

Natural Resources Wales Flood Risk Management Plan: North East Wales Place

Contents

1. Introduction	3
2. North East Wales Place	5
3. Historic flooding in North East Wales.....	7
4. Present day flood risk in North East Wales.....	8
5. Future flood risk in North East Wales.....	13
6. Recent flood risk management activity	18
7. Flood risk management work we are planning in North East Wales	19
8. NRW Delivery Plan for North East Wales Place	22
9. Monitoring and review.....	27
10. Further information.....	27

1. Introduction

Natural Resources Wales (NRW) is the largest Welsh Government Sponsored Body, and we have as our core purpose the sustainable management of natural resources in Wales.

We have a range of roles and responsibilities, ranging from regulator to advisor, landowner and operator and emergency responder. We have a strategic oversight role for flood and coastal erosion risk management which involves the general supervision and communication of flood and coastal erosion risk management in Wales. We also have powers to manage flooding from main rivers, reservoirs and the sea.

In Wales, there are estimated to be 245,118 properties at risk of flooding from the sea, rivers and surface water. This is approximately 1 in 8 properties in Wales. We take a risk-based approach to managing the risk of flooding through the activities we do.

This Flood Risk Management Plan (FRMP) covers all of Wales and provides information on the scale of flood risk, as well as NRW's priorities for managing the risk of flooding, and measures that we propose to take, over the coming years. This FRMP covers flooding from rivers, reservoirs and the sea. It does not include flooding from surface water and smaller watercourses, for which Lead Local Flood Authorities (LLFAs) have powers and take the lead.

The FRMP is split into two sections. In the first section, you will find information, priorities and measures set at the National (Wales) level. This second section is split according to [NRW Operational areas](#), also known as NRW Places, where you will find more detailed information and measures at the local scale. It is intended that you may read the FRMP in its entirety so you are able to get the full understanding of what is planned across Wales, or you may wish to access the Place section relevant to where you live.

By being set out in this way, these plans intend to align with, and support the delivery of, the [Area Statements](#), which were developed in response to the [Natural Resources Policy](#). The North East Wales Area Statement identifies the Climate Emergency as a key theme and the Marine Area Statement which covers all the Welsh coast, identifies Nature-based solutions and adaptation at the coast as a key theme. The information and proposed actions within this FRMP are directly relevant to these challenges and set out our flood risk management ambitions to help address it.

This North East Wales Place section provides information about the level of risk at a local scale and describes what we have planned for the communities that we are most concerned about. In line with [Welsh Government's National Flood and Coastal Erosion Risk Management Strategy](#) Objectives, we prioritise our work and direct our efforts on a prioritised flood risk basis to communities at greatest risk of flooding. We do this using our Communities at Risk Register (CaRR) that considers a number of factors to identify the locations (communities) at greatest risk of flooding across the North East Wales area. The CaRR is used to inform, plan and prioritise our investment programme to target investment in the most at risk communities. It is not an absolute ranking of risk, it is an indicator of relative significance of risk from location to location. We use this in combination with other factors to allocate our programmes of flood risk management work.

The CaRR was used to inform the identification of Flood Risk Areas in the 2018 [Preliminary Flood Risk Assessment reports](#). The aim of the FRMP is to describe what actions we are taking in these Flood Risk Areas, along with other communities that we feel require action, either in response to recent flooding that has been experienced or by targeting those at

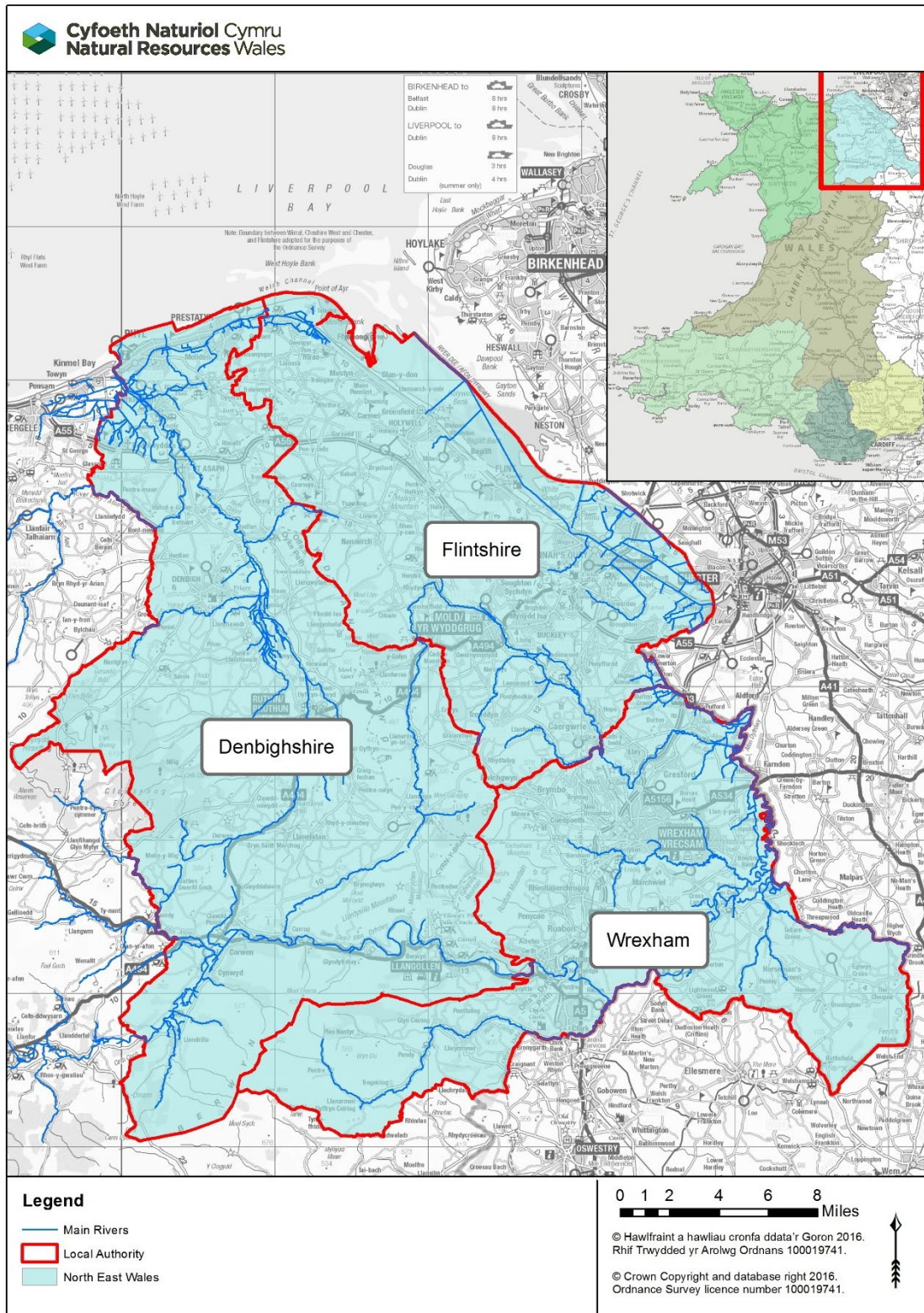
highest risk, using the CaRR. This FRMP is therefore fulfilling our requirements under section 25 of the Flood Risk Regulations (2009) but will also take into account recent river and sea flooding events and subsequent work arising from them.

The measures included within this plan are correct at the time of writing. We will undertake an annual review of progress against the delivery of measures and will amend any measures as is necessary to ensure that we continue to take a risk based approach to the management of flood risk.

2. North East Wales Place

The NRW North East Wales place covers the Local Authorities of Denbighshire, Flintshire and Wrexham. It is bordered to the East by the England and Wales border, the South by the Mid Wales Place area and the West by the North West Wales Place area.

Figure 1: The spatial area covered by the North East Wales Place, along with its positioning in relation to the rest of Wales.



The North East Wales Place has a mix of mountains and broad coastal plains with a number of popular landscape features. These include the Clwydian Range, the Dee Valley (designated as an Area of Outstanding Natural Beauty), Moel Famau and the Clocaenog Forest.

As a predominantly rural area, agriculture is widespread. Development of towns and industry has been made possible by the important road and rail routes for the North of Wales that cross the North East Wales Place. Major settlements and industrial centres are found in Wrexham, Llangollen, Ruthin, Mold and Queensferry.

The North East Wales Place has a North facing coastline that runs from Rhyl to the Point of Ayr. The Dee estuary runs from the Point of Ayr to Chester and forms the border between Wales and England. The long sandy beaches and promenades make Rhyl and Prestatyn popular tourist destinations. The whole stretch of North East Wales Place coastline is covered by the 'North Wales and North West England' Shoreline Management Plan.

The larger rivers that can be found in North East Wales Place are the Dee, Clywd and Elwy.

The River Dee is approximately 110km long from its source in Dduallt, Gwynedd (North West Wales Place) to where its estuary discharges into the Liverpool Bay. It flows across North East Place from West to East before crossing the border into England. The Dee comprises a range of landscapes including mountains, steep sided wooded valleys and the mudflats in the estuary. Key communities adjacent to the Dee are Bala, Corwen and Llangollen.

The River Clwyd is approximately 56km long from its source in the Clocaenog Forest near Corwen to where it meets the Irish Sea at Rhyl. The river drops steeply in the upper catchment before flattening out near the coast to form a wide flood plain. It flows from South to North and the surrounding lands are predominantly rural with only a small number of urban areas. The river Elwy is a major tributary of the river Clwyd which joins downstream of St Asaph. Key communities are Ruthin, St Asaph and Rhyl.

3. Historic flooding in North East Wales

This section provides a summary of the significant flood events that have happened over the last 20 years in the North East Wales Place. In most cases, we class a flood event to be significant if 20 or more properties (residential or commercial) have been flooded. Other extreme weather events that have caused localised flooding have also occurred, which may not be captured within the events focussed on here.

A summary of each of the significant flood events experienced across North East Wales Place is provided below:

- On 27 November 2012, several areas in the Clwyd catchment experienced significant flooding following intense rainfall. 326 properties and 70 caravans were affected as large areas of St Asaph were flooded from the River Elwy resulting in significant damage and disruption. Parts of Ruthin were also badly affected after the River Clwyd overtopped its banks and there was flooding to 21 properties in Llanfair Talhaiarn.
- On 5 December 2013, a spring high tide coincided with a large storm surge along the North Wales coast causing flooding to large numbers of properties across the North East Wales Place. The worst affected locations were Kinmel Bay and Rhyl where collectively 330 properties were flooded.
- Storm Ciara (8/9 February 2020) was the first of three named storms to affect Wales during February 2020, the wettest February now on record. North Wales was worst impacted by the storm with many river and rain gauges hitting record levels. River levels responded quickly to the heavy rain, in particular the River Elwy in St Asaph which experienced higher river levels than those which caused extensive flooding in 2012. The newly constructed NRW flood alleviation scheme, however, worked well and protected the vast majority of the community. 23 properties are thought to have flooded in Denbighshire.
- Storm Christoph (20 January 2021) brought significant rain to all parts of Wales, with the worst impacts affecting North Wales where it recorded one of the wettest 3-day periods on record, with weather fronts bringing persistent rain to these parts. The significant rainfall and river flooding led to the evacuation of some residents in Bangor on Dee and Lower Dee, the collapse of a bridge over the river Clywd and 23 properties flooding in Ruthin, Denbighshire.

4. Present day flood risk in North East Wales

Across the North East Wales Place, there are 15,686 properties at risk of flooding from the sea and 8,846 properties at risk of flooding from rivers. This equates to over 44,000 people at risk of flooding from the sea and over 23,000 people at risk of flooding from rivers.

Flood risk descriptions

River flooding happens when a river cannot cope with the amount of water draining into it from the surrounding land. Sea or tidal flooding happens when there are high tides and stormy conditions. We describe the amount of risk to each property as the 'chance' of flooding. There are three risk categories:

- If something is described as being at '**high**' risk of flooding, this means that each year, there is a chance of flooding of greater than 1 in 30 (3.3%).
- If something is described as being at '**medium**' risk of flooding, this means that each year, there is a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%) for rivers or between 1 in 200 (0.5%) and 1 in 30 (3.3%) for flooding from the sea.
- If something is described as being at '**low**' risk of flooding, this means that each year, there is a chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%) for rivers or between 1 in 1000 (0.1%) and 1 in 200 (0.5%) for flooding from the sea.

The following section provides the numbers that are at risk of flooding across the North East Wales Place. If you would prefer to view where is at risk of flooding in map form, we have a number of flood mapping products available on our website. These show visually where is at risk of flooding across Wales for each source. For the most up to date maps, please visit our website: [check your flood risk by postcode](#) and [check your flood risk on a map](#).

The numbers used throughout the following section have been split up into risk from rivers and from the sea. In reality, some properties can be susceptible to both flooding from rivers and the sea, but this can complicate explanations and data presentation, so river and sea flood risk are covered separately. Of course, some properties can be risk of surface water flooding too, this is not included in this NRW FRMP, as Local Authorities lead on this type of flooding. To find out more about flooding from surface water and smaller streams, please contact the relevant Local Authority.

The properties at risk figures provided throughout this FRMP reflect our understanding of flood risk without flood defences. This is to portray a true scale of flood risk in Wales and to reflect that any flood defence can be overwhelmed in conditions that exceed what it was designed to accommodate.

What is at risk in North East Wales Place today?

The following tables show the split of properties by level of risk and source across the North East Wales Place if there were no defences present.

Table 1: The numbers of residential properties, non-residential properties and services at risk of flooding from the sea in North East Wales Place.

Flood risk description	Residential properties at risk of flooding	Non-Residential properties at risk of flooding	Key Services* at risk of flooding	Total at risk of flooding
Sea High	11,089	1,503	257	12,849
Sea Medium	1,326	217	26	1,569
Sea Low	1,063	180	25	1,268
Sea Total	13,478	1,900	308	15,686

Table 2: The numbers of residential properties, non-residential properties and services at risk from river flooding in North East Wales Place.

Flood risk description	Residential properties at risk of flooding	Non-Residential properties at risk of flooding	Key Services* at risk of flooding	Total at risk of flooding
Rivers High	1,971	219	71	2,261
Rivers Medium	1,418	132	47	1,597
Rivers Low	4,363	517	108	4,988
Rivers Total	7,752	868	226	8,846

* Key Services include property types related to education, health services, transport, utilities and emergency services.

The network of sea flood defences across the North East Wales Place help to reduce the risk to over 12,500 properties (residential and non-residential) in the 1 in 30 year scenario (3.3% annual exceedance probability) and over 14,000 properties in the 1 in 200 year scenario (2% annual exceedance probability). Further to this, the network of river flood defences help to reduce the risk to over 400 properties (residential and non-residential) in the 1 in 30 year scenario (3.3% annual exceedance probability) and over 700 properties in the 1 in 100 year scenario (1% annual exceedance probability). These properties are not removed from risk entirely by flood defences because flood defences do not completely stop the chance of flooding as they can be overtopped or fail, but the risk is significantly reduced.

Transport infrastructure

Throughout the North East Wales Place, there is 35km of rail track and 357km of road (major and minor) at risk of flooding from the sea. This accounts for one fifth of all rail track and just over one fifth of all roads that are at risk of flooding from the sea across Wales. In addition, there is 15km of rail track and 305km of road at risk of flooding from rivers.

Agricultural land

There is just under 400km² of agricultural land that is at risk of flooding from the sea across Wales. 59km² of the overall total at risk is located within the North East Wales Place.

In addition, Wales has over 800km² of agricultural land that is at risk of river flooding. Across the North East Wales Place, there is 112km² at risk of flooding from rivers which accounts for 14% of all agricultural land at risk from river sources.

Environment

There are a number of protected sites at risk of flooding across the North East Wales Place. Table 3 below provides information on the scale of sites at risk in Wales, as well as the relevant the proportion of risk present in North East Wales. There are large percentages of both RAMSAR sites and SPAs that are at risk from flooding from rivers and the sea in the North East Wales Place.

Table 3: The numbers of National important designated sites that are at risk of flooding from rivers and the sea in North East Wales Place.

Designation	Sea flooding – total area at risk in Wales (km ²)	Sea flooding – total area at risk in NE (km ²)	Sea flooding - % of Wales total at risk in NE	River flooding – total area at risk in Wales (km ²)	River flooding – total area at risk in NE (km ²)	River flooding - % of Wales total at risk in NE
RAMSAR	204	66	32	23	9	40
Special Areas of Conservation (SACs)	385	64	17	113	15	14
Special Protection Areas (SPAs)	239	67	28	21	9	44
Sites of Special Scientific Interest (SSSI)	513	67	13	180	21	12
Scheduled Ancient Monuments (SAMs)	1	0.0	2.0	1.4	0.1	7.6

Communities at most risk in North East Wales

Through the Preliminary Flood Risk Assessment stage associated with this FRMP communities were identified as “Flood Risk Areas”. The assessment undertaken to identify Flood Risk Areas across Wales was done using the undefended status of communities to create a platform for comparison. For North East Wales, all of the communities identified as Flood Risk Areas are at risk of flooding from the sea. It is important that work is undertaken to sustain the existing protection that community’s benefit from, as well as continuing to try to identify options to reduce flood risk further in at risk areas.

The North East Wales Place Flood Risk Areas are:

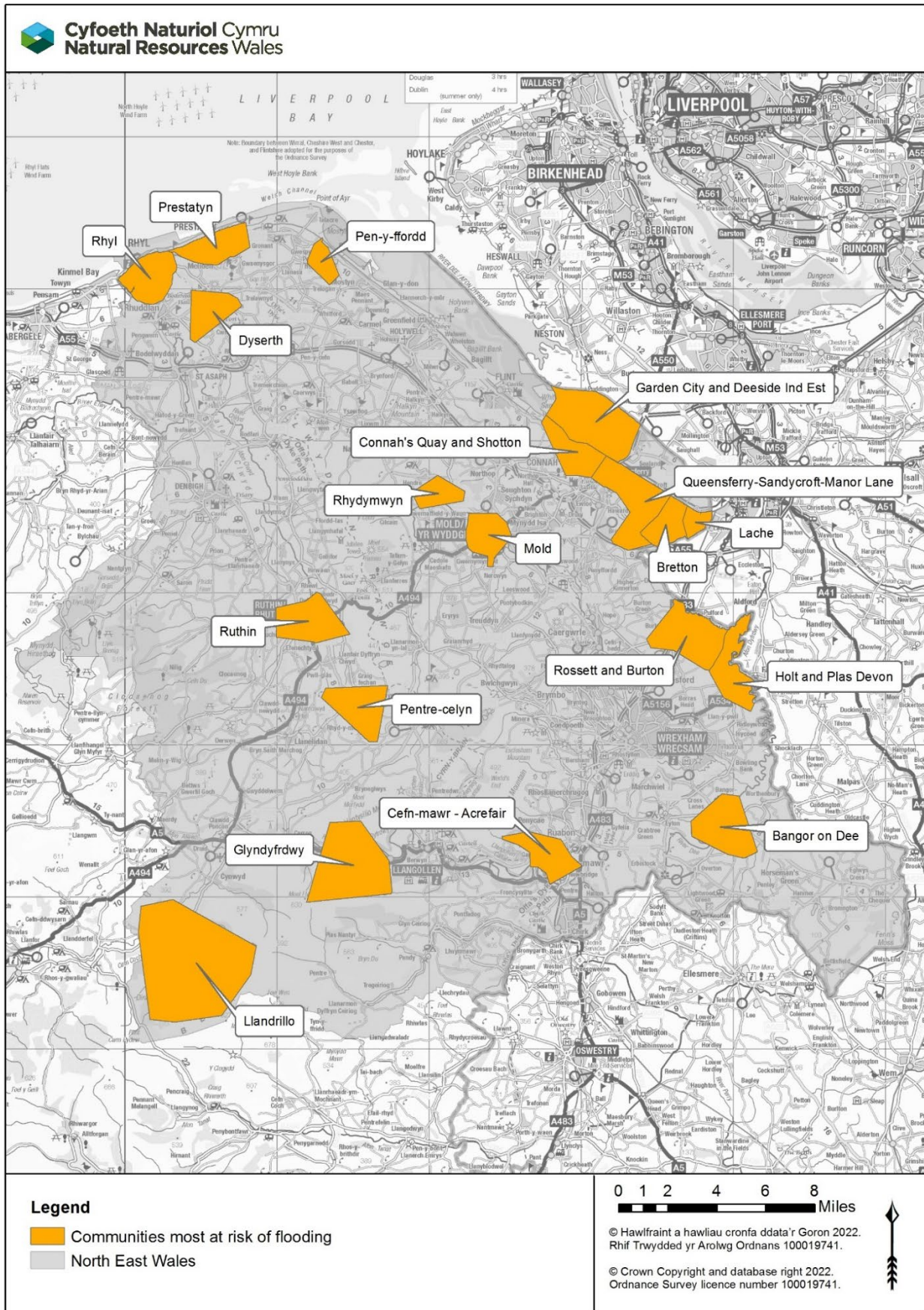
- Connah’s Quay and Shotton – flood risk from the sea
- Garden City and Deeside industrial estate – flood risk from the sea
- Lache (Chester) – flood risk from the sea
- Prestatyn – flood risk from the sea
- Queensferry, Sandycroft and Manor Lane – flood risk from the sea
- Rhyl – flood risk from the sea

Further to this NRW has considered additional areas at risk of flooding from rivers and the sea. Figure 2 and accompanying Table 4 show the communities across North East Wales that are at risk of flooding from rivers and the sea as identified by the CaRR and where we are planning to take action to manage the risk of flooding. Other communities within North East Wales are also at risk from flooding but those listed below are the communities where actions are planned in the coming years to help manage and reduce the risk of flooding.

Table 4: The name of each of the communities highlighted in Figure 2. The Flood Risk Area communities for flooding from rivers and the sea are highlighted in bold.

Community name	Local Authority Area
Bangor on Dee	Wrexham
Bretton	Flintshire
Cefn-mawr - Acrefair	Wrexham
Connah’s Quay and Shotton	Flintshire
Dyserth	Denbighshire
Garden City and Deeside Ind Est	Flintshire
Glyndyfrdwy	Denbighshire
Holt and Plas Devon	Wrexham
Lache	Flintshire
Llandrillo	Denbighshire
Mold	Flintshire
Pen y Ffordd	Flintshire
Pentre-Celyn	Denbighshire
Prestatyn	Denbighshire
Queensferry-Sandycroft-Manor Lane	Flintshire
Rhydymwyn	Flintshire
Rhyl	Denbighshire
Rossett and Burton	Wrexham
Ruthin	Denbighshire

Figure 2: The communities across the North East Wales Place that are most at risk of flooding from rivers and the sea as identified by the CaRR.



5. Future flood risk in North East Wales

Across North East Wales, there are predicted to be 20,000 properties at risk of flooding from the sea and nearly 11,500 properties at risk of flooding from rivers by 2120. This is an increase of nearly 4,500 properties at risk of flooding from the sea and an increase of over 2,500 properties at risk of flooding from rivers.

This equates to an estimate of over 57,000 people at risk of flooding from the sea and over 30,000 people at risk of flooding from rivers by 2120. This is an additional 13,000 people at risk from flooding from the sea and an additional 7,000 people at risk from flooding from rivers from 2020.

Climate projections indicate that we will see an increase in the frequency and intensity of extreme weather events, including storm events in the Summer and prolonged wet periods during the Winter period. This will increase peak flows in our rivers, which is expected to increase the risk of flash flooding events. Such flooding is very difficult to forecast and predict and can be very challenging to manage.

Climate projections also indicate that sea level rise will occur for all emission scenarios and at all locations around the UK. Coastal areas will be increasingly vulnerable to increased wave action and accelerated coastal erosion associated with climate change. These impacts will affect not only coastal communities who live and work in coastal areas, but some of Wales' most important natural habitats and heritage sites which are located along our coastline.

We have followed the Welsh Government [Adapting to Climate Change Guidance](#) to base our climate change modelling outputs that have enabled us to include our projections in this FRMP. We have used the central climate change estimate to produce the data outputs used in the following section.

What will be at risk of flooding in North East Wales Place by 2120?

The following tables show the level of risk and source across the North East Wales Place if there were no defences present for 2020 and 2120.

Flooding from the sea

Table 5: The numbers at risk of flooding from the sea for 2020, 2120 and the projected difference in North East Wales Place.

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
People	People	Count	44,339	57,551	+13,212	+30%
People	Residential properties	Count	13,478	16,964	+3,486	+26%
Economy	Non-residential properties	Count	2,208	3,032	+824	+37%
Economy	Key services	Count	308	422	+114	+37%

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
Economy	Railway	Km	35	50	+15	+43%
Economy	Road	Km	357	525	+168	+47%
Economy	Agriculture	Km ²	59	67	+8	+14%
Environment	RAMSAR	Km ²	66	66	+0.4	+1%
Environment	Special Areas of Conservation (SACs)	Km ²	64	64	+0.5	+1%
Environment	Special Protection Areas (SPAs)	Km ²	67	67	+0.5	+1%
Environment	Sites of Special Scientific Interest (SSSI)	Km ²	67	68	+0.7	+1%
Environment	Scheduled Ancient Monuments (SAMs)	Km ²	0	0	+0.0	-

Flooding from rivers

Table 6: The numbers at risk of flooding from rivers for 2020, 2120 and the projected difference in North East Wales Place.

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
People	People	Count	23,391	30,437	+7,046	+30%
People	Residential properties	Count	7,752	9,916	+2,164	+28%
Economy	Non-residential properties	Count	1,094	1,541	+447	+41%
Economy	Key services	Count	226	287	+61	+27%
Economy	Railway	Km	15	17	+2	+13%
Economy	Road	Km	305	366	+61	+20%
Economy	Agriculture	Km ²	112	120	+7	+6%
Environment	RAMSAR	Km ²	9	10	+0.7	+8%
Environment	Special Areas of Conservation (SACs)	Km ²	15	16	+0.7	+5%
Environment	Special Protection Areas (SPAs)	Km ²	9	10	+0.7	+8%

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
Environment	Sites of Special Scientific Interest (SSSI)	Km ²	21	22	+0.9	+4%
Environment	Scheduled Ancient Monuments (SAMs)	Km ²	0.1	0.1	0	-

Communities at most risk of future flooding in North East Wales

The lists below and the following map shows the communities across the North East Wales Place that are projected to experience the biggest change in danger (as defined within our Community at Risk Register) presented from the risk of flooding from rivers and the sea in 2120. Other communities within North East Wales Place are also predicted to see a change in danger by 2120 but those listed below are predicted to see the greatest change.

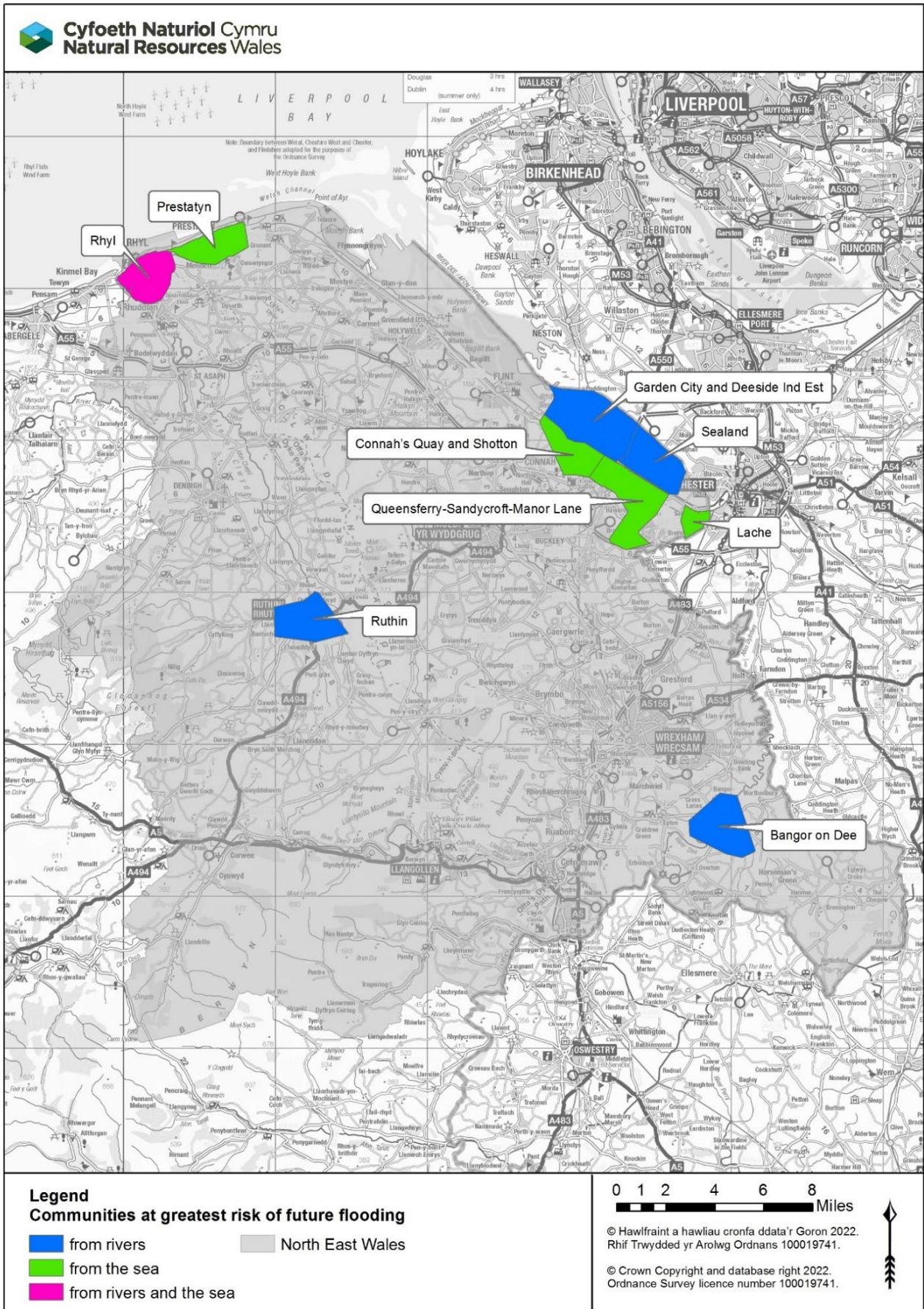
By 2120, the five communities in North East Wales Place that are projected to experience the biggest change in danger from the risk of flooding from the sea are:

- Connah's Quay and Shotton
- Lache
- Prestatyn
- Queensferry, Sandycroft and Manor Lane
- Rhyl

By 2120, the five communities in North East Wales Place that are projected to experience the biggest change in danger from the risk of flooding from rivers are:

- Bangor on Dee
- Garden City and Deeside Ind Est
- Rhyl
- Ruthin
- Sealand

Figure 3: The communities across North East Wales Place where there is predicted to be the biggest change in danger by 2120. The map shows the top five communities for risk from rivers and the top five for risk from the sea.



What we are doing for communities at future risk of flooding

Within our activities and measures set out within this FRMP, we will take account of the need to consider flood risk over the long term, the need to consider the impact climate change will have on Wales and the need to take action now to consider how to both mitigate and adapt within the context of the Climate Emergency. We will do this by seeking to better understand the impacts of climate change through our data and evidence, and use this to inform the advice we provide to others and the work that we undertake.

When we consider, design and construct new flood alleviation schemes we build in allowances to future proof our structures in respect to projections for future climate change. However, we recognise that it will not be possible to prevent flooding in every location both now and in the future through traditional FRM activities, so we are also initiating long term adaptation planning in a number of locations, these are included as Local Measures within the Place based sections of this FRMP.

Welsh Government Planning Policy TAN15 requires new development to take account of climate change over the development lifetime. This helps ensure some resilience to our changing climate is factored into development proposals and can also help with recovery should a flood event occur.

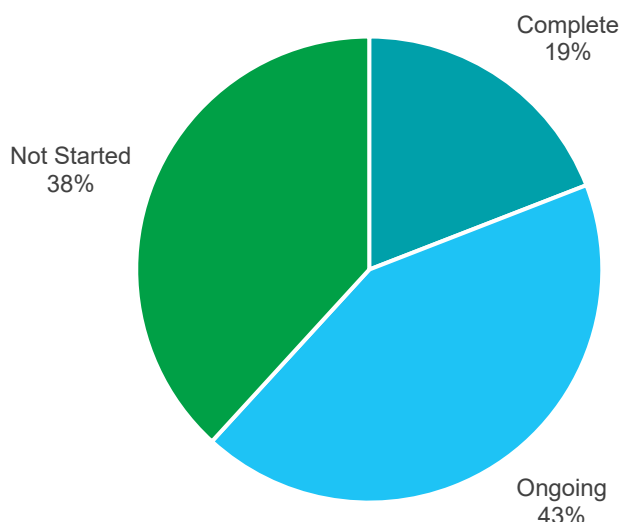
To support both strategic planning decisions and individual planning applications, we have developed a new [Flood Map for Planning \(FMfP\)](#). The FMfP shows how climate change will affect flood risk extents over the next 100 years. It shows the potential extent of flooding assuming no defences are in place. A central estimate of climate change (ranging from 20-30% increase in flows) was used for peak river flows and 1.1m of sea level rise was applied along the Welsh coastline. Although not yet formal planning policy, we use the FMfP as the best available information to inform our planning advice in our role as a statutory consultee.

In terms of working to influence policy, we work closely across the Welsh Government to support development of policy and strategies. Climate change is at the forefront of these discussions including exploring how we can improve understanding and communication of flood risk. We have also recently commissioned work, looking at revised climate change allowances for peak river flows and rainfall events. We will be using the outputs of this project to recommend updates to the Welsh Government's guidance on climate change allowances.

6. Recent flood risk management activity

We published our first cycle Flood Risk Management Plans in early 2016. These plans contained a number of community scale measures for the following years that would help to manage and reduce the risk of flooding. We have undertaken a review of the measures for communities within the North East Wales Place. The below chart shows a summary of our delivery of these measures.

Figure 4: The progress made against the NRW measures set out in the first cycle FRMPs in North East Wales.



Key delivery highlights include:

- We completed a new flood risk management scheme at St Asaph protecting 293 homes and 121 businesses from flooding.
- We delivered maintenance schemes to maintain our flood defences and provide a sustained level of protection. Significant capital maintenance schemes have been undertaken at Graig Lane and Overton Road in Bangor on Dee which resulted in over 100 properties benefitting from a sustained level of protection.
- We have delivered maintenance schemes such as at Ffynnongroyw, Gutter Fawr, Pont Robin, Prestatyn, Rhyl and Ruthin which have maintained our defences and provided a sustained level of protection to those properties that benefit.
- Improving our understanding of flood risk through updates to our flood risk models and analysis of hydrology for communities including Dyserth, Greenfield, Gronant, Leeswood, Prestatyn, Rhyl, Talacre, Walwen and Whelston.

It should be recognised that many of the actions identified in the first cycle FRMPs take considerable time and effort to deliver and whilst the relative number of completed measures is low, a significant numbers of the identified measures are in delivery. Also, our work plans and the capacity to deliver them are highly influenced by actual flood events occurring; the floods of February 2020 in Wales for example have had a significant impact on our ability to take forward planned work.

7. Flood risk management work we are planning in North East Wales

Introduction

There are a number of communities within the North East Wales place where we consider there is still more to be done to manage and reduce the risk of flooding. These communities and associated measures are detailed within this section. The National Section of this FRMP sets out how we prioritise our work on a risk basis so that those communities that are most at risk of flooding are addressed first.

We undertake flood risk management at a range of different scales dependant on what will achieve the desired result. This Flood Risk Management Plan provides information at two scales. At a Wales-wide, National scale through our National Measures (the activities we undertake across Wales, some of which makes our actions at the local scale possible), and at the local community scale. The National Measures can be found in the National section. The local community scale measures can be found in this section.

Measure terminology

Measure type

There are four types of measures and local measures are categorised according to measure type.

Prevention of the damage caused by flooding, this includes attempts to make catchments more resilient, and efforts to prevent areas becoming more susceptible, to flood risk.

Protection against flooding in specific locations by provision of schemes and approaches to reduce the risk and likelihood against flooding.

Preparedness of communities and emergency responders to act in the event that flooding should occur, which can reduce the impacts of flooding and make communities more resilient.

Review to make improvements in our understanding of flood risk to better inform and consider potential future action.

All of the above types of measures seek to reduce the likelihood of flooding or the impacts it has on people and properties, it should be highlighted however that flood risk can only be managed to a certain extent. We cannot remove flood risk entirely and there will always be potential for flood events to exceed the limits of the risk management techniques being used. For example flood defences will be built within technical, economic and environmental constraints, therefore in extreme events flood water can exceed the capacity that they were designed to contain.

In each location where we intend to undertake either initial or detailed assessment of potential options, in line with [Welsh Government's FCERM Appraisal Guidance](#), we will consider all potential options for managing flood risk. That will include local and catchment based options, and will consider the long term impacts that climate change will have on the

communities at risk, therefore, to consider the most sustainable approach in each location, adaptive options will also be included within our assessments.

Measure implementation status

Not started: work has not yet begun.

Ongoing: work has begun.

Measure timescale

The timescales proposed are a factor of relative priority and the likely complexity of what might be required; they are also subject to funding and capacity.

Short Term: Planned to be delivered in the short term (years 1 - 2)

Medium Term: Planned to be delivered in the medium term (years 3 - 4)

Long Term: Planned to be delivered in the long term (years 5 +)

Priorities

Priority 1: Respond to the climate and nature emergencies by seeking innovative practices, promoting adaptation and preparing for future change.

Priority 2: Develop and deliver catchment approaches to reduce flooding and contribute to ecosystem resilience, working with partners and stakeholders where possible and appropriate.

Priority 3: Improve community resilience to current and future flood risk. Work with partners to support communities to become more aware and take action to mitigate their own flood risk.

Priority 4: Seek and take opportunities for enhancement to the health and wellbeing of communities, biodiversity and the environment, and the wider benefits they provide, to support NRW's response to the Nature Emergency.

Priority 5: Increase resilience of flood risk management assets, to reduce the impacts of current and future flood risk.

Priority 6: Improve effectiveness of our key products and services, including our digital services, to provide improved services to the public.

Priority 7: Continuously improve our understanding and communication of current and future flood risk (including climate change) so that decisions are based upon the best available evidence and information.

Priority 8: Provide an effective and sustained response to flood events, working in collaboration with Risk Management Authorities and Professional Partners where required.

Priority 9: Continually improve our flood warning service to enable people to take effective action in response to flooding.

Priority 10: Provide effective planning advice on flood risks and consequences to reduce inappropriate development in areas at risk of flooding.

Priority 11: Prioritise our work on a risk basis in alignment with Welsh Government's National FCERM Strategy and develop our evidence base to secure future investment in flood risk management.

Priority 12: Promote, support and implement nature-based solutions where appropriate to reduce the risk and impacts of flooding and to deliver wider ecosystem benefits.

Priority 13: Undertake our strategic oversight role to understand all sources of flood risk on a national basis to inform investment and optimise how we plan work including with other partners.

Priority 14: Ensure we have an FCERM workforce with the appropriate capabilities and skills required to meet our priorities and respond to future challenges.

8. NRW Delivery Plan for North East Wales Place

The following delivery plan sets out on a community basis, the measures that we are in the process of undertaking or plan to undertake to help manage the risk of flooding to that community. This provides a list of measures we intend to undertake within the North East Wales Place over the coming years, subject to assessment and funding justification.

Table 7: The delivery plan of planned flood risk measures for North East Wales Place.

Ref.	Location	Source	Measure name	Measure type	Link to FRMP Priority	Timescale	Status
NE1	Bangor on Dee	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Medium Term	Not started
NE2	Bangor on Dee	River	Develop scheme appraisal for flood alleviation scheme	Protection	1	Medium Term	Not started
NE3	Bretton	River	Update existing hydraulic model	Review	7	Medium Term	Not started
NE4	Clwyd	River	Develop an integrated catchment approach flood risk management	Prevention	1, 2, 12, 13	Medium Term	Not started
NE5	Clwyd	Sea	Development of the recommendations from the Clwyd strategy	Preparedness/Protection	1, 2	Medium Term	Ongoing
NE6	Clwyd	River/Sea	Maintain existing defences and inspection regime	Protection	5	Short Term	Ongoing
NE7	Clwyd - Ffynnon y Ddol	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Ongoing
NE8	Clwyd - Old Foryd Road	Sea	Design and construction of flood risk asset improvements	Protection	1	Long Term	Not started
NE9	Clywd	River/Sea	Maintain existing defences and inspection regime	Protection	5	Short Term	Ongoing
NE10	Connah's Quay and Shotton	River/Sea	Maintain existing defences and inspection regime	Protection	5	Short Term	Ongoing

Ref.	Location	Source	Measure name	Measure type	Link to FRMP Priority	Timescale	Status
NE11	Connah's Quay and Shotton	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not started
NE12	Dee	Sea	Improve existing flood warning service	Preparedness	9	Short Term	Not started
NE13	Dee	River	Improve existing flood warning service	Preparedness	9	Short Term	Ongoing
NE14	Dee	River/Sea	Maintain existing defences and inspection regime	Protection	5	Short Term	Ongoing
NE15	Dee	River	Develop an integrated catchment approach flood risk management	Prevention	1, 2, 12, 13	Medium Term	Not started
NE16	Dee – Pumping Stations	River	Design and construction of flood risk asset improvements	Protection	1	Medium Term	Ongoing
NE17	Dee – Tidal Outfalls	Sea	Design and construction of flood risk asset improvements	Protection	1	Medium Term	Not started
NE18	Dyserth	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Medium Term	Not started
NE19	Garden City and Deeside Ind Est	River	Carry out structural assessment on existing structures to ensure they are fit for purpose	Protection	5	Long Term	Not started
NE20	Garden City and Deeside Ind Est	Sea	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Long Term	Not started
NE21	Garden City and Deeside Ind Est	River/Sea	Update existing hydraulic model	Review	7	Long Term	Not started
NE22	Glyndyfrdwy	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Long Term	Not started
NE23	Holt and Plas Devon	River	Design and construction of flood risk asset improvements	Protection	1	Long Term	Ongoing

Ref.	Location	Source	Measure name	Measure type	Link to FRMP Priority	Timescale	Status
NE24	Holt and Plas Devon	River	Improve incident response activities and resilience	Preparedness	8	Medium Term	Ongoing
NE25	Holt and Plas Devon	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Medium Term	Ongoing
NE26	Lache	River	Maintain existing defences and inspection regime	Protection	5	Long Term	Ongoing
NE27	Llandrillo	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Medium Term	Not started
NE28	Llangwm	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Long Term	Not started
NE29	Lower Dee	River	Improve existing flood warning service	Preparedness	9	Short Term	Ongoing
NE30	Mold	River	Improve existing flood warning service	Preparedness	9	Short Term	Ongoing
NE31	Mold	River	Update existing hydraulic model	Review	7	Medium Term	Not started
NE32	North East Wales Place	River/Sea	Work with RMAs both within Wales and cross border where we have a joint interest, to plan and undertake activities that reduce the risk of flooding to communities	Prevention/Protection/Preparedness/Review	1, 2, 13	Short Term	Ongoing
NE33	North Wales Coast	Sea	Update existing hydraulic model	Review	7	Medium Term	Not started
NE34	Pen y Ffordd	River	Maintain existing defences and inspection regime	Protection	5	Medium Term	Not started
NE35	Pentre-Celyn-Afon Hesbin	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Long Term	Not started
NE36	Prestatyn	River	Maintain existing defences and inspection regime	Protection	5	Short Term	Ongoing

Ref.	Location	Source	Measure name	Measure type	Link to FRMP Priority	Timescale	Status
NE37	Queensferry-Sandycroft-Manor Lane	River	Update existing hydraulic model	Review	7	Medium Term	Complete
NE38	Queensferry-Sandycroft-Manor Lane	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Medium Term	Not started
NE39	Queensferry-Sandycroft-Manor Lane	Sea	Design and construction of flood risk asset improvements	Protection	1	Medium Term	Not started
NE40	Rhydymwyn	River	Improve existing flood warning service	Preparedness	9	Long Term	Not started
NE41	Rhydymwyn	River	Update existing hydraulic model	Review	7	Medium Term	Not started
NE42	Rhyl	River	Maintain existing defences and inspection regime	Protection	5	Short Term	Ongoing
NE43	Rhyl	River	Carry out structural assessment on existing structures to ensure they are fit for purpose	Protection	5	Medium Term	Ongoing
NE44	Rhyl	Sea/River	Improve existing flood warning service	Preparedness	9	Long Term	Ongoing
NE45	Rhyl	Sea	Carry out structural assessment on existing structures to ensure they are fit for purpose	Protection	5	Long Term	Ongoing
NE46	Rossett and Burton	River	Design and construction of flood risk asset improvements	Protection	1	Medium Term	Not started
NE47	Rossett and Burton	River	Improve existing flood warning service	Preparedness	9	Long Term	Not started
NE48	Rossett and Burton	River	Improve incident response activities and resilience	Preparedness	8	Medium Term	Not started
NE49	Ruthin	River	Improve existing flood warning service	Preparedness	9	Medium Term	Ongoing

Ref.	Location	Source	Measure name	Measure type	Link to FRMP Priority	Timescale	Status
NE50	Ruthin	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not started
NE51	Shotwick Brook	River/Sea	Update existing hydraulic model	Review	7	Long Term	Not started
NE52	Upper Dee	River	Improve existing flood warning service	Preparedness	9	Short Term	Ongoing
NE53	Ystrad Communities	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not started

9. Monitoring and review

It has been a requirement of the Flood Risk Regulations for published Flood Risk Management Plans to be reviewed, and if necessary updated, every 6 years. The Retained EU Law (Revocation and Reform) Act 2023 will revoke this legislation by the end of 2023. We intend to continue planning our work in this way and will review the measures within the Flood Risk Management Plan on an annual basis. This is likely to occur during summertime so there is up to date information to inform our business planning processes. The progress of delivery of each measure will be assessed and if necessary updated at this point and we will produce updates on our progress as required.

10. Further information

This North East Wales Place section is one of six sections that provide detailed local information as part of NRW's Flood Risk Management Plan for Wales. There is also a National overview section that provides information, priorities and measures set at the National (Wales) level.

If you would like to find out further information about how we manage flood risk across Wales, you can access any of the following:

[Flood Risk Management Plan for Wales: National overview](#)

[Flood Risk Management Plan for Wales: South Central Wales Place](#)

[Flood Risk Management Plan for Wales: South East Wales Place](#)

[Flood Risk Management Plan for Wales: South West Wales Place](#)

[Flood Risk Management Plan for Wales: Mid Wales Place](#)

[Flood Risk Management Plan for Wales: North West Wales Place](#)