

Wansbeck and Blyth Catchment Flood Management Plan

Summary Report December 2009

managing flood risk



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Introduction



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

The Wansbeck and Blyth 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, ground water, 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 ground water 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.

The Wansbeck and Blyth catchment is largely rural in nature, and while the river systems have well defined

floodplains, these areas are generally undeveloped. However, there are around 3,000 residential and 500 commercial properties within the catchment at risk of flooding. The majority of these properties are within the towns of Morpeth within the Wansbeck catchment and Ponteland and Blyth in the Blyth catchment. There are flood defences in Ponteland and Morpeth which offer local flood protection to these communities.

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. We have worked with and consulted others including Local Authorities, water companies and Natural England to develop this Catchment Flood Management Plan.

This is a summary of the main CFMP document, if you need to see the full document an electronic version can be obtained by emailing enquiries@environment-agency.gov.uk or alternatively paper copies can be viewed at any of our offices in the North East.

A handwritten signature in black ink, appearing to read 'D. Dangerfield', written in a cursive style.

David Dangerfield,
Director – Yorkshire and North East

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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 catchment. CFMPs should be used to inform planning and decision making by key stakeholders such as:

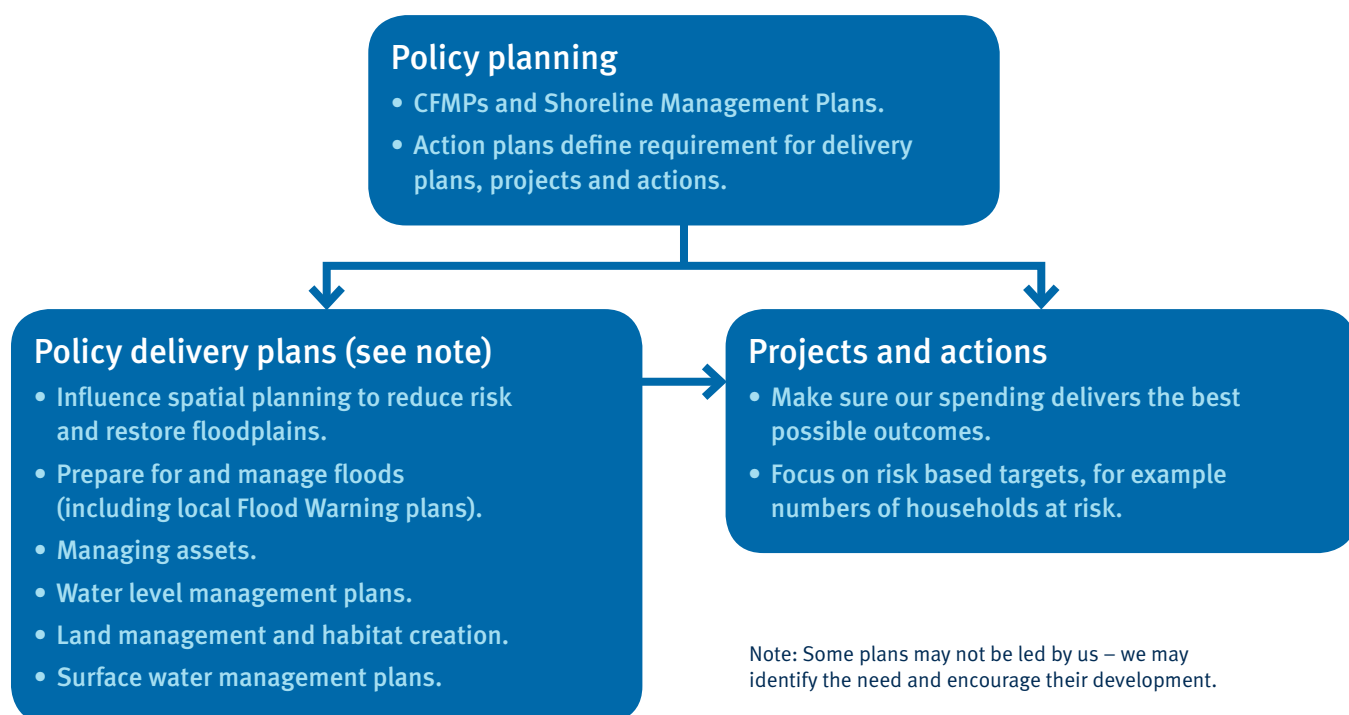
- The Environment Agency, who will use the plan to guide decisions on investment in further plans, projects or actions;
- Regional planning bodies and local authorities who can use the plan to inform spatial planning activities and emergency planning;

- Water companies and other utilities to help plan their activities in the wider context of the catchment;
- Transportation planners;
- Land owners, farmers and land managers that 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 Rivers Wansbeck and Blyth drain a lowland area to the east of the south Tyne catchment. Both have mainly gentle gradients, with the Wansbeck also draining parts of the Cheviot Hills. Sweethope Loughs marks the start of the River Wansbeck, which is joined by Swilder Burn, Hart Burn and the Font before reaching Morpeth and flowing to the coast south of Newbiggin-by-the-sea. The River Blyth starts near Capheaton and joins with the River Pont before flowing on to the coast at Blyth. The North East Northumberland CFMP borders the Wansbeck and Blyth to the north, and the Tyne CFMP borders to the west and south.

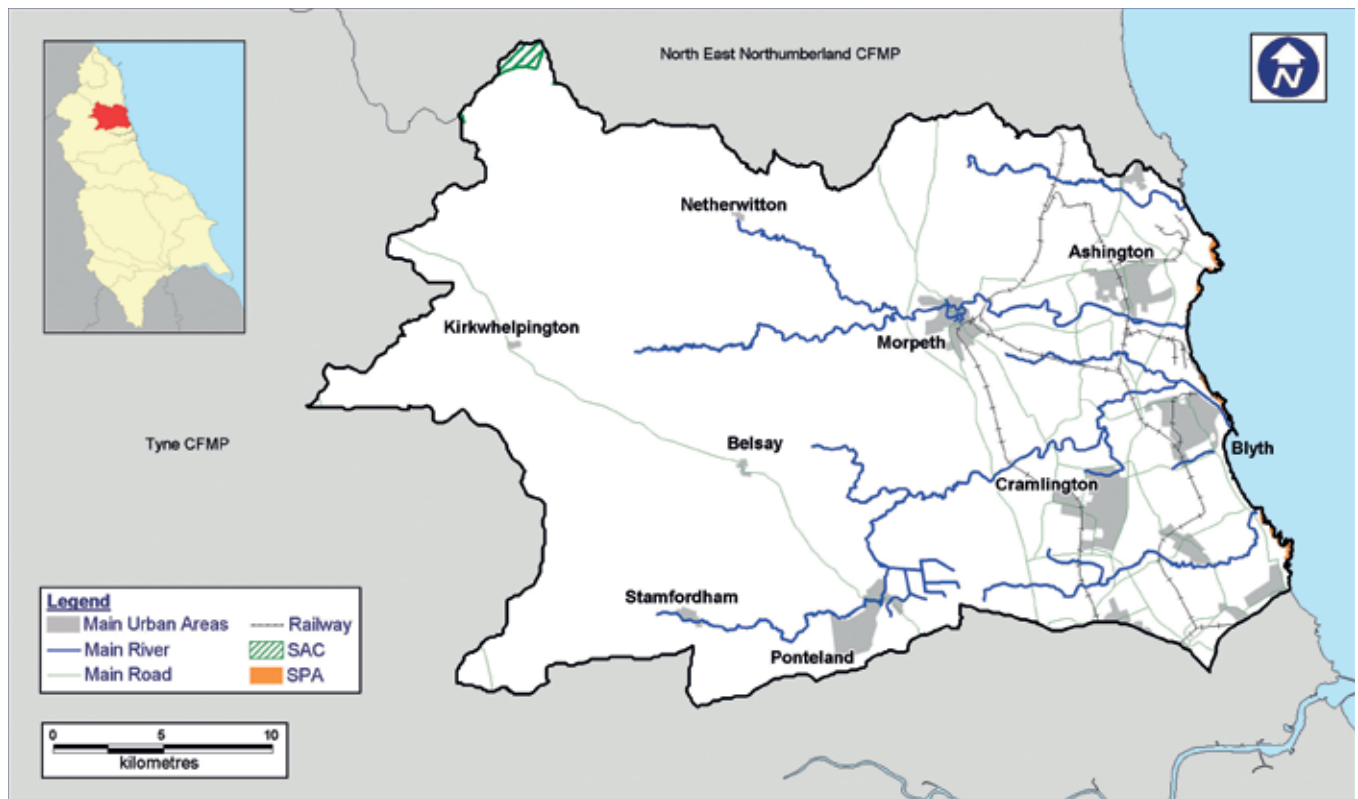
The upper part of the CFMP is rural, mainly grassland and agricultural areas with open, active floodplains. Harwood Forest is in the upper part of the Wansbeck catchment. Settlements are small villages and towns. There are some significant environmental sites, such as the Simonside Hills Special Area of Conservation (SAC) in the north west and the Northumberland Coast Special Protection Area (SPA) in the east of the Wansbeck catchment. Additionally there is one Ramsar site and 16 Sites of Special Scientific Interest (SSSI), 96 Scheduled Monuments (SMs), the Hadrian Wall World Heritage Site and seven registered parks and gardens within the Wansbeck and Blyth catchment.

As the rivers flow eastwards, they pass through an open agricultural landscape. In this middle section, the River Font joins the Wansbeck and the Pont joins the Blyth.

Ponteland and Morpeth contain areas of high flood risk. Newcastle International Airport is in this section, on the border with the Tyne CFMP area.

Further eastwards still, the lower reaches become more densely urbanised, but are deeper, narrow floodplains. Newbiggin-by-the-Sea, Ashington, Bedlington, Blyth, Cramlington and Seaton Delaval occupy the coastal plain. The East Coast Main Line railway and A1 are nationally important transport links which run through the lower catchments.

Map 1 Location and extent of the Wansbeck and Blyth CFMP area



Current and future flood risk

Overview of the current flood risk

The risk of flooding can be broken down into two parts; The chance (probability) of a particular flood and the impact (consequence) that the flood would have if it happened. The probability of a flood relates to the likelihood of a flood of that size occurring within a one year period, it is expressed as a percentage. For example, a one per cent flood has a one per cent chance or 0.01 probability of occurring in any one year.

The flood risks quoted in this report are the undefended one per cent flood figures, they do not take into consideration the presence of defences to demonstrate the total risk of flooding within the catchment and are taken from broadscale mathematical modelling.

Flooding within the CFMP area has been recorded as early as 1609. There is a well recorded history of significant flooding through the

catchment, on the River Wansbeck significant historical flooding events have occurred in 1761, 1839, 1878, 1886 and 1898. In more recent years the largest flooding events occurred in 1963 and 2008 when around 1,000 properties were flooded in and around Morpeth.

In the Blyth catchment flooding has been recorded from 1876 with flooding occurring in Ponteland as recently as 2000.

The main sources of flooding are:

- River flooding in Morpeth and Ponteland;
- Tidal flood risk exists in the Blyth area;
- Surface water flooding in the urban areas such as Morpeth, Ponteland, Blyth and Newbiggin-by-the-Sea.

What is at risk?

Within the Wansbeck and Blyth catchment the main consequences of flooding occur in the urban areas of Morpeth, Ponteland and around Blyth. In total there are over 3,000 residential properties at risk of flooding. Additionally there are over 500 commercial properties. This means just over three per cent of the catchment population is at risk from the one per cent flood event.

Flooding occurs to 0.7 kilometre square of SSSI across three sites. Flooding is expected to have a beneficial impact on two of these sites and a neutral impact on the third site.

It is difficult to assess the impact of flooding to historical assets within the catchment as the information available as part of the CFMP is not detailed in the specific locations but six Scheduled Monuments, one registered parks and gardens and a small area of the World Heritage Site are at risk of flooding.

Table 1 Locations of towns and villages with 25 or more properties at risk in a one per cent annual probability river flood

Number of properties at risk	Locations
> 1000	Morpeth
500 to 1000	Blyth
100 to 500	Ponteland, Dudley
50 to 100	Newbiggin-by-the-Sea
25 to 50	Ashington

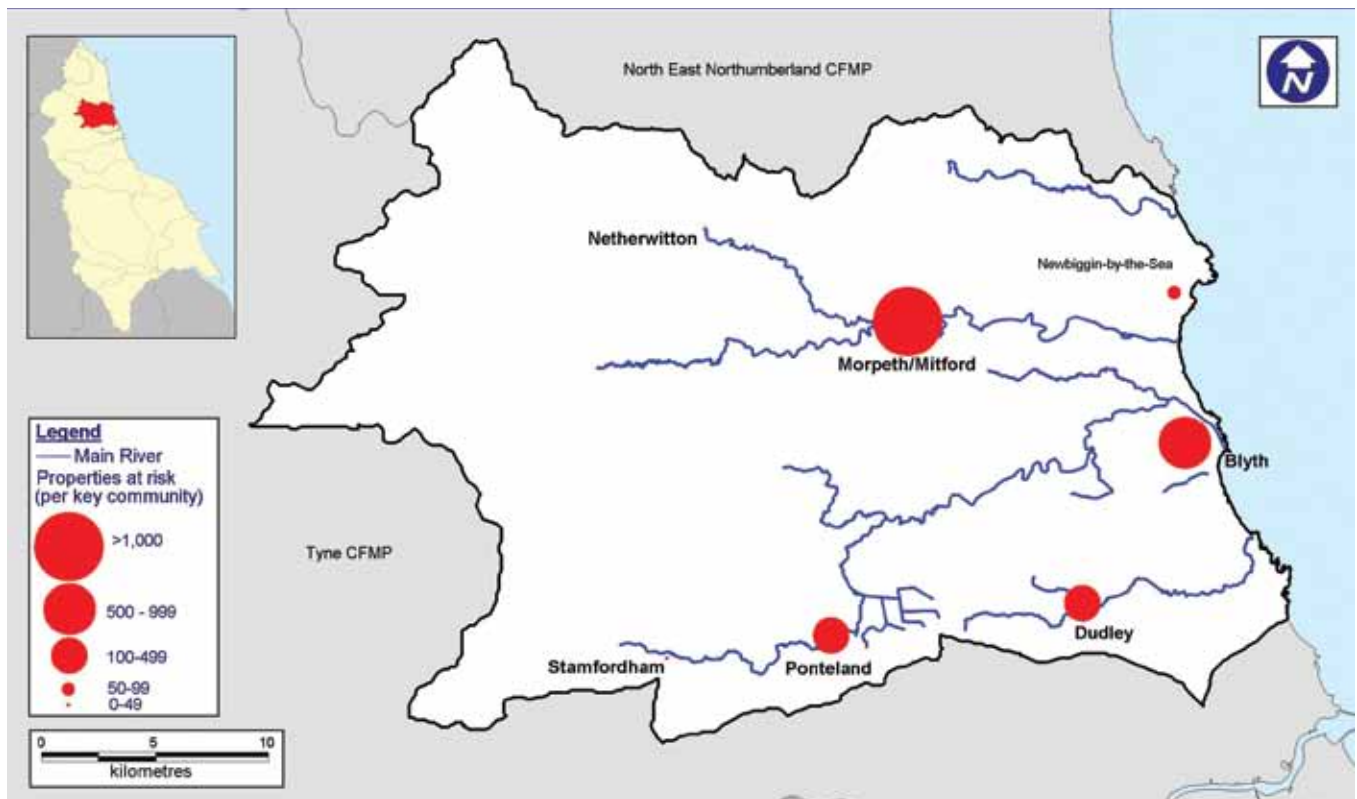
Where is the risk?

The majority of the population is located in the east portion of the catchment. Therefore most of the risk to people and property is in the east of the catchment. The main areas of flood risk from rivers is in Morpeth and Ponteland. Surface water flooding from the surface water drainage system is possible in most of the urban areas such as Blyth and Ashington.

Table 2 Critical infrastructure at risk:

12 gas and electric assets
2 wastewater treatment works
8 health care facilities
7 education facilities
2 emergency services buildings

Map 2 Properties at risk of flooding in the Wansbeck and Blyth catchment



How we currently manage the risk in the catchment

Our flood risk management activity is prioritised on a risk basis. Our main activities include:

- **Strategic planning** to plan sustainable long term investment on a risk basis. This includes the development of strategic documents such as this Catchment Flood Management Plan.
- **Flood risk mapping** to gain a more detailed understanding of flood risk in localised areas. This includes modelling and detailed mapping to understand flood risk and sharing data with others to assist in gaining a better understanding of flood risk in all areas. They also map historic flooding and carry out a data collection role following major events such as September 2008.
- **Maintenance of existing defences and structures** prioritised on a risk basis to ensure the effectiveness of our assets, this includes the maintenance of the nine kilometres of defences including the flood walls and banks in Morpeth and Ponteland. This work includes inspection and regular maintenance such as vermin control and grass cutting on flood defences and clearing of channels of large obstructions.
- **Capital schemes** including the design and project management to create new flood defences and replace existing outdated ones. This team are currently developing options for a new flood alleviation scheme for the Morpeth area.
- **Flood forecasting and warning.** Includes monitoring the weather and tidal conditions to predict river and coastal flooding and to warn professional partners including emergency responders and members of the public of predicted river and coastal flooding. We currently offer a flood warning service to over 1,750 properties in the catchment including Morpeth, Ponteland, Blyth and the surrounding areas.

The impact of climate change and future flood risk

- **Development control** to prevent inappropriate development in flood risk areas. Working with Local Authorities to develop strategic flood risk assessments and Surface Water Management Plans and to provide suitable planning policies to help safeguard floodplain. The team also provides advice to others and regulates river work and development to ensure that the work does not increase flood risk.

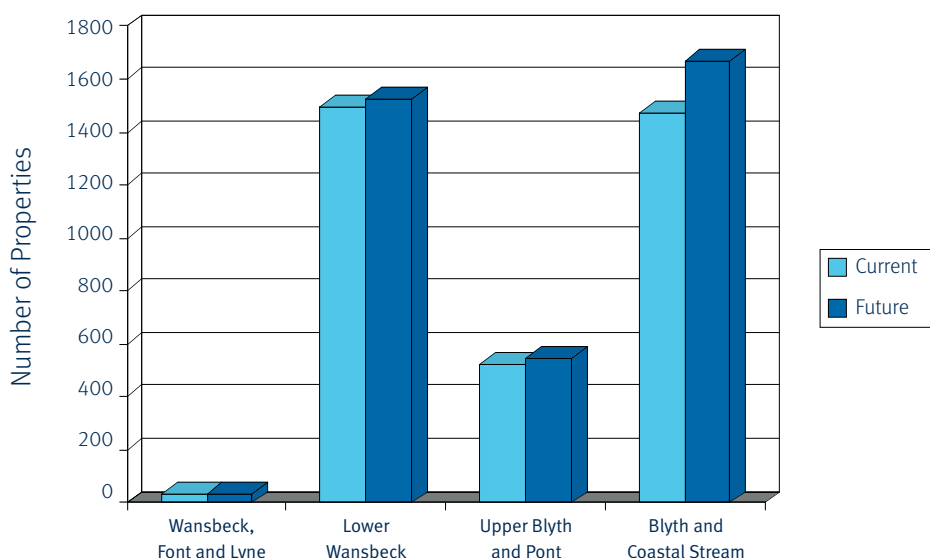
All of this work has a beneficial effect in reducing the risk of flooding by either reducing the frequency of flooding or by helping to reduce the consequences of flooding when it occurs.

The effect that flooding will have in the future is influenced by a range of issues such as climate change, changes in land use (e.g. development), and changes in how land is managed. We considered various scenarios such as increasing afforestation, improved agricultural drainage and increased land use. However, the scale of changes necessary to effect the catchment flood regime were too large to be feasible in the timescale of the CFMP. In the case of increased development the location of the development pressure in the eastern areas of the catchment were such that the impacts of flooding was limited. Climate change was therefore considered to be the most significant future scenario likely to effect flooding. We have therefore only considered the impact of climate change in assessing future flood risk in the catchment. The following future scenario was used in the Wansbeck and Blyth CFMP future flooding analysis.

- 20 per cent increase in peak flow in all watercourses. This will increase the probability of large-scale flood events by increasing the frequency of river banks overtopping.
- Between 2.5mm and 13mm per year increase in sea levels which will result in increased time when watercourses will be tide locked increasing river levels.
- Increased rainfall intensity, especially convection storms which will increase the risk of surface water and urban watercourse flooding.

The impact of these changes in the Wansbeck and Blyth catchment are significant in the urban areas. In total it is estimated that there will be over 3,770 properties at risk in the catchment in the future, more than 180 additional properties compared to the current level. With the largest increases occurring on the River Blyth and the Coastal Stream areas in the east of the catchment, with the increase occurring in existing settlements such as Blyth and North Tyneside. Figure 2 shows the difference between current and future flooding at a one per cent flood at sub catchment level. The larger increases in flooding are located in the lower reaches where that majority of population is located and where the combination of increased river flows and higher sea levels are most pronounced. The rural areas are less sensitive to increased flows due to lower population density. Flooding in these areas will be more regular though as channels reach capacity more regularly and consequently flooding commences at lower order floods.

Figure 2 Change in properties at flood risk from a one per cent probability river flood



Future direction for flood risk management

Approaches in each sub-area

Flood risk is not the same in all of the catchment. We have divided the Wansbeck and Blyth catchment into seven 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, shown in Table 3.

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.

In the following sections we outline the approach in each sub-area by highlighting:

- Key issues and messages for each sub-area;
- Our policy and vision for future management;
- Key actions to deliver the policy.

Map 3 Catchment policy decisions

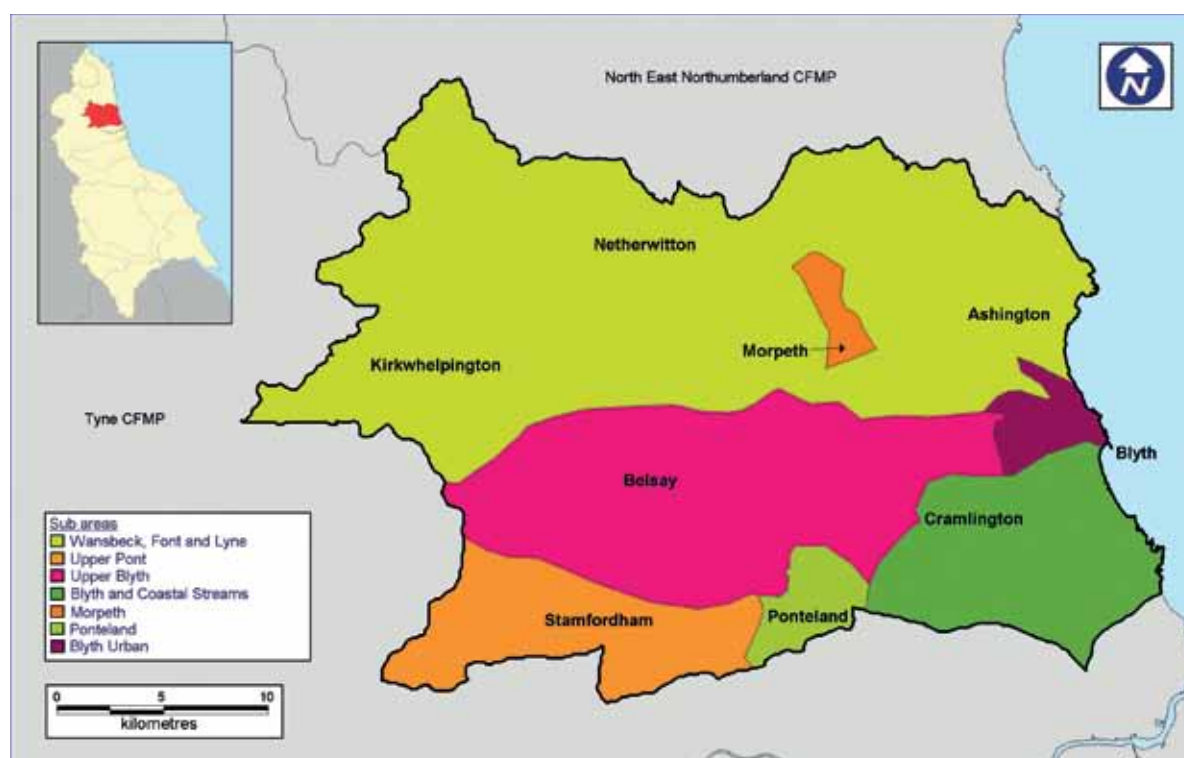


Table 3 Policy options

→ 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.

Wansbeck, Font and Lyne

Our key partners are:

Northumberland County Council

Northumbrian Water

Land owners

Natural England

The issues in this sub-area

This area covers the rural catchments of the upper Wansbeck, Font, Lyne and the coastal stream the Sleekburn. Flooding in this area comes from the Rivers Wansbeck, Font and Lyne and the Sleekburn.

There are around 200 properties at risk spread across the whole sub-area although there are some small concentrations of flood risk in the sub-area (just upstream of the Morpeth sub-area).

Additionally within the urban areas risk also comes from drainage and culvert restrictions, where surface water flooding during periods of rainfall can occur.

Under the future flooding scenarios the number of properties at risk is predicted to increase by 15 to 218. However, work to reduce flows in the catchment and to store water where possible will manage this increase.



The vision and policy

Policy Option 6 is our approach. This area is upstream of one of the locations at highest risk of flooding within the catchment. Storing floodwaters in designated areas on the Wansbeck, will not increase risk to people or property in this area but will benefit the town of Morpeth by controlling downstream flows. One drawback of this action is the presence of native crayfish in the River Wansbeck, which may be detrimentally affected by a storage scheme. Within the Font and Lyne the current flood defence and maintenance activities will continue.

The key messages

- The area is predominantly rural with a low risk of flooding.
- There are large areas at risk of flooding downstream which would benefit from reduced flows within this sub-area.
- The area is likely to be the location of the flood storage system if proposed in the Morpeth Flood Alleviation Scheme.

Actions to implement the policy

- Continue providing and maintaining the current flood defence assets.
- Continue with our current programme of channel maintenance.
- Investigate potential for providing upstream flood storage for Morpeth to reduce the risk of flooding.
- Encourage the take up of our flood warning service.
- Investigate potential for improving the time given from a flood warning before flooding occurs.
- Improve resilience of properties to flooding. Promote sustainable land management to reduce amount and rate of runoff.
- Increase public awareness of the risk of flooding.

Upper Pont

Our key partners are:

Northumberland County Council

Land owners

Natural England

The issues in this sub-area

This area covers the rural catchment of the Upper Pont, which has low population and a low risk of flooding from the River Pont. The Pont rises in the west, then flows east through Stamfordham towards Ponteland.

Risk of flooding is centred on the villages of Stamfordham and on the outskirts of Ponteland. Under the climate change scenarios risk of flooding is estimated to increase from 32 currently to 40 properties in the future.

The vision and policy

Policy Option 3 allows existing flood risk management measure to continue. This area is mainly rural, with scattered settlements, the measures presently in place to manage flood risks are appropriate. The anticipated effects of climate change are sufficient to warrant continued action. The potential risk to people increases slightly under climate change.

Although by following our chosen approach increase is not prevented, we can prepare for the expected increase in the future.

The key messages

- The area is predominantly rural with only a small number of settlements at risk.
- Our existing maintenance regimes are suitable to the level of risk now and in the future.

Actions to implement the policy

- Continue providing and maintaining current defences.
- Continue with current channel maintenance including sediment control.
- Investigate potential for improving the time given from a flood warning before flooding occurs.
- Improve resilience to flooding.
- Promote sustainable land management to reduce amount and rate of runoff.

Upper Blyth

Our key partners are:

Land owners

Natural England

The issues in this sub-area

This area covers the rural catchment of the Upper Blyth, which has low population density. The Blyth rises in the west then flows east through Belsay and small villages. The Pont flows into the Blyth in this section and along with many minor tributaries produces a relatively dense drainage network. The downstream boundary of the area is Bedlington. There are a number

of old flood banks protecting agricultural land in the area. The risk of flooding to properties is low with up to 45 properties at risk in and around Kirkley Mill, Belsay and isolated farms and mills along the river.

The number of properties at risk of flooding is predicted to increase to 49 in the future in the sub-area.

The vision and policy

Policy Option 2 is our approach. In locations where the present and future risk of flooding indicates that current flood risk management needs to be reduced. This sub-area is mainly rural, with scattered settlements, and the measures presently in place to manage flood risks appear to be adequate in most places. The agricultural flood banks are in poor condition and do not offer protection to the properties in the area. Reduced intervention is cost effective, and does not significantly increase the risk of flooding now or in the future. There is potential for new habitat creation on the floodplain where agricultural flood banks may be removed. We will ensure assessment of defence removal is completed to avoid any adverse effects on cultural and historic sites, water quality and the land owners and farmers in the area.

The key messages

- The area is rural and has a low risk of flooding.
- Reducing maintenance will not increase the risk of flooding significantly.
- We will continue with maintenance in areas where property is at risk.

Actions to implement the policy

- Develop an action plan to gradually reduce the maintenance of the current floodbank defence.
- Identify if there are opportunities to create floodplain water storage.
- Promote sustainable land management to reduce amount and rate of runoff.

Blyth and Coastal Streams

Our key partners are:

Local Authorities

Natural England

Land owners

The issues in this sub-area

This sub-area covers the lower part of the Blyth catchment and a series of coastal streams draining directly to the North Sea. The settlements of South Newsham, Cramlington, Seaton Delaval, Shiremoor, Seghill, Dudley and Wideopen are located in the sub-area. The modelling carried out as part of the CFMP indicates that there is a high risk of flooding in specific areas along the Seaton Burn, particularly in Dudley

with up to 573 properties at risk in the sub-area rising to 588 under the future flooding predictions. However, there is limited flood history in the area and actual risk of flooding is believed to be lower. The areas where risk of flooding is identified are urban areas and it is vital that channels are kept clear in these areas to minimise the risk of flooding.



The vision and policy

Policy Option 3 is our approach in this sub-area. The measures presently in place to manage flood risks appear to be adequate in most places as actual flooding reports are rare. The scale of the economic damages from flooding justifies the present levels of maintenance and flood warning service provided. As a result of climate change, the risk to people and property is expected to increase in some areas. Our approach will not prevent the risk but will enable us to prepare for the future. We will continue to carry out regular inspection and clearance of the river channels to allow unrestricted flows in the rivers. Additional work will be carried out to better understand the actual risk of flooding in the area and the policy reviewed at that time.

The key messages

- The area consists of large urban areas. There are only a few isolated areas at risk of flooding.
- Seaton Burn is the main area at risk of flooding within this sub-area.
- There is limited history of flooding in the area and so further work is required to better understand the actual risk in the area.
- Improving flood awareness and resilience needs to be improved to manage the risk of flooding.

Actions to implement the policy

- Continue with current channel maintenance regime.
- Undertake study to identify the risk of flooding from Seaton Burn.
- Improve take-up of our flood warning service.
- Work with property owners to improve flood resilience of properties.
- Promote sustainable land management to reduce the amount and rate of runoff.

Morpeth

Our key partners are:

Northumberland County Council

Northumbrian Water Ltd

Local businesses

The issues in this sub-area

This area covers Morpeth, and a rural area to the north of the town which is the catchment of Cotting Burn. The area includes 2.5 kilometres of the River Wansbeck, as it flows through Morpeth. Flooding in Morpeth mainly comes from the River Wansbeck and Cotting Burn. There is also a risk of surface water flooding during heavy rainfall.

The risk of flooding in this sub-area is high and major flooding has occurred as recently as 2008 in the town. There are currently 1,407 properties identified as at risk of flooding in the sub-area mostly from the River Wansbeck. Future flooding scenarios predict this could risk to 1,443 as a result of climate change. There are currently some defences in Morpeth which protect property from moderate floods but these defences were overtopped in 2008.



The vision and policy

Policy Option 5 is our approach for this sub-area. The risk of flooding in Morpeth is high and the recent floods highlighted the consequences of flooding in the town. We will seek opportunities to reduce the current level of risk. We will develop a flood alleviation scheme for the sub-area which if implemented will reduce risk in the town. We will work with others to improve the resilience of properties and infrastructure in the town and to review emergency plans. We will look to improve our existing maintenance regime where feasible and will seek opportunities to improve the existing flood warning system and take up of the flood warning service.

The key messages

- The risk of flooding is high in Morpeth.
- There are currently investigations into producing a scheme to improve flood defences in Morpeth.
- Climate change is likely to increase flood risk in the town over time.

Actions to implement the policy

- Continue providing and maintaining current defences. We will consider increasing the standard of protection in future if the risk increases.
- Develop a scheme to improve protection of Morpeth.
- Continue with current channel maintenance programme.
- Investigate potential to improve the flood warning service and encourage take-up.
- Review and update emergency flood response plan.
- Develop business continuity plans to minimise commercial disruption.
- Develop maintenance and asset replacement plan for defences.
- Develop a Surface Water Management Plan.

Ponteland

Our key partners are:

Local Authorities

Land owners

Natural England

Northumbrian Water

The issues in this sub-area

This area covers the middle of the Pont catchment, including the settlement of Darras Hall, Ponteland and Prestwick Carr wetland. The main watercourse is the River Pont, which flows through Ponteland before joining the River Blyth to the north. Sources of flooding are river and surface water. Risk comes from the River Pont, Prestwick Carr Cut and other drains.

Currently there are 445 properties identified as at risk of flooding which is estimated to increase to 454 under climate change scenarios. There are currently flood defences in Ponteland which reduce the risk of flooding from the River Pont and a pumping station which reduces the risk of flooding from the Callerton Burn in Ponteland.



The vision and policy

We will use **Policy Option 5** to reduce the risk of flooding in the sub-area. This means that we will seek to reduce the frequency of flooding of residential, commercial, community buildings and infrastructure in the future. Ponteland is likely to be at risk from changing surface water risk in the future as rainfall intensity, and the likelihood of convective storms in summer, may increase as a result of climate change. Work will be carried out to maintain the existing flood defences and investigate improvements to the current standard of protection. Work on new defences will be considered with the aim of reducing the risk to the existing developments. We will work with the local authority and water company to investigate and address the surface water flooding risk.

The key messages

- Ponteland has flood defences which protect it during moderate flood events.
- A feasibility study has identified options for improving protection in Ponteland.
- There are drainage problems in Ponteland which may be impacted by climate change.

Actions to implement the policy

- Continue providing and maintaining existing flood defences.
- Continue with current programme of channel maintenance, including sediment control.
- Review and update emergency response plans.
- Develop a Surface Water Management Plan for the sub-area.
- Develop business continuity plans for commercial premises at risk.
- Develop maintenance and asset replacement plan for Ponteland defences.
- Investigate the possibility of increasing flood warnings and the time given before a flood.
- Improve the condition of designated environmental sites.

Blyth Urban

Our key partners are:

Northumberland County Council

Northumbrian Water Ltd

Natural England

The issues in this sub-area

The urban area of Blyth has high population density and the centre of the town is low lying compared to the river levels. While high ground and defences exist between the river and the town the general modelling carried out for the CFMP indicates 813 properties at risk of flooding currently rising to 987 in the future due to climate change. There is additional risk from tidal flooding which is not considered in this CFMP. There is

development pressure in Blyth which could increase the risk in the future. Determining the frequency of flooding is complicated due to the interaction between tidal levels and river flows. However, the consequences of flooding will be significant due to the low lying landscape within the town and the high density of development.

A risk from the drainage system also needs to be fully understood given the low lying nature of the town.



The vision and policy

Using a **Policy Option 5** approach prevents risk increasing from current levels to the high risk estimated for the future. This includes working with our partners to reduce the frequency of flooding to existing infrastructure and properties and reducing the impact of new development in the area. Without action to reduce the risk of flooding, the number of properties at risk in Blyth urban area will increase to almost 1,000 by 2100. Additionally, the area is likely to be further urbanised in the future for industry and commerce.

We will encourage property owners to improve flood protection and resilience to their own properties and generally raise awareness of flood risk in the Blyth area. Further investigation is required to further understand the true risk of flooding in the Blyth sub-area.

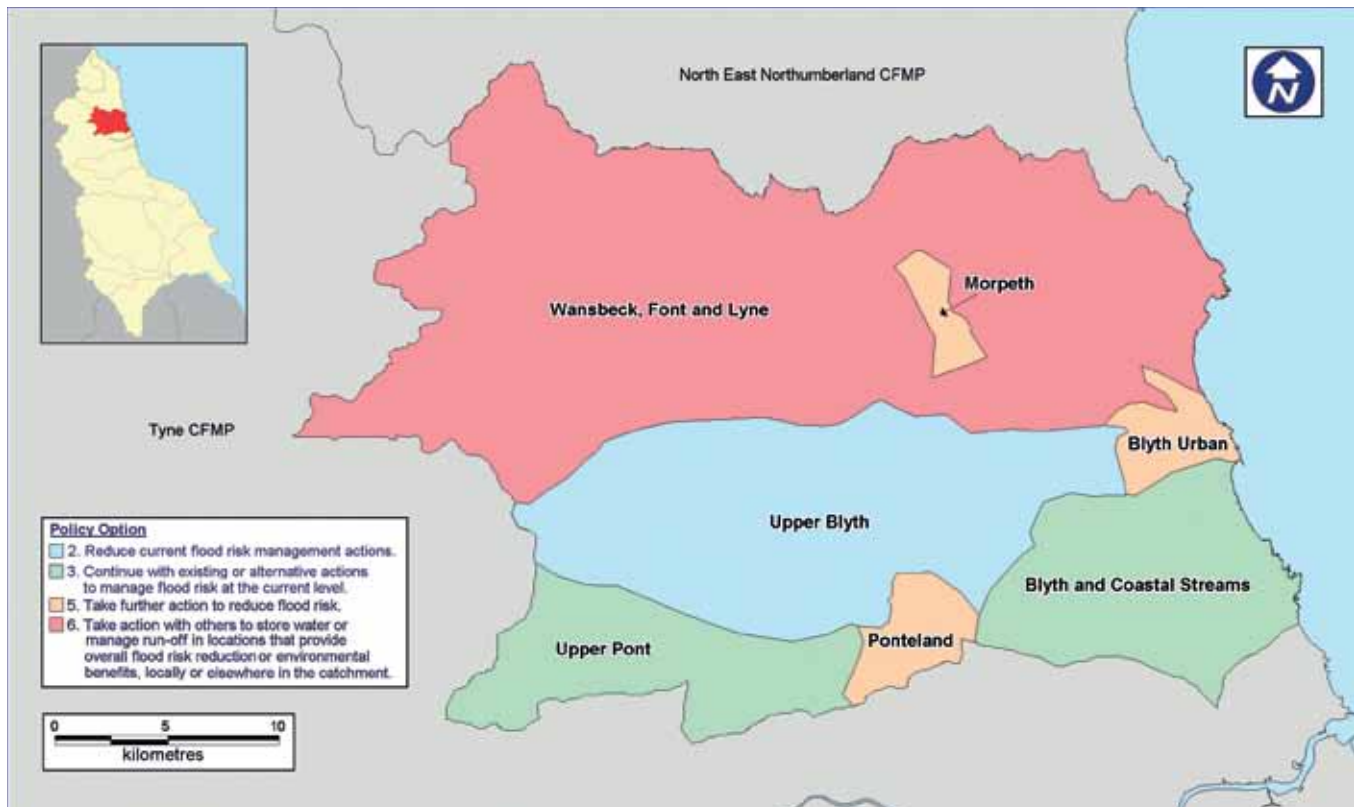
The key messages

- The area has a high risk of flooding and will see future development pressure.
- Climate change is expected to increase the risk of flooding.
- There is a low level of awareness in the area and limited flood proofing measures currently being used by residents.

Actions to implement the policy

- Undertake a study to identify risk to property and infrastructure in Blyth.
- Continue maintaining flood defences in Blyth and increase level of protection in future if risk increases.
- Review and update emergency flood response plans.
- Develop business continuity plans to minimise disruption from flooding.
- Develop maintenance and asset replacement plan for Blyth flood defences.
- Increase public awareness of the risk of flooding within the sub-area.
- Work with Northumbrian Water to identify and manage the risk of flooding from sewers.

Map of CFMP policies



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