

# Till and Breamish Catchment Flood Management Plan

Summary Report December 2009



managing  
flood risk

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# Introduction

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

The Till and Breamish 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 Till and Breamish catchment has reported flooding dating back over 200 years. At present just under 300

properties including some key infrastructure buildings and around 51.3 kilometres squared of agricultural land are at risk of flooding (not taking into account defences) during the one per cent flood. In the future due to climate change this number could rise to 325 properties and 51.7 kilometres squared of agricultural land.

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. In developing this plan we have worked with Northumberland County Council and the predecessor organisations along with Natural England. We also consulted all the local authorities on the draft plans and incorporated their comments in the final plan.

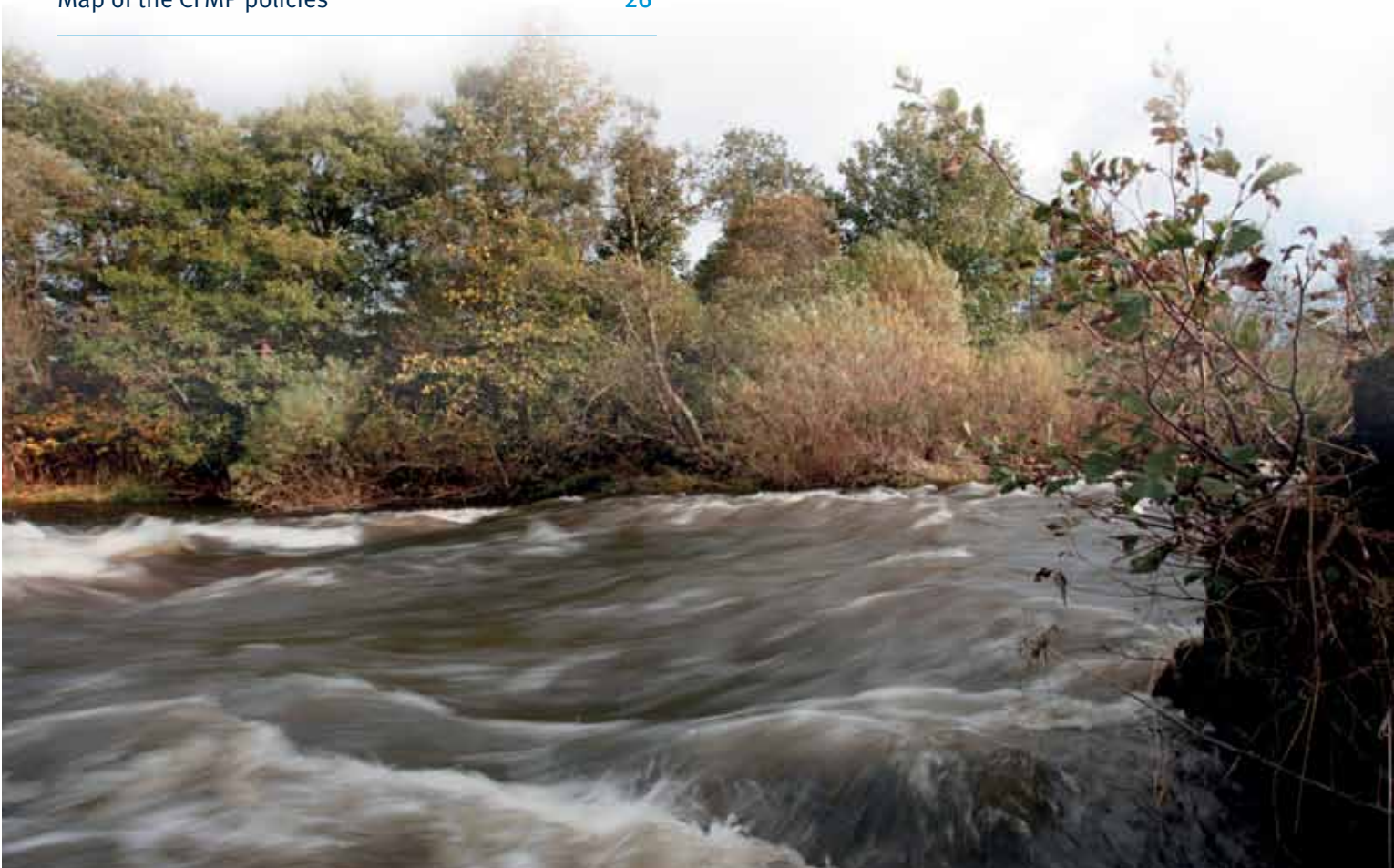
This is a summary of the main CFMP document, if you need to see the full document an electronic version can be obtained by emailing [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk) or alternatively paper copies can be viewed at any of our offices in the North East.

A handwritten signature in black ink, appearing to read 'D. Dangerfield', with a long horizontal stroke extending to the right.

**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:

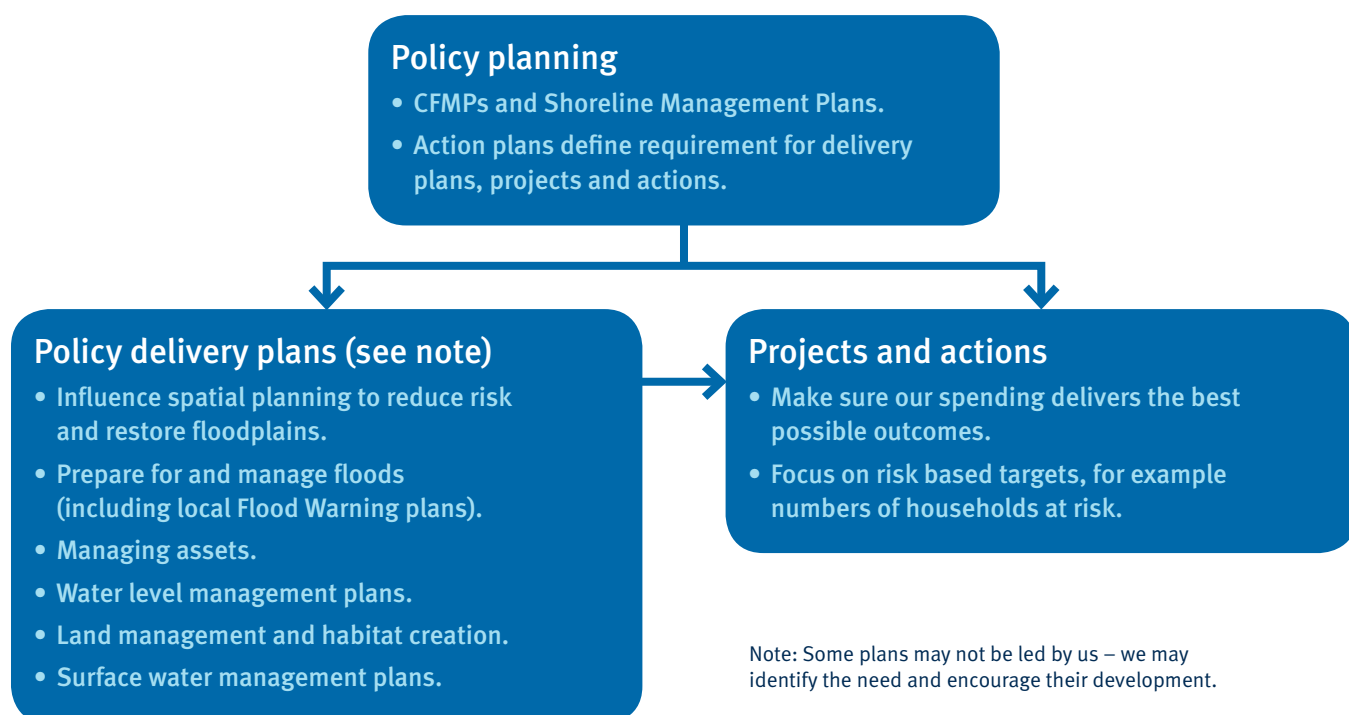
- The Environment Agency, who will use the plan to guide decisions on investment in further plans, projects or actions;
- Regional planning bodies and local authorities who can use the plan to inform spatial planning activities and emergency planning;

- IDBs, 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 shows the relationship between CFMPs, delivery plans, projects and actions



# Catchment overview

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The Till and Breamish CFMP is located in the north east of England. The catchment is predominantly rural and covers an area of approximately 800 square kilometres from the Cheviot Hills to the North Sea.

The Till and Breamish catchment drains northwards into the River Tweed, the course of which marks the border between the administrative boundaries of Scotland and England in its lower reaches. The main English tributaries to the River Tweed are the rivers Till, Breamish and Glen. The catchment has distinct landscape characteristics ranging from steep, upland areas of The Cheviots in the west, to the large, flat flood plains to the east.

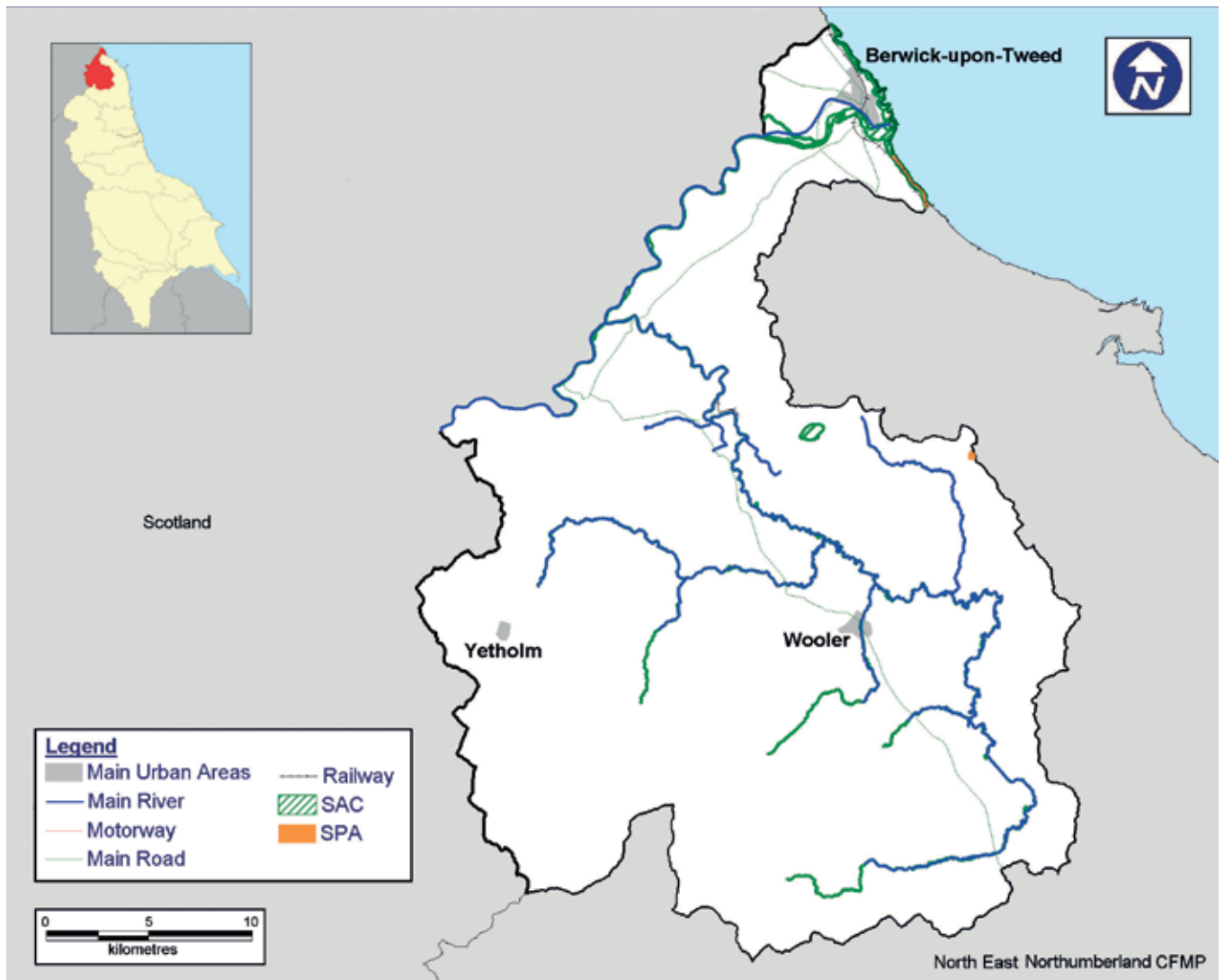
The largest towns within the CFMP area are Berwick-upon-Tweed and Wooler. Small villages are scattered throughout the catchment. The catchment has a population of approximately 20,700. The local economy is dominated by tourism and agriculture with the landscape reflecting this. Upland hill farming dominating the western extents of the catchment and productive arable farming dominating the lower valley bottoms.

The area is rich in environmental diversity, historical and cultural heritage and this is recognised through European, national and international designations within the CFMP area. There are five Special Areas of Conservation (SAC), three

Special Protection Areas (SPA), three Ramsar sites and 14 Sites of Special Scientific Interest (SSSI) reflecting the environmental importance. There are also 357 Scheduled Ancient Monuments (SAMs), two Registered Parks and Gardens and three Historic Battlefields within the Till and Breamish CFMP area.

All of the major transport routes run along the River Till and Tweed valleys because of the steep nature of the land elsewhere. There are nationally important transport links located within the CFMP area. These include the East Coast Main Line Railway and the A1 and A697 roads which are major links between the north east of England and Scotland.

Map 1 Location and extent of the Till and Breamish CFMP area



# Current and future flood risk

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## 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, unless stated otherwise, are the undefended one per cent flood figures, produced by broadscale modelling, they do not take into consideration the presence of defences to demonstrate the total risk of flooding within the catchment.

The main source of flooding within the Till and Breamish catchment is from the rivers. Within the lower sections of the River Tweed there is some tidal flooding. The rivers in the upper part of the catchment can be quick to react to rainfall during a flood event but levels also tend to fall quickly. In the lower, flatter parts of the catchment flooding tends to last for longer.

There is a rich history of flooding in the catchment with historic reports dating back to as early as 1792 when two arches of the Wooler Bridge were swept away. The Great Borders Floods of 1948 flooded large areas of the Till and Breamish catchment with large numbers of properties being reported as flooding in Wooler, Powburn and Tweedmouth and the collapse of the Iron Bridge in Wooler. Since then there has not been a flood which caused such widespread disruption and damage although flooding does still effect large areas of land from time to time, most recently in September 2008 and July 2009 when the River Glen changed course due to high flows.

## What is at risk?

The risk of flooding is low in the Till and Breamish CFMP area due to the rural nature of the catchment. In total, there are 281 residential properties and 18 commercial properties at risk from a one per cent probability flood.

During the one per cent flood there are four SAMs and 0.23 kilometre squared of registered parks and gardens at risk of flooding. There are 9.7 kilometre squared of SAC and SSSI at risk of flooding, 7.5 kilometre squared of this flooding has no detrimental impact and in some of the remaining sites, flooding may have a positive impact. Just over 51 kilometre squared of agricultural land is at risk of flooding during a one per cent probability flood.



**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
50 to 100	Wooler
25 to 50	Norham

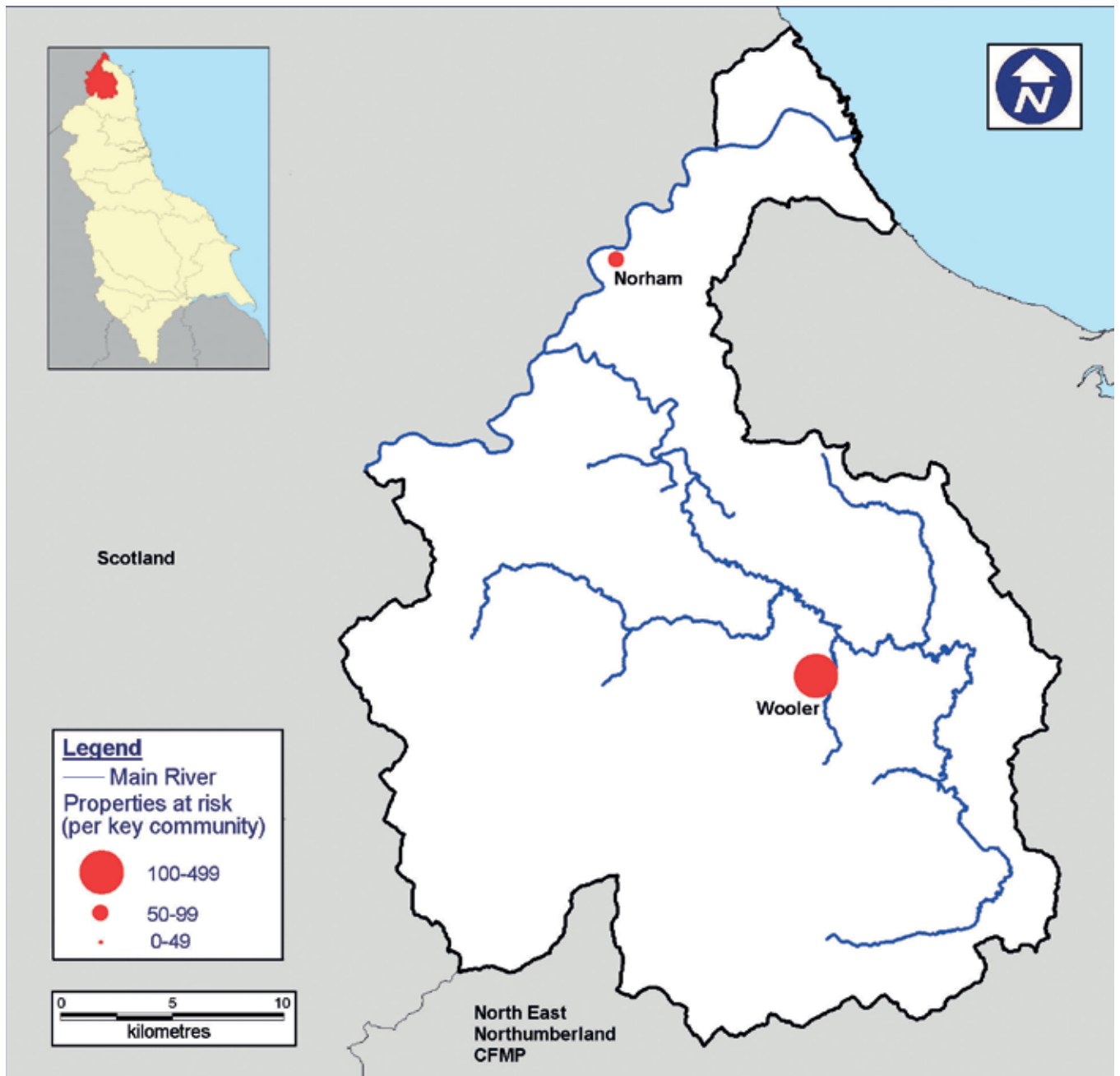
**Table 2 Critical infrastructure at risk:**

1 educational facility
1 wastewater treatment works

## Where is the risk?

With less than 300 properties at risk throughout the catchment there are only a few places where there are large numbers of properties at risk of flooding. The main area of risk of flooding to properties lies in Wooler. There is a number of small villages with small numbers of properties at risk such as Norham, Powburn, Kirknewton and Akeld. The risk of flooding to agricultural land is more extensive with large areas at risk in the Kirknewton, Wooler and Fenton areas.

Map 2 Properties at risk of flooding in the Till and Breamish catchment



## How we currently manage the risk in the catchment

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

- **Flood risk mapping** to gain a more detailed understanding of flood risk in localised areas. This includes the recording and mapping of flood extents following floods such as the

September 2008 flooding. The team also commission new models of sections of the rivers where greater knowledge of the risk of flooding is required.

- **Maintenance of existing defences and structures** prioritised on a risk basis to ensure the

effectiveness of our assets. There are currently 72 kilometres of raised defences in the catchment mainly protecting agricultural land on the River Till and Glen. We carry out regular inspections of these defences and have a schedule of maintenance which includes grass cutting and vermin

## The impact of climate change and future flood risk

control on defences and clearing of large blockages from the channels.

- **Capital schemes** to create new flood defences and replace existing ones.
- **Flood forecasting and warning** to make the emergency responders and the public aware of predicted river and coastal flooding. We have a system of raingauges and river stations which are utilised to provide early warning to residents and professional partners of the risk of flooding. We have a number of flood warning areas in the catchment including the Wooler area.
- **Development control** to prevent inappropriate development in flood risk areas. This involves assessing planning application and advising the planning authorities on the flood risk aspects of development so that they do not increase risk locally. The team also consent the work of others in the river to ensure that the work does not increase flood risk.
- **Strategic planning** to plan sustainable long term investment on a risk basis including the writing of Catchment Flood Management Plans.

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. Whilst we do not know exactly what will happen in the future, we can project general trends to estimate future flood risk. We can then use this information to ensure that the policies we propose are sustainable and make sense in the context of the whole catchment and for the long term. In the Till and Breamish catchment, climate change will have the greatest impact on flood risk. The key trends within the catchment will be:

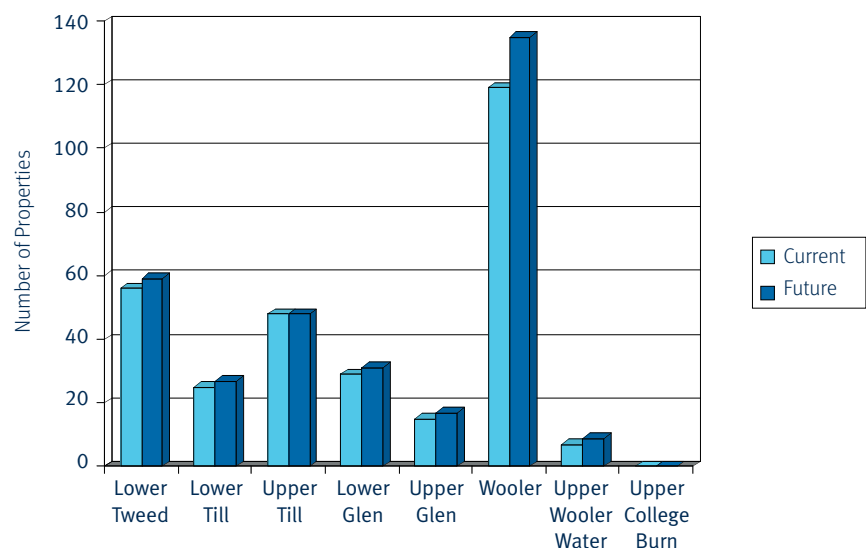
- More frequent and intense storms causing more widespread and regular flooding from drainage systems and some rivers;
- Increased winter rainfall increasing the likelihood of large-scale flood events.

In order to assess the impact of these changes in the catchment we applied a 20 per cent increase in river flows throughout the

catchment. Generally the risk of flooding in this rural catchment is expected to increase, but only in isolated areas and by a limited amount. Only an additional 26 properties identified as being at risk of flooding in the future flooding scenarios. Taking the total number of properties at risk of flooding up to 325 in the catchment. The floodplain is estimated to increase downstream of where the River Till joins the River Tweed, which would affect Norham and Berwick-upon-Tweed. Other areas where the risk of flooding could increase are in the small urban areas of Wooler, Kirknewton and Akeld.

The small total population, limited development pressure and small urban areas mean that the catchment is not sensitive to climate change. The well defined floodplains allow additional floodplain storage without impacting directly on people or property. However, the predicted increased frequency of flooding is likely to increase the frequency of flooding to the existing properties and agricultural assets.

Figure 2 Properties at risk at the current and future one per cent flood



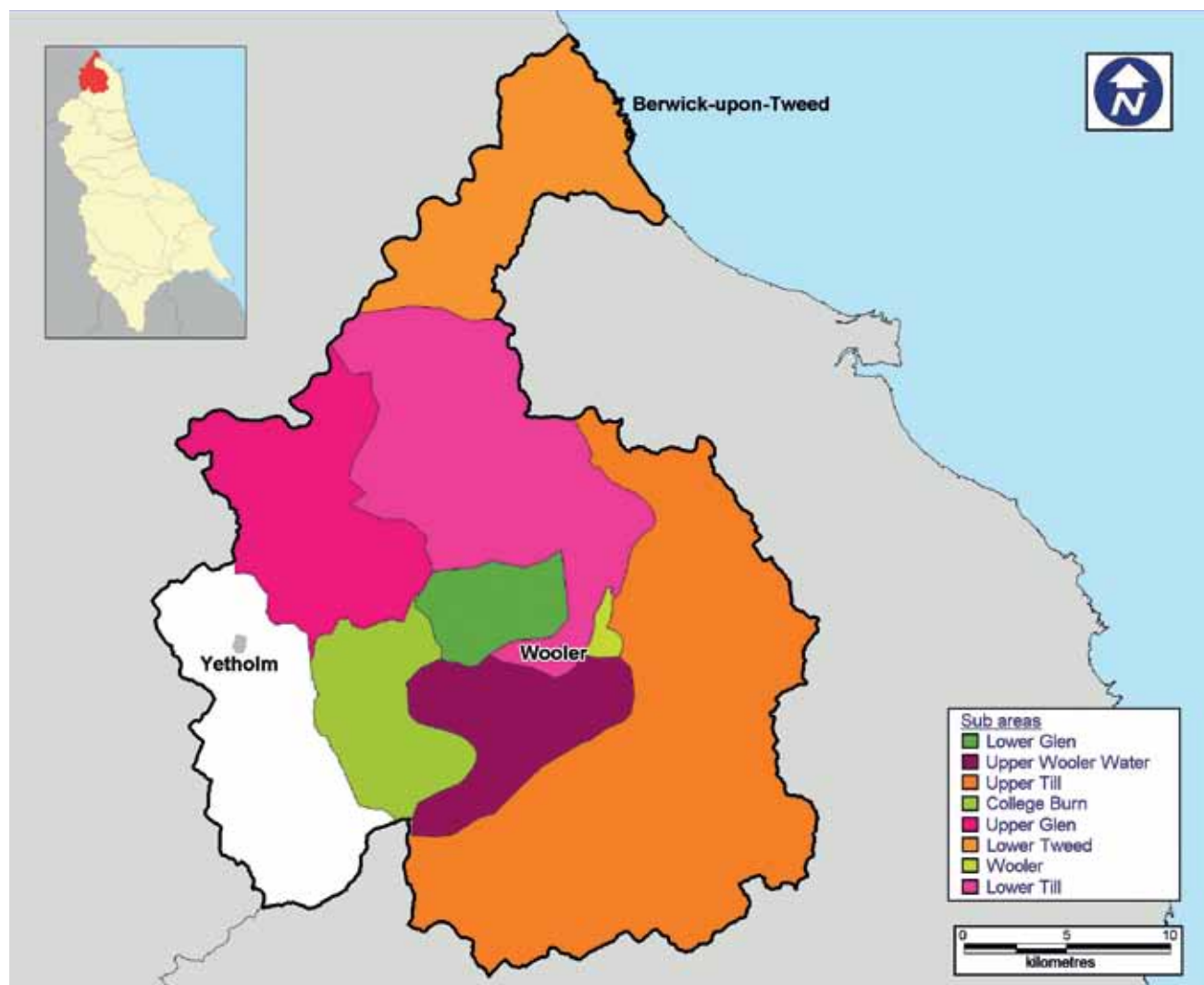
# Future direction of flood risk management

## Approaches in each sub-area

Flood risk is not the same in all of the catchment. We have divided the Till and Breamish catchment into eight 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.

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.

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### → 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.

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### → 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.

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### → 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.

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### → 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.

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### → 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.

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# Lower Glen

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## Our key partners are:

Northumberland County Council

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Natural England

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Land owners

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## The issues in this sub-area

Flooding comes from the River Glen. There are 20 properties at risk of flooding in the sub-area with small concentrations in and around Kirknewton and Akeld where there is a wide and flat floodplain. In the future the risk of flooding is predicted to rise slightly with a further five properties identified as at risk.

We currently manage this risk with raised defences and by maintaining the river channels. There are currently 27 raised defences totalling 20 kilometres in length in this sub-area. The majority of these defences protect agricultural land, although they do reduce the risk of flooding in the Kirknewton area.

The A697 and the B6351 are identified as being potentially effected by flooding. These are key transport routes in the area and closure would cause disruption locally.



## The vision and policy

Under **Policy option 3** existing flood risk management actions will continue to help us manage the risk of flooding at current levels. This is a rural sub-area with scattered settlements along the River Glen, the scale of risk from flooding is low both now and in the future. Our current flood risk management measures and investment are worthwhile.

Alternative actions such as raising flood awareness and flood proofing will be needed. This will help those at risk understand what they can do to prepare for flooding. We will work closely with landowners to implement land management changes that can reduce the risk of flooding.

## The key messages

- The risk of flooding is concentrated in Kirknewton and Akeld and not expected to increase in the future.
- A risk based approach to managing the risk of flooding needs to be adopted.
- There is an opportunity to carry out alternative actions such as flood proofing and to raise awareness. This will help minimise the effects of flooding to local communities.

## Actions to implement the policy

- Review the effectiveness of current defences and channel maintenance. Ensure actions are targeted to right locations to manage the risk of flooding.
- Raise public flood awareness and provide advice to communities at risk. This is an important step in reducing the risk of flooding.
- Improve proofing measures to properties most vulnerable to flooding.
- Work closely with local landowners and our partners to promote sustainable land management practices in order to reduce the amount of runoff, the rate of runoff and erosion.
- Work with Natural England to manage the impacts of flooding and help improve the environmental designations.

# Upper Wooler Water

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## Our key partners are:

Natural England

Land owners

Northumberland County Council

## The issues in this sub-area

This sub-area is a deep sided valley with watercourses feeding Wooler Water, which flows northwards to Wooler. The catchment responds rapidly to rainfall due to the steep valleys. There are four properties identified as at risk of flooding, this may increase to seven properties in the future due to

climate change. The watercourse supplies and transports gravel which can increase the risk of flooding locally and downstream. Our current actions involve channel maintenance, which is important as the town of Wooler is downstream of this sub-area.

## The vision and policy

Under **Policy option 3** we will continue to manage the river. The risk of flooding is low and our current activity is in line with the level of risk. We will continue to maintain the channels and monitor gravel movement. This will help keep the rivers flowing smoothly and will help manage the risk further downstream in Wooler. Raising awareness of flooding within the community will help residents prepare for flooding and reduce the effects of a flood.

## The key messages

- Gravel supply and transport plays an important part in flood risk in this sub-area and further downstream.
- There is an opportunity to carry out alternative actions such as flood resilience and awareness to reduce the consequences of flooding to the local communities.

## Actions to implement the policy

- Assist with managing gravel at the source and in the watercourse to benefit Wooler.
- Investigate offline gravel storage potential and limit gravel extraction.
- Raise public awareness of flooding.
- Improve proofing to properties most prone to flooding.
- Work with Natural England to manage the impacts of flooding and help improve the environmental designations.



# College Burn

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## Our key partners are:

### Land owners

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## The issues in this sub-area

This sub-area is very rural draining the Cheviot Hills. There is very limited flooding to land caused by the College Burn. The watercourses in this upland area have steep gradients and are in narrow valleys so the water drains quickly through

the catchment and there is very limited flood plain. There are no properties identified at risk of flooding now or in the future.

We do not carry out any flood risk management actions.

## The vision and policy

**Policy Option 1** has been chosen for this rural upland sub-area. There is currently no flood risk management activity in this sub-area and none could be justified with the low level of flood risk. We will continue to allow natural processes to operate and encourage biodiversity in this rural sub-area.

## The key messages

- The risk of flooding is low in this rural catchment and not expected to increase in the future.
- We will continue to allow natural processes to operate and encourage biodiversity in this rural sub-area.

## Actions to implement the policy

- De-classify the main river status of College Burn.
- Work with Natural England to advise on the impact of flooding on designated sites to enable these to be managed.

# Upper Till

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## Our key partners are:

**Natural England**

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**Land owners**

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**Northumberland County Council**

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## The issues in this sub-area

This sub-area includes the upper and middle part of the Till catchment with small settlements located along the valley. The risk of flooding from rivers is spread among isolated rural settlements and is generally confined to steep sided valleys. The cause of flooding is from the rivers Till, Breamish and their tributaries. While there are 40 properties identified as at risk in the

catchment there is a low standard of protection in the area and up to 38 of these properties are predicted to be at risk during a 5 per cent AEP event. The number of properties does not increase with future flood risk scenarios but the frequency of flooding is expected to increase. In addition to the above risk there is a large touring caravan site at Powburn at risk of flooding.



## The vision and policy

Under **Policy option 5** we will improve the levels of channel and flood defence maintenance in the area to reduce the risk of flooding. The risk of flooding is high in the context of this catchment and flood damages are expected to increase in the future. We will investigate opportunities to reduce risk in the sub-area and seek opportunities to work with land owners and organisations to promote sustainable land management. Raising awareness of the risk of flooding within the community will help residents at risk prepare for flooding and reduce the effects of a flood.

## The key messages

- Steep sided valleys limit the ways we can manage the risk of flooding. The nature of the land leaves little opportunity to create upland storage or provide runoff retention.
- The current level of maintenance is low and not in line with the level of flood risk. Future actions will be risk based and where it is possible the risk of flooding will be reduced.
- A systems asset management plan will identify where and how we can improve our measures to reduce the risk of flooding to people and properties in this large sub-area.

## Actions to implement the policy

- Undertake a detailed study to identify the risk of flooding in the sub-area.
- Current levels of maintenance will be increased where it is cost effective to do so.
- Create an emergency flood response plan for the campsites and caravan parks.
- Raise flood awareness and improve flood proofing measures.
- Investigate securing local levy funding to reduce the risk of flooding locally.
- Work closely with local landowners and our partners to promote sustainable land management practices in order to reduce the risk of flooding.
- Work with Natural England to manage the impacts of flooding and improve the condition of the environmental designations.

# Upper Glen

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## Our key partners are:

Natural England

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Land owners

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Northumberland County Council

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## The issues in this sub-area

This upland catchment has valuable agricultural land and a number of people at risk of flooding. The cause of flooding is from the River Glen and Bowmont Water. There are 15 properties at risk of flooding at the one per cent probability flood. In the future the number of properties at risk increases to 17 at the one per cent AEP flood.

While there is a low number of properties at risk, flooding currently commences at the five per cent probability flood. Our current actions include channel maintenance and sections of raised defences which protect agricultural land and reduce the impact of frequent flooding.



## The vision and policy

Utilising **Policy option 3** we will continue our current flood risk management measures. We will continue with this approach to manage the risk to people and property at the current level. Our current measures include channel maintenance and inspection and are appropriate to the level of risk within the sub-area. Raising flood awareness and flood proofing will help those properties most prone to flooding. We will work closely with landowners to implement land management changes that can reduce the risk of flooding.

## The key messages

- Flood risk management activities within this sub-area are appropriate to the level of risk.
- We will continue with the current level of flood risk management within the sub-area making sure that investment is effective and focused where risk is greatest.
- There is an opportunity to carry out additional actions such as flood proofing and awareness to reduce the effects of flooding to the local communities.

## Actions to implement the policy

- Produce a system asset management plan to review the effectiveness of current defences and channel maintenance. Ensure actions are targeted at the right locations to manage the risk of flooding.
- Raise public awareness of the risk of flooding.
- Improve proofing measures to properties most prone to flooding.
- Work with landowners to promote worthwhile land management change.
- Work with Natural England to manage the impacts of flooding and help improve the environmental designations.

# Lower Tweed

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## Our key partners are:

Natural England

Land owners

Northumberland County Council

## The issues in this sub-area

This sub-area contains the large urban area of Berwick-upon-Tweed. Flooding is from the River Tweed and the North Sea in Berwick-upon-Tweed. The risk of flooding from rivers is concentrated in Norham with people, properties, a school and a hospital at risk. In total there are 56 properties at risk at the one per cent probability flood, this will increase to 59 in the future. However, flooding commences at lower return periods with 42 of the

properties at risk at the five per cent probability flood event. We do not currently have powers to manage the risk from the River Tweed as it is not a statutory main river due to its location on the border between Scotland and England. There is tidal flood risk in the Berwick and Spittal areas which is not included in this Catchment Flood Management Plan. We do provide a flood warning service in Berwick-upon-Tweed.



## The vision and policy

Under **Policy option 5** investment will be increased within this sub-area to reduce the current level of risk. We currently carry out no flood risk management activities in the sub-area which is not proportionate to the levels of risk. Opportunities to increase maintenance will be investigated and we will investigate the possibility of new defences and sources of funding. Raising flood awareness through a new flood warning service and greater flood proofing to properties in Norham would reduce the risk.

## The key messages

- There is currently no action taken to manage the risk of flooding within this sub-area. This approach is not proportionate to the levels of risk. The risk of flooding is expected to increase in the future as a result of climate change.
- Investment will increase in the future and steps will be taken to reduce the level of risk.
- There are a number of ways risk can be reduced including improved channel maintenance, changes to land management, improving flood proofing measures and extending our flood warning service to this sub-area.

## Actions to implement the policy

- Take action to improve levels of maintenance of the system.
- Change the lower River Tweed status to a main river.
- Investigate the feasibility of raised defences through Norham.
- Investigate extending the coverage of the flood warning service to Norham.
- Raise flood awareness and improve flood proofing.
- Make sure there are emergency flood response and evacuation plans for the school and hospital.
- Work closely with local landowners and our partners to promote sustainable land management practices in order to reduce the risk of flooding.
- Work with Natural England to manage the impact of flooding and improve the condition of the environmental designations.

# Wooler

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## Our key partners are:

Highways Authority

Northumberland County Council

Northumbrian Water

## The issues in this sub-area

Flooding is caused by Wooler Water as it passes through Wooler. A number of properties and a campsite are located within the floodplain and the area has flooded in the past during the Great Border Floods of 1948. A bridge crossing can become blocked causing additional community disruption. During the one per cent probability flood up to 119 properties may be

at risk of flooding, this is predicted to rise to 135 with climate change. Historically there has been a large build up of gravel in the Wooler area. We currently maintain the channel to remove gravel build up, maintain raised defences and provide a flood warning service. Additionally we monitor gravel build up upstream to ensure material isn't deposited in this sub-area.





## The vision and policy

Under **Policy option 5** we will increase our actions and expenditure so that we can reduce the risk to people and property. There are a number of properties at risk in Wooler and the level of risk is likely to increase in the future. Community disruption and flood hazard will be reduced by increasing investment in channel and gravel maintenance and maintaining the defences. Raising awareness of the risk of flooding within the community will help residents at risk prepare for flooding and reduce the effects of a flood.

## The key messages

- More needs to be done to reduce the risk in the sub-area.
- There are a number of measures that can be taken to reduce the risk of flooding.
- There is an opportunity to carry out additional actions such as flood proofing and awareness to reduce the effects of flooding to the local communities.

## Actions to implement the policy

- Carry out a detailed study to investigate and monitor the sources and movement of gravel and to develop a gravel management plan.
- Continue providing and maintaining the current flood defences in Wooler.
- Raise flood awareness and flood proofing to vulnerable properties.
- Improve the take up to the flood warning service and investigate the potential for improving the notice time of the warnings.
- Develop an evacuation plan for the campsite.
- Carry out an investigation into bridge improvements.
- Work with Natural England to manage the impact of flooding and improve the condition of the environmental designations.

# Lower Till

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## Our key partners are:

Natural England

Land owners

Northumberland County Council

## The issues in this sub-area

This agricultural sub-area has wide floodplains and a number of scattered settlements at risk of flooding. The cause of flooding is the Lower Till and its tributaries. There is a large area of floodplain at the River Glen and River Till confluence. A number of scattered settlements, including Fenton and Etal, are at risk of flooding. During

a one per cent probability flood there are up to 25 properties which are at risk of flooding, this is expected to increase to 27 with climate change. However, the large number of flood defences in the area decreases the frequency of flooding and reduces the risk to agricultural land and some of the properties in the sub-area.



## The vision and policy

Utilising **Policy Option 6** the natural floodplain will be restored in order to provide storage, reduce the risk of flooding in downstream areas and providing environmental and amenity benefits. In order to manage the risk in the urban areas, the rivers in the rural areas will be slowed down by using the natural floodplain to store water during a flood.

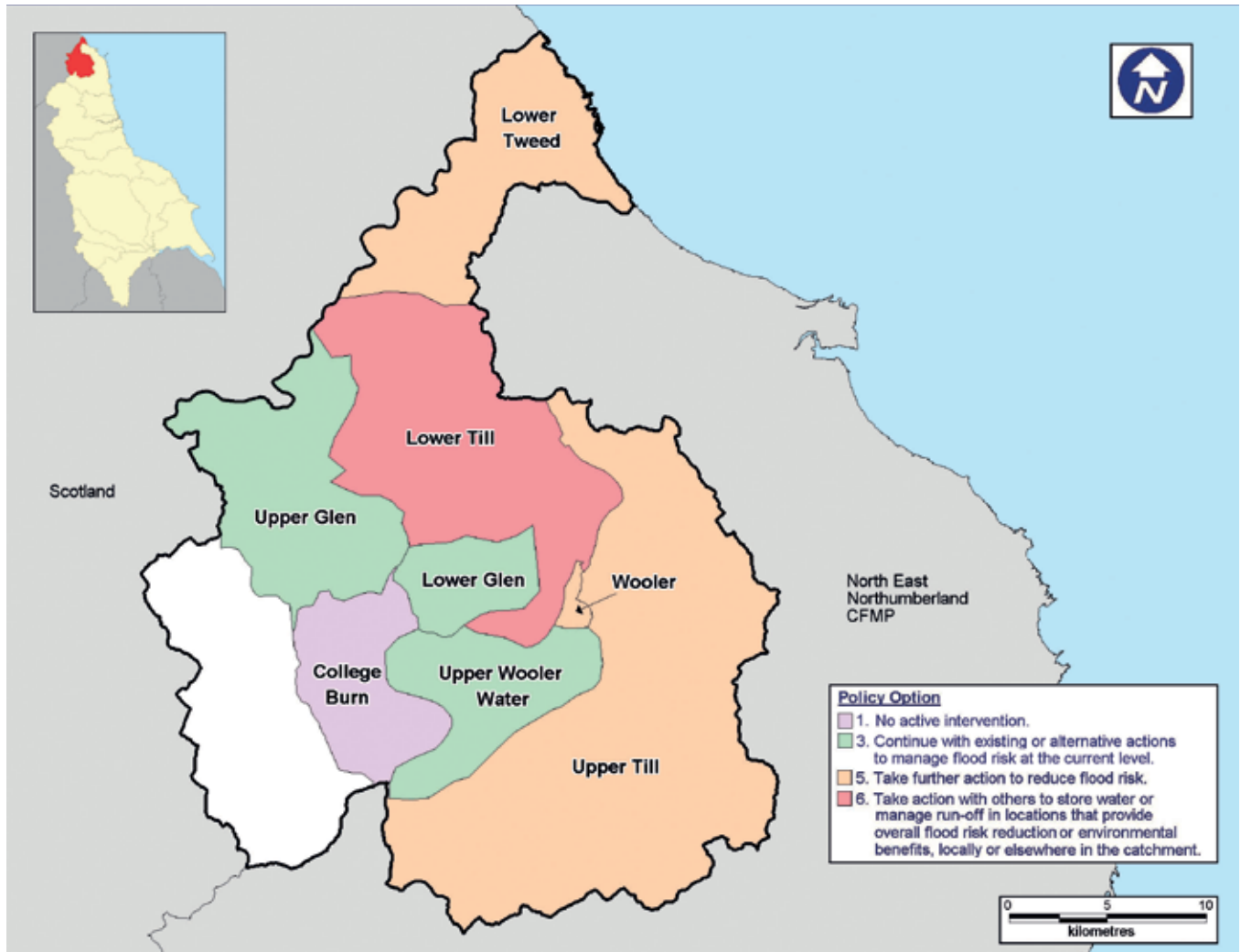
## The key messages

- There is an opportunity to allow the river system to operate naturally and encourage biodiversity in this sub-area.
- Using the capacity of the natural floodplain to store water reduces the impacts of the more frequently experienced floods in the urban areas.
- We will work closely with landowners to identify opportunities to achieve this.

## Actions to implement the policy

- Assess where we can remove flood defences so that we can increase flood storage and make the river corridor more natural.
- Work closely with landowners and our partners to promote sustainable land management practices in order to reduce the risk of flooding.
- Work with Natural England to manage the impact of flooding and improve the condition of the environmental designations.

# Map of CFMP policies





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