

# **Natural Resources Wales Flood Risk Management Plan: South Central Wales Place**

# Contents

1. Introduction .....	3
2. South Central Wales Place .....	5
3. Historic flooding in South Central Wales.....	7
4. Present day flood risk in South Central Wales.....	9
5. Future flood risk in South Central Wales.....	15
6. Recent flood risk management activity .....	20
7. Flood risk management work we are planning in South Central Wales .....	21
8. NRW Delivery Plan for South Central Wales Place .....	24
9. Monitoring and review.....	28
10. Further information.....	28

# 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 South Central Wales Area Statement identifies Working with Water 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 South Central 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 South Central 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 or by targeting those at highest risk, using the CaRR.

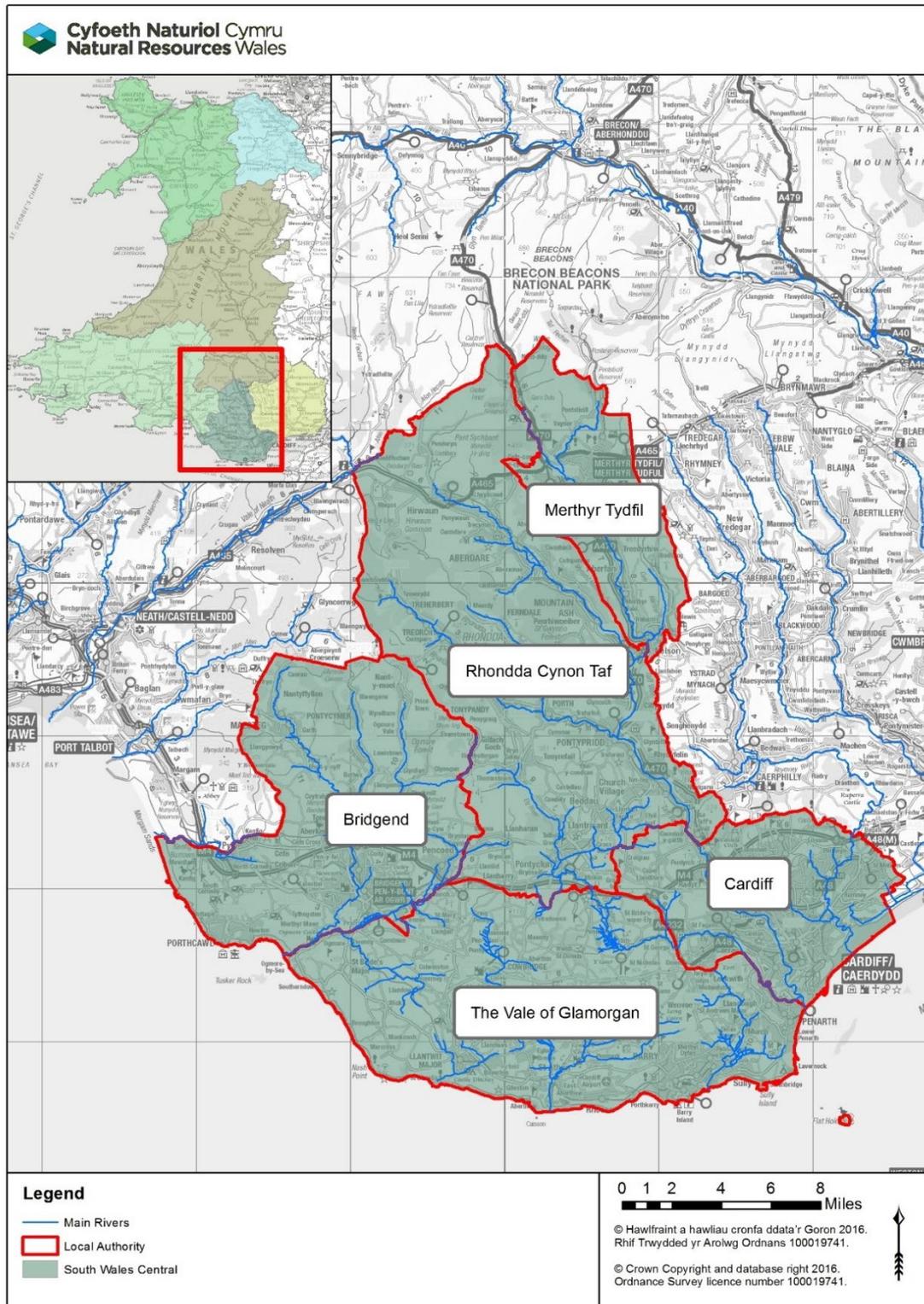
This FRMP is therefore fulfilling our requirements under section 25 of the Flood Risk Regulations (2009) but will also take into account recent fluvial and coastal flooding events and subsequent work arising from them.

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. South Central Wales Place

The NRW South Central Wales Place covers the Local Authorities of Bridgend, the Vale of Glamorgan, Merthyr Tydfil, Rhondda Cynon Taf and Cardiff. It is surrounded by the South East Place to the East, the South West Place to the West and the Mid Wales Place to the North.

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



South Central Wales is the most densely populated Place in Wales. It is home to over quarter of the Welsh population yet covers only 6% of the country's land mass. The major settlements are found in Cardiff, Barry, Bridgend, Pontypridd and Merthyr Tydfil.

To the North of the area is a mix of steep valley slopes of managed grassland and forest, with extensively urbanised narrow valley floors which include busy road and rail routes, industries, commercial developments and housing, all typically located close to rivers. Further South are the lowlands of the Vale of Glamorgan dominated by agriculture and the densely developed coastal plain of the City of Cardiff.

The South Central Wales Place has a coastline with the Bristol channel from Cardiff to Pyle, encompassing the port of Cardiff and the popular tourist destination of Barry Island. The South Central Wales Place coastline is covered by the 'Severn Estuary' and 'South Wales' Shoreline Management Plans.

Cardiff Bay was created in 2000 by fully impounding the Rivers Taff and Ely, allowing the redevelopment of Cardiff and Penarth and providing flood defence against the extreme tides of the Severn Estuary.

The larger rivers that can be found in the South Wales Central Place are the Taff, Cynon, Rhondda and Ogmore.

The river Taff is approximately 67km long from its source in the South Brecon Beacons to where it joins the Severn Estuary in Cardiff. The upper catchment has been modified by a series of dams and reservoirs to supply water to the residents and industries of South Wales. The Taff is joined by the river Cynon at Abercynon and the river Rhondda at Pontypridd before flowing South to Cardiff. The Taff and its tributaries are flashy in nature due to the steep sided valleys and underlying geology. Key communities are Merthyr Tydfil, Aberdare, Pontypridd and Cardiff.

The river Ogmore flows from Craig Ogwr to meet the Bristol channel at Ogmore. It has three main river branches the Llynfi, Garw and the Ewenny. The main town in the Ogmore catchment is Bridgend. The catchment above Bridgend is relatively steep which can make the river fast to respond to rainfall.

The other rivers of note in South Central Wales Place are the Ely, Cadoxton, Thaw and the Rhymney. The majority of the river Rhymney is in the neighbouring South East Wales Place. It enters the South Central Wales Place on the outskirts of East Cardiff before discharging into the Severn Estuary.

### 3. Historic flooding in South Central Wales

This section provides a summary of the significant flood events that have happened over the last 20 years in the South Central 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 South Central Wales Place is provided below:

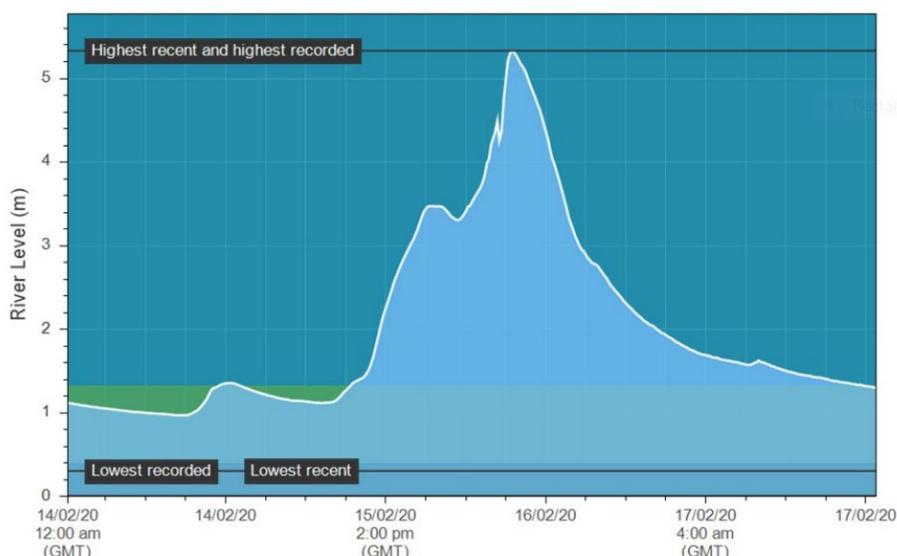
- On 5 September 2008 approximately 20 properties flooded in the Ely Bridge area of Cardiff from the River Ely.
- Storm Dennis (15 to 17 February 2020)

Storm Dennis brought heavy and persistent rain across much of Wales between 15 – 17 February 2020, with the South Wales Valleys particularly impacted. The Met Office issued a red warning for rain across parts of South Wales with some areas receiving more than 130mm of rain falling onto saturated ground, leading to major and widespread flooding.

Across the South Central Wales Place, rivers responded quickly to the rainfall falling across already saturated catchments. Record levels were recorded across most catchments in the South Wales valleys.

At Pontypridd, the River Taff reached its highest level since records began in 1968. The river level was 78cm higher than the previous highest level set during the 1979 floods. It went from an estimated flow of 55 m<sup>3</sup>/s at 7:00am on 15 February, in relatively normal conditions, to a peak flow estimated at 805 m<sup>3</sup>/s in just 22 hours during Storm Dennis - an increase of 4.2m in height by 4:45am on 16 February.

Figure 2: The peak river level at Pontypridd gauging station during Storm Dennis, 15 to 17 February 2020.



Across the Local Authorities in South Central Place, 21 properties flooded in Cardiff, 16 flooded in Bridgend, 225 flooded in Merthyr Tydfil and 1,476 flooded in Rhondda Cynon Taff.

- Closely following Storm Dennis, Storm Jorge brought further rainfall to the South Central Wales Place from the 28 February to 1 March 2020. Rainfall from Storm Jorge fell on already saturated ground which led to further flooding impacts, particularly in the Taff and Ely catchments. 141 properties flooded, of which 111 were residential and 30 were non-residential.
- On 23 December 2020, localised river flooding affected numerous locations across South Central Wales Place after 50 to 70mm of rainfall fell on an already saturated catchment, with particularly heavy rainfall over lower-lying catchments along the coastline. The worst affected location was Dinas Powys, Vale of Glamorgan where approximately 70 properties experienced internal flooding from the rivers Cadoxton and East Brook.

## 4. Present day flood risk in South Central Wales

Across the South Central Wales Place, there are 31,882 properties at risk of flooding from rivers and 14,906 properties at risk of flooding from the sea. This equates to nearly 85,000 people at risk of flooding from rivers and over 37,000 people at risk of flooding from the sea.

### 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 South Central 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 at 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 South Central Wales Place today?

The following tables show the split of properties by level of risk and source across the South Central 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 South Central 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
<b>Sea High</b>	6,840	713	130	7,683
<b>Sea Medium</b>	2,735	477	60	3,272
<b>Sea Low</b>	3,460	402	89	3,951
<b>Sea Total</b>	13,035	1,592	279	14,906

Table 2: The numbers of residential properties, non-residential properties and services at risk from river flooding in South Central 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
<b>Rivers High</b>	9,341	958	167	10,466
<b>Rivers Medium</b>	5,376	582	97	6,055
<b>Rivers Low</b>	13,024	2,042	295	15,361
<b>Rivers Total</b>	27,741	3582	559	31,882

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

The network of sea flood defences across the South Central Wales Place help to reduce the risk to over 7,000 properties (residential and non-residential) in the 1 in 30 year scenario (3.3% annual exceedance probability) and over 10,000 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 8,000 properties (residential and non-residential) in the 1 in 30 year scenario (3.3% annual exceedance probability) and over 11,000 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 South Central Wales Place, there is 36.4km of rail track and 490km of road (major and minor) at risk of flooding from rivers. This accounts for roughly one fifth of all rail track and one fifth of all roads that are at risk of flooding from rivers across Wales. In addition, there is 11.5km of rail track and 208km of road at risk of flooding from the sea.

## Agricultural land

There is just under 400km<sup>2</sup> of agricultural land that is at risk of flooding from the sea across Wales. There is just 3.6% of the overall total that is at risk of flooding from the sea in the South Central Place.

In addition, Wales has over 800km<sup>2</sup> of agricultural land that is at risk of river flooding. Only 4% of the overall total of agricultural land that is at risk of flooding from rivers is in the South Central Place. This is because the South Central Place is more densely populated and urbanised than any of the other Places so there is limited agricultural activity found here.

## Environment

There are a number of protected sites at risk of flooding across the South Central 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 South Central Wales. There are only small numbers of each protected site at risk in South Central Wales Place for flooding from rivers and the sea.

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

<b>Designation</b>	<b>Sea flooding – total area at risk in Wales (km<sup>2</sup>)</b>	<b>Sea flooding – total area at risk in SC (km<sup>2</sup>)</b>	<b>Sea flooding - % of Wales total at risk in SC</b>	<b>River flooding – total area at risk in Wales (km<sup>2</sup>)</b>	<b>River flooding – total area at risk in SC (km<sup>2</sup>)</b>	<b>River flooding - % of Wales total at risk in SC</b>
<b>RAMSAR</b>	204	7	4	23	0.0	0.0
<b>Special Areas of Conservation (SACs)</b>	385	11	3	113	0.6	0.5
<b>Special Protection Areas (SPAs)</b>	239	7	3	21	0.0	0.0
<b>Sites of Special Scientific Interest (SSSI)</b>	513	19.5	4	180	3	2
<b>Scheduled Ancient Monuments (SAMs)</b>	1	0.04	3.5	1	0.1	7

## Communities at most risk in South Central 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 South Central Wales, communities have been identified as Flood Risk Areas in regard to flooding from rivers or 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 South Central Wales Place Flood Risk Areas are:

- Roath – flood risk from rivers
- Canton – flood risk from the sea
- Riverside – flood risk from the sea
- Grangetown – flood risk from the sea
- St Mellons – flood risk from the sea

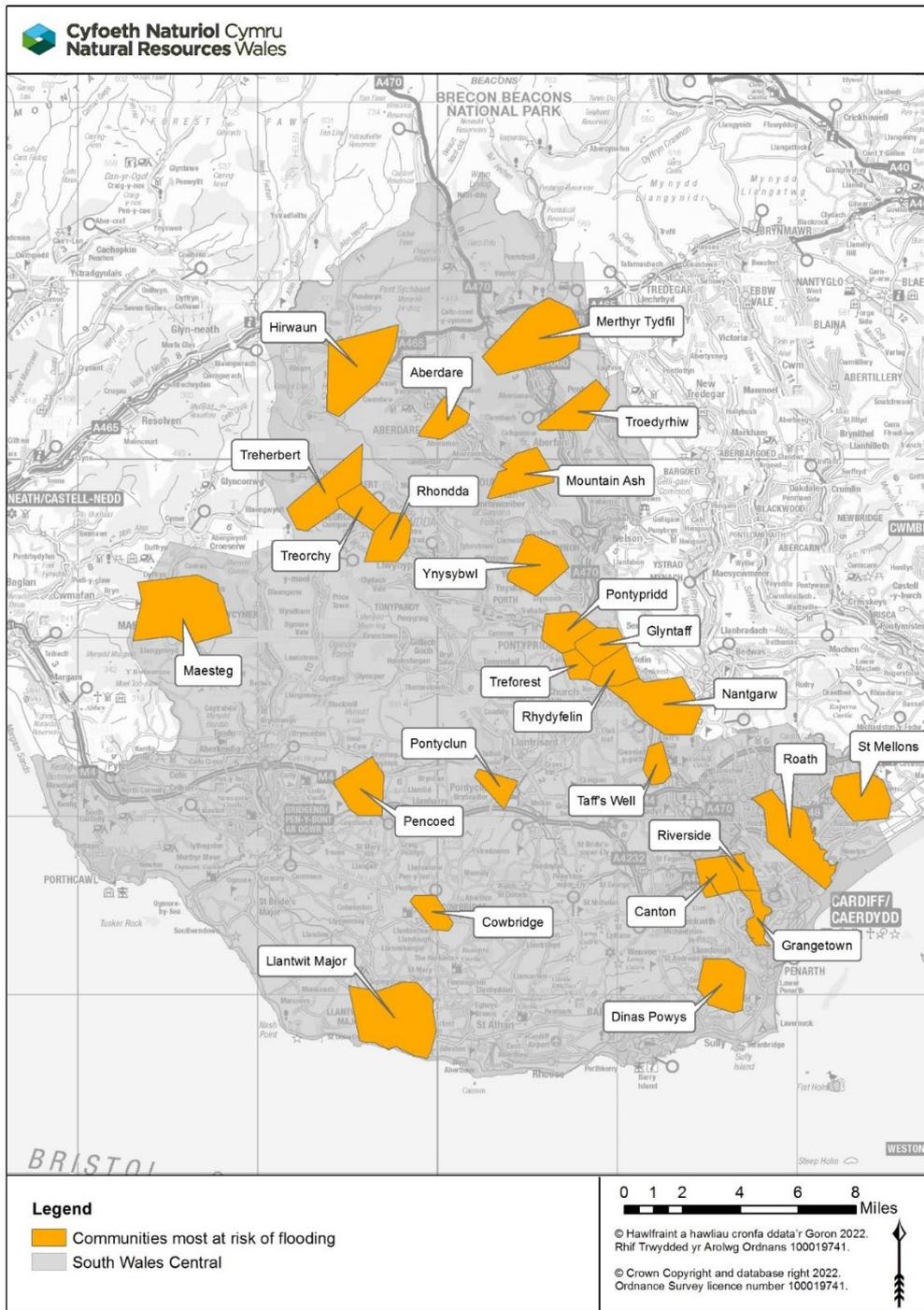
Further to this NRW has considered additional areas at risk of flooding from rivers and the sea. Figure 3 and accompanying Table 4 show the communities across South Central Wales that are at risk of flooding from rivers and the sea as identified by the CaRR and where we are planning to take action to manage the risk of flooding. Other communities within Mid 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 3. The Flood Risk Area communities for flooding from rivers and the sea are highlighted in bold.

<b>Community name</b>	<b>Local Authority Area</b>
Aberdare	Rhondda Cynon Taf
<b>Canton</b>	Cardiff
Cowbridge	Vale of Glamorgan
Dinas Powys	Vale of Glamorgan
Glyntaff	Rhondda Cynon Taf
<b>Grangetown</b>	Cardiff
Hirwaun	Rhondda Cynon Taf
Llantwit Major	Vale of Glamorgan
Maesteg	Bridgend
Merthyr Tydfil	Merthyr Tydfil
Mountain Ash	Rhondda Cynon Taf
Nantgarw	Rhondda Cynon Taf
Pencoed	Bridgend
Pontyclun	Rhondda Cynon Taf
Pontypridd	Rhondda Cynon Taf
Rhondda	Rhondda Cynon Taf
Rhydyfelin	Rhondda Cynon Taf

<b>Community name</b>	<b>Local Authority Area</b>
<b>Riverside</b>	Cardiff
<b>Roath</b>	Cardiff
<b>St Mellons</b>	Cardiff
Taff's Well	Rhondda Cynon Taf
Treforest	Rhondda Cynon Taf
Treherbert	Rhondda Cynon Taf
Treorchy	Rhondda Cynon Taf
Troedyrhiw	Merthyr Tydfil
Ynysybwl	Rhondda Cynon Taf

Figure 3: The communities across the South Central Wales Place that are most at risk of flooding from rivers and the sea as identified by the CaRR.



## 5. Future flood risk in South Central Wales

Across South Central Wales, there are predicted to be over 38,000 properties at risk of flooding from rivers and over 26,000 properties at risk of flooding from the sea by 2120. This is an increase of nearly 12,000 properties at risk of flooding from the sea and an increase of over 6,000 properties at risk of flooding from the sea.

This equates to an estimate of nearly 105,000 people at risk of flooding from rivers and over 70,000 people at risk of flooding from the sea by 2120. This is an additional 20,000 people at risk from flooding from rivers and an additional 33,000 people at risk from flooding from the sea 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 change projections also indicate that sea level rise will occur for all carbon emission scenarios and at all locations around the UK. Coastal areas will be progressively more 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 South Central Wales Place by 2120?

The following tables show the level of risk and source across the South Central 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 South Central Wales Place.

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
People	People	Count	37,474	70,348	+32,875	+88%
People	Residential properties	Count	13,035	23,256	+10,221	+78%
Economy	Non-residential properties	Count	1,871	3,217	+1,346	+72%
Economy	Key services	Count	279	515	+236	+85%

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
Economy	Railway	Km	11.5	24	+12.5	+11%
Economy	Road	Km	208	349	+141	+68%
Economy	Agriculture	Km <sup>2</sup>	14	19	+4.1	+29%
Environment	RAMSAR	Km <sup>2</sup>	7	7	0.0	-
Environment	Special Areas of Conservation (SACs)	Km <sup>2</sup>	11	11	0	-
Environment	Special Protection Areas (SPAs)	Km <sup>2</sup>	7	7	0.0	-
Environment	Sites of Special Scientific Interest (SSSI)	Km <sup>2</sup>	20	20	0	-
Environment	Scheduled Ancient Monuments (SAMs)	Km <sup>2</sup>	0.0	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 South Central Wales Place.

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
People	People	Count	84,838	104,809	+19,970	+24%
People	Residential properties	Count	27,741	33,524	+5,783	+21%
Economy	Non-residential properties	Count	4,141	5,040	+899	+22%
Economy	Key services	Count	559	681	+122	+22%
Economy	Railway	Km	36	48	+11	+31%
Economy	Road	Km	491	586	+95	+19%
Economy	Agriculture	Km <sup>2</sup>	33	37	+3	+9%
Environment	RAMSAR	Km <sup>2</sup>	0.0	0.0	0.0	-
Environment	Special Areas of Conservation (SACs)	Km <sup>2</sup>	0.6	0.6	0.0	-
Environment	Special Protection Areas (SPAs)	Km <sup>2</sup>	0.0	0.0	0.0	-

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
Environment	Sites of Special Scientific Interest (SSSI)	Km <sup>2</sup>	3	3.7	+0.7	+23%
Environment	Scheduled Ancient Monuments (SAMs)	Km <sup>2</sup>	0.1	0.1	0.0	-

## Communities at most risk of future flooding in South Central Wales

The lists below and the following map shows the communities across the South Central 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 South Central Wales Place are also predicted to see a change in danger by 2120 but those listed below are predicted to see the greatest change.

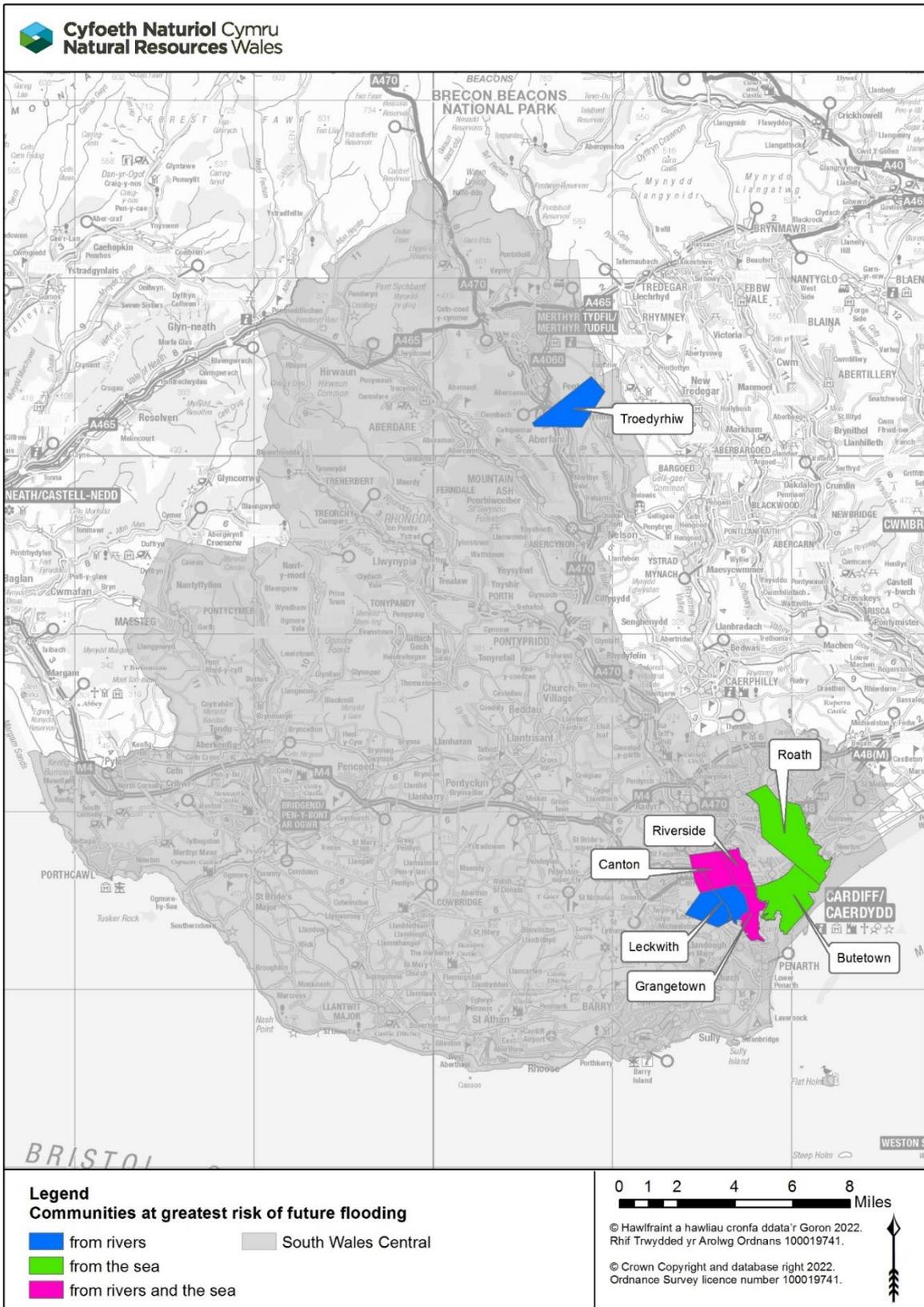
By 2120, the five communities in South Central Wales Place that are projected to experience the biggest change in danger from the risk of flooding from the sea are:

- Butetown
- Canton
- Grangetown
- Riverside
- Roath

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

- Canton
- Grangetown
- Leckwith
- Riverside
- Troedyrhiw

Figure 4: The communities across South Central 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.

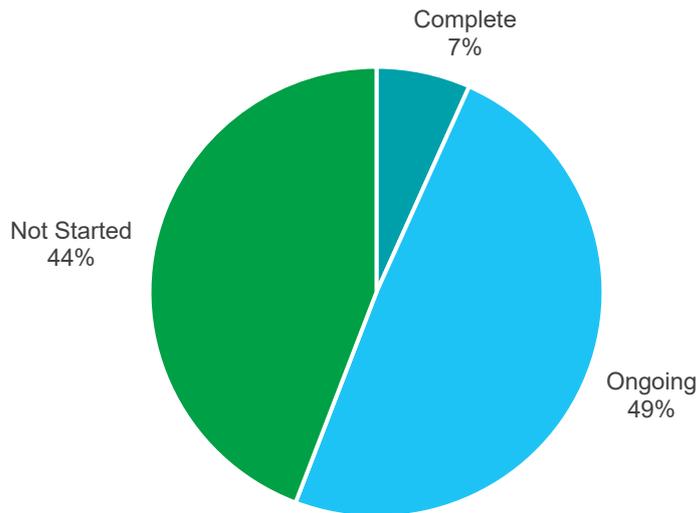
To support both strategic planning decisions and individual planning applications, we have developed a new [Flood Map for Planning \(FMfP\)](#). The FMfP shows how climate change will affect flood risk extents over the next 100 years. It shows the potential extent of flooding assuming no defences are 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 South Central Wales Place. The below chart shows a summary of our delivery of these measures.

Figure 5: The progress made against the NRW measures set out in the first cycle FRMPs in South Central Wales.



Key delivery highlights include:

- We delivered flood risk management schemes in Roath, Llwynypia, Cadoxton and Ely that reduced the risk of flooding to 564 homes and 131 businesses.
- We have delivered maintenance schemes such as at Taffs Well, Aberkenfig and Coytrahen, 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 Cwmparc, Ogmere Vale, Palmerston, Pontypridd and Ynysybwl.
- Significant evidence gathering, analysis and appraisal work is continuing across many communities in South Central Wales in response to the floods which impacted Wales in February 2020. This includes the consideration of options to further reduce the risk of flooding where possible.

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 South Central Wales

## Introduction

There are a number of communities within the South Central 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 South Central 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 South Central Wales Place over the coming years, subject to assessment and funding justification.

Table 7: The delivery plan of planned flood risk measures for South Central Wales Place.

Ref.	Location	Source	Measure name	Measure type	Link to FRMP Priority	Timescale	Status
SC1	Aberdare	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Ongoing
SC2	Aberdare	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SC3	Aberdare	River	Update existing hydraulic model	Review	7	Short Term	Ongoing
SC4	Canton	Sea	Maintain existing defences and inspection regime	Protection	5	Long Term	Ongoing
SC5	Cowbridge	River	Design and construction of flood risk asset improvements	Protection	1	Medium Term	Ongoing
SC6	Dinas Powys	River	Improve existing flood warning service	Preparedness	9	Short Term	Ongoing
SC7	Dinas Powys	River	Consider and integrate nature-based solutions including natural flood management in NRW flood risk schemes and activities	Prevention	1, 2, 4, 12	Short Term	Ongoing
SC8	Dinas Powys	River	Undertake catchment monitoring	Review	7	Short Term	Not Started
SC9	Glyntaff	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SC10	Glyntaff	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SC11	Glyntaff	River	Update existing hydraulic model	Review	7	Short Term	Ongoing

<b>Ref.</b>	<b>Location</b>	<b>Source</b>	<b>Measure name</b>	<b>Measure type</b>	<b>Link to FRMP Priority</b>	<b>Timescale</b>	<b>Status</b>
SC12	Grangetown	Sea	Maintain existing defences and inspection regime	Protection	5	Long Term	Ongoing
SC13	Hirwaun	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Ongoing
SC14	Hirwaun	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SC15	Hirwaun	River	Update existing hydraulic model	Review	7	Short Term	Ongoing
SC16	Llantwit Major	River	Design and construction of flood risk asset improvements	Protection	1	Medium Term	Ongoing
SC17	Maesteg	River	Improve existing flood warning service	Preparedness	9	Long Term	Ongoing
SC18	Mountain Ash	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Ongoing
SC19	Mountain Ash	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SC20	Mountain Ash	River	Update existing hydraulic model	Review	7	Short Term	Ongoing
SC21	Nant Garw	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SC22	Nant Garw	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SC23	Nant Garw	River	Update existing hydraulic model	Review	7	Short Term	Ongoing
SC24	Pencoed	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Medium Term	Not Started
SC25	Pencoed	River	Improve existing flood warning service	Preparedness	9	Medium Term	Not Started
SC26	Pontyclun	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SC27	Pontyclun	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SC28	Pontyclun	River	Build hydraulic model	Review	7	Short Term	Ongoing
SC29	Pontypridd	River	Update existing hydraulic model	Review	7	Short Term	Ongoing

<b>Ref.</b>	<b>Location</b>	<b>Source</b>	<b>Measure name</b>	<b>Measure type</b>	<b>Link to FRMP Priority</b>	<b>Timescale</b>	<b>Status</b>
SC30	Pontypridd	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SC31	Pontypridd	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SC32	Rhydyfelin	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SC33	Rhydyfelin	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SC34	Rhydyfelin	River	Update existing hydraulic model	Review	7	Short Term	Ongoing
SC35	Riverside	Sea	Maintain existing defences and inspection regime	Protection	5	Long Term	Ongoing
SC36	River Taff Catchment	River	Develop an integrated catchment approach flood risk management	Prevention/ Protection/ Review	1, 2, 12, 13	Medium Term	Ongoing
SC37	Roath	River	Maintain existing defences and inspection regime	Protection	5	Long Term	Ongoing
SC38	St Mellons	Sea	Maintain existing defences and inspection regime	Protection	5	Long Term	Ongoing
SC39	Taffs Well	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SC40	Taffs Well	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SC41	Taffs Well	River	Update existing hydraulic model	Review	7	Short Term	Ongoing
SC42	Treforest	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SC43	Treforest	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SC44	Treforest	River	Update existing hydraulic model	Review	7	Short Term	Ongoing
SC45	Ynysybwl	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SC46	Ynysybwl	River	Investigate feasibility for new flood warning service	Preparedness	9	Short Term	Not Started
SC47	Ynysybwl	River	Build hydraulic model	Review	7	Short Term	Ongoing

<b>Ref.</b>	<b>Location</b>	<b>Source</b>	<b>Measure name</b>	<b>Measure type</b>	<b>Link to FRMP Priority</b>	<b>Timescale</b>	<b>Status</b>
SC48	South Central Wales Place	River/Sea	Work with RMAs 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

## 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 South Central 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 West Wales Place](#)

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

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

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

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