



Asiantaeth yr
Amgylchedd Cymru
Environment
Agency Wales

Wye and Usk Catchment Flood Management Plan

Summary Report January 2010

managing flood risk



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Front cover image: River Wye © iStockphoto.com/kodachrome25

Introduction



I am pleased to introduce our summary of the Wye and Usk Catchment Flood Management Plan (CFMP). This CFMP gives an overview of the flood risk in the Wye and Usk catchments and sets out our preferred plan for sustainable flood risk management over the next 50 to 100 years.

The Wye and Usk CFMP is one of 77 CFMPs for England and Wales. Through the CFMPs, we have assessed inland flood risk across all of England and Wales for the first time. The CFMP considers all types of inland flooding, from rivers, groundwater, surface water and tidal flooding, but not flooding directly from the sea (coastal flooding), which is covered by Shoreline Management Plans (SMPs). Our coverage of surface and groundwater is however limited due to a lack of available information.

The role of CFMPs is to establish flood risk management policies which will deliver sustainable flood risk management for the long term. This is essential if we are to make the right investment decisions for the future and to help prepare ourselves effectively for the impact of climate change. We will use CFMPs to help us target our limited resources where the risks are greatest.

This CFMP identifies flood risk management policies to assist all key decision makers in the catchment. It was produced through a wide consultation and appraisal process. However it is only the first step towards an integrated approach to Flood Risk Management. As we all work together to achieve our objectives, we must monitor and listen to each others progress, discuss what has been achieved and consider where we may need to review parts of the CFMP.

Flooding tends to occur as a natural process through most of the catchment with floodplains generally being well connected to their river channels. Within the

middle and upper parts of the catchments, floodplains are wide and play an important part in attenuating flows. Several urban areas are susceptible to relatively frequent flooding from the rivers and have been provided with formal flood defences over the years, for example, Brecon, Usk Town and Monmouth. Many smaller urban areas remain undefended.

We have worked with others to produce this CFMP, including: local authorities, water companies, environmental groups, land owners and land managers. Whilst there is broad support for this plan, local authorities have raised concerns about limited resources, prioritisation and the potential impact on current development and regeneration proposals. Also, land managers have raised concerns about how flood risk is managed in rural areas. We cannot reduce flood risk on our own. We will therefore work closely with all our partners to improve the co-ordination of flood risk activities and agree the most effective way to manage flood risk in the future.

This is a summary of the main CFMP document. If you need to see the full document, an electronic version may be obtained by emailing enquiries@environment-agency.gov.uk

A handwritten signature in blue ink that reads "Chris Mills".

Chris Mills
Director Wales

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Image: Ross-on-Wye

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The purpose of a CFMP in managing flood risk

CFMPs help us to understand the scale and extent of flooding now and in the future, and set policies for managing flood risk within the catchments. CFMPs should be used to inform planning and decision making by key partners such as:

- the Environment Agency, who will use the plan to guide decisions on investment in further plans, projects and actions;
- local authorities, who can use the plan to inform spatial planning activities and emergency planning;
- internal drainage boards, water companies and other utility companies to help plan their activities in the wider context of the catchment;
- transportation planners; who can use the plan to inform their activities;
- land owners, farmers and land managers who manage and operate land for agriculture, conservation and amenity purposes;
- the public and businesses to enhance their understanding of flood risk and how it will be managed.

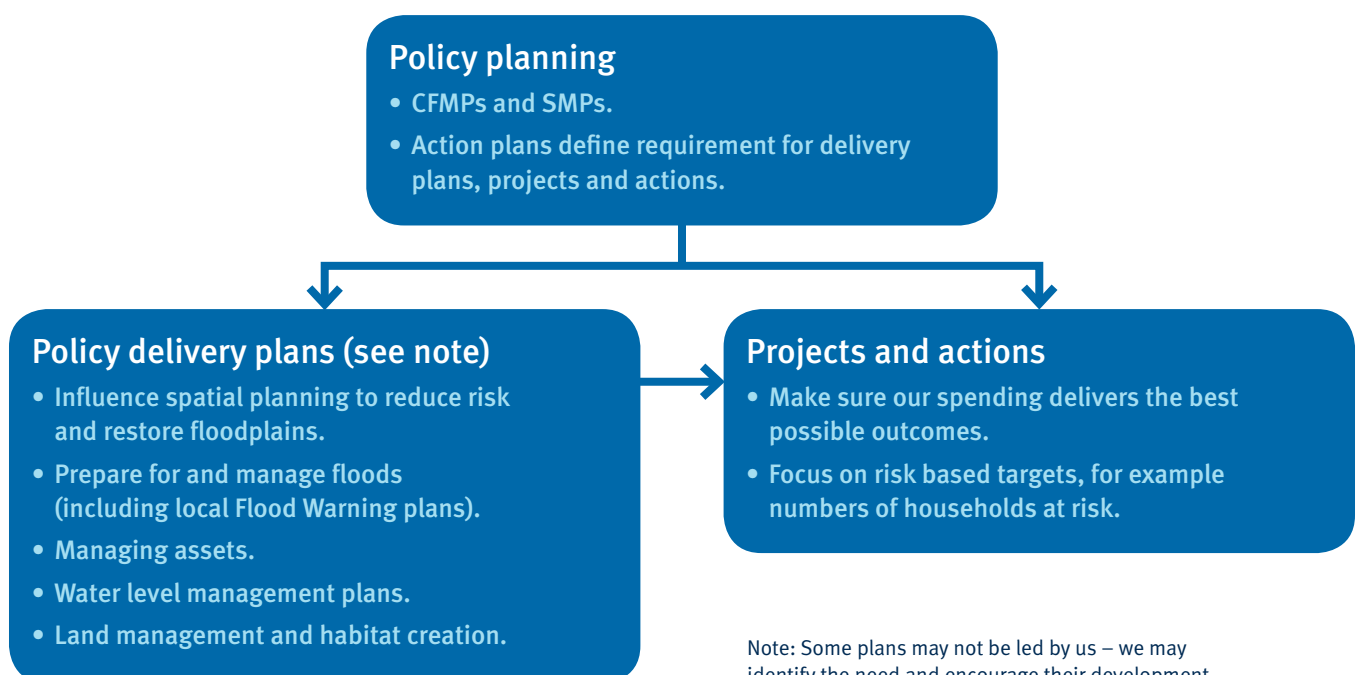
CFMPs aim to promote more sustainable approaches to managing flood risk.

The policies identified in the CFMP will be delivered through a combination of different approaches.

Together with our partners, we will implement these approaches through a range of delivery plans, projects and actions.

The relationship between the CFMP, delivery plans, strategies, projects and actions is shown in Figure 1.

Figure 1. The relationship between CFMPs, delivery plans, projects and actions



Catchment overview

The Wye and Usk CFMP covers an area of approximately 5,700 km² and includes approximately 240,000 properties. Map 1 shows the location and extent of the CFMP area.

The area is largely rural, but also contains some dispersed urban centres. Around three per cent of the area is urbanised with the five main areas being Hereford, Cwmbran, Monmouth, Newport and Chepstow. Smaller towns in the catchment include Builth Wells, Llandrindod Wells, Brecon, Abergavenny and Leominster.

There are 1,008 kilometres of main rivers from ten different rivers. This includes the Wye and its main

tributaries the Lugg (including the Frome and Arrow), Monnow, Irfon and Ithon; and the Usk and its main tributaries the Lwyd, Olway Brook and Grwyne.

Upland parts of the catchments are steep, mountainous, impermeable and fast responding. The profile flattens out downstream to become wide lowland floodplains with gentler meanders. On the Wye, natural water storage provided by the Letton Lakes attenuates river flows and during flood events reduces the peak flow downstream. Both the Rivers Wye and Usk, and a number of smaller coastal rivers drain into the Severn Estuary.

The predominant land use in the catchment is agriculture, although there is some industry based around the major towns. There is local pressure for further urban growth, particularly around Hereford.

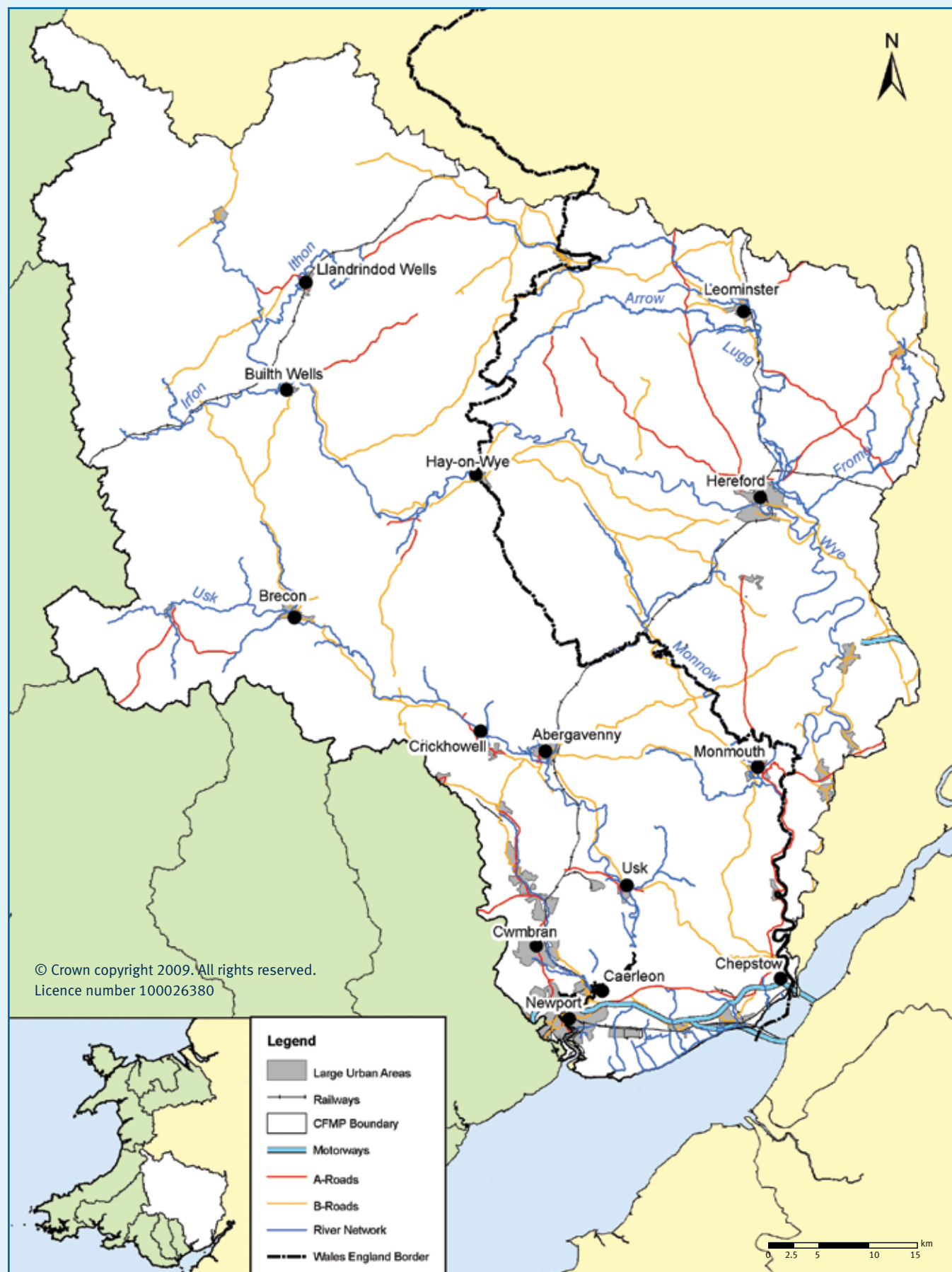
The catchments are rich in biodiversity, both in terms of species and habitats. Approximately 16 per cent of the area is designated for its nature conservation value and includes 18 sites of international importance and more than 300 sites of national importance. Some sites have multiple designations.

“The River Wye makes up almost half of all main river in the CFMP and as such is one of Britain’s major rivers.”



↑ River Wye at Boughrood

Map 1. Location and extent of the Wye and Usk CFMP area



Current and future flood risk

Overview of the current flood risk

Flood risk is the combination of two components; the likelihood (or probability) of a particular flood event occurring and the consequence (or impact) that the flood event would have if it occurred.

The probability of a flood event is the likelihood of a flood of that size occurring within a one year period. It is described as an annual exceedance probability (AEP) and is expressed as a percentage. For example, a 1% AEP flood event has a one per cent chance or 0.01 probability of occurring in any one year.

Unless otherwise stated, numbers in this report are based on the 1% AEP river flood event. More extreme events can occur at any time. The likelihood of an extreme event occurring is small, although the consequences are potentially very serious, particularly where defences could be overtopped.

In December 1979 heavy rainfall resulted in flooding to several thousand properties, mostly in South Wales, including the River Wye catchment. River levels at Brecon, Usk and Builth Wells, as well as elsewhere in the South Wales valleys, reached levels exceeding defence levels. In April 1998, heavy rainfall caused river levels to rise quickly, flooding more than 170 properties in the CFMP area.

The sources of flood risk are:

- **river flooding** in the upper catchments of the Wye and Usk tends to occur rapidly due to the characteristic narrow, steep valleys. Lower down the catchments, the areas of flooding are more extensive;
- **tidally influenced river flooding** occurs through Newport on the River Usk, and in Chepstow and Tintern on the River Wye;
- **surface water flooding** is generally of low consequence with limited disruption to some transport routes and agricultural land. In the past, surface water flooding is known to have occurred in Hereford, Monmouth, Cwmbran, Leominster and Newport;
- **sewer flooding** is fairly widespread in the CFMP. The following locations in particular have been affected by sewage flooding in the past; Ross-on-Wye, Crossgate, Llangammarch Wells, Llanddewi, and Llandrindod Wells;
- **groundwater flooding** is not considered to be a significant source of flooding. Groundwater levels rise and fall so slowly that they do not respond quickly to wet weather. There is one recorded instance of groundwater flooding in Brecon, but this event was isolated and on a small scale.

What is at risk?

CFMPs assess how flood risk is likely to change in the next 100 years. They do this at a strategic level and not at a detailed, local level.

We used computer models to simulate river flows and produce indicative numbers of properties, infrastructure and environmental features at risk. These models take in to account the benefit of current flood defences. Where applicable, tidal influences on river flows have also been modelled. Where models are not available we have based our flood risk estimates on our Flood Maps, which do not include flood defences. Numbers produced are sufficient for the purposes of the CFMP only.

There are currently approximately 8,900 properties across the CFMP at risk from flooding.

There are four internationally designated environmental sites which lie fully or partially within the 1% AEP flood outline. These include the River Wye and the River Usk special areas of conservation and the Severn Estuary special protection area and Ramsar site. A total of 15 per cent of all sites of special scientific interest and 47 scheduled monuments are also at risk. Depending on the nature of the environmental feature, flooding may have a negative or positive impact. For example, flooding may create or enhance a habitat in some areas e.g. a new flood storage wetland, or have the potential to cause physical

damage to the historic environment e.g. listed buildings and scheduled monuments.

Where is the risk?

To assess flood risk at a strategic level we have identified a number of key locations where we have carried out a more detailed analysis of flood risk. These are presented in Table 1 and Map 2. This is not an exhaustive list of locations. Flood risk in all other areas has been considered in the development of the CFMP.

The greatest risks to property and infrastructure for the 1% AEP flood event are located in the Lower Usk and Lower Wye catchments and include the urban areas of Newport, Cwmbran and Caerleon. Parts of Hay-on-Wye, Brecon, Caerleon and Usk are classed as the most socially vulnerable to flooding in the 1% AEP flood event therefore the consequences of a flood event in these areas will be greater than in the rest of the CFMP area.

Flooding has an impact on infrastructure, including emergency services, hospitals, schools and major transport routes. Table 2 lists some of the infrastructure currently at risk in the CFMP area. Agricultural land is also affected by flooding.

We recognise there is potential risk from surface water and groundwater flooding in other areas of the CFMP, however there is limited information currently available.

Table 1. Key locations currently at risk in a 1% AEP flood event

Number of properties at risk	Locations
> 1,000	Newport
500 to 1,000	None
100 to 500	Cwmbran, Caerleon, Leominster
50 to 100	Eardisland, Monmouth, Ponthir, Tintern, Usk
25 to 50	Abergavenny, Brecon, Builth Wells, Crickhowell, Glasbury, Hay-on-Wye

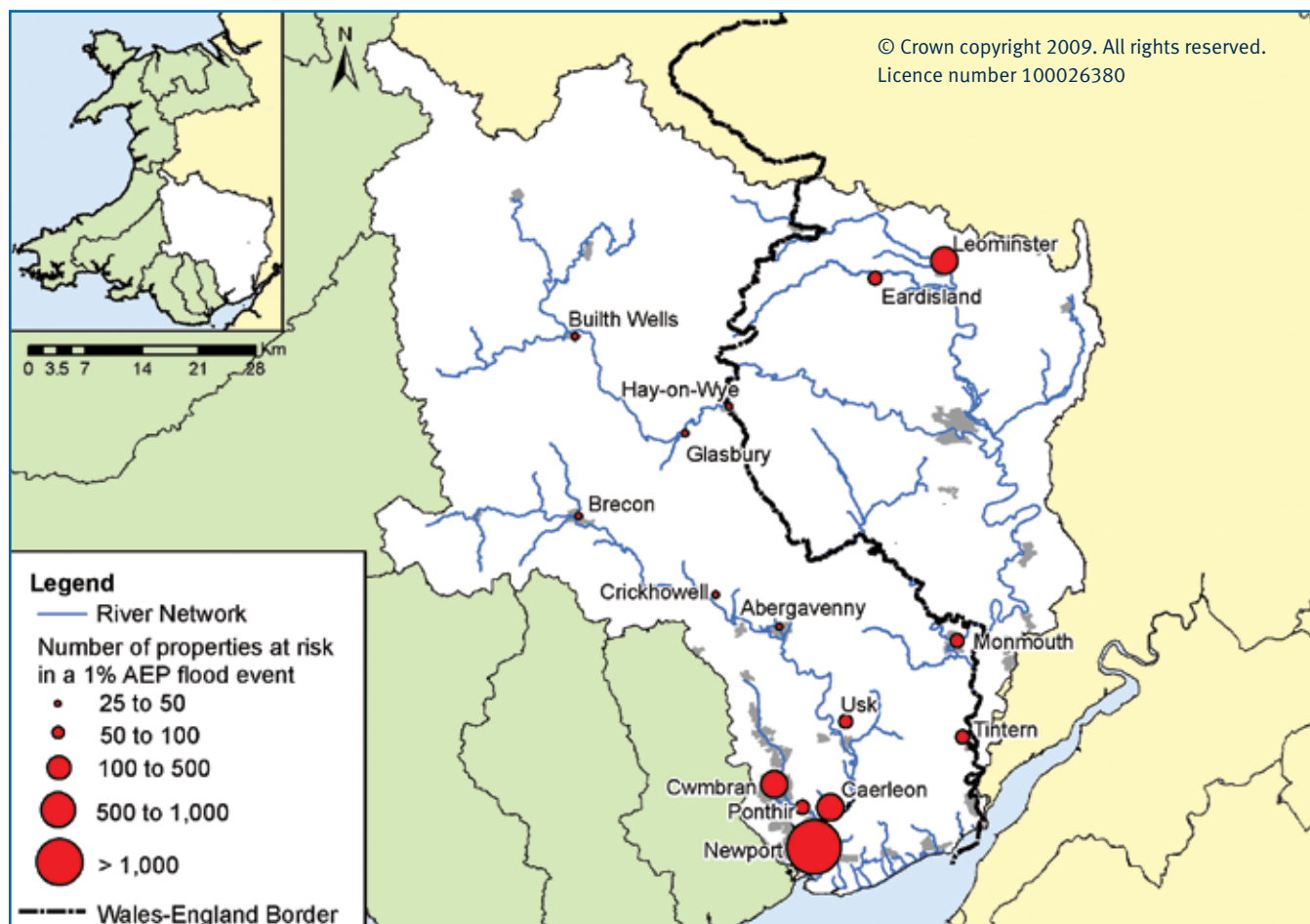
Table 2. Infrastructure currently at risk in a 1% AEP flood event

3 emergency services
19 sewage treatment works
5 schools
12 kilometres of main road
10 kilometres of railway



↑ River Lugg at Marden

Map 2. Number of properties currently at risk in a 1% AEP flood event



How we currently manage the risk in the catchment

We can split the work we do to manage flood risk into two types:

- work which helps us to reduce the likelihood of a flood occurring, and
- work which helps us to deal with the consequences of flooding.

In the past, we have focussed on reducing the likelihood of flooding by building flood defences. Other measures have been used but not as a primary solution to flood risk. It is now widely recognised that managing flood risk to provide safe and sustainable communities will require more emphasis on the

management of the consequences of flooding. This will include:

- promoting awareness of flooding so that organisations, communities and individuals are aware of the risk and are better prepared to take action in time of flood;
- providing flood warning services to those at risk, to enable them to take action;
- improved incident and emergency response by the emergency services and by those at risk from flooding;

- encouraging land use planning to take account of flood risk in determining the location, layout and design of new development;
- flood proofing properties and infrastructure to improve the resilience (reducing the damage from flood water) and the resistance (keeping water out) to avoid harm.

In this CFMP area, current flood risk management is mainly reliant on flood warning, development control and local defences at communities such as Brecon, Monmouth and Usk Town.

Some of the ways in which we currently manage risk in the CFMP include:

- **flood risk mapping and data management** (understanding the risks now and in the future);

Flood risk mapping is fundamental to understanding flood risk and managing it effectively.

We have recently carried out a number of flood risk mapping studies in key risk areas, for example, Hereford, upstream of Hampton Bishop and Newport. This is part of our work to continually update our hydraulic models with the latest data so we can understand flood risk better and improve the quality of our flood maps.

- **strategic planning and development control** (managing future risk and adapting to climate change);

CFMPs and SMPs are an important part of strategic planning allowing us to look at a range of strategic measures. These include looking for opportunities to reduce run-off through better rural land management and restoration of floodplains through redevelopment of properties and infrastructure.

We work with local authorities to ensure their local development plans address flood risk. Recently we have worked with Monmouthshire Council to help them produce a Strategic Flood Consequence Assessment which will support their local development plan.

- **asset management and maintenance** (managing current risk);

We build, operate and maintain flood defences. We recently completed a new flood alleviation scheme in Hereford which protects the town from a 0.5% AEP flood event.

Maintenance procedures differ from catchment to catchment. The work we carry out includes: blockage and debris removal from watercourses, asset inspection and inspection and cleaning of grids and trash screens. Historic practices of continuous de-shoaling and dredging have ceased in order to avoid ecological damage and to promote biodiversity.

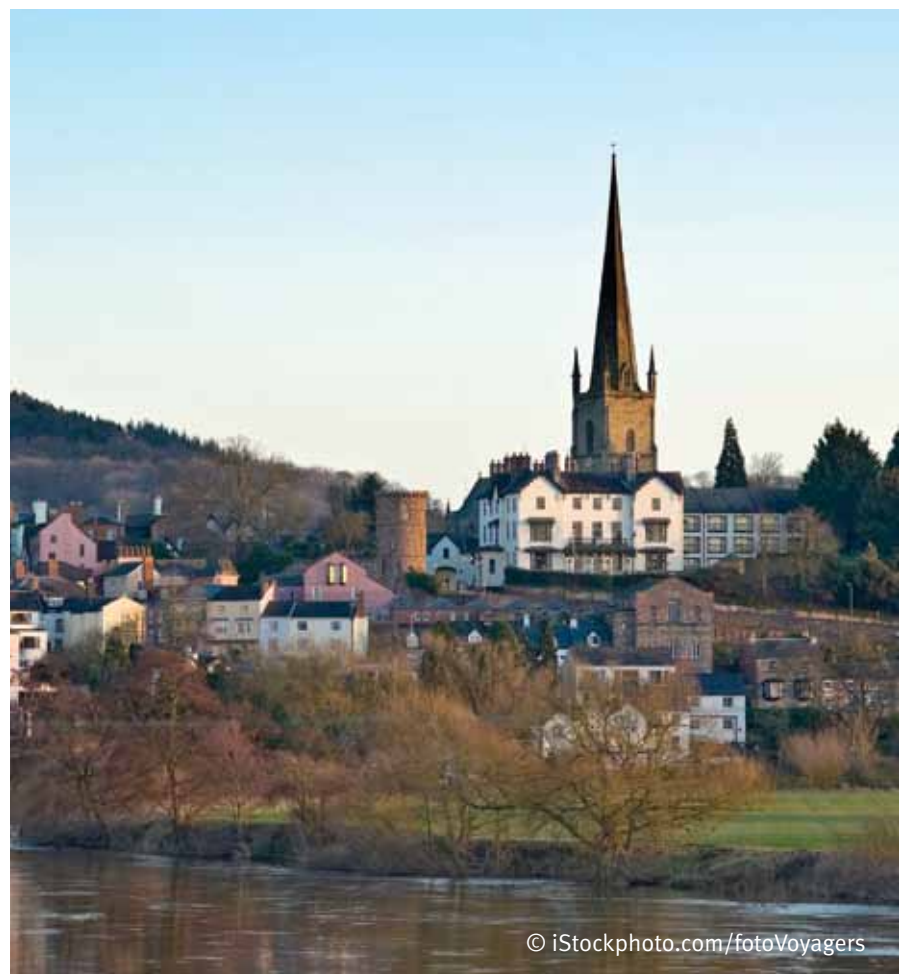
- **flood forecasting and warning** (flood event management);

We use the latest technology to monitor rainfall, river levels, tides and sea conditions we use this to information to produce flood warnings.

- **flood incident management** (responding to flooding events);

Emergency response to flood events is mainly co-ordinated through Civil Contingency arrangements and Local Resilience Forums.

Our role is to advise our partners through these arrangements. We support and participate in emergency response exercises.



↑ Ross-on-Wye

The impact of climate change and future flood risk

Future flood risk will be influenced by climate change, changes in land use (for example urban development) and rural land management. In the Wye and Usk catchments, climate change will have the greatest impact on flood risk, with urban growth and more intensive farming practices also predicted to have some impact.

The following scenario was used to analyse future flood risk:

- 20 per cent increase in peak flows;

- a total sea level rise of one metre by the year 2100;
- a low urban growth rate was applied to Hereford and Newport;
- an increase in rainfall and a decrease in the time it takes for the catchments to respond to that rainfall in areas where there is high grade agricultural land.

Assuming the current level of flood risk management continues, we estimate that by 2100 the number of properties at risk from the 1%

AEP flood event will increase, from approximately 8,900 to around 16,400, unless actions are taken to manage the increasing risks.

Figures 2a and 2b show the difference between current and future flood risks from a 1% AEP flood event, assuming current management activities. The highest numbers of properties at risk, both now and in 2100 are at Newport. The most significant increases in future risk occur in Newport, Brecon, Caerleon, Chepstow and Cwmbran.

Figure 2a. Current and future (2100) numbers of properties at risk from a 1% AEP flood event (including Newport)

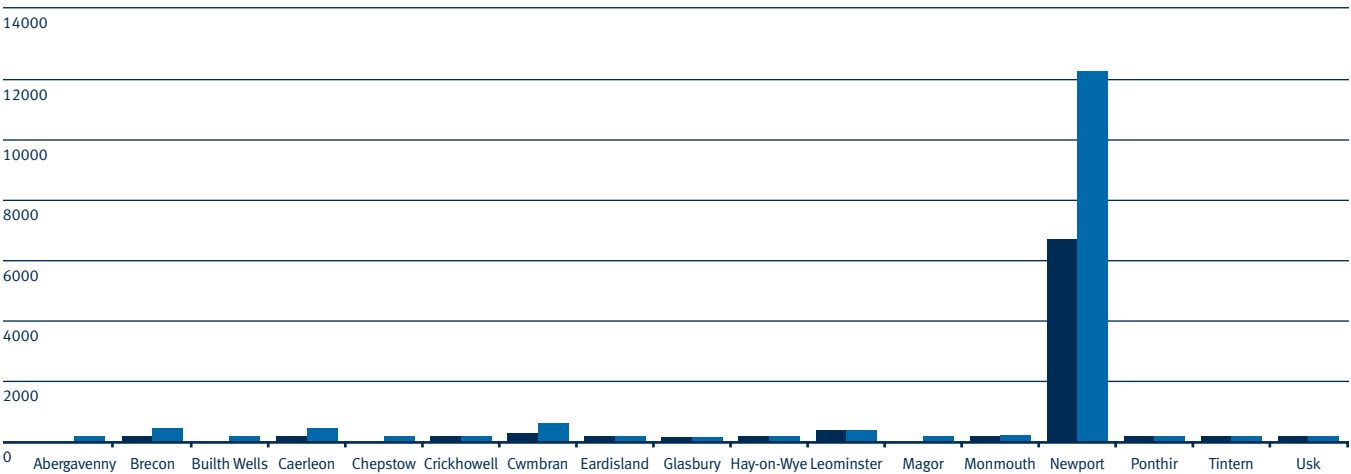


Figure 2b. Current and future (2100) numbers of properties at risk from a 1% AEP flood event (excluding Newport)

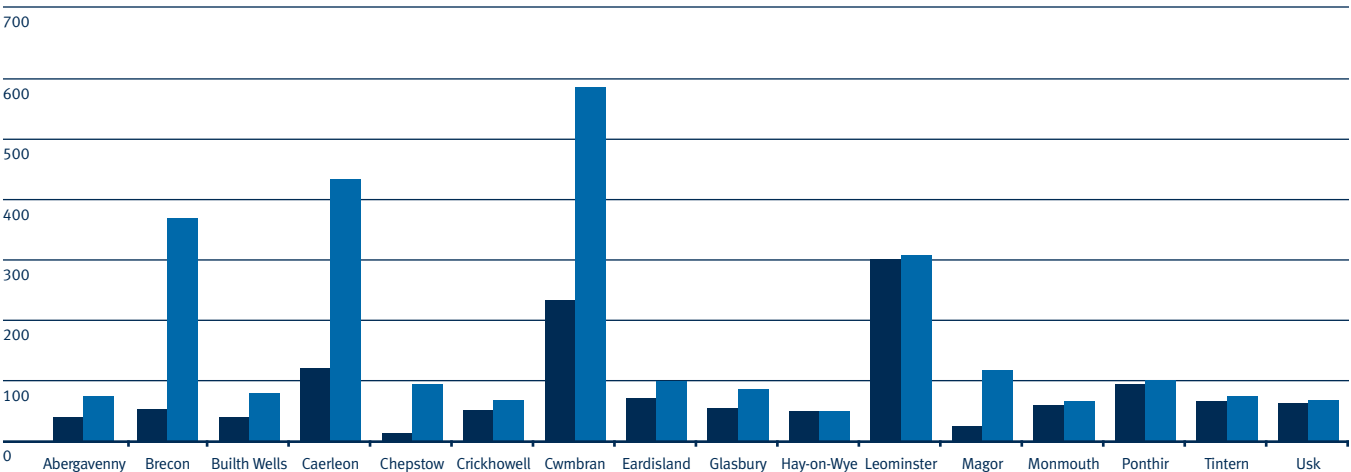


Table 3 provides a summary of key locations at risk in the future. Sea level rise results in large increases in flood extents and frequency in the low-lying Newport and the Caldicot Levels. Although fewer people are at risk of flooding in towns such as Brecon and Builth Wells compared to the Lower Wye and Usk, floodwater depth and velocity are expected to increase significantly.

The likelihood of damage to natural habitats in the future is low. The majority of sites which will be affected in the future 1% AEP flood event are already close to and to some extent already dependant on water. The internationally designated sites have also been assessed for their vulnerability to increasing flooding as a result of climate change and the overall impact has been shown to be minimal.

Table 4 lists the infrastructure at risk in the future. The most notable increase in risk to infrastructure is the number of emergency services (increased from 3 to 8), and sewage treatment works (increased from 19 to 33).

We expect surface water and groundwater flooding will increase. Organisations will need to work together to investigate and manage this flood risk in the future.

Table 3. Key locations at risk in a future (2100) 1% AEP flood event

Number of properties at risk	Locations
> 1,000	Newport
500 to 1,000	Cwmbran
100 to 500	Caerleon, Leominster, Chepstow, Brecon, Magor
50 to 100	Abergavenny, Builth Wells, Crickhowell, Eardisland, Glasbury, Monmouth, Ponthir, Tintern, Usk
25 to 50	Hay-on-Wye

Table 4. Infrastructure at risk in the future (2100) 1% AEP flood event

8 emergency services
33 sewage treatment works
16 schools
17 kilometres of main road
14 kilometres of railway



↑ River Usk, Crickhowell

Future direction for flood risk management

Approaches in each sub-area

We have divided the Wye and Usk catchments into seven distinct sub-areas which have similar physical characteristics, sources of flooding and level of risk. We have identified the most appropriate approach to managing flood risk for each of the sub-areas and allocated one of six generic flood risk management policies. These are shown in Map 3 and Table 5.

To select the most appropriate policy, the plan has considered how social, economic and environmental objectives are affected by flood risk management activities under each policy option. Policy analysis and selection is based on flood risk across the entire CFMP area and not just the key locations referred to earlier.

Map 3. Sub-areas in the Wye and Usk CFMP

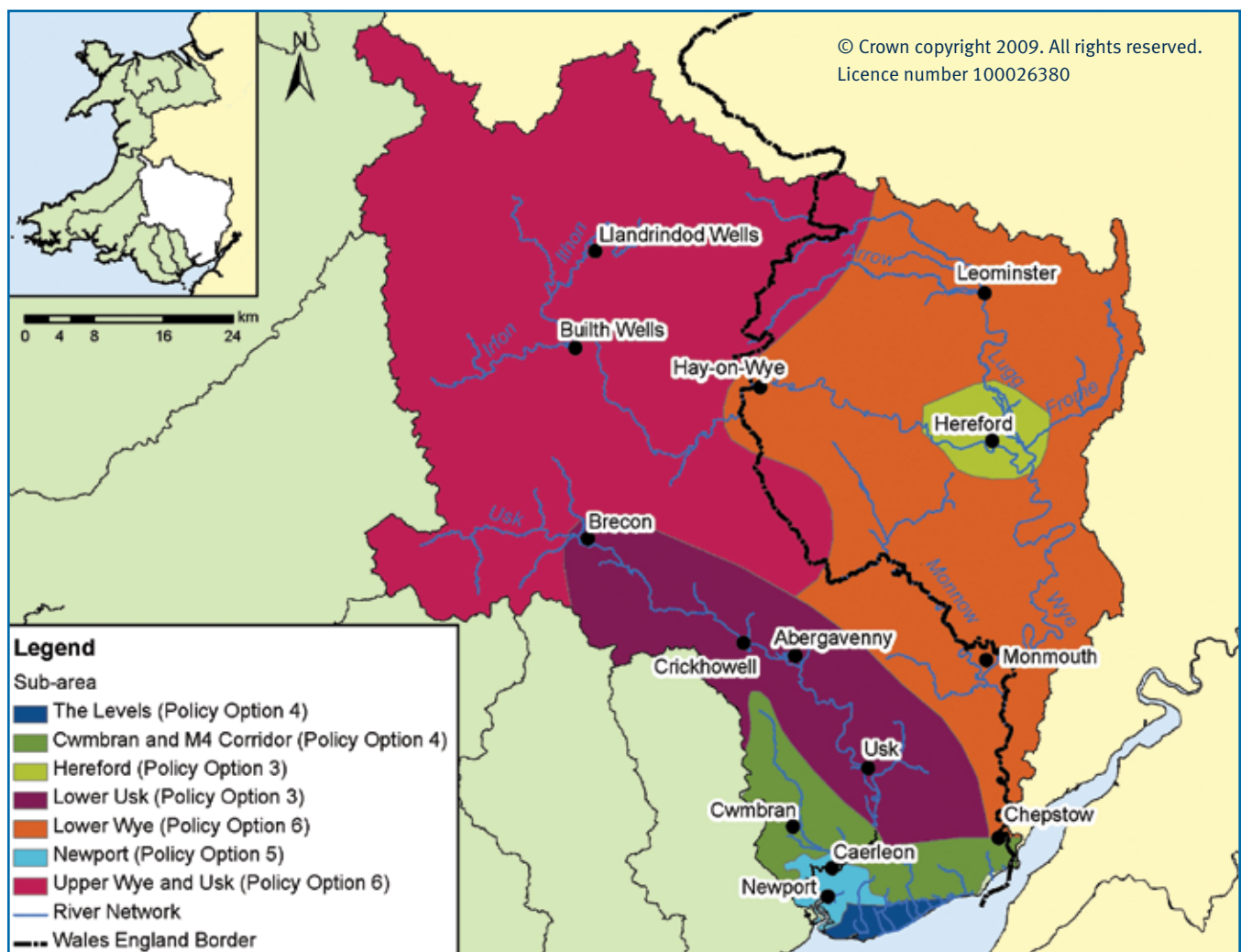


Table 5. Policy options

→ Policy 1

Areas of little or no flood risk where we will continue to monitor and advise

This policy will tend to be applied in those areas where there are very few properties at risk of flooding. It reflects a commitment to work with the natural flood processes as far as possible.

→ Policy 2

Areas of low to moderate flood risk where we can generally reduce existing flood risk management actions

This policy will tend to be applied where the overall level of risk to people and property is low to moderate. It may no longer be value for money to focus on continuing current levels of maintenance of existing defences if we can use resources to reduce risk where there are more people at higher risk. We would therefore review the flood risk management actions being taken so that they are proportionate to the level of risk.

→ Policy 3

Areas of low to moderate flood risk where we are generally managing existing flood risk effectively

This policy will tend to be applied where the risks are currently appropriately managed and where the risk of flooding is not expected to increase significantly in the future. However, we keep our approach under review, looking for improvements and responding to new challenges or information as they emerge. We may review our approach to managing flood defences and other flood risk management actions, to ensure that we are managing efficiently and taking the best approach to managing flood risk in the longer term.

→ Policy 4

Areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change

This policy will tend to be applied where the risks are currently deemed to be appropriately-managed, but where the risk of flooding is expected to significantly rise in the future. In this case we would need to do more in the future to contain what would otherwise be increasing risk. Taking further action to reduce risk will require further appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.

→ Policy 5

Areas of moderate to high flood risk where we can generally take further action to reduce flood risk

This policy will tend to be applied to those areas where the case for further action to reduce flood risk is most compelling, for example where there are many people at high risk, or where changes in the environment have already increased risk. Taking further action to reduce risk will require additional appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.

→ Policy 6

Areas of low to moderate flood risk where we will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits

This policy will tend to be applied where there may be opportunities in some locations to reduce flood risk locally or more widely in a catchment by storing water or managing run-off. The policy has been applied to an area (where the potential to apply the policy exists), but would only be implemented in specific locations within the area, after more detailed appraisal and consultation.

Cwmbran and M4 Corridor

Our key partners are:

Local Authorities and communities

Dŵr Cymru Welsh Water

Emergency services

flood event, rising to around 810 properties in the future. Important infrastructure is at flood risk. In the future increased tide levels will result in a significant rise in tidally influenced flooding. The likelihood of defences overtopping will increase.

- increased emphasis on actions to manage the consequences of flooding;
- increased community and individual awareness of their flood risks and adoption of actions both can take to help themselves.

The issues in this sub-area

A mostly rural, lowland area, but includes some higher ground upstream and the communities of Cwmbran, Pontypool and Ponthir. The River Lwyd and lower River Usk drain the area.

The River Lwyd is tidally influenced as far as Caerleon and the catchment responds quickly to rainfall due to steep, impermeable upper reaches. Flood risk is mainly from river flooding, tidally influenced river flooding and sewer flooding. Surface water flooding is an issue in Cwmbran.

Approximately 450 properties are currently at risk from the 1% AEP

The vision and preferred policy

Policy Option 4 – areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change.

Our vision includes improved integration of actions by all parties to manage all sources of flood risk, particularly local surface water and sewer flooding.

We will continue to maintain our defences, but it may not be justifiable to increase their height in the future, therefore our vision also includes:

Actions to implement the policy include:

Encourage and support our partners to produce local long term plans to manage all sources of flooding, particularly in the deep fast flowing flooded areas in the Lwyd catchment. These plans should include an assessment of the consequences of flooding, including from overtopping of defences, and actions to manage these. They should consider future options and investment needs for defences, emergency planning and response, and development control issues.

Encourage and support studies by partners to identify surface water and sewer flooding issues and management options, particularly at Cwmbran.

Engage with and advise the local community to encourage people at risk to take action to help themselves.

Encourage and support owners and operators of important infrastructure to plan for, and manage, their current and future flood risks.

Review and rationalise our current maintenance activities and target our actions and limited resources to locations of greatest risk.



↑ River Lwyd, downstream from Pontyfelin Road Bridge

The Levels

Our key partners are:

Monmouthshire County Council

Newport City Council

Local communities

Caldicot and Wentlooge Levels
Internal Drainage Board (IDB)

Landowners and managers

Countryside Council for Wales
(CCW)

Emergency services

The issues in this sub-area

A mainly rural area with a few small scattered settlements. The main community is Magor which has a history of flooding. The area is drained by a number of small streams. Flood risk is mainly from these small streams which are

tidally influenced. Surface water ponding is an issue due to the flat topography, which is below sea level in places.

Internationally and nationally important conservation sites are at risk from the 1% AEP flood event. These sites depend on active water level management and the land drainage networks. The Caldicot and Wentlooge Levels IDB play an important role in this area.

Less than 10 properties are currently at risk from the 1% AEP flood event, rising to around 230 properties in the future. Sea level rise in the future will significantly increase the number of properties at risk and will impact on the designated environmental sites.

Any significant change in the water environment will impact on the valuable natural habitats and species. We need to improve our understanding of flood risks in this area.

The vision and preferred policy

Policy Option 4 – areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change.

Our vision is to establish a long term strategic approach to flood risk management, developed and agreed with our partners. This will consider all sources of flooding, including from the sea and will balance the needs of people, property and infrastructure as well as the important environmental designations.

Actions to implement the policy include:

Encourage and support our partners to produce local long term plans to manage all sources of flooding. These plans should include an assessment of the consequences of flooding, including from overtopping of defences, and actions to manage these. They should consider future options and investment needs for defences, emergency planning and response, and development control issues. These plans will be informed by the Severn Estuary SMP and the Severn Estuary Flood Risk Management Strategy.

Engage and advise the local communities to encourage people at risk to take action to help themselves, in particular in Magor.



↑ Goldcliff, Caldicot Levels

Lower Usk

Our key partners are:

Local Authorities and communities

Dŵr Cymru Welsh Water

Landowners and managers

CCW

Emergency services

The issues in this sub-area

A mainly rural area, which includes the communities of Brecon, Crickhowell, Abergavenny, Talybont-on-Usk and Usk Town. Flood risk is primarily from the River Usk and its tributaries. Localised surface water flooding is an issue in Usk and Crickhowell.

Existing flood defences reduce the likelihood of flooding at Brecon, Crickhowell and Usk Town.



↑ River Usk at Brecon Weir

Approximately 250 properties are currently at risk from the 1% AEP flood event, rising to around 570 properties in the future. People, properties and infrastructure in the towns and villages are at flood risk. Some sections of locally important roads are at risk.

Overtopping of defences, now or in the future, by extreme flood events could have very serious consequences.

The vision and preferred policy

Policy Option 3 – areas of low to moderate flood risk where we are generally managing existing flood risk effectively.

Our vision is to ensure all our actions are appropriate and proportionate to the risks, now and in the future.

We will continue to maintain our defences, particularly at Brecon, Crickhowell and Usk Town, but it may not be justifiable to increase their height in the future. Our vision also includes:

- increased emphasis on actions to manage the consequences of flooding;
- increased community and individual awareness of their flood risks and adoption of actions both can take to help themselves.

Actions to implement the policy include:

Review and rationalise our current actions to ensure they are appropriate and targeted to locations of greatest risk.

Encourage and support our partners to produce local long term plans to manage all sources of flooding, particularly at Brecon, Crickhowell and Usk Town. These plans should include an assessment of the consequences of flooding, including from overtopping of defences, and actions to manage these. They should consider future options and investment needs for defences, emergency planning and response, and development control issues.

Encourage and support studies by partners to identify surface water and sewer flooding issues and management options, particularly at Usk Town and Crickhowell.

Engage with and advise the local community to encourage people at risk to take action to help themselves.

Encourage and support owners and operators of important infrastructure to plan for, and manage, their current and future flood risks.

Seek opportunities to store water or manage run-off to provide flood risk or wider environmental benefits.

Lower Wye

Our key partners are:

Local Authorities and communities

Dŵr Cymru Welsh Water

Lower Wye IDB

River Lugg IDB

Landowners and managers

CCW

Emergency services

from the 1% AEP flood event, rising to around 1,100 properties in the future.

Overtopping of defences, now or in the future, by extreme flood events could have very serious consequences.

This is an important agricultural area with a large proportion of good quality land at flood risk. The Lower Wye also has a large number of environmental designations.

Actions to implement the policy include:

Encourage and support land use and management changes by others, where these deliver flood risk management and wider environmental benefits.

Seek opportunities to store water or manage run-off to provide flood risk or wider environmental benefits, e.g. middle reaches of the River Wye and the Monnow, Trothy and Lugg.

Encourage and support our partners to produce local long term plans to manage all sources of flooding, particularly at Monmouth, Chepstow and Leominster. These plans should include an assessment of the consequences of flooding, including from overtopping of defences, and actions to manage these. They should consider future options and investment needs for defences, emergency planning and response, and development control issues.

Encourage and support studies by partners to identify surface water and sewer flooding issues and management options, particularly at Ross-on-Wye, Hay-on-Wye, Monmouth, Leominster and Pembridge.

Engage with and advise the local community to encourage people at risk to take action to help themselves.

The issues in this sub-area

A mainly rural area, which includes several important towns such as Ross-on-Wye and Monmouth. Flood risk is primarily from the River Wye and its tributaries. Surface water and localised sewer flooding are also an issue.

There are flood defences at Monmouth and Chepstow and a flood alleviation scheme at Leominster. Approximately 780 properties are currently at risk



↑ River Wye at Monmouth Bridge

The vision and preferred policy

Policy Option 6 – areas of low to moderate flood risk where we will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits.

Our vision is to influence land use and management practices to provide an overall reduction in flood risk and contribute to a wider range of benefits, for example, biodiversity and water quality.

We will continue to maintain our defences, but it may not be justifiable to increase their height in the future. Our vision also includes:

- increased emphasis on actions to manage the consequences of flooding;
- increased community awareness of their flood risks and adoption of actions both can take to help themselves.

Hereford

Our key partners are:

Herefordshire Council

Local Communities

Dŵr Cymru Welsh Water

River Lugg IDB

Emergency services

The issues in this sub-area

This area contains the city of Hereford, Hampton Bishop and its surrounding areas where extensive urban growth is expected. The main source of flood risk is from the Rivers Wye and Lugg. There is also risk of surface water and localised sewer flooding.

Approximately 15 properties are currently at risk from the 1% AEP flood event, rising to around 25 properties in the future. The main flood risk is to people, properties and infrastructure in Hereford. The recently completed Hereford flood alleviation scheme provides protection from the River Wye to a 0.5% AEP flood event and protects properties and the main road running through the centre of Hereford.

The vision and preferred policy

Policy Option 3 – areas of low to moderate flood risk where we are generally managing existing flood risk effectively.

Our vision is to ensure all our actions are appropriate and proportionate to the risks, now and in the future.

We will continue to maintain our defences, particularly at Hereford and Hampton Bishop, but it may not be justifiable to increase their height in the future. Our vision also includes:

- increased emphasis on actions to manage the consequences of flooding;
- increased community and individual awareness of their flood risks and adoption of actions both can take to help themselves.

Actions to implement the policy include:

Review and rationalise our current actions to ensure they are appropriate and targeted to locations of greatest risk.

Encourage and support our partners to produce local long term plans to manage all sources of flooding, particularly at Hampton Bishop and Hereford. These plans should include an assessment of the consequences of flooding, including from overtopping of defences, and actions to manage these. They should consider future options and investment needs for defences, emergency planning and response, and development control issues.

We will continue to maintain our defences and provide flood warnings.

Encourage and support studies by partners to identify surface water and sewer flooding issues and management options, particularly at Hereford.

Engage and advise the local communities to encourage people at risk to take action to help themselves.



↑ Hereford Flood Alleviation Scheme – River Wye along Riverside Walk

Upper Wye and Usk

Our key partners are:

Local Authorities and communities

Dŵr Cymru Welsh Water

Landowners and managers

CCW

Emergency services

This area has a large number of important environmental designations.

The vision and preferred policy

Policy Option 6 – areas of low to moderate flood risk where we will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits.

Our vision is to influence land use and management practices to provide an overall reduction in flood risk and contribute to a wider range of benefits, for example, biodiversity and water quality.

It is unlikely that we will be able to justify construction of significant new defences. We will continue to maintain existing defences, but it may not be justifiable to replace them or to increase their height in the future. Our vision also includes:

- increased emphasis on actions to manage the consequences of flooding. Particularly at Builth Wells;
- increased community and individual awareness of their flood risks and adoption of actions both can take to help themselves.

Actions to implement the policy include:

Encourage and support land use and management changes by others, where these deliver flood risk management and wider environmental benefits.

Seek opportunities to store water or manage run-off to provide flood risk or wider environmental benefits.

Encourage and support our partners to produce local long term plans to manage all sources of flooding, particularly at Builth Wells. These plans should include an assessment of the consequences of flooding, including from overtopping of defences, and actions to manage these. They should consider future options and investment needs for defences, emergency planning and response, and development control issues.

Review and rationalise our current actions to ensure they are appropriate and targeted to locations of greatest risk.

Engage and advise the local communities to encourage people at risk to take action to help themselves.

The issues in this sub-area

This is mainly a rural area, which includes several towns, for example, Builth Wells, Glasbury and Talgarth. Flood risk is primarily from the River Wye and its tributaries.

Approximately 430 properties are currently at risk from the 1% AEP flood event rising to around 570 properties in the future.

Properties are at risk in both the main urban centres and also dispersed across the area.



↑ River Wye at Glasbury upstream of road bridge, October 2008

Newport

Our key partners are:

Newport City Council

Local communities

Dŵr Cymru Welsh Water

Emergency services

The issues in this sub-area

This is an urban area, including Newport and Caerleon. The area has a high population density and is a centre for employment and urban growth. Flood risk is associated with tidally influenced flooding from the River Usk and tributaries running through Newport. There is also risk of surface water and localised sewer flooding.



↑ River Usk, Riverside Area at Newport

Approximately 6,900 properties are currently at risk from the 1% AEP river and 0.5% tidal flood event, rising to around 13,100 properties in the future. Flood risk is dominated by the tidal influence. In the future, sea level rise and additional development will considerably increase the flood risks unless these are managed.

The vision and preferred policy

Policy Option 5 – areas of moderate to high flood risk where we can generally take further action to reduce flood risk.

Newport relies on flood defences to reduce the likelihood of flooding. Overtopping of defences, now or in the future, by extreme flood or tidal events could have serious consequences. We will continue to maintain our defences, but it may not be justifiable or acceptable to increase their height in the future.

The outcome we seek is a complementary set of flood risk management actions by all partners at a local community level. These will include:

- increased emphasis on actions to manage the consequences of flooding from all sources;
- increased community and individual awareness of their flood risks and adoption of actions both can take to help themselves.

Actions to implement the policy include:

Encourage and support our partners to produce local long term plans to manage all sources of flooding, for Newport. These plans should include an assessment of the consequences of flooding, including from overtopping of defences, and actions to manage these. They should consider future options and investment needs for defences, emergency planning and response, and development control issues to avoid inappropriate development in high risk areas. These plans will be informed by the Severn Estuary SMP and the Severn Estuary Flood Risk Management Strategy.

We will continue to maintain our defences and provide flood warnings.

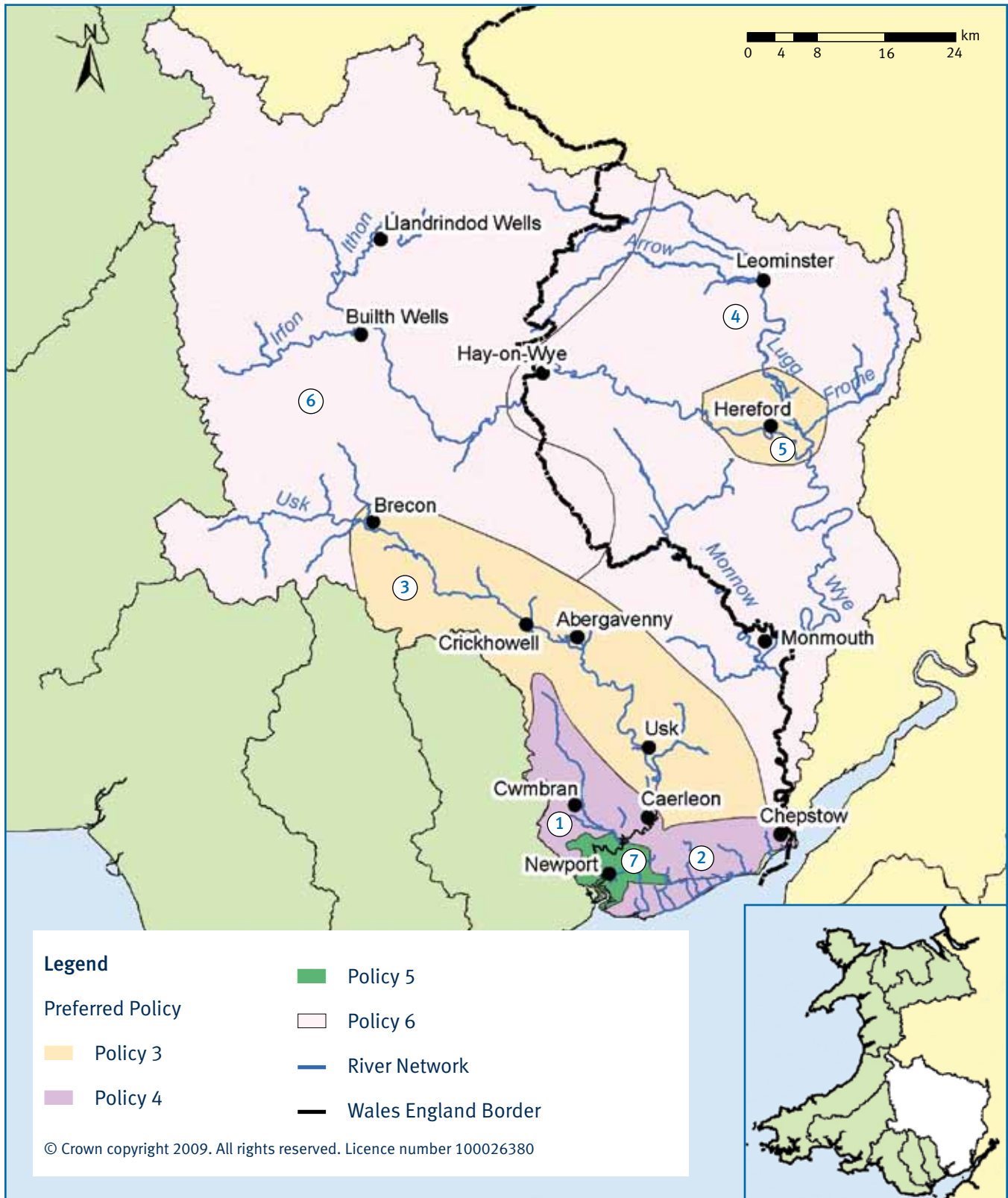
Encourage and support studies by partners to identify surface water and sewer flooding issues and management options, for Newport.

Engage and advise the local communities to encourage people at risk to take action to help themselves.

Encourage and support owners and operators of important infrastructure to plan for, and manage, their current and future flood risks.

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Map of CFMP policies



Sub-area 1 – Cwmbran and M4 Corridor

Flood risk is moderate but is expected to rise significantly into the future. Densely populated and a great deal of strategically important infrastructure at risk. Flood risk management activity will need to increase to sustain the current level of protections into the future.

Sub-area 2 – The Levels

Flood risk is low but is expected to rise significantly in the future, in relation to the size of the area. The area is a sensitive environmental site. We need to better understand the flood risk and the impact of flood risk management activities on the site.

Sub-area 3 – Lower Usk

Flood risk is relatively low and is not expected to increase significantly in the future. Flood risk is currently considered to be managed at an appropriate level, but will be reviewed and reprioritised as necessary to ensure that activities are proportionate to the level of risk.

Sub-area 4 – Lower Wye

Flood risk is relatively high and is expected to increase into the future with quality agricultural land at risk. The rural nature of the catchment provides an excellent opportunity to reduce flood risk in a sustainable way through land use and land management practices.

Sub-area 5 – Hereford

Flood risk is low and is not expected to increase significantly in the future. Flood risk is currently considered to be managed at an appropriate level, but will be reviewed and reprioritised as necessary to ensure that activities are proportionate to the level of risk.

Sub-area 6 – Upper Wye and Usk

Flood risk is relatively high and is expected to increase into the future. The rural nature of the catchment provides an excellent opportunity to reduce flood risk in a sustainable way through land use and land management practices.

Sub-area 7 – Newport

Flood risk is very high and is expected to increase significantly into the future. Newport is an economic hub with high population densities and future growth predictions. Flood risk management activity needs to increase to minimise this risk.

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