Carmarthenshire County Council Flood Risk Management and Coastal Adaptation Local Strategy 2024-2030

A strategy for the management of flood risk and coastal adaptation across Carmarthenshire.

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Cyngor Sir Gâr
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Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning
AEP	Annual Event Probability	NFM	Natural Flood Management
BGI	Blue Green Infrastructure	NFU Cymru	National Farmers' Union Cymru
CaRR	Communities at Risk Register	NRW	Natural Resources Wales
CCC	Carmarthenshire County Council	RBD	River Basin District
CLA Cymru	Country Land and Business Association Cymru	RBMP	River Basin Management Plan
CMT	Corporate Management Team	RMA	Risk Management Authority
DCWW	Dŵr Cymru Welsh Water	PIMs	Performance Management System
FCERM	Flood and Coastal Erosion Risk Management	PSB	Public Service Board
FIDO	Flood Incident Duty Officer	SAB	Sustainable Drainage Approval Body
FMfP	Flood Map for Planning	SAC	Special Area of Conservation
FRMP	Flood Risk Management Plan	SEA	Strategic Environmental Assessment
FUW	Farmers' Union of Wales	SFCA	Strategic Flood Consequence Assessment
FWMA	Flood and Water Management Act (2010)	SINC	Sites of Interest for Nature Conservation
GIS	Geographic Information System	SMP2	Shoreline Management Plan 2
HRA	Habitats Regulations Assessment	SPA	Special Protection Area
LDP	Local Development Plan	SSSI	Sites of Special Scientific Interest
LFRMS	Local Flood Risk Management Strategy	SuDS	Sustainable Drainage System
LLFA	Lead Local Flood Authority	WCMC	Welsh Coastal Monitoring Centre
LNR	Local Nature Reserve	WFD	Water Framework Directive
NBS	Nature-Based Solutions		

Definitions

Word	Meaning
Annual Exceedance Probability (AEP)	A method of defining the chance of a flood occurring. E.g. A flood with a 1% AEP has a one in a hundred chance of being exceeded in any year
Biodiversity	Biodiversity is defined by the UN Convention on Biological Diversity (CBD) as the variability among living organisms from all sources including, inter alia, terrestrial, marine and other

Word	Meaning
	aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of their functions
Blue Green Infrastructure	Blue Green Infrastructure (BGI) is defined by the European Commission as 'strategically planned networks of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem service'
Capital works	Construction work for new and enhanced infrastructure, e.g. flood defences, typically delivered via capital funding from national or local government.
Catchment	An area in which the rainfall drains to a single watercourse
Coastal erosion	Erosion or wearing away of the coastline, usually due to wind or wave action
Communities at Risk Register (CaRR)	A database to provide an objective means of identifying risk and prioritising flood risk management activities at a Wales-wide, community level
Flood and Water Management Act 2010	Provides legislation for the management act of risks associated with flooding and coastal erosion. It reinforces the need to manage flooding holistically and in a sustainable manner
Flood risk	Probability of flooding occurring and the consequences when flooding happens
Flood risk management	Deals with the probability and consequences of flooding and seeks to change these factors to reduce the flood risk to people, property and the environment
Fluvial flooding	A type of flood that occurs when the water level in a river, lake or stream rises and overflows onto the neighbouring land
Groundwater	Water flowing or collecting under the ground in the soil or in pores and crevices in rock
Groundwater flooding	A type of flood that occurs when water levels in the ground rise above the natural surface
Land Drainage Act 1991	Legislation that sets out the rights and responsibilities in relation to land drainage, including private landowners, Local Authorities, Highways Authorities and Internal Drainage Boards
Lead Local Flood Authority (LLFA)	County councils and unitary authorities which lead in managing local flood risks
Main river	Usually a larger river or stream, defined in law as shown on a Main River Map. Natural Resources Wales has responsibility and powers for these in Wales.
Natural Resources Wales (NRW)	Welsh Government Sponsored Body that looks after the environment and flood risk in Wales
Nature-Based Solutions (NBS)	Actions to address societal challenges through the protection, sustainable management and restoration of ecosystems, benefiting both biodiversity and human well-being delivering ecosystem services and adding value to natural capital assets
Ordinary watercourse	A watercourse that does not form part of a main river

Word	Meaning
Risk management	Activities or strategies carried out to analyse, assess and reduce the flood risk in an area
Risk Management Authority (RMA)	A Welsh Risk Management Authority is defined in Section 6 of the Flood and Water Management Act 2010 as Natural Resources Wales (NRW); the 22 Local Authorities as Lead Local Flood Authorities (LLFA) and highway authorities; water companies operating in Wales (of which there are currently 4); and the Welsh Government, as highway authority for trunk roads.
River basin	An area of land drained by a river and its tributaries
River Basin District (RBD)	Main unit for the management of river basins defined under Article 3 of the Water Framework Directive
Surface water (pluvial) flooding	A type of flood that occurs when surface water runoff exceeds the capacity of the drainage systems to remove it
Sustainable Drainage Approval Body (SAB)	A service delivered by the Local Authority to ensure that drainage proposals for all new developments of at least 2 properties OR over 100 m^2 of construction area are fit for purpose, designed and built in accordance with the National Standards for Sustainable Drainage published by Welsh Ministers
Sustainable Drainage Systems (SuDS)	Systems designed to manage stormwater locally by mimicking natural drainage processes and patterns

1 Foreword

As a society, we are faced with a climate emergency, and it is our responsibility to take proactive measures to safeguard our communities and minimise the potential devastation caused by flooding and coastal erosion.

In our pursuit to manage flood risk and coastal erosion effectively, Carmarthenshire County Council (CCC) recognises the need to foster wider community resilience. By engaging and empowering our communities, we can collectively build a more resilient society that is better equipped to withstand the impacts of climate change. This Local Flood Risk Management Strategy (LFRMS) emphasises collaboration and participation, acknowledging that individual actions contribute to the overall resilience of our entire community.

Furthermore, we understand the significance of aligning our flood risk management and coastal adaptation interventions with the natural environment. Our interventions must enhance the natural landscape, working in harmony with nature to deliver multiple benefits and improve the overall wellbeing of our communities and future generations. By developing this approach, we not only mitigate against flood risk but also create habitats and enhance biodiversity which will enrich the lives of our citizens and promote better health and wellbeing.

However, we must acknowledge the financial constraints faced at this time in delivering such ambitious plans. As our resources become increasingly scarce, it is vital we explore innovative solutions and seek partnerships to optimise our effectiveness. In doing so we must ensure that our limited resources are prioritised in those communities at greatest risk and that we achieve the greatest outcomes possible.

Looking ahead to 2030, we recognise the importance of a community-led approach in flood risk management and coastal adaptation. Our citizens and businesses possess invaluable insights, experience and knowledge about their community, and it is imperative that we harness this wealth of information. By involving our communities and businesses at every stage of the decision-making process we can create tailored solutions and strategies that are rooted in our local population’s needs and aspirations.

To accomplish our goals, we must also facilitate better exchange of information with our citizens and businesses. By fostering a culture of collaboration, transparency, and

openness we can tap into the collective wisdom and expertise of our diverse stakeholders thereby enhancing the efficiency of our measures and actions.

Lastly, we must recognise the significance of strategic partnerships with other Risk Management Authorities (RMAs). Collaboration on a catchment scale will allow us to pool our resources, expertise, and knowledge, enabling us to address flood risk and coastal erosion more effectively across whole rivers and coastlines. Additionally, through co-operation with other RMAs, we can achieve better outcomes for communities in the form of a greater level of risk management for our communities and better delivery of our shared objectives.

In conclusion, this new flood risk management strategy encapsulates our commitment to managing climate change, promoting community resilience and wellbeing, and enhancing the natural environment with nature-based solutions. By adopting a community-led approach, collaborating with a wide range of partners and optimising our resources we endeavour to build a safe and prosperous sustainable future for all. Only together can we navigate the challenges of climate change, empower our communities to mitigate local flood risk, promote a more resilient society with improved health and wellbeing.

2 Introduction

2.1 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 LFRMS. Each LFRMS aligns with the Welsh Government's National Strategy for Flood and Coastal Erosion Risk Management (FCERM) in Wales (National Strategy), which 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 policy and legislative context to FCERM activities in Wales. The Flood Risk Regulations 2009 (revoked as part of the Retained EU Legislation Act on 31 December 2023) set out of a framework for effective management of flood risk in England and Wales. Under these regulations, National Resources Wales (NRW) has a duty to produce a national Flood Risk Management Plan (FRMP), which covers flooding from rivers, reservoirs and the sea. LLFAs have a duty to produce a local FRMP to cover flooding from surface water and smaller watercourses.

Different RMAs in Wales are responsible for different sources of flood risk. LLFAs are responsible for "local flood risk".

In Carmarthenshire, local flood risk is flooding from the following sources:

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

Figure 2-1: Sources of local flood risk in Carmarthenshire

This LFRMS focuses on identifying and managing these local sources of flood risk. As Carmarthenshire has 90 km of coastline, the LFRMS also considers management of

the risk of flooding and erosion from the sea.[1] For further details on the management of coastal erosion please refer to the Shoreline Management Plan in Section 5.5.5.

2.2 The purpose of our LFRMS

We published our first LFRMS in May 2013,[2] setting out our overarching approach to managing flood risk in Carmarthenshire.

Alongside the LFRMS, we developed and published a FRMP.[3] The FRMP was a more detailed evaluation on an electoral ward level and from this analysis, fifty high risk areas were further evaluated.

This document is our second LFRMS. Whilst the previous LFRMS and FRMP were published separately (May 2013 and May 2019, respectively), the second versions of each document will be more closely linked and published in order to enhance understanding and transparency, and to ensure consistency across the two documents.

These documents will explain how flood risk will be managed across Carmarthenshire, being consistent with local objectives, measures, policies and national strategies.

2.3 Targets within this LFRMS – Objectives, Measures and Actions

This LFRMS 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 2-2.

[1] The management of coastal floodjng and erosion along Carmarthenshire's coast is more fully outlined in the Lavernock Point to St Anne's Head Shoreline Management Plan2 https://www.southwalescoastalgroup.cymru/smp2/

[2] Flood Risk Strategy and Management Plan (gov.wales)

[3] Flood Risk Strategy and Management Plan (gov.wales)

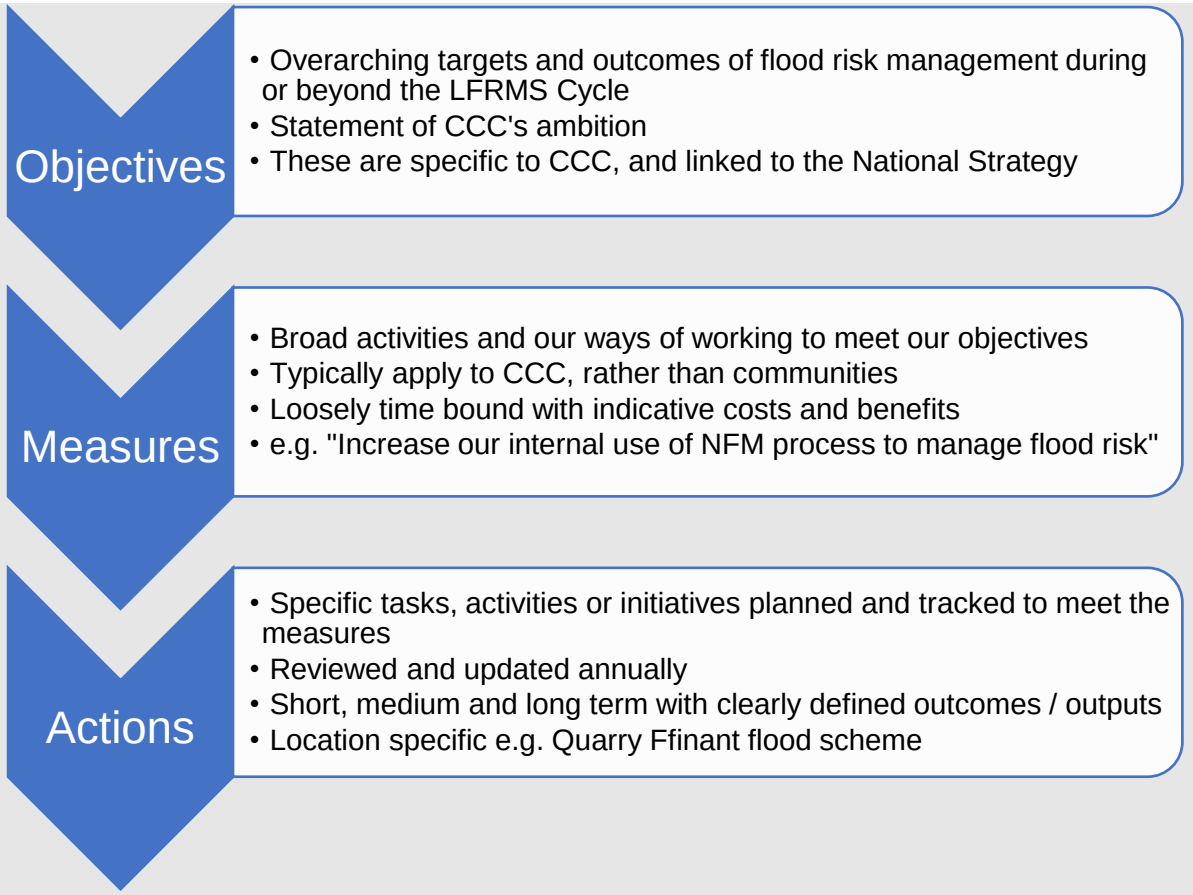


Figure 2-2: How objectives, aims and measures will be utilised to deliver our LFRMS.

2.4 The Structure of this LFRMS

This document is structured as follows:

- ***Chapter 3: How this LFRMS responds to climate change*** gives an overview of how this LFRMS responds to climate change.
- ***Chapter 4: Co-ordination*** summarises how this LFRMS aligns with our other strategic plans.
- ***Chapter 5: Roles and responsibilities for managing flood risk*** sets out the roles and responsibilities for managing flood risk in Carmarthenshire.
- ***Chapter 6: Our progress since FRMP-1 (2019-2023)*** details our progress since our first flood risk management plan.
- ***Chapter 7: Historic Flooding in Carmarthenshire*** discusses historical flooding in Carmarthenshire.
- ***Chapter 8: Strategic Objectives*** describes our strategic objectives or ambitions for managing flood risk in the coming years, and how these align with the objectives set out in the National Strategy.
- ***Chapter 9: What is the risk of flooding in Carmarthenshire?*** presents a strategic assessment of the risk of flooding across Carmarthenshire.

- ***Chapter 10: Flood risk in your River Basin Districts*** presents a strategic assessment of flood risk in Carmarthenshire, on a district level.
- ***Chapter 0: Measures to manage flood risk across Carmarthenshire*** sets out our flood risk management measures. These are broad activities and ways of working which help us to meet our strategic objectives.
- ***Chapter 12: Actions to manage flood risk across Carmarthenshire*** describes how we will use a flood risk management action plan to meet our measures.
- ***Chapter 13: Funding and Prioritisation*** sets out our funding and prioritisation.
- ***Chapter 14: Environmental Assessments*** sets out what environmental assessments will accompany this document to ensure we are compliant with our Environment Act duties and responsibilities.
- ***Chapter 15: Monitoring Progress*** describes how we will measure and monitor our progress in delivering the objectives, measures and actions set out in this LFRMS.

3 How this LFRMS responds to climate change

3.1 Climate change risk in our area

The Senedd was the first Parliament in the world to declare a climate emergency. Climate change is likely to increase the risk and severity of flooding across Wales, through more frequent and intense rainfall events, sea level rise and coastal storm surges.

CCC is committed to tackling climate change and acknowledge that we have a significant role to play in both further reducing our own greenhouse gas emissions and providing the leadership to encourage residents, businesses and other organisations to take action to cut their own carbon footprint.

One of the Council's thematic priorities is "Decarbonisation & Nature Emergency". The natural environment is a core component of sustainable development and we are committed to addressing the climate and nature emergencies.

In February 2019, we declared a climate emergency and made a commitment to becoming a net zero carbon local authority by 2030. We have since become the first Local Authority in Wales to publish a Net Zero Carbon Action Plan,[4] which was endorsed by full Council in February 2020.

We are taking a pragmatic approach towards becoming a net carbon zero local authority by 2030, with our initial focus being on our measurable carbon footprint. This does not preclude other wider actions to address the climate emergency which are being carried out across Council departments.

In February 2022, the Council also declared a nature emergency to mitigate the decline in our natural fauna and flora.

This LFRMS will help to mitigate against some of the impacts of the climate and nature emergencies 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.

[4] Route Towards becoming a Net Zero Carbon Local Authority: Carmarthenshire Council Council's Strategy (Feb 2020).

3.2 How our LFRMS addresses these risks

The list below, while not exhaustive, documents how our FCERM activities will seek to have positive impact on climate change.

- We will use the Flood Map for Planning when undertaking flood risk assessments (including climate change allowances).
- We will utilise the Welsh Government guidance on Adapting to Climate Change[5] with climate change allowances for FCERM scheme designs.
- We will develop and promote Natural Flood Management (NFM) FCERM schemes and nature-based solutions to reduce our capital works carbon footprint.
- We will implement FCERM interventions alongside, and in collaboration with, our:
    - Tree and Woodland Strategy
    - Blue and Green Infrastructure Strategy
    - Phosphates and Nitrates Strategy
    - Local Development Plan (LDP)
- We will ensure our FCERM interventions support the recovery of biodiversity as per CCC's Local Nature Recovery Action Plan.
- We will continue to work with the Welsh Coastal Monitoring Centre (WCMC) and the Swansea and Carmarthen Bay Coastal Engineering Group to deliver the actions within the Shoreline Management Plan (SMP) 2, but also monitor and develop an understanding, and evidence base, of how our coastline is changing.
- We will collaborate with the Carmarthenshire Public Services Board (PSB) to align our initiatives with the Well-being Assessment and Plan for 2023-28 and the Climate Change Risk Assessment work package.
- We will work with fellow RMAs such as NRW and Dŵr Cymru Welsh Water (DCWW).
- We ensure all new developments follow the latest sustainable drainage design guidance and factor in allowances for climate change.

[5] The Welsh Government, 2022, Adapting to Climate Change: Guidance for Flood and Coastal Erosion Risk Management Authorities in Wales

4 Co-ordination

4.1 How this LFRMS aligns with CCC and other Carmarthenshire strategic plans

This LFRMS has been developed in co-ordination with the strategic planning processes and plans of other RMAs and partners. A summary of which has been detailed below, and in Figure 4-1:

- West Wales River Basin Management Plans (NRW)
- The National FRMP (NRW)
- Water Resources Management Plan (DCWW)
- Drainage and Wastewater Management Plan (DCWW)
- Asset Management Plan (Network Rail)

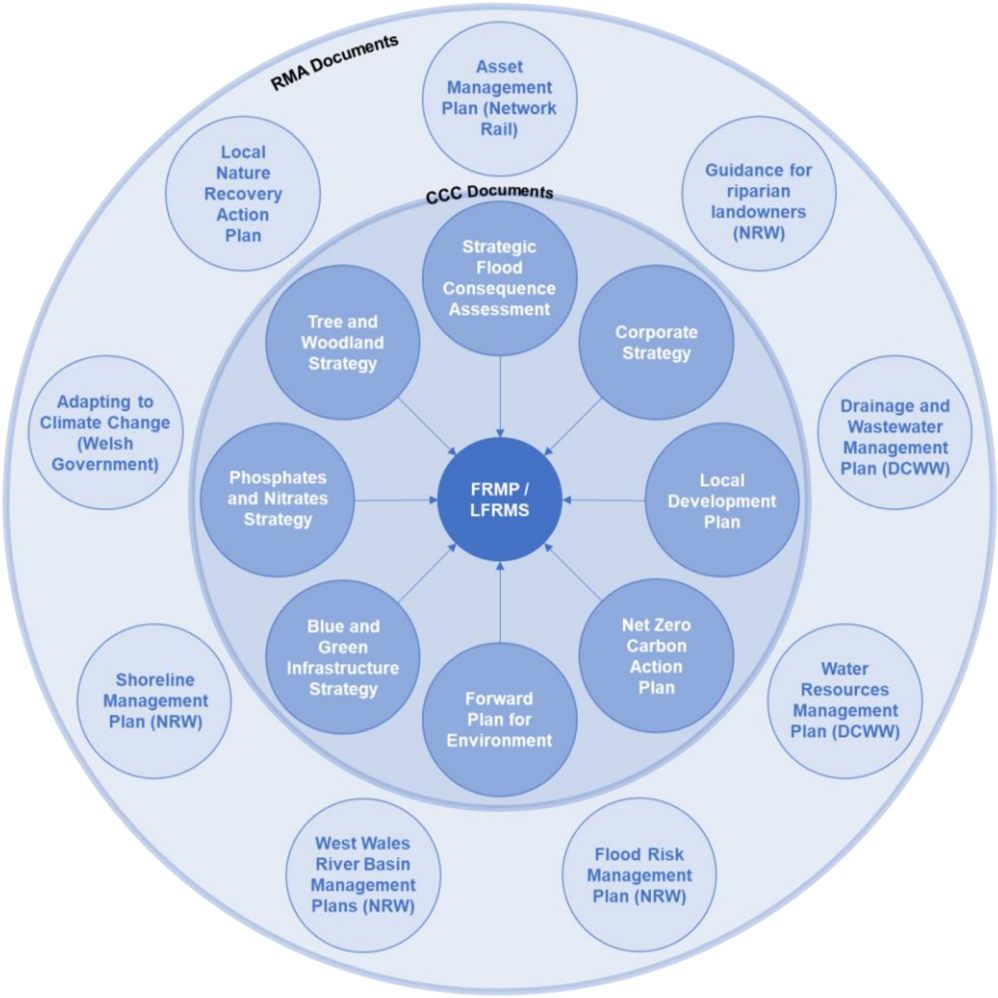


Figure 4-1: CCC and RMA documents inputting into the FCERM LFRMS

4.2 Co-ordination with others

We are committed to working in partnership with RMAs, infrastructure owners, local communities, businesses and third sector organisations to achieve our FCERM goals and outcomes.

We are adopting a catchment-based approach to managing flood risk in Carmarthenshire in line with our partner RMAs. We aim to promote forward planning and a holistic, thematic approach to FCERM which promotes collaborative working, whilst also delivering wider social, economic and environmental benefits. The implementation of NFM measures, Nature-Based Solutions (NBS) and Sustainable Drainage Systems (SuDS) will be a large part of our commitment to working closely with partner organisations.

We will continue to coordinate the delivery of our objectives, measures and actions through future consultation and engagement activities with RMAs, particularly in the development of our updated flood and water management related plans.

We also recognise the importance of enhancing our LFRMS with the public and input knowledge they have. As such, we have undertaken public engagement and consultation activities in the development of this LFRMS. The details and outcomes of both engagement and consultation activities are discussed in Appendix A.

5 Roles and responsibilities for managing flood risk

Flood risk in Carmarthenshire is managed by multiple agencies, depending on the source of the flooding. CCC as the LLFA, is responsible for local flood risk as defined in Section 2.1 and also manage elements of tidal flooding and coastal erosion in partnership with NRW. CCC are responsible for parts of the sewer network that service our property and housing stock.

5.1 Sources of flooding and key points of contact

5.1.1 Surface water flooding

This occurs when heavy rainfall exceeds the capacity of the local drainage networks and ground to absorb it. This can lead to water flowing across the ground and ponding in low-lying areas. This type of flooding is typically caused by short, intense rainfall and is often localised with short lead-times, making it difficult to predict, albeit localised low spots are often affected.

Report surface water flooding issues to CCC here.

5.1.2 Groundwater flooding

This occurs when the ground becomes saturated and water rises to ground level, or when water flows from normal springs. Groundwater flooding, wet or waterlogged gardens and springs breaking ground are becoming more and more common. This flooding can be more prevalent after prolonged periods of rain in the autumn and spring.

Report groundwater flooding issues to CCC here.

5.1.3 Ordinary watercourses

These are defined as watercourses that are not a main river (see below). The definition of a watercourse is broad, but the majority of streams, ditches and rivers in Carmarthenshire are ordinary watercourses.

Flooding from ordinary watercourses occurs when flows in a watercourse exceed its capacity, which can result in overtopping and/or breaching of flood defences following heavy rainfall. It can also be caused by debris build up causing blockages to infrastructure.

Report ordinary watercourse flooding issues to CCC here.

5.1.4 Main rivers

Main rivers are classified and managed by NRW and can be viewed online here. A rough rule of thumb is that these are the biggest rivers in Carmarthenshire (e.g. the Teifi, Towy, Cothi, Loughor, Amman etc.) but their upper reaches are normally ordinary watercourses.

Flooding from main rivers occurs when flows in a watercourse exceed its capacity, resulting in overtopping and/or breaching of flood defences structures.

Report main river flooding issues to NRW here or by calling 03000 65 3000.

5.1.5 Tidal and coastal flooding

Tidal flooding may occur on the coast or in estuaries and low-lying river reaches. High spring tides may be fairly predictable, but weather conditions can create storm surges that add significantly to water levels. Both tidal levels and storm surge frequency are expected to increase in the future. Fluvial flooding may also be increased through tide-locking at the river mouth.

Coastal flooding is associated with high tides but also includes the additional effects of winds and waves. It may also interact with and worsen the impact of coastal erosion.

Report flooding caused by the sea to NRW here or by calling 03000 65 3000.

5.1.6 Sewer flooding

Sewers are the responsibility of the asset owners. In most cases in Carmarthenshire, the asset owner is Dŵr Cymru Welsh Water (DCWW), but private systems are the responsibility of their owners or those who derive benefit from them. Sewers can drain surface water and/or foul water. Flooding from these systems is normally due to a blockage or damage but can also be attributed to capacity issues caused by excess surface water entering the drainage network and exceeding the capacity.

Report sewer flooding to DCWW in the first instance here.

5.1.7 Highway Flooding

Highway flooding is when water pools on the carriageway or the walkway, or when the highway gullies and culverts cannot take the volume of the water. Blockage and blinding are significant causes of highway flooding and, during the autumn leaf fall, a

significant volume of incidents are reported. This is the most commonly reported problem in Carmarthenshire.

Report highway flooding issues to CCC here.

5.2 Risk Management Authorities and their functions

RMAs 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 Flood and Water Management Act 2010 (FWMA). In addition to these statutory duties, the FWMA sets out a range of permissive powers for RMAs, enabling them to undertake defined activities if they so wish.

A high-level overview of the roles and responsibilities of key stakeholders in Wales is provided in Figure 5-1 below.

Figure 5-1: Overview of FWMA Roles and Responsibilities (adapted from the National Strategy)

5.3 Other responsible partners

In Carmarthenshire, the groups outlined in Table 5-1 also have a key role to play in the management of flood risk:

Table 5-1: Roles of other responsible partners

Stakeholder	Actions
Riparian landowners	If you are a riparian landowner, meaning you own land next to a waterway, you may be responsible for maintaining and repairing a flood defence. Guidance for riparian landowners is available from NRW.
Local partnerships, forums and community groups	Monitor and support community preparedness for flood events and liaise with relevant RMAs.
Property owners	Find out the flood risk to your property. Plan and implement property flood resilience as required.
Housing associations (e.g. Pobl, Bro Myrddin, etc.)	Support residents, including with property flood resilience, and in recovering from a flood incident.
Farming unions (e.g. NFU Cymru, FUW, CLA Cymru)	Support farmers to understand flood risk, build flood resilience and implement measures to reduce surface water runoff from farms. Advocate for the protection of agricultural land from flooding.
Network Rail	Manage flood risk associated with Network Rail assets and improve the resilience of assets to flooding.

5.4 How we manage flooding incidents in Carmarthenshire

5.4.1 Prior to flooding incidents

We undertake daily monitoring of the weather (principally rainfall) and the tides via a flood incident duty officer (FIDO) system on a weekly rota basis.

The primary duty of the FIDO is to monitor the rainfall, tides and storm surge and inform CCC's Flood Defence and Coastal Protection Manager of any issues.

When severe weather, storms or high tides are forecast, the team instigate preparatory operational actions, which can range from media communications and pre-storm asset checks, to instigating emergency planning protocols and ensuring additional operational staff are available.

5.4.2 During a flooding incident

Flooding issues are reported to us via an online system or via the call centre during office hours (01267 2345567) or via Delta Wellbeing out of hours (0300 333 2222).

We operate an incident classification system and a prioritisation schedule, thus ensuring that the incidents with highest risks are actioned first (e.g. risk to life, high speed roads, internal flooding). An overview of the CCC incident reporting process is shown in Figure 5-2.

All incidents are recorded to ensure we understand the severity of the incident. This informs future priorities and works.

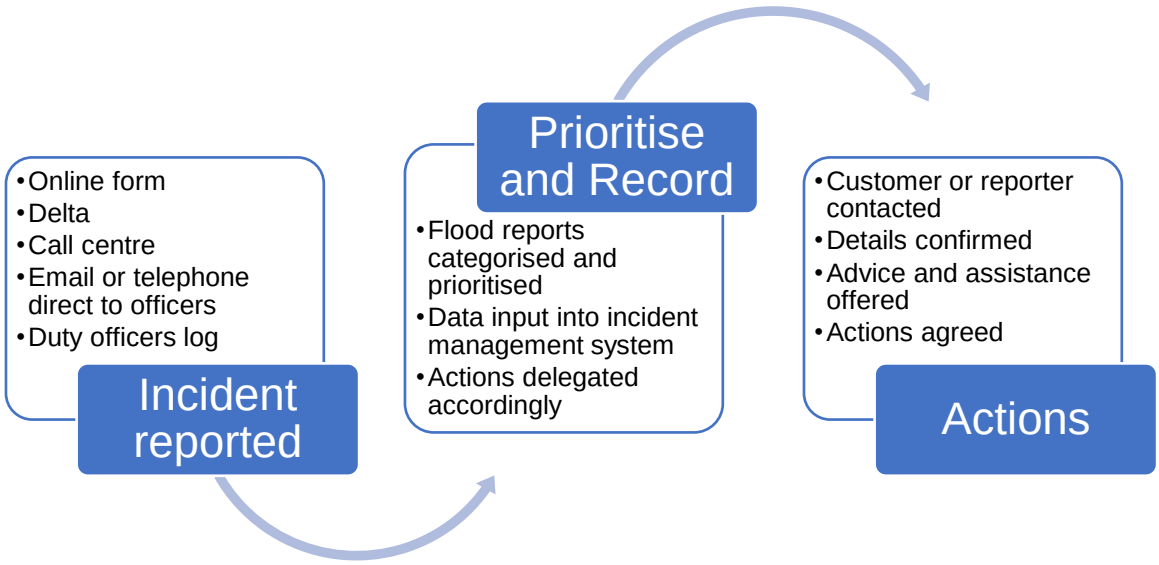


Figure 5-2: Incident reporting process within CCC

5.4.3 After a flood event

This is the recovery phase and incident investigation. We ensure that residents and businesses are supported as much as is possible, and we aim to understand why flooding has happened in every flood incident.

When 20 or more properties have been affected by internal flooding, in any geographical area, we undertake a formal incident investigation, under Section 19 of the FWMA. The Section 19 report investigates the most likely cause of the flooding, its impact and lays out the responsibilities of the RMAs, as well as recommendations to mitigate future flood event impacts. CCC hosts previous Section 19 reports here on their website.

The details of who and what has been affected, and the severity are logged on our FCERM database and used to inform future works programming and studies. We submit annual applications for funding to the Welsh Government, and our flood risk 'intelligence', namely data from reported incidents and investigations, helps support those applications.

5.5 Other FCERM duties

In addition to our flood incident management duties, CCC, as an LLFA, also undertake the following duties.

5.5.1 Asset management

We undertake annual inspection of over 300 above ground flood risk assets[6] and five miles[7] of underground culverts. Following these surveys, we prioritise repairs and maintenance, and then procure and manage those repairs. We undertake an annual programme of exploratory surveys and data gathering, focusing on areas of high flood risk where there is poor data available. All of this is recorded and managed via our asset management system.

5.5.2 Consenting and permitting

As the Sustainable Drainage Approving Body (SAB) we consent all sustainable drainage systems (SuDS) on new developments in Carmarthenshire. CCC SAB provide expert advice and guidance to the Local Planning Authority on over 650 applications per year.[8] Where the SuDS serves more than one dwelling, there is a statutory duty for us to adopt the SuDS. This involves a legal adoption process and payment of a commuted sum. We inspect every drainage system consented at least once to ensure compliance.[9]

Under Section 23 of the Land Drainage Act 1991, CCC has a duty to control certain activities that might have an adverse impact on flood risk and the environment. This means that consent is required for any flood defence building or any work on an ordinary watercourse. More information is available on the CCC website here.

[6] Numbers based on inspection programme 2021-2023
[7] Average length of culvert surveyed per year from 2021 to 2023
[8] Average number of consultations 2021-2023 (Arcus)
[9] With the exception of NRW forestry consents.

5.5.3 Capital works programme

In recent years we have developed and expanded our FCERM capital works programme. We aim to upgrade two FCERM assets annually (subject to funding) plus operate a pipeline programme of flood risk management schemes. Our ambition is to feed the pipeline annually by applying for Welsh Government funding for outline business case development. If successful, these business cases, subject to funding, are taken forward to full business case and detailed design culminating in construction of new flood risk management assets, e.g. flood defences, in the medium to longer term. A summary of our current capital works programme can be viewed in Appendix B.

5.5.4 Reservoirs

We manage four reservoirs in Carmarthenshire in line with the Reservoirs Act 1949. All four are inspected annually by an external Supervising Engineer. Actions from these inspections are delivered within the specified timescales.

5.5.5 Coastal Adaptation and Risk Management

We have over 90 km of coastline in Carmarthenshire, 20 km of which is afforded man-made protection from flooding and / or erosion. Shoreline Management Plans set out a shared strategic approach for managing the coastline from coastal flooding and erosion risks. Their aim is to reduce the risks to people, the developed, historic and natural environments over the next century. The Lavernock Point to St Ann's Head SMP2 is the primary policy document relating to the management of Carmarthensire's shoreline and contains 87 actions to be delivered.[10]

NRW has produced a National FRMP, laying out the objectives, priorities and measures at the National (Wales) level. This is also split into sections according to the NRW Operational areas. The FRMP for South West Wales, which includes local flood risk and flood risk management measures in the area, is relevant to Carmarthenshire.

Looking forward, we are seeking to work more closely with coastal communities to advise them on the effects of climate change and develop an understanding of how they wish to adapt to these future challenges.

[10] Shoreline Management and Coastal Adaption in Carmarthenshire; CMT and Scrutiny Committee paper (2023)

5.6 Key policies

We currently have the following policies relating to flood and coastal erosion risk management in Carmarthenshire.

- Sandbags[11]

On its website, CCC also provides guidance on a range of other flood topics, including *property flood resilience,* flood recovery and flood insurance.

Over the medium term, we will be seeking to develop policies, in collaboration with internal and external partners on:

- SuDS infrastructure; and
- Blue green infrastructure (BGI).

[11] CCC Sandbag policy (2022) - https://www.carmarthenshire.gov.wales/media/1231613/2022-sandbag-policy.pdf

6 Our progress since FRMP-1 (2019-2023)

We published our first Flood Risk Management Plan in 2019. The FRMP is a framework of actions to implement the first LFRMS's objectives and measures.

Part-1 was an electoral ward level (high level) analysis of surface water risk. It focused on higher level themes and measures, rather than operational actions. In the previous FRMP, several measures were identified and implemented.

Our progress to date on these measures is as follows:

- 62.5% (10 of 16) of the measures in Part-1 were implemented in the areas of greatest flood risk in line with best practice and, more recently, the National Strategy;
- 12.5% (2 of 16) of the measures in Part-1 were implemented county-wide, and
- 25% (4 of 16) of the measures in Part-1 were superseded by other measures or operational actions from Part-2 of the FRMP, as detailed below.

Part-2 of the FRMP was an operational analysis of the areas at greatest risk from surface water flooding in Carmarthenshire. 50 areas of highest risk were identified as 'policy unit' areas or high-risk surface water flood risk areas across Carmarthenshire, and they have been the operational focus during the life cycle of the FRMP.

Our progress to date on the Part-2 actions is as follows:

- 90% of all actions in Part-2 have been completed.
- 6% are currently ongoing and include capital works at Newcastle Emlyn, culvert repair works at Dafen, and knotweed management in Burry Port.
- Only 4% remain 'un-actioned'.

Actions that are ongoing or yet to start remain a focus for CCC. We are engaging with RMAs and other partners both locally and regionally to move these actions forward.

In addition to the documented actions in the plan, we have identified additional actions and interventions to be undertaken in 40% of the highest risk areas. These have been undertaken or are currently being delivered. Key delivery highlights are detailed in Table **Error! Reference source not found.** below.

Table 6-1: Table of actions undertaken in higher risk areas (2019-2023).

Year	Project Name	Details	No. of Properties Benefiting
2019	New School Road, Garnant	New trash screen, affording greater flood resilience	11
	Bishops Road, Garnant	New trash screen decreasing the flood risk	25
	Llanybydder Dairy	New culvert under the B4337 decreasing the risk of blockage and flooding	7
2020	Reservoir Road, Cwmoernant	New Trash Screen affording greater flood resilience	12
2021	COVID-19	No action taken due to COVID-19	
2022	Brynglas, Drefach	New structure and Trash Screen affording greater flood resilience	18
	1904 Outfall, Ferryside	Repair to damaged sea outfall	25
	Llansteffan Middle Sea Outfall	Repair to damaged sea outfall	16
	Trebeddrod Reservoir Grouting		
	Trebeddrod Reservoir Syphon Construction		
2023	Quarry Ffinant Culvert, Newcastle Emlyn	Replacement of a collapsing culverted watercourse	50
	Margaret Street NFM	Creation of 4 ponds and 13 leaky dams in Carmarthenshire's first Natural Flood Risk Management Scheme	22
	Cae Ffynnon stream	Re-profiling of a small stream and construction of stop logs	18
	Kidwelly Industrial Estate	Creation of a new drainage channel.	8
	Bryngwyn Rd, Dafen	Upgrade of surface water drainage system	

7 Historic Flooding in Carmarthenshire

There has been significant flooding recorded in Carmarthenshire over many years. Our records suggest that during 1987 Carmarthenshire saw its worst flooding on record, with communities in the Towy and Teifi Valleys significantly affected.

More recently, Storm Callum in October 2018 caused widespead flooding, with most residents agreeing that this was the worst flooding since 1987. Again communities across the county were significantly affected, with the worst areas affected being Pont Tyweli, Llanybydder and Carmarthen[12]. Post Storm Callum, Storms Dennis (February 2020) and Storm Christoph (January 2021) had a considerable impact on council services and emergency response.

In October 2021, more than 20 residential dwellings were flooded in Kidwelly as a result of wet weather. This triggered the need for a Section 19 flood investigation under the FWMA, as discussed in Section **Error! Reference source not found.**. This report i s publicly available on the CCC website and can be found here.

In recent years, improvements to our processes and systems have allowed us to better capture information relating to flooding across Carmarthenshire. A large percentage of our data and intelligence is provided by our citizens and businesses, which we gratefully appreciate.

Further information on flood history is available on the CCC website here. In Appendix C, we have collated a summarised list of the significant flooding events from 1929 to the present day. We will use our ongoing community and public consultation events to further develop this into a more comprehensive record and better understand our areas of flood risk. More information on the causes of flooding can be found in Section 5.1.

[12] Investigation into Flooding – Storm Callum, 12-14 October 2018. s19-storm-callum-vp223.pdf (gov.wales)

8 Strategic Objectives

8.1 Strategic Objectives in Carmarthenshire

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

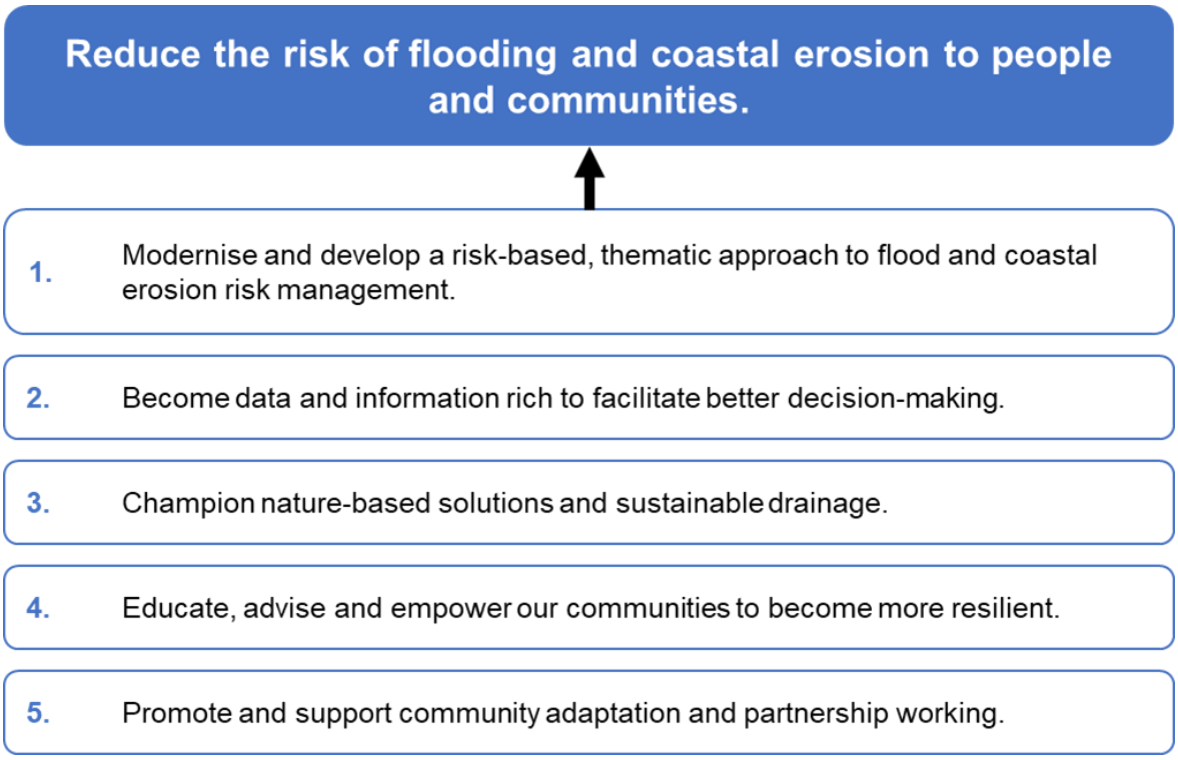


Figure 8-1: CCC LFRMS aim and strategic objectives

8.2 National Strategy Objectives

The National Strategy sets out an overarching aim to reduce the risk to people and communities from flooding and coastal erosion.[13] It identifies five objectives for delivering this aim. These are summarised below in Figure 8-2.

Figure 8-2: Welsh Government FCERM National Strategy aims and objectives.

Flooding and coastal erosion can have widespread effects, from the well-recognised economic and environmental impacts to the less-recognised impacts on peoples' wellbeing. The National Strategy acknowledges the impacts flooding can have on mental health during and after a flood, as well as the long-term health and wellbeing impacts which can continue after the incident. As such, the programmes and measures associated with the National Strategy will delivery wider wellbeing benefits through social and environmental improvements, and economic gain.

8.3 How we meet the national objectives

While the focus of our LFRMS must be relevant and useful to Carmarthenshire, we must also have regard for the National Strategy and direction of travel which our local aims and objectives need to support the delivery of and align with. Specifics of how our objectives will be actioned are detailed in the FRMP.

Table below demonstrates how our aims and objectives link into the National Strategy aims and objectives.

[13] Welsh Government 2020 National Strategy for Flood and Coastal Erosion Risk Management in Wales | GOV.WALES

Table 8-1: CCC FCERM LFRMS aims and objectives.

CCC FCERM LFRMS Aim – **Reduce the risk of flooding and coastal erosion to people, businesses and communities**					
CCC FCERM LFRMS OBJECTIVES	**National Strategy Objectives**				
	A	**B**	**C**	**D**	**E**
Modernise and develop a risk-based, thematic approach to flood and coastal erosion risk management.	**X**	**X**	**X**	**X**	**X**
Become data and information rich to facilitate better decision-making.	**X**		**X**	**X**	
Champion nature-based solutions and sustainable drainage	**X**	**X**		**X**	**X**
Educate, advise and empower our communities to become more resilient.	**X**			**X**	
Promote and support community adaptation and partnership working.	**X**	**X**		**X**	**X**

9 What is the risk of flooding in Carmarthenshire?

9.1 How we assess flood risk (methodology)

Our assessment of flood risk is central to achieving our aims and objectives. With an understanding of flood risk across all of Carmarthenshire, we are able to prioritise our resources and focus on helping those at greatest risk.[14]

There are many sources of data that can be utilised to develop our knowledge of flood risk. Flood risk maps, together with improved asset data and modelling, has provided us with a much more enhanced and accurate understanding of local flood risk.

For the purpose of identifying the areas in Carmarthenshire at greatest risk from flooding, we have used the Community at Risk Register (CaRR)[15] as our primary data set, and then supplemented that with our own flood incident data.

The CaRR has been developed to provide an objective means of identifying risk and prioritising flood risk management activities at a Wales-wide community level. It applies a standard methodology across all flood sources using the likelihood of flooding and the impacts if it were to occur to allow comparative risks to be quantified and ranked (from High to Low).

The CaRR comprises a spreadsheet that identifies and ranks individual communities for:

1. A natural (no flood defence present), 'undefended' scenario; and
2. A mitigated scenario (based on the presence of defences and flood warning).

9.2 Carmarthenshire's Strategic Flood Risk

The first part of our strategic assessment was to use the CaRR data to provide a high-level overview of flood risk in Carmarthenshire. Using the geographic information system (GIS) risk data, we have been able to calculate that there are over 12,600 addresses at risk of flooding in Carmarthenshire, or 1 in 6 addresses. This same data set also allows us to break down those addresses into categories, such as the source of flood risk. This is shown in below in Figure 9-1.

[14] Welsh Government FCERM National Strategy; objective-C
[15] Data Map Wales, 2023 Communities at Risk Register (CaRR) | DataMapWales (gov.wales)

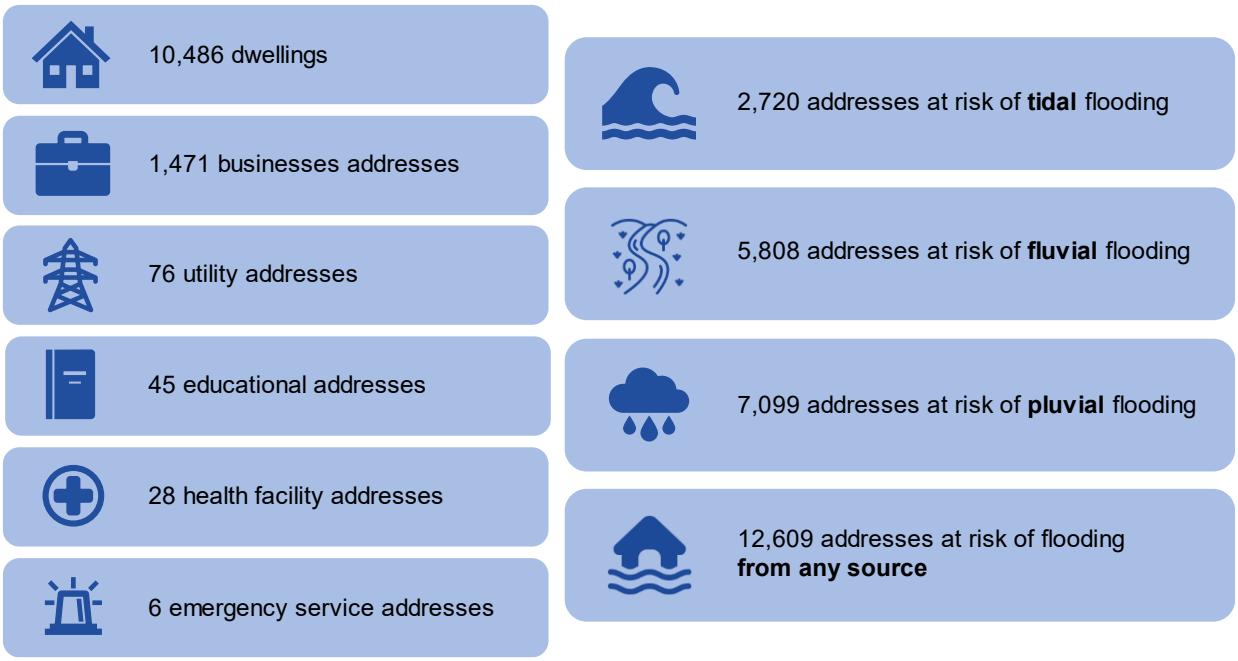


Figure 9-1: Addresses at risk of flooding in Carmarthenshire by usage type and by flood risk source.

This same data source allows us to evaluate what is at risk of flooding (risk receptors) across Carmarthenshire. These risk receptors give an overview of what is at risk. For the purposes of this evaluation and to highlight changes across different scenarios, we have compared high risk (3.33% AEP), medium risk (1% AEP) and low risk (0.1% AEP) scenarios. Annual Event Probability (AEP) refers to the likelihood or chance of a specific flood event occurring in any given year. Table displays data on the risk receptor basis across the county.

9.3 Flood risk: a national comparison

While not a primary focus of managing flood risk in Carmarthenshire, we must acknowledge that the Welsh Government allocate funding on a national basis according to risk, and they are predominately focused on reducing and managing residential flood risk. Other national partners such as DCWW and NRW also operate nationally and prioritise on a national rather than regional level.

CCC prioritises FCERM activities and acts using the best available information. As such, it is important that residents report flooding when it happens as per the contacts in Section 5.1.

Table 9-1: Key flood risk receptors in Carmarthenshire.

Risk Receptor	High Risk 1 in 30 AEP	Medium Risk 1 in 100 AEP	Low risk 1 in 1000 AEP
Residential Properties Fluvial	754	1630	4744
Residential Properties Pluvial	1841	2633	6023
Residential Properties Tidal	1773	2125	2347
Non-residential properties Fluvial	174	393	927
Non-residential properties Pluvial	295	484	946
Non-residential properties Tidal	173	250	311
Essential Services (combined fluvial, pluvial & tidal)	94	168	311
Essential Services Fluvial	19	36	83
Essential Services Pluvial	54	87	158
Essential Services Tidal	21	45	70
Trunk Roads (km)	25.3	11	39
Railways (km)	19	10	23
Agri Land – Grades 1-3	7663	1442	2793
SACs	8114	158	218
SPAs	2009	158	218
Ramsar	1906	12	13
SSSIs	8942	214	373
SINC	0	0	0
National Nature Reserves	120	6.5	14
LNR	130	12	11
Ancient Woodland	574	96	233
Parks and Gardens	47	13	24
Country Parks	738	124	377
Scheduled Ancient monuments	8	1	3.3
Listed buildings	171	43	140
LDP Total Sites	129	143	198
LDP Business	72	81	104
LDP Residential	57	62	94
FCERM assets	7500		
Number FCERM Incidents	863		
Main River Length (NRW Remit)	770		
Main Rivers (NRW remit)	81		

9.3.1 Comparing pluvial (surface water) flood risk nationally

The number of properties at medium risk (1% AEP) of pluvial flooding across Wales are shown in Table .

Table 9-2: Numbers of properties of various types at medium risk of pluvial flooding per Unitary Authority across Wales

No.	Local Authority	Residential	Non-residential	Key services	Total
1	Cardiff	10406	977	138	11521
2	Blaenau Gwent	3037	392	65	3494
3	Abertawe – Swansea	3070	296	41	3407
4	Gwynedd – Gwynedd	2885	308	26	3219
5	**Sir Gaerfyrddin Carmarthenshire**	**2633**	**484**	**87**	**3204**
6	Pen-y-bont ar Ogwr – Bridgend	2752	388	44	3184
7	Sir Ddinbych – Denbighshire	2563	362	38	2963
8	The Vale of Glamorgan	2561	300	57	2918
9	Newport	2218	380	95	2693
10	Powys	2133	396	77	2606
11	Ceredigion	2158	241	44	2443
12	Conwy – Conwy	1621	171	26	1818
13	Wrecsam – Wrexham	1436	161	33	1630
14	Castell-nedd Port Talbot	1317	196	55	1568
15	Sir Ynys Mon – Isle of Anglesey	1197	210	23	1430
16	Sir y Fflint – Flintshire	1126	194	29	1349
17	Caerphilly	1154	129	14	1297
18	Rhondda, Cynon, Taf	1002	182	25	1209
19	Torfaen	836	215	52	1103
20	Sir Benfro – Pembrokeshire	538	218	78	834
21	Monmouthshire	638	84	29	751
22	Merthyr Tydfil	335	62	15	412

9.3.2 Comparing tidal flood risk nationally

15 of the 22 Local Authorities across Wales have a tidal flood risk. The number of properties at medium risk (0.5% AEP) of tidal flooding across Wales are shown in Table below.

Table 9-3: Numbers of properties of various types at medium risk of tidal flooding per Unitary Authority across Wales

No.	Local Authority	Residential	Non-residential	Key services	Total
1	Rhondda, Cynon, Taf	13659	1450	182	15291
2	Caerphilly	8581	1141	162	9884
3	Sir Ynys Mon – Isle of Anglesey	8212	1087	200	9499
4	Wrecsam – Wrexham	6784	602	107	7493
5	**Sir Gaerfyrddin Carmarthenshire**	**5629**	**1400**	**174**	**7203**
6	Conwy – Conwy	3099	174	26	3299
7	Monmouthshire	2277	413	91	2781
8	Sir y Fflint – Flintshire	2125	250	45	2420
9	Merthyr Tydfil	1032	215	32	1279
10	Ceredigion	613	164	20	797
11	Powys	551	151	24	726
12	Cardiff	540	67	12	619
13	Sir Ddinbych – Denbighshire	385	48	3	436
14	Blaenau Gwent	315	91	24	430
15	Torfaen	113	107	20	240
16	Pen-y-bont ar Ogwr – Bridgend	0	1	1	2
17	Newport	0	0	0	0
18	Castell-nedd Port Talbot	0	0	0	0
19	Gwynedd – Gwynedd	0	0	0	0
20	The Vale of Glamorgan	0	0	0	0
21	Abertawe – Swansea	0	0	0	0
22	Sir Benfro – Pembrokeshire	0	0	0	0

9.3.3 Comparing fluvial flood risk nationally

The number of properties at medium risk (1% AEP) of fluvial flooding across Wales are shown in Table 9-4 below.

Table 9-4: Numbers of properties of various types at medium risk of fluvial flooding per Unitary Authority across Wales

No.	Local Authority	Residential	Non-residential	Key services	Total
1	Cardiff	9278	1028	176	10482
2	Castell-nedd Port Talbot	4833	636	75	5544
3	Rhondda, Cynon, Taf	2611	288	44	2943
4	Newport	2596	118	21	2735
5	Conwy – Conwy	2282	196	49	2527
6	**Sir Gaerfyrddin Carmarthenshire**	**1630**	**393**	**36**	**2059**
7	Caerphilly	1718	283	21	2022
8	Sir Ddinbych – Denbighshire	1721	181	39	1941
9	Pen-y-bont ar Ogwr – Bridgend	1434	283	18	1735
10	Gwynedd – Gwynedd	1067	247	61	1375
11	Abertawe – Swansea	939	386	31	1356
12	Powys	1049	177	36	1262
13	Sir y Fflint – Flintshire	965	163	16	1144
14	The Vale of Glamorgan	784	149	14	947
15	Monmouthshire	655	210	32	897
16	Wrecsam – Wrexham	698	124	59	881
17	Blaenau Gwent	717	62	11	790
18	Ceredigion	554	205	19	778
19	Merthyr Tydfil	609	60	12	681
20	Torfaen	488	114	17	619
21	Sir Benfro – Pembrokeshire	159	179	34	372
22	Sir Ynys Mon – Isle of Anglesey	77	29	8	114

9.3.4 A summary of the national risk

Table below summarises Carmarthenshire's risk when compared nationally to the other Unitary Authorities.

Table 9-5: Summary of the national rank of Carmarthenshire flood risk when compared across Wales (out of 22)

Source of flooding	High risk	Medium risk	Low risk
Pluvial	8th	5th	6th
Tidal	8th	13th	8th
Fluvial	7th	6th	4th

* High risk is defined as 3.33% AEP. Medium risk is defined as 1% AEP for pluvial and fluvial flooding, or 0.5% AEP for tidal flooding. Low risk is defined as 0.1% AEP.

10 Flood risk in your River Basin Districts

10.1 Why have districts?

Due to the demographics of Carmarthenshire, namely that we are more heavily populated in the south and east of the county, a local strategy looking at the whole of the county on a risk basis would result in heavy bias to the south and east. This is comparable to the national picture (as detailed in Section 9 above) where the south and east of Wales is heavily populated and as such dominates the risk distribution.

In light of this, we have taken the decision to divide Carmarthenshire into 7 flood risk River Basin Districts (RBDs), based broadly on river catchments, but conforming to the CaRR community boundaries. The districts are shown in Figure 10-1 below and are:

- The Teifi RBD
- The Upper Towy RBD
- The Lower Towy RBD
- The Western Valleys RBD
- The Amman and Loughor RBD
- The Llanelli RBD
- The Gwendraeth and Burry Port RBD

The benefits of the RBD approach are that CCC can look at the risk to individual areas in greater detail and ensure appropriate solutions. Additionally, by considering each RBD in turn, we can consider the entire hydrological network within Carmarthenshire. This means we can integrate planning considering upstream and downstream effects, rather than flood risk in isolation.

As mentioned above, the CaRR is our primary data set and we have used it to rank all areas of Carmarthenshire based on the three principal sources of flood risk, i.e.:

- Fluvial
- Surface water (pluvial)
- Tidal

We will then evaluate flood risk per district, ensuring that resource is shared across the districts more evenly, while comparing districts and acknowledging that there are areas of the county with a greater risk rating than others.

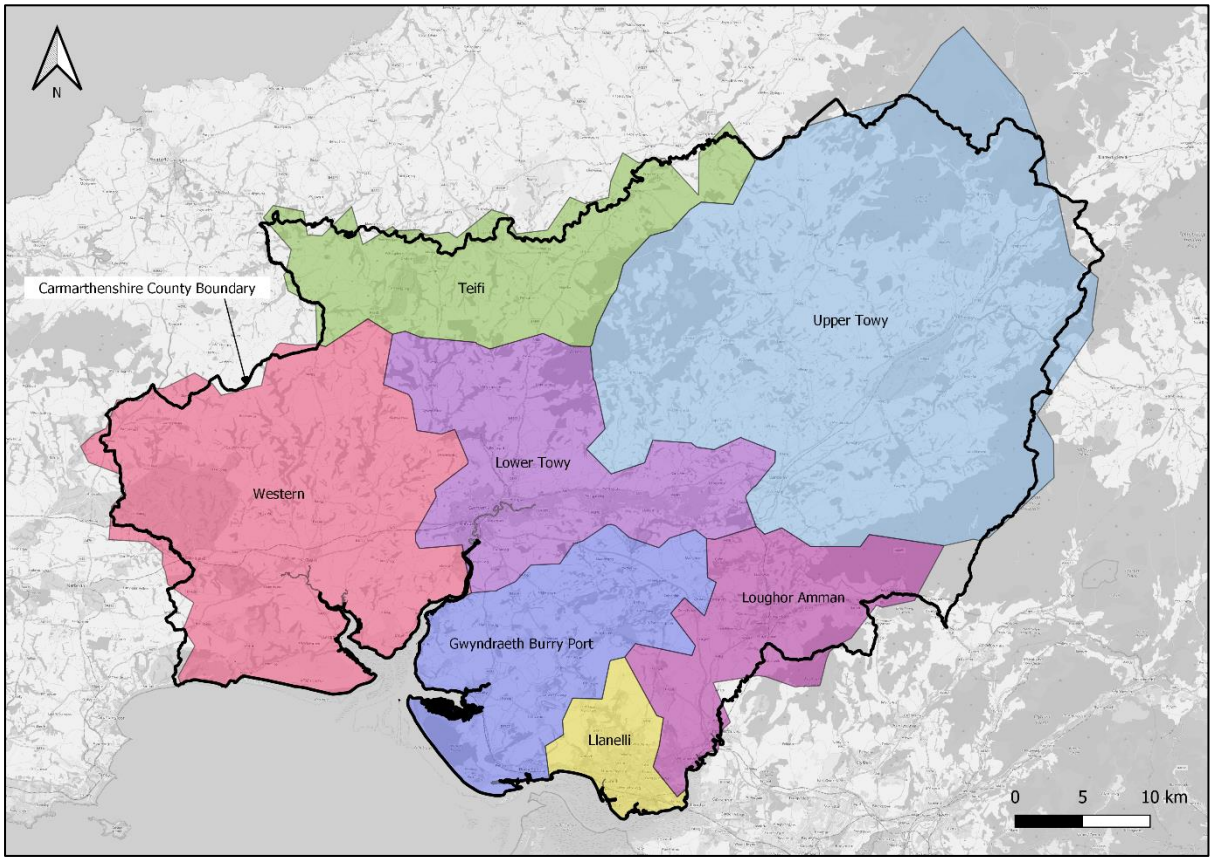


Figure 10-1: The 7 Carmarthenshire FCERM River Basin Districts.

10.2 River basin methodology

Our methodology relating to our district analysis of flood risk focuses on the CaRR as our primary data set. The CaRR is the primary national FCERM data set and is the data set used by the Welsh Government in allocating funding. In addition to the CaRR data, we have used our own flood incident data, and data from Data Maps Wales. A more detailed methodology is included in Appendix D. The outputs of the analysis are below.

10.3 RBD Strategic Analysis (High Flood Risk)

The high-risk flood risk areas have an annual exceedance probability of more than 3.33%. The data gathered from the CaRR, when considering the total number of residential properties at risk from all sources of flooding, ranks the Llanelli RBD at greatest risk (see

Figure 10-2 below). However, evaluating the different sources of flood risk, identifies that 36% of all properties in Carmarthenshire at high risk of flooding are at risk of tidal flooding solely in the Llanelli RBD area. This is the greatest flood risk in the county and is centred on the Llanelli RBD.

As less than 50% of our RBDs are impacted by tidal flood risk, it is also worth comparing risk based solely on the pluvial and fluvial risk. In the absence of tidal risk,

the Loughor and Amman RBD has the greatest number of properties at risk as shown in Figure 10-3.

As highlighted in Section 10.1 above, the south and east is heavily urbanised, and our district evaluation of the properties at risk clearly highlights that the three south and east RBDs (Gwyndraeth Burry Port, Llanelli, Loughor Amman) have the greatest number of properties at risk.

The remaining four RBDs, namely the Teifi, Upper and Lower Towy and the Western Valleys RBDs, have significantly less properties at risk. By means of a comparison, the four RBDs have less properties at risk in total than the Llanelli RBD and the Amman and Loughor RBDs individually. A table summarising the key flood risk receptors at high risk of flooding per RBD can be found in **Appendix E**.

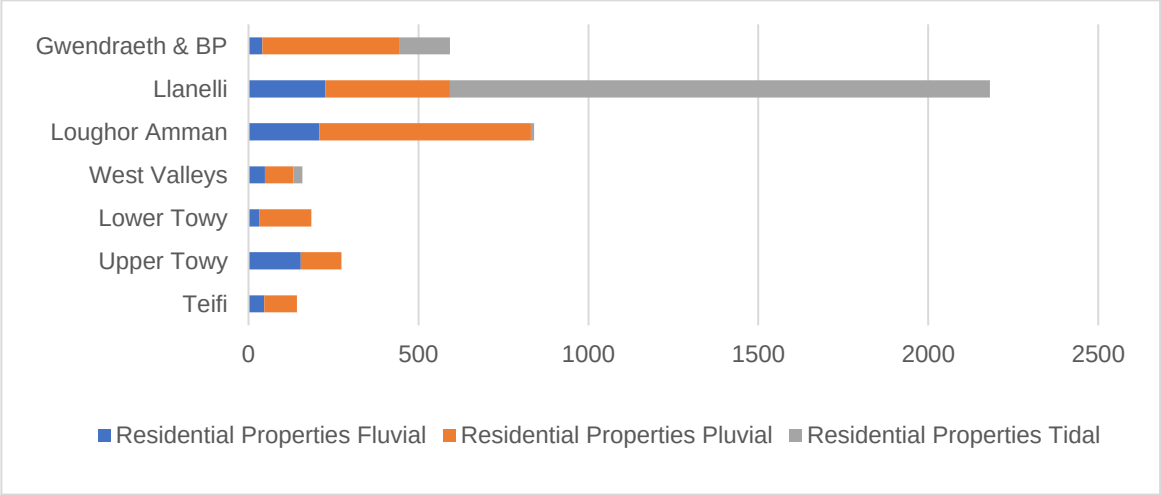


Figure 10-2: Number of properties at high risk of flooding from all flood sources per RBD.

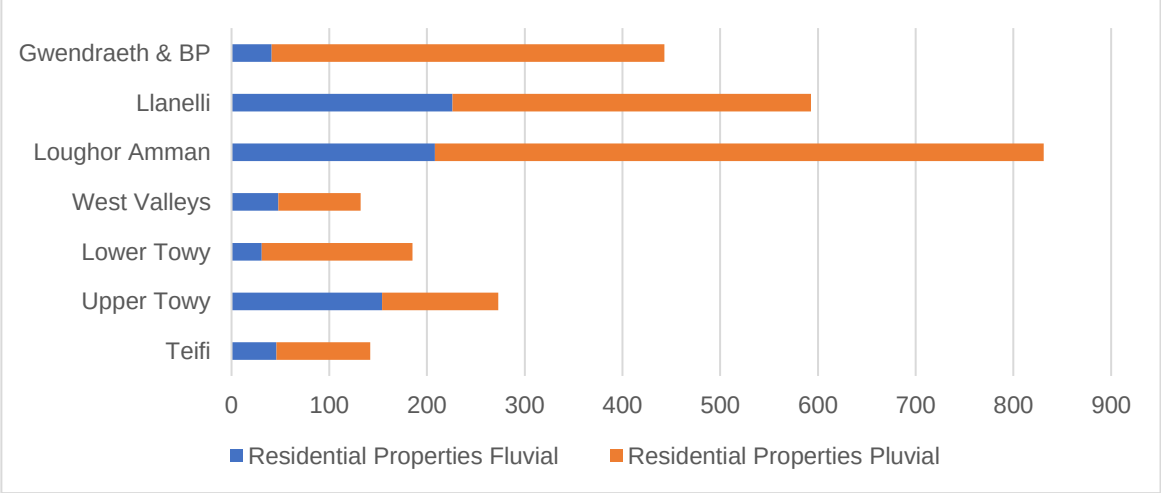


Figure 10-3: Number of properties at high risk of flooding from only pluvial and fluvial sources per RBD.

10.4 RBD Strategic Analysis (Medium Flood Risk)

The medium-risk flood risk areas have an AEP greater than 3.33% but less than 1%. When comparing the number of properties at risk per district, we can see a similar picture to the high-risk figures in that the tidal flood risk to properties in the Llanelli RBD is a major contributing factor (**Error! Reference source not found.**). When you e valuate the numbers of properties at risk from pluvial and fluvial flooding only, the Loughor and Amman RBD has the greatest numbers of properties at risk as shown in Figure 10-5.

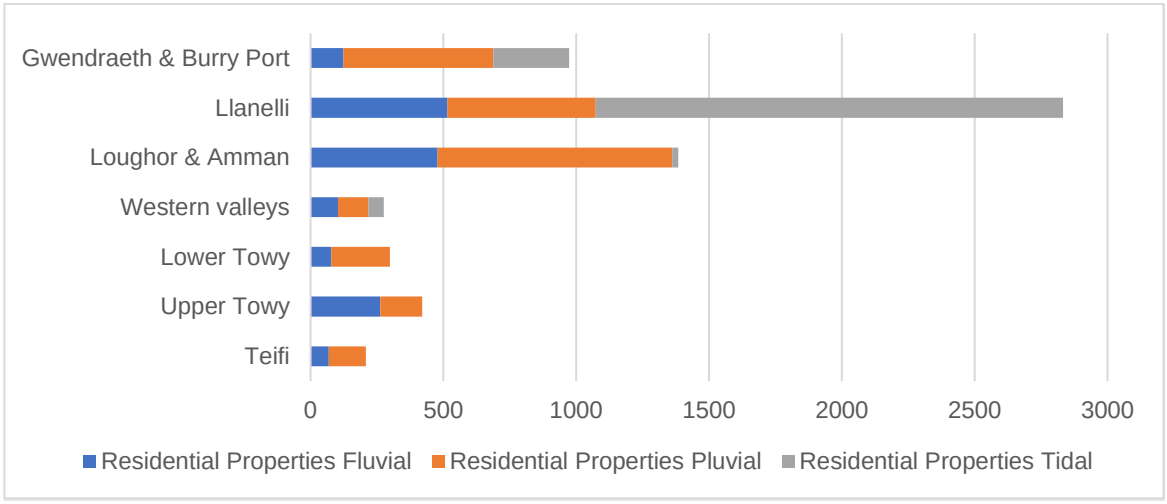


Figure 10-4: Number of properties at medium risk of flooding from all flood sources per RBD.

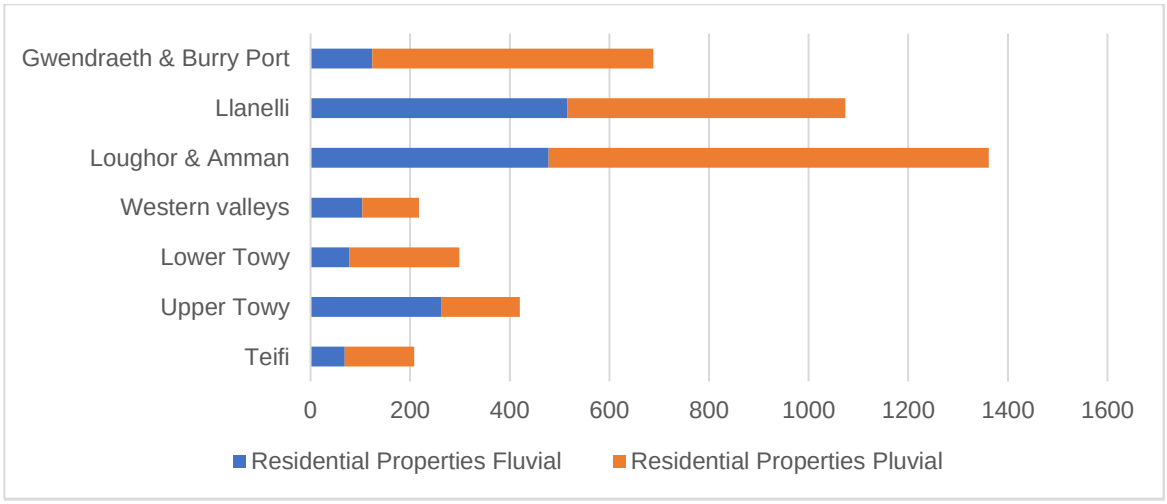


Figure 10-5: Number of properties at medium risk of flooding from only pluvial and fluvial sources per RBD.

The statistics and numbers of flood risk receptors at medium risk of flooding from all sources are summarised in **Appendix E**.

11 Measures to manage flood risk across Carmarthenshire

11.1 What are flood measures and why?

Our five strategic objectives outlined in Section 8.1, will be delivered through a series of 10 measures. Measures are medium level targets that will be delivered over specific time periods. Our 10 measures are detailed in **Appendix F**. Each measure has been given an indicative timescale and an indicative cost for delivery. Table below summarises our measures and how they meet our strategic objectives.

Table 11-1: Table showing how our 10 local FCERM measures will meet the five FCERM LFRMS objectives

	Objective 1 – Modernise FCERM	Objective 2 –Become Information & Data Rich	Objective 3 – Champion NBS and sustainable drainage	Objective 4 – Communities	Objective 5 – Partnership working
Measure 1 - Thematic Incident Management	X	X	X	X	X
Measure 2 – Maintain a pipeline of capital works business cases	X	X	X	X	X
Measure 3 – Increase community resilience	X			X	X
Measure 4 – Increase public engagement and consultation	X			X	X
Measure 5 – Champion innovation and technology	X	X			
Measure 6 – Develop a catchment-based approach to FCERM	X			X	X
Measure 7 – Provide expert advice and counsel			X	X	X
Measure 8 – Manage FCERM permitting and consenting		X	X		
Measure 9 – Adopt and designate drainage systems and FCERM features	X	X	X	X	X
Measure 10 - Enforcement	X				

12 Actions to manage flood risk across Carmarthenshire

12.1 What are flood actions and why do we have them?

The detailed objectives and measures outlined in Sections 8 and 12 will be delivered through the implementation of actions. Each action which will be considered in the short (1 – 2 years), medium (2 – 5 years) and long term (5+ years). Our Flood Action Plan delivers on the requirement of the Flood Risk Regulations (2009) for LLFA's to produce an FRMP. While we previously published our LFRMS and FRMP in 2013 and 2019 respectively, this new iteration of the LFRMS and FRMP are jointly developed and published in 2024.

12.2 Our approach to the FRMP

We have adopted a River Basin District approach for assessing flood risk, which allows the natural movement of water to be assessed according to geographic river catchment or sub-catchment boundaries, enabling a more holistic and integrated approach to managing flood risk.

The catchment based or RBD approach has informed the identification of 7 assessment boundaries, known as RBDs. Our Flood Action Plan will focus on the 5 highest flood risk areas within each RBD and provide details on how we manage that flood risk in the short, medium and long term. Our action plans will be contained in a separate FRMP report.

13 Funding and Prioritisation

13.1 Funding options

Measures to manage local flood risk are funded from a range of sources, including but not limited to the following:

13.1.1 CCC Internal funding

There is an annual allocation of revenue funding which is sourced from the Local Government Revenue and Capital Settlement.[16] There is also internal capital funding which is administered on an expression of interest basis.

However, due to the continual reductions to local authority budgets and coupled with the current economic climate , opportunities are very limited for internal funding to act as the sole resource for FCERM activities.

13.1.2 Welsh FCERM Government Funding

Welsh Ministers may provide revenue and capital grants in relation to FCERM activities. Applications for funding submitted by RMAs are considered by the Flood and Coastal Risk Programme Board before being agreed by the Minister for Climate Change. These are prioritised towards the communities most at risk of flooding, in accordance with the National Strategy,[17] technical guidance[18] and grant memorandum.[19] This is why this document has focused on communities at greatest risk in Carmarthenshire and compared those nationally and locally to ensure a clear understanding of priorities. Currently the Welsh Government grants available include:

- **FCERM Capital Pipeline Grant** – a grant for the development of business cases, design works and construction projects. Administered annually but projects, from inception to construction, are medium to long term (5-10 years).
- **Small Scale FCERM Grant** – an 85% grant administered annually for small projects up to £250k, that must be delivered in one year.
- **Natural Flood Management Grants** – a relatively new, 100% funded grant, specifically for RMAs to develop natural flood management solutions.
- **Revenue Grant Funding** – a 100% funded revenue grant which can be and is used for core FCERM duties, principally asset management and maintenance

[16] Local government revenue and capital settlement: final 2023 to 2024 | GOV.WALES
[17] National Strategy for Flood and Coastal Erosion Risk Management in Wales | GOV.WALES
[18] Flood and coastal erosion risk management (FCERM): business case guidance | GOV.WALES
[19] Flood and coastal erosion risk management: grant memorandum | GOV.WALES

works. This grant will be subsumed into the Revenue Support Grant for 2024-2025.

13.1.3 Welsh Government Local Transport and Resilient Road Funds

The Local Transport Fund[20] is available to deliver the vision and priorities of Llwybr Newydd[21] in a way that is good for people and communities, good for the environment, good for the economy and places, good for culture and the Welsh language. It aims to deliver an accessible, efficient, sustainable transport system that is safe, well-managed and adapts to and mitigates for climate change.

The Resilient Roads Fund is available to address disruptions caused by severe weather to the highway network, especially to the public transport network.

13.1.4 Section 106 Funding

Local Authorities can potentially require developers to carry out works, or make a financial contribution towards FCERM works, under Section 106 of the Town and Country Planning Act 1990.

13.2 Welsh Government prioritisation

The criteria for prioritising FCERM funding were approved by the Welsh Government in 2018 after consultation with RMAs. This breaks down as follows:

- Communities at greatest risk as per the CaRR.
- Number of events documented over last 20 years
- Number of internal properties flooded in last 20 years
- Number of homes benefiting
- Partnership working
- Wider benefits

13.3 CCC Prioritisation

As an LLFA, CCC has a statutory obligation for our LFRMS to act in a manner which is consistent with the National Strategy and guidance.[22] This LFRMS supports this

[20] Local Transport Fund and Resilient Roads Fund: guidance to applicants 2022 to 2023 [HTML] | GOV.WALES
[21] Llwybr Newydd: the Wales transport strategy 2021 | GOV.WALES
[22] S12(1)(a) Flood and Water Management Act 2010 (legislation.gov.uk)

approach and seeks to quantify and document the flood risks to Carmarthenshire and our priorities over the next 7 years. Our high-level priorities include:

- Supporting communities and businesses at greatest risk, as defined by both our incident data and the CaRR;
- Prioritising those properties and businesses that experience internal flooding;
- Prioritising CCC assets and structures.

14 Environmental Assessments

The implementation of the LFRMS will, in addition to managing local flood risk, also provide an opportunity to improve the natural, rural and built environment by enhancing the environment for both residents and businesses along with improving biodiversity and habitats. Assessments will be undertaken following the development of this LFRMS to ensure our Objectives, Measures and Actions take into account our local environment. The environmental assessments consider and record how the LFRMS contributes to the achievement of wider environmental objectives.

14.1 Strategic Environmental Assessment (SEA)

We have undertaken a Strategic Environmental Assessment (SEA) following the development of a consultation draft of the LFRMS.

The SEA is a way of assessing and monitoring the likely effects (positive and negative) of the LFRMS objectives, measures and actions on the environment. A SEA is a legal requirement to accompany the LFRMS. Such assessments help to enable informed and transparent decision-making for the benefit of plan makers and the wider community in Wales. The SEA is contained within a separate report.

14.2 Habitat 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 LFRMS to impact the Natura 2000 network of protected sites, namely Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites, a HRA was undertaken in parallel with the SEA. The HRA is contained within a separate report.

14.3 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). Under the WFD a management plan is required for each RBD, for which the responsibility for producing these lies with NRW. River Basin Management Plans (RBMPs) describe the challenges that threaten the water environment and how these challenges can be managed and funded. Carmarthenshire falls within the West Wales RBMP.

See **Appendix G** for an assessment of how this LFRMS has considered the environmental objectives within the RBMP.

15 Monitoring Progress

15.1 Measuring the objectives, measures and actions

The delivery of our LFRMS will be managed at Corporate Management Team (CMT) and Scrutiny level. We are proposing that a biennial report be produced in the spring of 2026 and 2028 detailing progress, with the new LFRMS following that in April 2030.

The measures will be managed through the Departmental and Divisional Business Plans. Business Plans are updated annually, and the outputs managed via the corporate performance management system. The responsibility for the delivery of these measures will reside with the FCERM Manager and will be governed by the corporate governance structure.

Actions will be managed through business unit annual works programmes and assigned to officers and engineers to deliver. These will be embedded into annual and biannual programmes of work and monitored via the personal objectives and appraisal process on a quarterly or biannual basis.

Appendix A

Results from the consultation process

As Lead Local Flood Authority (LLFA), Carmarthenshire County Council (CCC) have a duty to consult the public and other Risk Management Authorities (RMAs) on the LFRMS. As such, CCC sought the views of the public, third sector organisations, and relevant Risk Management Authorities on the draft LFRMS. The feedback received has been analysed and the draft LFRMS updated as a result. The results, analysis and actions as a result of the consultation are detailed in this appendix.

Comments were received from Natural Resources Wales (NRW). Carmarthen Together, a third sector organisation, also provided a response.

To consult the public, a survey was made public between 1 March and 12 April 2024 on the 'Have Your Say' section of the CCC website. A total of 19 responses were received from the public. A summary of the qualitative questions and amendments to the LFRMS as a result of the responses received is included in Table A-1 below.

Table A-1: Summary of survey questions and amendments to LFRMS

	Question	Question type	Amendment to LFRMS
1	Please read section 2 & 3 of the report and tell us to what extent you agree or disagree following questions.	N/A	No changes.
1A	This section highlights the requirement and purpose of the Local Flood Risk Strategy.	Check box	No changes.
1B	This strategy makes it clear on how it responds to climate change and the nature emergency.	Check box	No changes.
2	Please leave any additional comments regarding section 2 & 3 of the strategy.	Free text	The climate change section of the strategy has been strengthened.
3	To what extent do you agree or disagree that the roles and responsibilities pertaining to	Check box	No changes.

	Question	Question type	Amendment to LFRMS
	flood risk are made clear in the strategy.		
4	Please leave any additional comments regarding section 5 of the strategy.	Free text	Section 5 has been updated to better detail the roles and responsibilities of the RMAs and stakeholders.
5	How do you rate our progress since the first flood risk management plan in 2019?	Check box	No changes to LFRMS. An action for CCC has been identified to better communicate flood risk management work to stakeholders.
6	Please leave any additional comments regarding section 6 of the strategy.	Free text	No changes.
7	Are there are any key significant flooding events that you feel have not been captured?	Check box	No changes to LFRMS. CCC will add these details to the internal flood incident register.
7A	If yes, please enter the details of any key significant flooding events that you feel have not been captured? (Area affected:)	Free text	No changes to LFRMS. CCC will add these details to the internal flood incident register.
7B	If yes, please enter the details of any key significant flooding events that you feel have not been captured? (Number of properties or businesses flooded internally:)	Free text	No changes to LFRMS. CCC will add these details to the internal flood incident register.
7C	If yes, please enter the details of any key significant flooding events that you feel have not been captured? (Extent of damage to properties:)	Free text	No changes to LFRMS. CCC will add these details to the internal flood incident register.

	Question	Question type	Amendment to LFRMS
8	Our strategic aim is to 'Reduce the number of dwellings and businesses at risk of flooding' as outlined in section 8. To what extent do you agree or disagree with the following statements	N/A	No changes.
8A	The strategic aim is reasonable	Check box	The strategic aim has been reworded.
8B	This is in-line with what I believe the Council should be doing	Check box	No changes. An action for CCC has been identified to better communicate flood risk management work to stakeholders.
8C	This is in-line with national strategy and wellbeing objectives	Check box	The LFRMS has been updated to reiterate the links between the national strategy and the locally relevant strategic aim.
8D	They are robust enough to deliver on our strategic aim	Check box	The objectives have been updated to strengthen the link with the strategic aim.
8E	Sufficiently broad to cover all facets of FCERM	Check box	The objectives have been aligned with the National Strategy. Specifics are to come in the FRMP action plan.
8F	In keeping with modern FCERM works and direction of travel	Check box	No changes. The LFRMS signposts to the National FCERM Strategy aims and direction of travel.
9A	Would you prefer to see a different objective?	Check box	No changes.
9B	If yes, please tell us what?	Free text	No changes. Some of the suggestions received are

	Question	Question type	Amendment to LFRMS
			business as usual. Some will be picked up by the FRMP action plan.
10	Please read section 9 of the report and answer the following.	N/A	No changes.
10A	Our assessment of flood risk in Carmarthenshire is clear?	Check box	The clarity of Section 9 has been improved through more straightforward language and diagrams for non-technical readers.
10B	Carmarthenshire's assessment of flood risk is clear in comparison with other Counties?	Check box	No changes.
11	Please leave any additional comments regarding section 9 of the strategy.	Free text	The climate change section of the strategy has been strengthened.
12	Please read section 10 of the report and answer the following questions.	N/A	No changes.
12A	The reasoning for having district analysis is made clear	Check box	More detail provided on the RBD approach.
12B	The strategy makes it clear where the high-risk districts are in Carmarthenshire and why they are considered high-risk.	Check box	Display of information has been improved. Figures have been updated.
13	Please leave any additional comments regarding section 10 of the strategy.	Free text	No changes to LFRMS. An action for the FRMP is for CCC to better communicate flood risk management work.
14	To what extent do you agree or disagree with the following statements about our measures:	N/A	No changes.

	Question	Question type	Amendment to LFRMS
14A	They are robust enough to deliver on our strategic objectives	Check box	No changes.
14B	In keeping with modern FCERM works and direction of travel	Check box	No changes. The LFRMS signposts to the National FCERM Strategy aims and direction of travel.
15A	Would you prefer to see a different measures?	Check box	No changes.
15B	If yes, please tell us what?	Free text	No changes. Some of the suggestions received are business as usual. Some will be picked up by the FRMP action plan.
16	To what extent do you agree or disagree that our measuring and recording of our progress is sufficiently robust?	Check box	No changes. An action for the FRMP is for CCC to better communicate flood risk management work.
17	Please leave any additional questions regarding the strategy.	Free text	No changes. CCC will look into the specific locations mentioned. Some suggestions will be taken forward as actions for the FRMP action plan.

Appendix B

Capital works pipeline programme (Aug 2024)

The 2024-25 Welsh Government FCERM programme contains 11 Pipeline Schemes and 3 Small Scale Schemes.

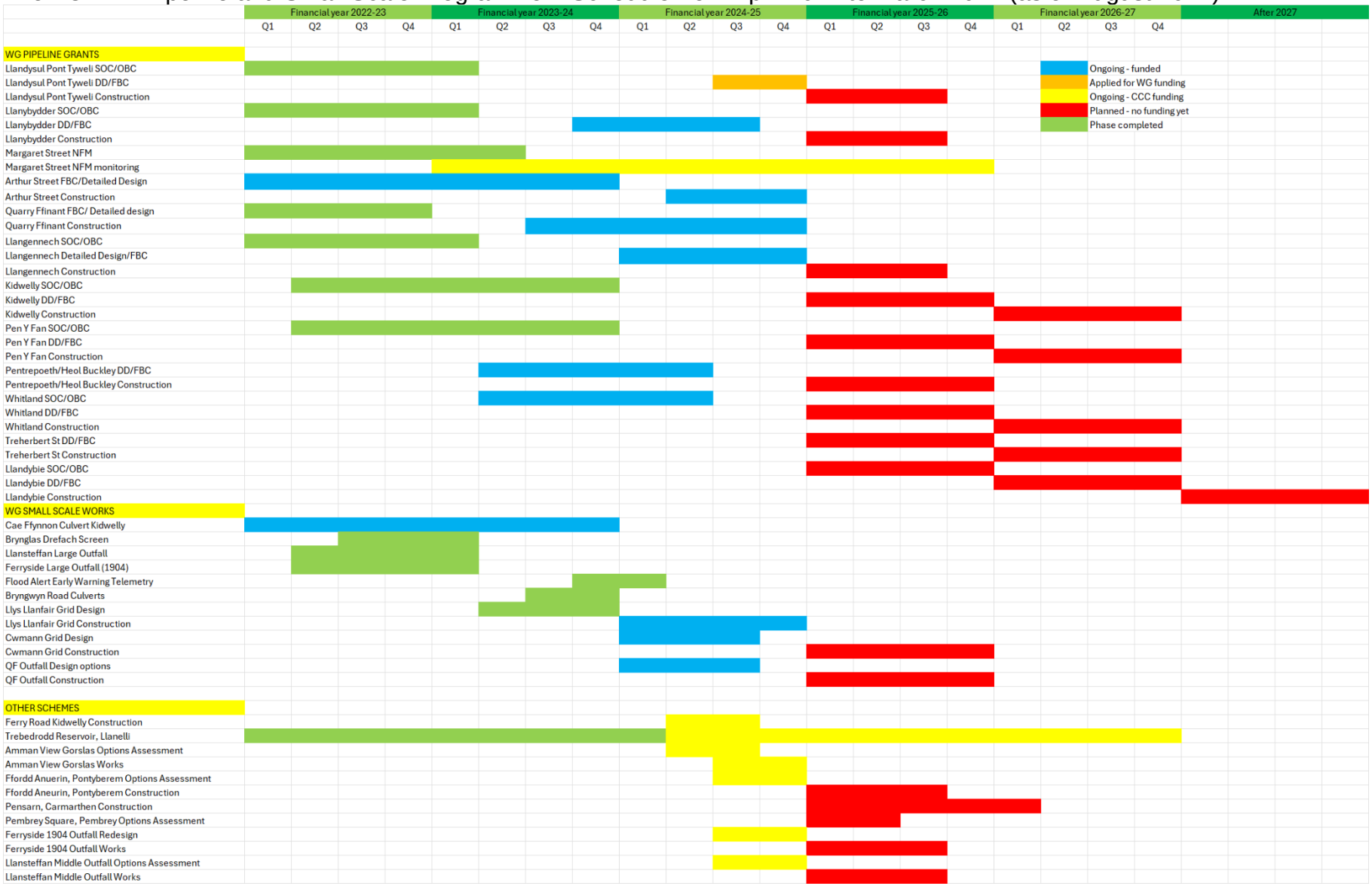
These are summarised below:

Scheme Name	Location	Current Phase	Details
Arthur St	Ammanford	Construction	Culvert rehabilitation and upgrade
Quarry Ffinant Culvert	Newcastle Emlyn	Construction	Culvert rehabilitation/replacement
Llandysul/Pont Tyweli	Llandysul/Pont Tyweli	Detailed Design	Property Level Protection (PLP) and other measures
Llanybydder	Llanybydder	Detailed Design	Property Level Protection (PLP) and other measures
Llangennech	Llangennech	Detailed Design	Property Level Protection (PLP) and other measures
Margaret St NFM	Ammanford	Monitoring	Natural Flood Management – 13 leaky dams and 5 storage areas
Whitland	Whitland	SOC/OBC	Assessment of options for flood alleviation scheme
Pentrepoeth	Llanelli	Detailed design	Property Level Protection (PLP) and embankment
Quarry Ffinant Outfall	Newcastle Emlyn	Design	Outfall redesign and upgrade
Llys Llanfair Grid	Llandovery	Construction	Upgraded and redesigned flood defence grid and associated infrastructure
Cwmann School Grid	Cwmann	Design	Grid redesign and upgrade

Non-Welsh Government Funded Schemes

Scheme Name	Location	Current Phase	Details
Ferry Road	Kidwelly	Construction	Upgrading substandard culvert
Trebeddrod Reservoir	Llanelli	Maintenance	Ongoing maintenance to ensure resilience
Amman View	Gorslas	Scoping	Options assessment pertaining to a trash screen upgrade
Ffordd Aneurin	Pontyberem	Scoping	Culvert daylighting and amenity enhancement
Pensarn	Carmarthen	Construction	Emergency access
Pembrey Square	Pembrey	Scoping	Drainage upgrades

The FCERM Pipeline and Small Scale Programme – Schedule from April 2022 to March 2027 (as of August 2024)



Appendix C

Significant Historical Flooding in Carmarthenshire – a chronology

Appendix D

Methodology for the strategic district analysis

Appendix E

RBD Strategic Analysis

Key flood risk receptors at low risk of flooding per RBD

Risk Receptor	Teifi	Upper Towy	Lower Towy	Western valleys	Loughor & Amman	Llanelli	Gwendraeth & Burry Port
Residential Properties Fluvial	173	681	229	319	901	2203	255
Residential Properties Pluvial	302	358	482	238	1798	1521	1327
Residential Properties Tidal	0	0	6	94	31	1840	375
Non-residential properties	124	201	302	114	358	871	223
Number FCERM Incidents	200	84	235	23	79	95	134
Internal Flooding incidents	167	52	170	36	33		87
Essential Services	21	31	35	16	45	74	85
Trunk Roads (km)	3.5	10.5	4.8	1.9	7.4	5.3	5.1
Minor Roads (km)	17902	57626	35504	34592	36148	49773	33665
Railways (km)	0.11	6.24	2.2	3.4	5.9	1.5	3.3
Agri Land - Grades 1-3	227	1103	649	315	200	45	300
Special Areas of Conservation (SACs)	3.6	52	4.2	54	48	21	34.5
Special Protection Areas (SPAs)	0	60	0	0	0	7	6.5
Ramsar	0	0	0	0	0	7	6.5
Sites of Special Scientific Interest (SSSIs)	5.1	150	11.2	76	59	21	50
Sites of Interest for Nature Conservation (SINC)	0	0	0	0	0	0	None
National Nature Reserves	0	2.36	3.1	1.5	1.6	0	3
Local Nature Reserves (LNR)	0	1.08	0	0	0	6.2	4
Ancient Woodland	17.3	97	28.4	30	26.6	9	20.5
Parks and Gardens	0.01	8	5	0.2	0.6	5.5	4.4
Country Parks	0	148	0	2.3	50	0	0
Scheduled Ancient monuments	0.3	1.5	0.23	0.2	0.3	0.3	0.5
Listed buildings	7	19	14	6	6	24	14
LDP							
Residential	8	5	10	6	26	17	21
Traveller	0	0	0	0	0	1	0
Employment	0	0	1	1	9	2	1
Retail	0	0	1	0	0	2	0
Town Centres	0	2	0	2	1	1	1
Strategic	0	0	1	0	0	1	0
Mixed use	0	1	4	0	1	2	2
Strategic Flood Consequence Assessment (SFCA) additional	1	7	7	2	19	28	8

Key flood risk receptors medium low risk of flooding per RBD.

Risk Receptor	Teifi	Upper Towy	Lower Towy	Western valleys	Loughor & Amman	Llanelli	Gwendraeth & Burry Port
Residential Properties Fluvial	69	262	78	104	478	515	124
Residential Properties Pluvial	139	158	221	114	884	559	564
Residential Properties Tidal	0	0	0	58	22	1759	286
Non-residential properties	74	108	132	50	207	442	127
Number FCERM Incidents	200	84	235	36	79	95	134
Internal flooding incidents	167	52	170	16	33	62	87
Essential Services	9	12	7	9	28	39	57
Trunk Roads (km)	0.65	2.88	1.14	0.6	2.5	2.1	0.7km
Minor Roads (km)	5172	18423	15129	11884	11184	16029	13497
Railways (km)	0.06	1.64	0.26	0.5	2.5	1.2	3.8km
Agri Land - Grades 1-3	134	500	352	174	112	16.4	166Ha
Special Areas of Conservation (SACs)	2	19.5	5	50	33.6	9	38
Special Protection Areas (SPAs)	0	17.44	0	0	0	3	9
Ramsar	0	0	0	0	0	3	9
Sites of Special Scientific Interest (SSSIs)	2.7	50	8	65	35.4	9	44.5
Sites of Interest for Nature Conservation (SINC)	0	0	0	0	0	0	None
National Nature Reserves	0	1.9	3	0.6	0.4	0	1
Local Nature Reserves (LNR)	0	0.09	0	0	0	6.3	5.6
Ancient Woodland	7.5	41	10.3	12.8	12.6	3.6	10
Parks and Gardens	0	6.1	1.81	0.2	0.2	3.1	1.3
Country Parks	0	111	0	1.4	11.7	0	Check
Scheduled Ancient monuments	0.11	0.45	0.05	0.1	0.2	0.1	0.4
Listed buildings	2	19	8	4	3	8	1
LDP							
Residential	8	2	6	7	19	9	14
Traveller	0	0	0	0	0	1	0
Employment	0	0	0	0	9	1	1
Retail	0	0	0	0	0	2	0
Town Centres	0	1	0	2	0	1	1
Strategic	0	0	1	0	0	1	0
Mixed use	0	1	4	0	1	2	2
Strategic Flood Consequence Assessment (SFCA) additional	0	6	6	1	14	20	7

Key flood risk receptors at high risk of flooding per RBD

Risk Receptor	Teifi	Upper Towy	Lower Towy	Western valleys	Loughor & Amman	Llanelli	Gwendraeth & Burry Port
Residential Properties Fluvial	46	154	31	48	208	226	41
Residential Properties Pluvial	96	119	154	84	623	367	402
Residential Properties Tidal	0	0	0	26	9	1588	150
Non-residential properties	39	74	67	24	141	223	74
Essential Services	9	8	2	6	18	26	26
FCERM Incidents	200	84	235	36	79	95	134
Internal flooding incidents	167	52	170	16	33	62	87
Trunk Roads (km)	1.29	5.45	3.3	4.1	5	2km	4.1km
Minor Roads (km)	11096	46625	24928	43238	27651		34365
Railways (km)	0.28	1.08	0.5	0.5	3	4.5km	9.1km
Agri Land - Grades 1-3	890	2058	1883	1279	450	65	1095Ha
Special Areas of Conservation (SACs)	173	255	283	2490	283	1411	3219
Special Protection Areas (SPAs)	0	90	0	1205	0	1294	612
Ramsar	0	0	0	0	0	1294	612
Sites of Special Scientific Interest (SSSIs)	175	433	345	3013	287	1412	3275
Sites of Interest for Nature Conservation (SINC)	0	0	0	0	0	0	None
National Nature Reserves	0	53	61	0.2	2		3.4
Local Nature Reserves (LNR)	0	0.69	0	0	0	5.1	118
Ancient Woodland	49	245	54	83.7	75.5	17.7	48
Parks and Gardens	0	9	17.5	0.2	0.8	13	6.7
Country Parks	0	686	0	12.4	41		Check
Scheduled Ancient monuments	0.5	1.8	0.2	0.2	0.5	0.1	4.4
Listed buildings	23	80	22	22	11	9	9
Main river length (km)	74	159	104	149	66.24	36km	63.79
Main river numbers	10	16	16	22	8	6	10
Local Development Plan							
Residential Sites	7	1	6	6	17	9	14
Traveller Sites	0	0	0	0	0	1	0
Employments Sites	0	0	1	1	8	1	1
Retail Parks	0	0	0	0	0	1	0
Town Centres	0	1	0	1	0	1	1
Strategic	0	0	0	0	0	1	0
Mixed Use	0	1	4	0	1	0	1
Strategic Flood Consequence Assessment (SFCA) additional	0	3	6	1	13	18	6

Appendix F

CCC's FCERM LFRMS Measures (see separate document)

Appendix G

Assessment of how the LFRMS considers the environmental objectives within the West Wales RBMP

Under the Water Environment (Water Framework Directive) Regulations 2017, there has been a requirement for the establishment of management plans to be produced for each River Basin District (RBD). The Western Wales RBD, as identified by Natural Resources Wales (NRW) covers an area of 16,653 km^2 spanning the entire length of the western half of Wales.

River Basin Management Plans (RBMPs) provide the overarching framework for water management, helping to protect and improve the water environment. Rivers, lakes, canals, groundwaters, estuaries and coastal waters - including those in protected areas – all fall under these plans. Plans are updated every six years. This develops the understanding on the state of the water environment, the pressures acting upon it and what measures are required to improve and protect it by using existing and new evidence.

Within the Western Wales River Basin Management Plan, a number of Opportunity Catchments have been identified within the Western Wales RBD as these present the best suite of opportunities for addressing Water Framework Directive (WFD) objectives and the wider Sustainable Management of Natural Resources (SMNR) and well-being outcomes.

SMNR is defined in the Environment Act 2016 as: “using natural resources in a way and at a rate that maintains and enhances the resilience of ecosystems and the benefits they provide. In doing so, meeting the needs of present generations of people without compromising the ability of future generations to meet their needs, and contributing to the achievement of the well-being goals in the Well-being of Future Generations Act 2015.”

Opportunity Catchments have been defined to help deliver integrated catchment management solutions. Opportunity Catchment areas of relevance to Carmarthenshire are:

- Teifi
- Swansea Bay

The objective across Wales by 2027 is to improve overall condition of water bodies where possible, prevent deterioration and, where resources allow, ensure that even those water bodies that do not achieve good status will be under the least pressure possible.

The overarching environmental objectives of the Western Wales RBMP comprises:

- Preventing the deterioration in status – waterbody status will not be allowed to deteriorate.
- Achieve the objectives for Protected Areas – achieve the standards set by the relevant legislation under which they have been designated.
- Aim to achieve good overall status/ potential for surface waters and ground waters- implement measures to achieve good overall status where feasible.

This will depend on a number of factors including:

- Funding levels from both public and private finances.
- Commitment to delivery.
- Availability of delivery mechanisms.

The Programme of Measures will address multiple issues which will progressively reduce the number of elements failing in water bodies and will improve the overall condition of water bodies over time as identified within the Western Wales RBMP. By 2027 the objective is to have:

- Delivered projects funded by the Welsh Government capital funding programmes.
- Delivered the Opportunity Catchments within the Western Wales RBD and complete local actions.
- Sought to address catchment scale improvements through river restoration and sustainable fisheries opportunities.
- Delivered the planned investigations programme to inform our understanding of the problem so that appropriate actions can be taken through existing measures and local actions, maximising on opportunities that arise during this third cycle.
- Continued to address current and emerging challenges to address a broad range of pressures including phosphorous in SAC rivers, spills from storm overflows and taking a more integrated approach for catchments from source to sea.

- Delivered the outcomes of the water related LIFE projects in the RBD.
- Finalise mitigation measures assessments in some of the Heavily Modified Water Body.

The LFRMS has been drafted which focuses on the local sources of flood risk including surface water runoff, ground water and ordinary watercourses as well as coastal flood risk with the county being split into individual RBDs which supports the implementation of the FRMP. The LFRMS sets out the overarching approach to managing flood risk in Carmarthenshire setting out the action plan for the LFRMS. These actions are detailed in the FRMP. Similarly to the RBMPs, the FRMP targets specific areas and locations within the county.

The strategic objectives of the LFRMS, as detailed in Section 8 in the main document above, are aligned with the environmental objectives of the Western Wales RBMP. A summary of the objectives' alignments has been provided in Table G1 below.

In summary, through the application of each strategy approach, the objectives are designed to support and complement each other.

Table G1- Summary of Western Wales RBD Environmental Objectives and the Strategic Objectives of the LFRMS:

	Western Wales RBMP Environmental Objectives:		
	Preventing the deterioration in status – waterbody status will not be allowed to deteriorate	**Achieve the objectives for Protected Areas – achieve the standards set by the relevant legislation under which they have been designated.**	**Aim to achieve good overall status/ potential for surface waters and ground waters- implement measures to achieve good overall status where feasible.**
LFRMS Objectives:			
Modernise and develop a risk-based, thematic approach to flood and coastal erosion risk management.	• Through effective management of flood risk any further waterbody deterioration should be prevented. This would also contribute to achieving the objectives of relevant protected areas and contribute to the achievement of good overall status/ potential for surface waters and ground waters and to manage flood risk.		
Become data and information rich	• By becoming data and information rich, informed decisions can be made as to how best to protect waterbodies and prevent further deterioration. This will also be applicable to contributing to the achievement of objectives for the relevant protected areas, managing flood risk and retaining conservation status. A data and information rich approach will contribute to achieving good overall status for surface and ground waters.		
Champion NFM, sustainable drainage and nature-based solutions.	• Through the application of sustainable drainage and nature-based solutions, deterioration of waterbodies can be avoided and improvements to ecosystems made by designing flood risk management measures to work with natural processes and enable biodiversity enhancements. Such approaches can link in, and support efforts, to achieve objectives for protected areas and aim to achieve good overall status for surface and ground waters.		
Educate, advise and empower our communities to become more resilient.	• By educating and collaborating with local communities around subjects such as flood resilience this can contribute to the supporting of measures to be implemented in order to manage flood risk. Such approaches can contribute to the prevention of further deterioration of waterbodies as well as supporting on the achievement of the objectives for protected sites and engaging with measures to achieve good overall status.		
Promote and support community adaptation and partnership working.	• By tapping into local communities who understand their area and needs, collaborative working and local group empowerment can result in the implementation of measures to manage flood risk and avoid further waterbody deterioration. This would also contribute to achieving the objectives of relevant protected areas and contribute to the achievement of good overall status/ potential for surface waters and ground waters.		