or very low atmospheric pressure).
Coastal Squeeze	Where the coast is protected by engineering structures, the rising sea level results in a steepening of the intertidal profile, known as coastal squeeze.
Consenting	Process of obtaining permission to add/amend structures in/near a watercourse or flood defence structure.
CaRR	Communities at Risk Register.
Critical National Infrastructure	Infrastructure that supplies essential services, e.g. water, energy, communications, transport etc.

Term	Definition
Culvert	A covered structure under road, embankment etc, to direct the flow of water.
Defences	A structure that is used to reduce the probability of floodwater or coastal erosion affecting a particular area.
Defra	Department for Environment, Food and Rural Affairs.
Deposition	The process whereby sediment is placed on the sea bed, shoreline, river bed or flood plain.
DCWW	Dŵr Cymru Welsh Water – supplies water, sewerage and trade effluent services in Wales.
FCC	Flintshire County Council
FCERM	Flood & Coastal Erosion Risk Management.
FIR	Flood Investigation Report.
Flood	Any case where land not normally covered with water becomes covered by water.
Flood Risk	Product of the probability of flooding occurring and the consequences when flooding happens.
Flood Risk Management	The activity of understanding the probability and consequences of flooding, and seeking to modify these factors to reduce flood risk to people, property and the environment. This should take account of other water level management and environmental requirements, and opportunities and constraints
Flood Risk Regulations 2009	*These have been revoked under the Retained EU Law Act.* Regulations which transpose the EC Floods Directive (Directive 2007/60/EC on the assessment and management of flood risks) into domestic law and to implement its provisions.
Flood Warnings	A free NRW service that provides flood warnings direct to you by phone call, text or email. It is necessary to sign up to this service.
FWMA	Flood and Water Management Act 2010 - An Act of Parliament updating and amending legislation to address the threat of flooding and water scarcity, both of which are predicted to increase with climate change.
Fluvial Flooding	Flooding from rivers including ordinary watercourses and main rivers.
Groundwater	Water held underground in the soil or in pores and crevices in rock.

Term	Definition
Groundwater Flooding	Occurs when water levels in the ground rise above the natural surface. Low lying areas underlain by permeable strata are particularly susceptible.
Hafren Dyfrdwy	Supplies water, sewerage and trade effluent services in Flintshire.
HRA	Habitat Regulations Assessment. Considers the possible harm a project or plan could cause to certain specially protected sites, with the aim of ensuring damage to these sites is avoided.
LDP	Local Development Plan.
Local Flood Risk	Defined within the Flood and Water Management Act 2010 as including surface runoff, groundwater and ordinary watercourses.
LFRMS	Local Flood Risk Management Strategy - Required in relation to Wales by Section 10 of the Flood and Water Management Act 2010 Local; Flood Risk Strategies are to be prepared by Lead Local Flood Authorities and must set out how they will manage local flood risks within their areas.
LLFA	Lead Local Flood Authority - the County Council or the County Borough Council for the area (Local Authority).
LRF	Local Resilience Forum - A group required under the Civil Contingencies Act, 2004 who are responsible for the coordination of emergency planning in local areas.
Main River	A watercourse shown as such on the Main River Map, and for which NRW has responsibilities and powers.
National Flood Forum	A charity to help, support and represent people at risk of flooding.
Net Zero	The amount of greenhouse gases (eg. carbon dioxide) added to the atmosphere is not more than is removed.
NFM	Natural Flood Management. A range of interventions to restore or mimic the natural functions of rivers and their catchments. Aims to store water and slow the flow of water, reducing flood risk downstream.
NRW	Natural Resources Wales (NRW) is the largest Welsh Government Sponsored Body. Its core purpose the sustainable management of natural resources in Wales.
NWRF	North Wales Resilience Forum – made up of strategic level managers of each of the Category 1 responders (Local Authority, Emergency Services, and Local Health Boards) to ensure that there is an appropriate level of preparedness to enable an effective multi-agency response to an emergency.

Term	Definition
Ordinary Watercourse	All watercourses that are not designated Main River, and which are the responsibility of riparian landowners.
PFRA	Preliminary Flood Risk Assessment.
Recovery	The process of rebuilding, restoring and rehabilitating the community following an emergency.
Reservoir	An artificial lake where water is collected and stored until needed. Reservoirs can be used for irrigation, recreation, providing water for municipal needs, hydroelectric power or controlling water flow.
Resilience	The ability of the community, services, area or infrastructure to avoid being flooded, lost to erosion or to withstand the consequences of flooding or erosion taking place.
Risk	Measures the significance of a potential event in terms of likelihood and impact. In the context of the Civil Contingencies Act 2004, the events in question are emergencies.
Risk Assessment	A structured and auditable process of identifying potential significant events, assessing their likelihood and impacts and then combining these to provide an overall assessment of risk to inform further decisions and actions.
Risk Management	Anything done for the purpose of analysing, assessing and reducing a risk.
RMA	Risk Management Authority - A Welsh risk management authority is defined in Section 6 of the Flood and Water Management Act 2010 as NRW, a Lead Local Flood Authority, a district council for an area for which there is no unitary authority, an IDB for an internal drainage district that is wholly or mainly in Wales and a water company that exercises functions in relation to an area in Wales.
Risk Management Schemes	A range of actions to reduce flood frequency and/or the consequences of flooding to acceptable or agreed levels.
Riparian	Relating to or located on the banks of a watercourse.
River flooding	Occurs when water levels in a channel overwhelms the capacity of the channel.
Royal Assent	Method by which the constitutional monarch formally approves an act of parliament.
Senedd Cymru	Welsh Parliament
Sewer	An artificial conduit, usually underground, for carrying off sewage (foul sewer) or rainwater (storm or surface water sewer) or both (combined sewer).

Term	Definition
SMP	Shoreline Management Plans - A large-scale assessment of the risks associated with coastal processes and helps reduce these risks to people and the developed, historic and natural environments.
SEA	Strategic Environmental Assessment. An SEA is a system of incorporating environmental considerations into policies, plans, programmes and strategies.
SFRA	Strategic Flood Risk Assessment.
SuDS	Sustainable Drainage Systems - Approach to surface water management which helps to deal with excesses of water by mimicking natural drainage processes and patterns.
Surface Water Flooding	In the urban context, usually means that surface water runoff rates exceed the capacity of drainage systems to remove it. In the rural context, it is where surface water runoff floods something or someone. This includes Pluvial Flooding.
Surface Water Runoff	This occurs when the rate of rainfall exceeds the rate that water can infiltrate the round or soil and flows over ground.
SAB	SuDS Approval Body.
TAN 14: Coastal Planning	Technical Advice Note 14 supports Planning Policy Wales and covers all aspects of planning for new development and the coastal zone.
TAN 15: Development & Flood Risk	Technical Advice Note 15 supports Planning Policy Wales and makes it clear how local authorities should make decisions about different types of development on flood plains, providing clear tests for justification and acceptability of flooding consequences, and enabling the consideration of risks over the lifetime of the new development.
Watercourse	A channel natural or otherwise along which water flows.
Water Company	A company which holds an appointment under Chapter 1 of Part 2 of the Water industry Act 1991 or a licence under Chapter 1A of Part 2 of that Act.
Water Framework Directive	The Water Framework Directive (WFD) imposes legal requirements to protect and improve the water environment (including our rivers, coasts, estuaries, lakes, ground waters and canals).
WG	Welsh Government.
WLGA	Welsh Local Government Association - Represents the interests of Local Authorities in Wales. The three fire and rescue authorities, four police authorities and three national park authorities are associate members.
Welsh Risk Management Authorities	Risk Management Authorities as defined in Section 27 of the Flood and Water Management Act 2010.

Appendix F FRMP Outputs

Receptors at Risk - Flood Risk from the Sea

Risk Receptor	High Risk (chance of flooding greater than 1 in 30 each year)	Medium Risk (chance of flooding between 1 in 30 and 1 in 200 each year)	Low Risk (chance of flooding between 1 in 200 and 1 in 1000 each year)
Residential properties at risk of internal flooding (depth >0.2m)	4	133	6834
Non-residential Properties (n)	1274	136	114
Essential Services (n)	162	12	16
Primary/Trunk Roads (km)	29.6	5.1	4.8
Minor roads (km)	164.8	16.9	13.2
Main Line Railways (km)	18.8	3.5	3.9
Agricultural Land - Grades 1, 2 and 3 (ha)	3257.9	64.8	57.0
Special Areas of Conservation (SAC) (ha)	6225.1	493.6	493.1
Special Protection Areas (SPA) (ha)	6487.5	20.0	14.4
Ramsar Sites (ha)	6449.4	20.0	16.9
Sites of Special Scientific Interest (SSSI) (ha)	6542.1	20.2	14.5
Registered Parks and Gardens (ha)	4.0	0.5	0.6
Scheduled Ancient Monuments (SAM) (ha)	0.7	0.1	0.4

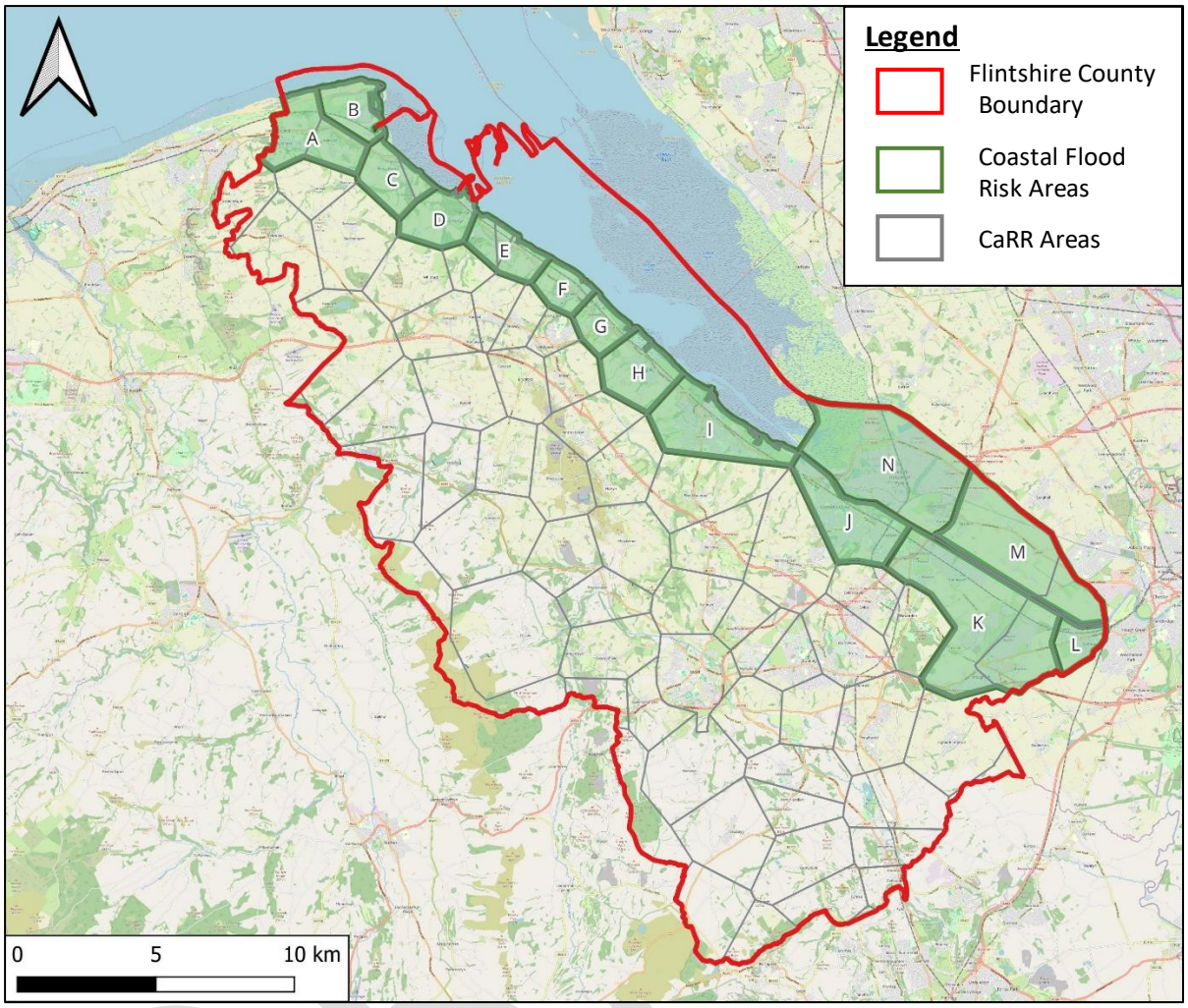
Receptors at Risk - Flood Risk from Rivers

Risk Receptor	High Risk (chance of flooding greater than 1 in 30 each year)	Medium Risk (chance of flooding between 1 in 30 and 1 in 100 each year)	Low Risk (chance of flooding between 1 in 100 and 1 in 1000 each year)
Residential properties at risk of internal flooding (depth >0.2m)	269	218	437
Non-residential Properties (n)	112	62	384
Essential Services (n)	12	10	53
Primary/Trunk Roads (km)	5.9	3.9	11.0
Minor roads (km)	27.4	21.0	70.1
Main Line Railways (km)	0.2	0.1	5.3
Agricultural Land - Grades 1, 2 and 3 (ha)	1136.4	859.4	748.1
Special Areas of Conservation (SAC) (ha)	833.7	89.1	135.5
Special Protection Areas (SPA) (ha)	714.5	76.0	130.3
Ramsar Sites (ha)	708.9	76.0	128.3
Sites of Special Scientific Interest (SSSI) (ha)	840.8	92.1	143.3
Registered Parks and Gardens (ha)	21.1	3.4	10.3
Scheduled Ancient Monuments (SAM) (ha)	3.2	0.5	0.7

Receptors at Risk - Flood Risk from Surface Water and Small Watercourses

Risk Receptor	High Risk (chance of flooding greater than 1 in 30 each year)	Medium Risk (chance of flooding between 1 in 30 and 1 in 100 each year)	Low Risk (chance of flooding between 1 in 100 and 1 in 1000 each year)
Residential properties at risk of internal flooding (depth >0.2m)	170	92	449
Non-residential Properties (n)	165	123	339
Essential Services (n)	40	16	57
Primary/Trunk Roads (km)	11.2	7.6	20.2
Minor roads (km)	42.7	26.9	76.5
Main Line Railways (km)	2.6	1.0	2.4
Agricultural Land - Grades 1, 2 and 3 (ha)	434.4	198.9	534.4
Special Areas of Conservation (SAC) (ha)	78.1	69.4	189.2
Special Protection Areas (SPA) (ha)	81.3	77.1	209.4
Ramsar Sites (ha)	81.3	77.1	209.4
Sites of Special Scientific Interest (SSSI) (ha)	103.8	84.3	228.1
Registered Parks and Gardens (ha)	22.1	9.4	20.7
Scheduled Ancient Monuments (SAM) (ha)	1.4	0.5	1.0

Flood Risk from the Sea



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COMMUNITIES AT RISK REGISTER (CaRR) AREA OUTLINES FROM DATAMAPWALES (2023)
FLINTSHIRE COUNTY BOUNDARY FROM https://geoportal.statistics.gov.uk

Coastal Flood Risk Areas in Flintshire

Coastal Flood Risk Area	**Communities (CaRR)**
A	Gronant Gwespyr
B	Talacre
C	Pen-y-ffordd Ffynnongroyw
D	Mostyn
E	Maes Pennant Glan-y-don Llannerch -y-mor
F	Greenfield
G	Walwen and Whelston
H	Bagillt
I	Flint
J	Connah's Quay and Shotton
K	Queensferry-Sandycroft-Manor Lane Bretton
L	Lache
M	Sealand Sealand Basin Wales
N	Garden City and Deeside Industrial Estate

Risk Receptors at Risk of Flooding from the Sea during the High Risk Event (Coastal Flood Risk Areas)

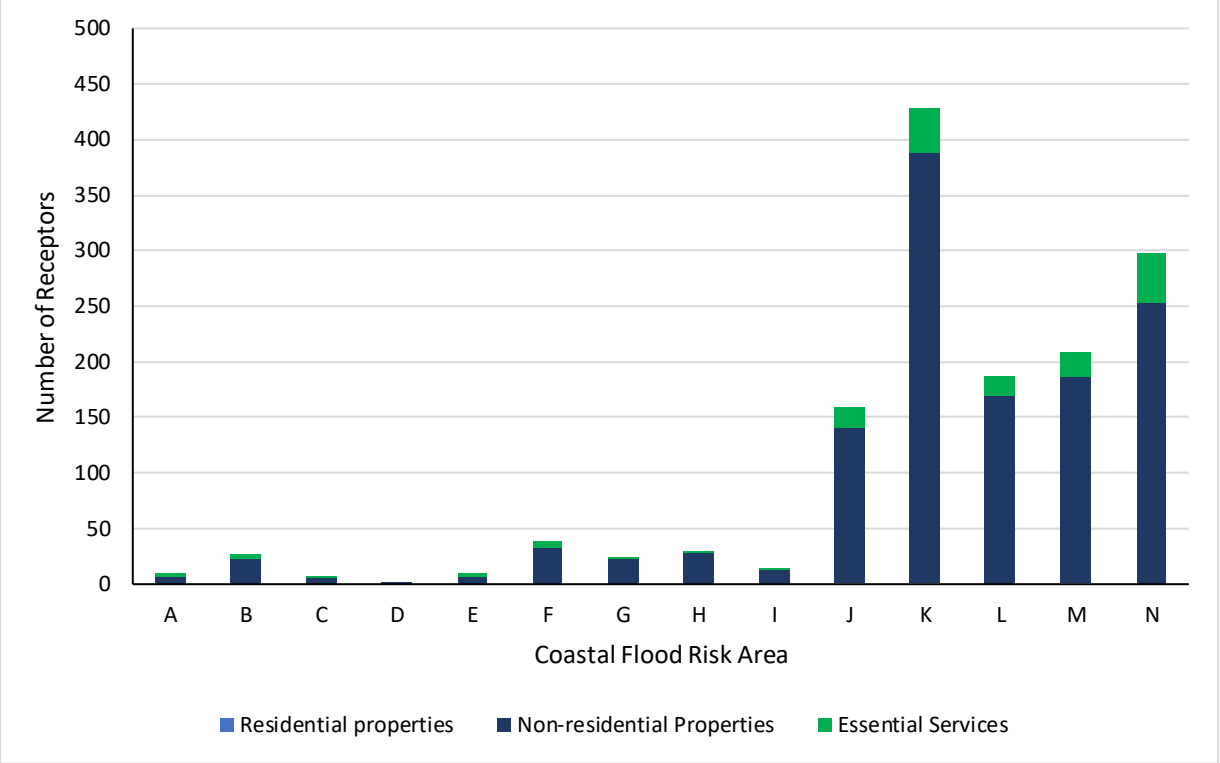
	Coastal Flood Risk Area													
Risk Receptor	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
Residential properties at risk of internal flooding (depth >0.2m)	0	0	0	0	0	0	1	0	0	1	1	0	1	0
Non-residential Properties (n)	7	22	5	1	7	33	22	28	13	140	387	170	186	253
Essential Services (n)	3	5	1	0	3	6	1	1	1	19	41	16	21	44
Primary/Trunk Roads (km)	1.0	0.6	3.1	0.1	1.4	1.1	1.3	0.9	1.8	0.3	2.3	0.2	6.8	8.6
Minor roads (km)	5.9	13.4	1.2	0.8	1.0	2.4	2.3	2.1	1.2	8.0	46.1	15.1	27.6	37.2
Main Line Railways (km)	1.8	1.5	0.1	0.9	1.7	3.2	1.9	0.4	0.6	0.8	5.1	0.6	0	0.1
Agricultural Land - Grades 1, 2 and 3 (ha)	244.1	246.0	53.5	0.005	46.0	73.6	32.3	32.3	24.6	41.1	545.3	111.2	1215.1	590.4
Special Areas of Conservation (SAC) (ha)	197.7	485.0	352.9	653.3	761.3	543.9	675.1	684.8	910.1	64.9	76.0	11.4	17.2	791.5
Special Protection Areas (SPA) (ha)	355.8	628.7	384.2	653.5	763.5	556.1	675.1	706.9	924.5	48.9	0.02	0	0	790.3
Ramsar Sites (ha)	330.2	616.3	384.2	653.5	763.5	556.1	675.1	706.9	924.5	48.9	0.02	0	0	790.3
Sites of Special Scientific Interest (SSSI) (ha)	330.3	616.5	384.2	653.5	760.8	545.5	666.4	706.9	919.9	64.9	76.0	11.4	17.2	788.6
Registered Parks and Gardens (ha)	0.3	0.1	1.03	0.4	0	0	0	0	0	0.03	0.0003	0	0	2.1
Scheduled Ancient Monuments (SAM) (ha)	0	0	0	0	0	0	0	0	0.7	0	0	0	0	0

Risk Receptors at Risk of Flooding from the Sea during the Medium Risk Event (Coastal Flood Risk Areas)

	Coastal Flood Risk Area													
Risk Receptor	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
Residential properties at risk of internal flooding (depth >0.2m)	0	0	0	1	0	0	2	125	5	0	0	0	0	0
Non-residential Properties (n)	7	0	6	0	3	6	8	13	1	19	25	35	4	9
Essential Services (n)	0	0	0	0	0	2	0	0	0	2	3	2	0	3
Primary/Trunk Roads (km)	0.3	0.1	0.16	0.4	1.3	0.5	0.8	0.3	0.1	0.1	0.4	0.3	0.4	0.3
Minor roads (km)	6.0	1.0	0.75	0.2	0.3	0.3	0.3	0.3	0.4	1.1	1.7	0.6	0.1	3.9
Main Line Railways (km)	0.4	0.1	0.34	0.4	0.6	1.0	0.1	0.3	0.3	0.1	0.1	0.1	0	0
Agricultural Land - Grades 1, 2 and 3 (ha)	14.9	6.0	5.3	0.005	2.3	3.1	1.8	2.5	2.0	0.7	11.3	0.4	2.0	12.2
Special Areas of Conservation (SAC) (ha)	4.5	485.0	0.3	0.1	0.1	0.1	0.1	0.1	2.4	0.2	0.03	0.3	0.2	0.5
Special Protection Areas (SPA) (ha)	8.7	5.6	0.52	0.1	0.1	0.2	0.1	1.5	2.5	0.2	0.0001	0	0	0.5
Ramsar Sites (ha)	8.7	5.6	0.52	0.1	0.1	0.1	0.1	1.5	2.5	0.2	0.0001	0	0	0.5
Sites of Special Scientific Interest (SSSI) (ha)	8.7	5.6	0.52	0.1	0.1	0.1	0.1	1.5	2.5	0.2	0.03	0.3	0.2	0.5
Registered Parks and Gardens (ha)	0.1	0.1	0.2	0.1	0	0	0	0	0	0	0	0	0	0.001
Scheduled Ancient Monuments (SAM) (ha)	0	0	0	0	0	0	0	0	0.1	0	0.0002	0	0	0

Risk Receptors at Risk of Flooding from the Sea during the Low Risk Event (Coastal Flood Risk Areas)

	Coastal Flood Risk Area													
Risk Receptor	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
Residential properties at risk of internal flooding (depth >0.2m)	68	173	82	0	60	36	65	2	168	972	1425	2169	467	1147
Non-residential Properties (n)	3	0	6	1	1	7	2	1	3	27	8	38	1	16
Essential Services (n)	0	0	1	0	1	0	0	0	0	2	3	2	1	6
Primary/Trunk Roads (km)	0.4	0.03	0.3	0.2	0.3	0.2	0.4	0.5	0.5	0.2	0.3	0.9	0.3	0.4
Minor roads (km)	3.0	0.6	0.8	0.2	0.1	0.1	0.1	0.2	0.5	1.6	2.5	0.3	0.1	2.9
Main Line Railways (km)	0.3	0.2	1.02	0.3	0.4	0.1	0.1	0.4	0.6	0.2	0.1	0.04	0	0.3
Agricultural Land - Grades 1, 2 and 3 (ha)	9.5	3.7	2.7	0.01	1.1	1.3	1.2	2.3	7.0	1.5	11.3	0.5	2.2	12.0
Special Areas of Conservation (SAC) (ha)	4.2	485.0	0.3	0.1	0.1	0.03	0.1	0.3	2.3	0.3	0.03	0.04	0.02	0.4
Special Protection Areas (SPA) (ha)	5.7	3.1	0.4	0.2	0.1	0.1	0.1	1.6	2.4	0.3	0	0	0	0.4
Ramsar Sites (ha)	5.7	5.6	0.4	0.2	0.1	0.1	0.1	1.6	2.4	0.3	0	0	0	0.4
Sites of Special Scientific Interest (SSSI) (ha)	5.7	3.1	0.4	0.2	0.1	0.1	0.1	1.6	2.4	0.3	0.03	0.04	0.02	0.4
Registered Parks and Gardens (ha)	0.1	0.02	0.4	0.1	0	0	0	0	0	0	0	0	0	0
Scheduled Ancient Monuments (SAM) (ha)	0	0	0	0	0	0	0	0	0.04	0	0.3	0.03	0	0



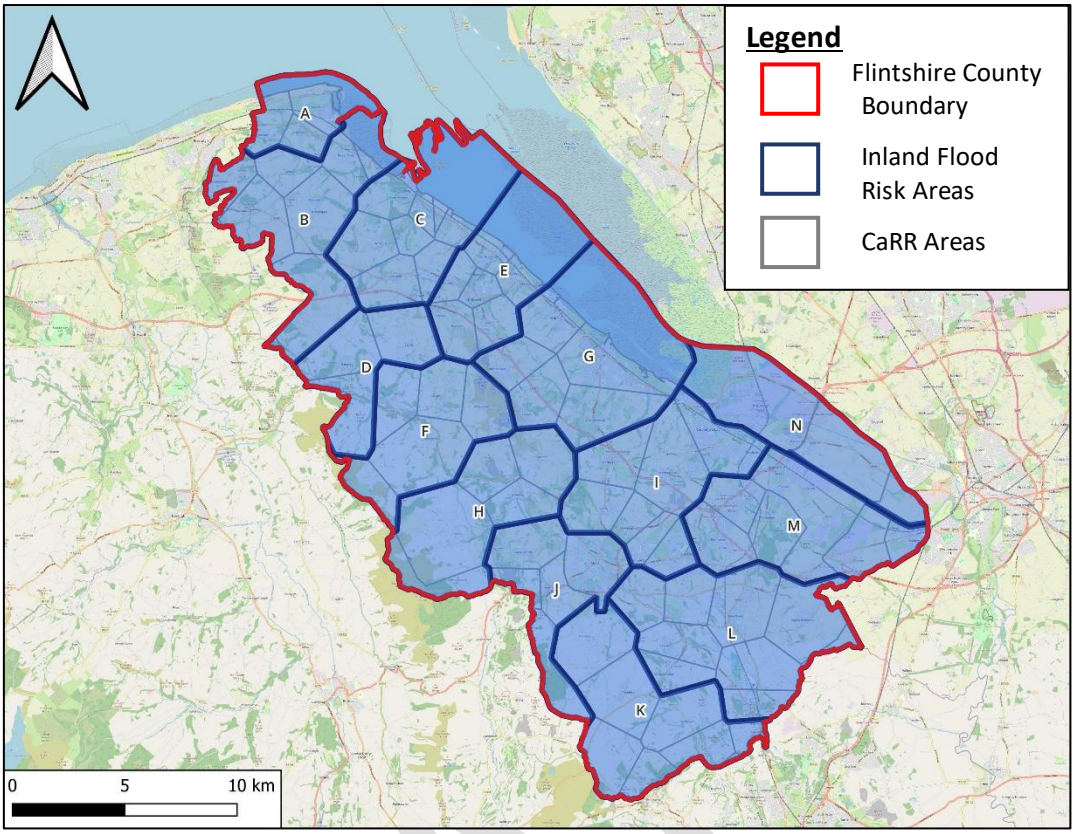
Risk Receptors (Residential Properties, Non-Residential Properties and Essential Services) at Risk of Flooding from the Sea during the High Risk Event (Coastal Flood Risk Areas)

Analysis of Flood Risk from the Sea (Coastal FRAs).

Coastal FRA	Flood Risk	CaRR areas most at risk
B	Moderate number of non-residential properties in the high-risk event Moderate number of residential properties in the high-risk event	Talacre
H	Moderate number of non-residential properties in the high-risk event High number of residential properties in the medium risk event	Bagillt
J	High number of non-residential properties in the high-risk event Moderate number of essential services in the high-risk event High number of residential properties in the low-risk event	Connahs Quay & Shotton

Coastal FRA	Flood Risk	CaRR areas most at risk
K	High number of non-residential properties in the high-risk event High number of essential services in the high-risk event High number of residential properties in the low-risk event	Queensferry-Sandycroft-Manor Lane Queensferry-Sandycroft-Manor Lane
L	High number of non-residential properties in the high-risk event High number of residential properties in the low-risk event	Lache
M	High number of non-residential properties in the high-risk event Moderate number of essential services in the high-risk event High number of residential properties in the low-risk event	Sealand & Sealand Basin Wales Sealand Sealand
N	High number of non-residential properties in the high-risk event High number of essential services in the high-risk event High number of residential properties in the low-risk event	Garden City and Deeside Industrial Estate

Flood Risk from Rivers and Surface Water and Small Watercourses



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COMMUNITIES AT RISK REGISTER (CaRR) AREA OUTLINES FROM DATAMAPWALES (2023)
FLINTSHIRE COUNTY BOUNDARY FROM https://geoportal.statistics.gov.uk

Inland Flood Risk Areas in Flintshire.

Flood Risk Area	Communities (CaRR)
A	Talacre Gwespyr Gronant
B	Pen-y-ffordd Trelogan Llanasa Gwaenysgor Trelawnyd Pen-y-cefn
C	Mostyn Maes Pennant Glan-y-don Llannerch-y-mor Downing Carmel Gorsedd Whitford
D	Babell Caerwys Afon-wen
E	Greenfield Walwen and Whelston Holywell Holway Brynford Milwr
F	Lixwm Ysceifiog Nannerch Rhes-y-cae
G	Bagillt Flint Flint Mountain

Flood Risk Area	Communities (CaRR)
	Halkyn Pentre Halkyn
H	Rhosesmor Rhydymwyn Hendre Cilcain
I	Northop Northop Hall Connah's Quay and Shotton Soughton / Sychdyn New Brighton Mynydd Isa Buckley
J	Gwernaffield Mold / Yr Wyddgrug Gwernymynydd Cadole
K	Nercwys Treuddyn Llanfynydd Rhydtalog Ffrith Cefn-y-bedd
L	Llong Padeswood Penyffordd Leeswood Pontybodkin Hope Higher Kinnerton Caergwrle
M	Drury Ewloe Hawarden

Flood Risk Area	Communities (CaRR)
	Queensferry – Sandycroft - Manor Lane Bretton Lache
N	Garden City and Deeside Industrial Estate Sealand Sealand Basin Wales

Risk Receptors at Risk of Flooding from Rivers during the High Risk Event (Inland Flood Risk Areas)

	Inland Flood Risk Area													
Risk Receptor	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
Residential properties at risk of internal flooding (depth >0.2m)	0	11	0	24	30	13	87	4	0	95	1	1	0	0
Non-residential Properties (n)	0	0	2	0	11	1	31	3	0	9	0	1	6	48
Essential Services (n)	0	0	0	0	0	1	0	0	0	3	0	0	4	4
Primary/Trunk Roads (km)	0	0	0.2	0.2	0.4	0.6	2.4	0.7	0.2	0.1	0.001	0.7	0.1	0.3
Minor roads (km)	0	0.8	0.2	0.8	0.9	0.4	1.1	2.9	0.5	6.7	0.8	0.5	3.4	7.2
Main Line Railways (km)	0.004	0	0.01	0	0	0	0.01	0	0.1	0	0.01	0.02	0.02	0.04
Agricultural Land - Grades 1, 2 and 3 (ha)	14.0	31.6	6.0	18.6	9.1	12.0	25.8	14.7	8.6	48.1	22.7	251.0	119.7	553.8
Special Areas of Conservation (SAC) (ha)	24.8	0.7	0.1	1.1	137.9	0	458.1	5.8	62.4	1.2	0	0	63.1	75.8
Special Protection Areas (SPA) (ha)	26.3	0.9	0.1	0	137.9	0	470.2	0	46.9	0	0	0	0.2	29.4
Ramsar Sites (ha)	26.3	0.9	0.1	0	137.9	0	470.2	0	46.9	0	0	0	0.04	29.4
Sites of Special Scientific Interest (SSSI) (ha)	26.3	1.9	0.1	1.7	137.9	0.1	472.4	6.7	62.5	1.2	0	0	51.5	75.8
Registered Parks and Gardens (ha)	0	2.8	4.4	0	0	0.5	0	0	1.0	0.4	0.01	8.2	3.7	0.1
Scheduled Ancient Monuments (SAM) (ha)	0	0	0	0	0.5	0	0.3	0.6	0.1	1.4	0.1	0.01	0.1	0.0002

Risk Receptors at Risk of Flooding from Rivers during the Medium Risk Event (Inland Flood Risk Areas)

	Inland Flood Risk Area													
Risk Receptor	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
Residential properties at risk of internal flooding (depth >0.2m)	0	1	0	0	46	6	31	14	0	118	0	1	0	0
Non-residential Properties (n)	0	0	0	1	5	0	6	0	0	5	2	1	6	36
Essential Services (n)	0	0	0	0	0	0	2	0	0	1	0	0	3	4
Primary/Trunk Roads (km)	0	0	0.004	0.1	0.1	0.1	0.6	0.2	0.1	0.1	0	0.3	0.004	2.3
Minor roads (km)	0	0.2	0.02	0.2	1.1	0.1	0.4	2.1	0.7	2.5	0.2	1.0	2.5	10.0
Main Line Railways (km)	0	0	0.01	0	0	0	0.1	0	0.01	0	0.001	0.004	0.002	0.002
Agricultural Land - Grades 1, 2 and 3 (ha)	6.6	5.1	0.6	4.1	3.5	1.6	5.7	2.4	3.9	7.1	6.7	35.8	152.9	623.2
Special Areas of Conservation (SAC) (ha)	11.2	0.1	0.01	0.1	4.1	0	53.9	0.6	3.5	0.2	0	0	11.8	3.4
Special Protection Areas (SPA) (ha)	12.2	0.2	0.01	0	4.1	0	55.6	0	3.2	0	0	0	0.01	0.4
Ramsar Sites (ha)	12.2	0.2	0.01	0	4.1	0	55.6	0	3.2	0	0	0	0.002	0.4
Sites of Special Scientific Interest (SSSI) (ha)	12.2	0.3	0.01	0.1	4.1	0.01	55.8	0.7	3.5	0.2	0.01	0	11.7	3.4
Registered Parks and Gardens (ha)	0	0.2	0.4	0	0	0.1	0	0	0.4	0.2	0.002	1.7	0.4	0.05
Scheduled Ancient Monuments (SAM) (ha)	0	0	0	0	0.05	0	0.04	0.1	0.01	0.1	0.1	0	0.01	0

Risk Receptors at Risk of Flooding from Rivers during the Low Risk Event (Inland Flood Risk Areas)

	Inland Flood Risk Area													
Risk Receptor	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
Residential properties at risk of internal flooding (depth >0.2m)	0	7	0	23	18	5	34	8	96	191	0	4	0	0
Non-residential Properties (n)	0	1	0	0	3	0	6	6	11	12	5	9	252	77
Essential Services (n)	0	0	0	0	1	0	1	1	1	3	0	1	32	12
Primary/Trunk Roads (km)	0	0.3	0.05	0.04	0.3	0.3	0.3	0.9	2.4	0.4	0.04	1.1	0.8	3.3
Minor roads (km)	0	0.8	0.04	0.6	1.3	0.3	0.8	1.2	2.4	2.4	0.6	1.3	40.1	18.1
Main Line Railways (km)	0	0	0.01	0	0	0	0.3	0	0.1	0	0.001	0.003	5.0	0.01
Agricultural Land - Grades 1, 2 and 3 (ha)	10.9	12.6	1.3	6.8	3.4	3.6	8.3	5.0	35.3	12.1	8.7	54.8	310.9	271.7
Special Areas of Conservation (SAC) (ha)	22.0	0.04	0.01	0.1	14.9	0	74.8	0.7	8.9	0.2	0	0	9.2	4.5
Special Protection Areas (SPA) (ha)	26.7	2.0	0.01	0	14.9	0	76.9	0	7.7	0	0	0	0.1	1.3
Ramsar Sites (ha)	24.8	2.0	0.01	0	14.9	0	76.9	0	7.7	0	0	0	0.01	1.3
Sites of Special Scientific Interest (SSSI) (ha)	24.8	2.1	0.01	0.1	14.9	0.05	77.2	0.7	8.9	0.2	0.003	0	9.1	4.5
Registered Parks and Gardens (ha)	0	0.3	0.5	0	0	0.2	0.03	0	0.8	0.4	0.01	6.1	0.7	1.3
Scheduled Ancient Monuments (SAM) (ha)	0	0	0	0	0.05	0	0.1	0.1	0.02	0.2	0.2	0	0.01	0.0001

Risk Receptors at Risk of Flooding from Surface Water and Small Watercourses during the High Risk Event (Inland Flood Risk Areas)

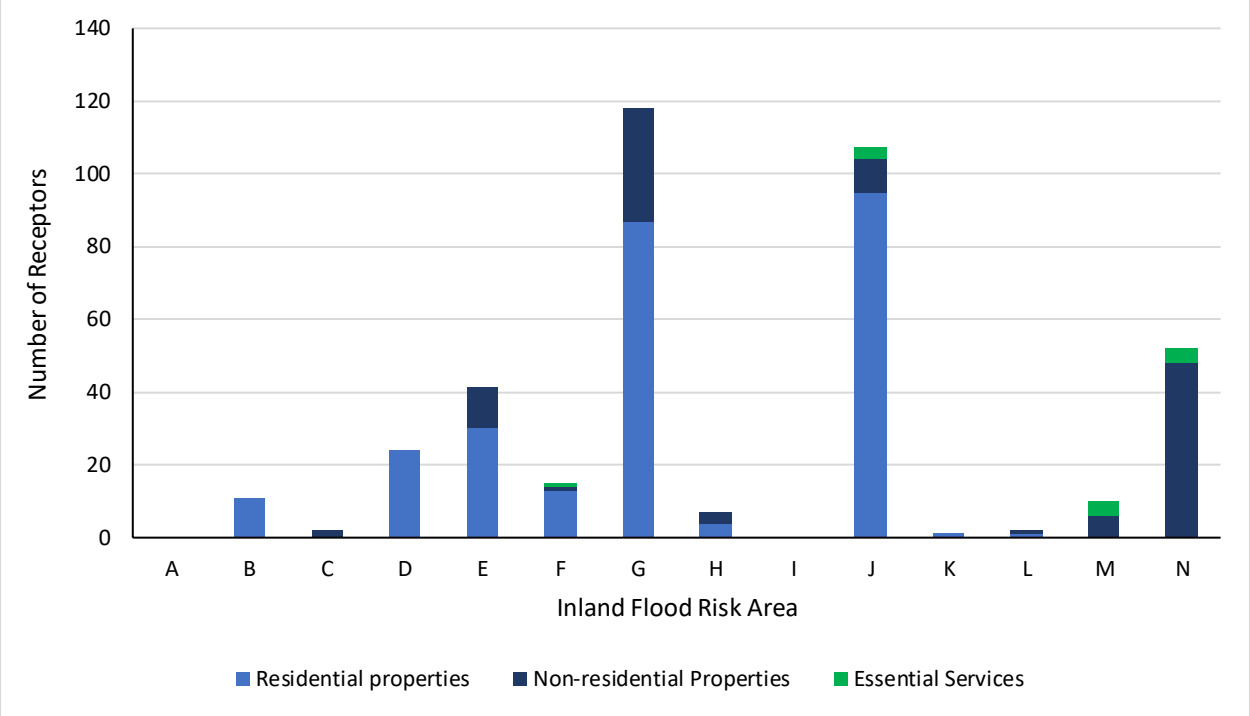
	Inland Flood Risk Area													
Risk Receptor	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
Residential properties at risk of internal flooding (depth >0.2m)	0	21	0	0	3	0	39	1	29	9	2	22	41	0
Non-residential Properties (n)	6	8	6	1	10	0	65	1	26	4	3	18	14	3
Essential Services (n)	0	0	1	1	1	0	9	1	14	3	1	4	4	1
Primary/Trunk Roads (km)	1.0	0.04	0.7	0.1	0.4	0.01	1.6	0.2	1.6	0.7	0.3	1.3	2.9	0.02
Minor roads (km)	1.2	2.9	2.7	0.3	2.5	1.3	7.7	1.7	7.1	2.9	3.1	4.4	4.4	0.3
Main Line Railways (km)	0.003	0	0.7	0	0	0	0.7	0	0.5	0	0	0.2	0.5	0.01
Agricultural Land - Grades 1, 2 and 3 (ha)	13.4	44.9	33.6	10.8	15.9	15.9	31.1	18.7	50.4	12.3	44.1	99.7	41.7	0.4
Special Areas of Conservation (SAC) (ha)	0.8	0.3	50.2	0.3	5.8	1.2	6.2	0.8	4.1	0.1	2.2	0.2	2.0	0.7
Special Protection Areas (SPA) (ha)	9.4	2.3	51.5	0	4.4	0	8.8	0	0.6	0	0	0	0	0.7
Ramsar Sites (ha)	9.4	2.3	51.5	0	4.4	0	8.8	0	0.6	0	0	0	0	0.7
Sites of Special Scientific Interest (SSSI) (ha)	9.4	2.3	51.6	0.4	5.9	2.9	11.0	1.1	4.2	0.2	6.5	1.9	2.0	0.7
Registered Parks and Gardens (ha)	1.4	1.4	7.5	0.1	0.01	2.6	0.1	0.5	3.5	0.1	0.5	1.9	0.3	0
Scheduled Ancient Monuments (SAM) (ha)	0	0.005	0.04	0.02	0.5	0	0.2	0	0.1	0	0.1	0.2	0.2	0

Risk Receptors at Risk of Flooding from Surface Water and Small Watercourses during the Medium Risk Event (Inland Flood Risk Areas)

	Inland Flood Risk Area													
Risk Receptor	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
Residential properties at risk of internal flooding (depth >0.2m)	1	4	2	0	3	0	26	0	10	8	1	6	31	0
Non-residential Properties (n)	1	1	1	0	20	0	39	2	20	3	1	12	21	2
Essential Services (n)	0	0	0	0	1	0	4	0	3	1	0	2	5	0
Primary/Trunk Roads (km)	0.1	0.1	0.2	0.1	0.4	0.02	2.0	0.04	0.9	0.4	0.2	1.2	1.7	0.04
Minor roads (km)	0.6	1.6	1.8	0.4	1.2	0.6	4.0	0.6	4.5	2.3	1.6	2.7	4.4	0.6
Main Line Railways (km)	0.003	0	0.1	0	0.001	0	0.2	0	0.1	0	0	0.2	0.4	0.03
Agricultural Land - Grades 1, 2 and 3 (ha)	9.8	19.8	15.5	5.1	7.3	6.3	12.8	7.5	19.1	6.6	21.3	41.8	23.7	1.5
Special Areas of Conservation (SAC) (ha)	1.2	0.3	44.3	0.2	7.5	0.8	8.9	0.2	1.7	0.01	1.3	0.1	0.8	0.6
Special Protection Areas (SPA) (ha)	7.9	1.8	47.8	0	7.0	0	9.5	0	0.7	0	0	0	0	0.6
Ramsar Sites (ha)	7.9	1.8	47.8	0	7.0	0	9.5	0	0.7	0	0	0	0	0.6
Sites of Special Scientific Interest (SSSI) (ha)	7.8	1.9	47.8	0.3	7.7	1.3	10.3	0.2	1.7	0.04	1.7	0.3	0.8	0.6
Registered Parks and Gardens (ha)	0.3	0.4	3.5	0.01	0.001	0.9	0.002	0.2	1.9	0.2	0.2	0.8	0.2	0
Scheduled Ancient Monuments (SAM) (ha)	0	0.004	0.01	0.01	0.1	0	0.1	0	0.03	0	0.04	0.1	0.1	0

Risk Receptors at Risk of Flooding from Surface Water and Small Watercourses during the Low Risk Event (Inland Flood Risk Areas)

	Inland Flood Risk Area													
Risk Receptor	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
Residential properties at risk of internal flooding (depth >0.2m)	6	19	3	0	22	0	117	0	82	43	10	46	77	24
Non-residential Properties (n)	1	4	3	0	50	0	50	3	65	31	5	22	87	17
Essential Services (n)	0	2	2	0	7	0	9	0	14	4	1	3	11	4
Primary/Trunk Roads (km)	0.3	0.6	0.9	0.2	1.3	0.1	4.7	0.2	2.2	1.3	0.6	2.8	4.2	0.2
Minor roads (km)	1.7	5.1	3.4	1.1	3.2	1.1	9.8	1.6	13.1	4.2	4.1	8.5	16.2	3.3
Main Line Railways (km)	0.003	0	0.3	0	0.01	0	0.4	0	0.3	0	0.001	0.5	0.7	0.3
Agricultural Land - Grades 1, 2 and 3 (ha)	33.0	52.4	31.4	13.8	21.5	13.6	36.0	20.5	49.6	17.5	62.5	103.7	63.0	14.5
Special Areas of Conservation (SAC) (ha)	3.6	0.8	80.3	0.6	41.4	1.8	42.8	0.6	4.0	0.04	3.5	0.1	2.5	2.7
Special Protection Areas (SPA) (ha)	29.4	4.0	82.5	0	40.0	0	45.1	0	1.1	0	0	0	0	2.7
Ramsar Sites (ha)	29.4	4.0	82.5	0	40.0	0	45.1	0	1.1	0	0	0	0	2.7
Sites of Special Scientific Interest (SSSI) (ha)	29.4	4.0	82.6	0.8	41.1	3.0	46.8	0.7	4.1	0.2	4.3	1.0	2.5	2.7
Registered Parks and Gardens (ha)	0.6	2.8	6.6	0.1	0.001	2.3	0.02	0.4	3.4	0.4	0.7	1.7	0.4	0.03
Scheduled Ancient Monuments (SAM) (ha)	0	0.03	0.1	0.01	0.3	0	0.1	0.02	0.1	0.02	0.1	0.2	0.1	0

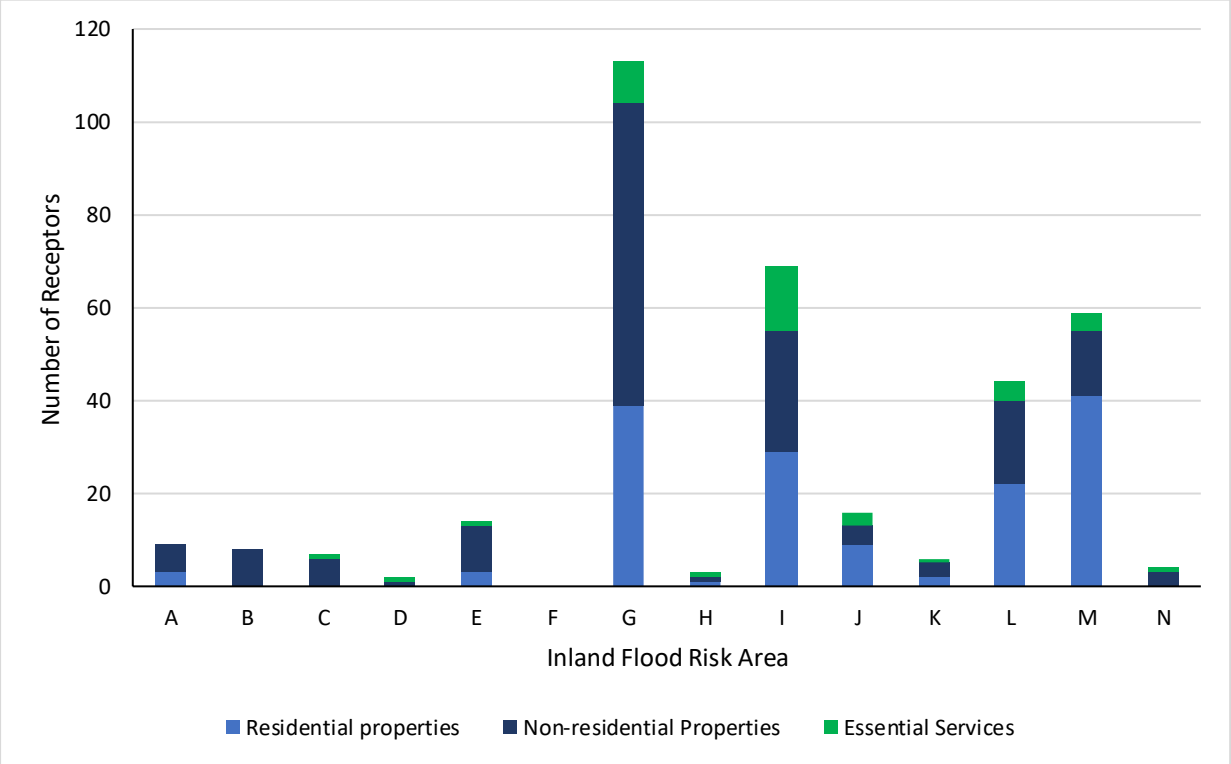


Risk Receptors (Residential Properties, Non-Residential Properties and Essential Services) at Risk of Flooding from Rivers during the High Risk Event (Inland Flood Risk Areas)

Analysis of Flood Risk from Rivers (Inland FRAs).

Inland FRA	Flood Risk	CaRR areas most at risk
E	Moderate number of residential properties at risk in the high-risk event. Moderate number of residential properties at risk in the medium risk event	Walwen and Wheston
G	High number of residential properties at risk in the high-risk event. High number of non-residential properties at risk in the high-risk event. Moderate number of residential properties at risk in the medium risk event	Flint
I	High number of residential properties at risk in the low-risk event.	Connahs Quay and Shotton

Inland FRA	Flood Risk	CaRR areas most at risk
J	High number of residential properties at risk in the high-risk event. High number of residential properties at risk in the medium-risk event. High number of residential properties at risk in the low-risk event.	Mold / Yr Wyddgrug
M	High number of non-residential properties at risk in the low-risk event. Moderate number of essential services at risk in the low-risk event.	Queensferry-Sandycroft-Manor Lane
N	High number of non-residential properties at risk in the low-risk event. Moderate number of non-residential properties at risk in the high-risk event	Sealand Sealand Basin Wales



Risk Receptors (Residential Properties, Non-Residential Properties and Essential Services) at Risk of Flooding from Surface Water and Small Watercourses during the High Risk Event (Inland Flood Risk Areas)

Analysis of Flood Risk from Surface Water and Small Watercourses (Inland FRAs).

Inland FRA	Flood Risk	CaRR areas most at risk
B	Moderate number of residential properties at risk in the high-risk event	Pen y Ffordd
E	High number of non-residential properties at risk in the low-risk event	Holywell Walwen and Wheston
G	Moderate number of residential properties at risk in the high-risk event	Bagillt
	High number of non-residential properties at risk in the high-risk event	Flint
	Moderate number of residential properties at risk in the medium-risk event	Bagillt & Flint
	Moderate number of non-residential properties at risk in the medium-risk event	Bagillt & Flint
	High number of residential properties at risk in the low-risk event	Flint
	High number of non-residential properties at risk in the low-risk event	Flint
I	Moderate number of residential properties at risk in the high-risk event	Buckley
	Moderate number of non-residential properties at risk in the high-risk event	Connahs Quay and Shotton
	Moderate number of essential services at risk in the high-	Connahs Quay and

Inland FRA	Flood Risk	CaRR areas most at risk
	risk event	Shotton
	Moderate number of non-residential properties at risk in the medium-risk event	Connahs Quay and Shotton
	High number of residential properties at risk in the low-risk event	Buckley & Connahs Quay and Shotton
	High number of non-residential properties at risk in the low-risk event	Connahs Quay and Shotton
J	Moderate number of residential properties at risk in the low-risk event Moderate number of non-residential properties at risk in the low-risk event	Mold / Yr Wyddgrug
L	Moderate number of residential properties at risk in the high-risk event Moderate number of non-residential properties at risk in the high-risk event Moderate number of residential properties at risk in the low-risk event	Penyffordd Leeswood & Penyffordd
M	Moderate number of residential properties at risk in the high-risk event Moderate number of residential properties at risk in the medium-risk event Moderate number of non-residential properties at risk in the medium-risk event High number of residential properties at risk in the low-risk event High number of non-residential properties at risk in the low-risk event	Drury & Ewloe Bretton Ewloe & Bretton Ewloe & Bretton & Queensferry-Sandycroft-Manor Lane

Recorded Flood Incidents in Flintshire

The number of recorded flood incidents (defined as any recorded flood incident) in each of the 'Inland Flood Risk Areas' from the Storm Babet 2023 event has been totalled.

This data captures affected locations and can be used as an accurate indcitaor of flood risk, with the asumption that areas flooded during this storm event likely represent those that have be historically prone to flooding.

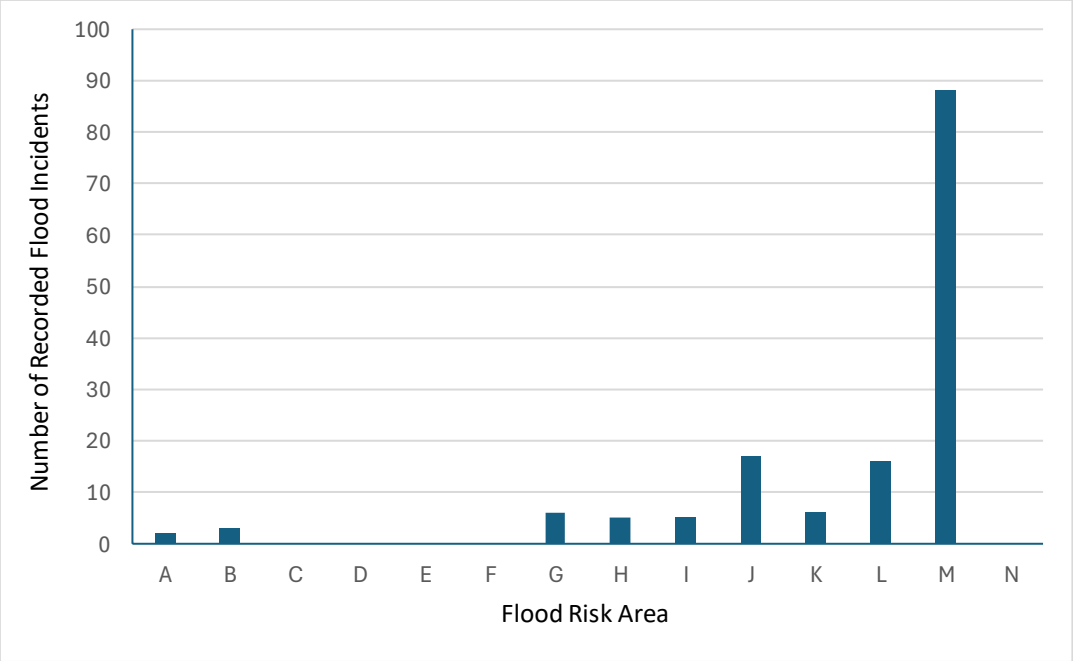
The 'Inland Flood Risk Areas' have been used because they cover the whole of Flintshire.

These flood records could relate to flooding from any source (e.g surcharging of sewers, blocked culverts or groundwater flooding) whereas the data presented above only relates to flood risk from the sea, rivers and surface water and small watercourses.

Number of Recorded Flood Incidents in Flintshire (Inland Flood Risk Areas)

Flood Risk Area	A	B	C	D	E	F	G
Number of Recorded Flood Incidents	2	3	0	0	0	0	6

Flood Risk Area	H	I	J	K	L	M	N
Number of Recorded Flood Incidents	5	5	17	6	16	88	0



Number of Recorded Flood Incidents in Flintshire (Inland Flood Risk Areas)

The six CaRR areas with the highest number of recorded flood incidents.

Inland FRA	CaRR Area	Number of Recorded Flood Incidents
M	Queensferry-Sandycroft-Manor Lane	74
M	Bretton	12
J	Mold	17
L	Higher Kinnerton	6
G	Bagillt	5
H	Hendre	5

Summary of Flood Risk Areas in Flintshire.

CaRR Area	Source of Flooding	Receptors at Risk
Bagillt	Surface Water & Small Watercourses	Residential, Non-residential
	Sea	Residential
Bretton	Surface Water & Small Watercourses	Residential
	Sea	Residential
Buckley	Surface Water & Small Watercourses	Residential
Connahs Quay	Rivers	Residential
	Surface Water & Small Watercourses	Residential, Non-residential
	Sea	Residential, Non-residential
Drury	Surface Water & Small Watercourses	Residential
Ewloe	Surface Water & Small Watercourses	Residential

CaRR Area	Source of Flooding	Receptors at Risk
Flint	Rivers	Residential, Non-residential
	Surface Water & Small Watercourses	Residential, Non-residential
	Sea	Residential
Garden City and Deeside Industrial Estate	Sea	Residential & Non-residential & Key Services
Lache	Sea	Residential & Non-residential
Mold/Yr Wyddgrug	Rivers	Residential
	Surface Water & Small Watercourses	Residential
Penyffordd	Surface Water & Small Watercourses	Residential
Queensferry-Sandycroft-Manor Lane	Rivers	Non-residential
	Sea	Residential & Non-residential
	Flood Incident Records	
Sealand	Sea	Residential & Non-residential
Sealand Basin Wales	Rivers	Non-residential
Talacre	Sea	Residential
Walwen and Whelston	Rivers	Residential