

Cumbria flood action plan

Introduction

Flooding is devastating. The 6,300 householders and businesses across Cumbria flooded in December have spent much of the last 6 months dealing with its effects. The Environment Agency and its partners have and continue to work hard to repair damaged infrastructure and help ensure Cumbria is better protected and prepared for the coming winter and for the future. At the same time we have formed the Cumbria Floods Partnership. This has created a framework for communities, public, private and third sector organisations to work together. It has focussed on doing more with the money that is invested by doing things differently.

This document, the Cumbria flood action plan is the first step to developing an action plan covering the Eden, Derwent and Kent and Leven catchments. It provides an overview of on-going work, new actions, information and evidence gathered since December 2015. The Environment Agency, working with the Cumbria Floods Partnership and communities across Cumbria, has collated the action plan. We have held meetings and workshops to identify actions, understand priorities and bring together the most up-to-date information and evidence.

While this action plan focuses on the 3 catchments most severely impacted by the December 2015 storms, investment in flood resilience and water management continues to be made across the whole of Cumbria. Alongside the initial short term actions, we also include longer-term actions to reduce flood risk and manage water in the future.

The plan comprises three parts:

- A short document that sets out what has been done since December, what further work will happen before winter and a summary of the actions from this document.
- The full action plan - this document - which details all of the actions identified so far that will manage flood risk in the three catchments most severely impacted by the December 2015 storms and the actions which will be taken across the whole of Cumbria.
- A series of community action tables, which provide a more detailed overview of the actions planned in specific flood risk areas. We will continue to develop these through the summer until we have produced one for each of the communities flooded in December 2015.

All these documents can be viewed online by going to www.gov.uk and searching for 'Cumbria flood action plan'.

The Cumbria flood action plan is a living document. We want to continue working with local partners and communities to develop it further, including an interactive version, in the autumn. This will also provide an opportunity for us to update on progress. We need you, your community and your organisation to help us do this by providing specific, localised information on catchment management and taking actions to make homes, communities and businesses more resilient to flooding. This first edition of the plan reflects the ideas and requests from the people of Cumbria. If you have further ideas and actions that you feel should be included in the development of the plan, please let us know by emailing CumbriaFloodsPartner@environment-agency.gov.uk

During the development of the plan we will continue to look at ways to reduce flood risk and to protect and improve the environment. ¹

¹ The Environmental Assessment of Plans and Programmes Regulations 2004 (SEA) regulations do not apply to this plan, as it does not fall under the definition of 'plans and programmes'. However, we will ensure an appropriate level of environmental assessment will be undertaken for any actions where there is potential to damage the environment. Some actions will require further investigation and assessment under specific legislation, for example Habitats Regulations Assessment (HRA). The need for HRAs will be determined on a project by project basis.

The content of the Cumbria flood action plan

The actions within the plan are divided into four sections:

Section	Actions
Cumbria-wide actions	1 to 65
Eden catchment actions	66 to 79
Derwent catchment actions	80 to 91
Kent and Leven catchment actions	92 to 102

The actions within the plan are divided into five themes:



Strengthening defences

This is about constructing and strengthening infrastructure such as flood defences, roads, bridges, water and sewage works to reduce the impact as flood water travels through towns and villages. This includes improving walls, embankments and bridge arches to keep flood water in the channel.



Upstream management

This is about working with farmers, landowners and organisations, such as United Utilities and the Rivers Trusts, to identify how to use and manage the landscape to slow the flow of water. Actions include temporarily storing water in lakes and reservoirs or on farmland, planting trees or changing the way farmland is managed so it absorbs more water.



Maintenance

This is about repairing and maintaining flood defences, rivers, bridges, roads and other infrastructure so they remain in good working order and can hold as much flood water as possible. This includes maintaining pumps, managing gravel where it increases flood risk and removing debris from important locations and around structures.



Resilience

This is about ensuring people and property are as resilient as possible to flooding, and take actions ahead of time to help life get back to normal as quickly as possible after a flood. It includes people signing up to flood warnings, developing a personal or community action plan or making alterations to their home or business so flood water causes less damage.










Water Level Management Boards (WLMBs)

WLMBs are locally run, public bodies that manage areas of special drainage need. They manage water levels for the benefit of the local economy, environment and the community.





Cumbria-wide

Strengthening defences – to improve flood defences, roads, bridges and other infrastructure we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
1		Assess the vulnerability of key infrastructure* to future flooding events, and take action to reduce the risk. * Roads, railways, power supplies, water supplies, telecommunications, gas, sewage treatment works and bridges.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Autumn 2016	Short-term	Risk management authorities, operating authorities and asset owners	
2		Review the role that bridges play in flood risk and their vulnerability during a flood. Where bridges act to increase flood risk seek funding to reduce this risk.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	Assess by September 2016	Short-term	Cumbria County Council and the Environment Agency	
3		Identify where we can best protect communities by extending the use of additional national mobile flood defences ready for winter 2016.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Autumn 2016	Short-term	Environment Agency	Community and Local Resilience Forum
4		Extend the review of provision of temporary flood barriers to all water supply assets serving more than 5,000 people.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	December 2017	Short-term	United Utilities	
5		Work with Defra and WaterUK to provide temporary flood barriers for all treatment works at risk of flooding and serving more than 25,000 people. Liaise with suppliers to design and procure the most appropriate schemes.	Reduce flood risk to communities.	Cornhow waste treatment works, Ennerdale waste treatment works, Castle Carrock waste treatment works	December 2016	Short-term	United Utilities	
6		Identify where we can best protect communities by extending the use of 250 national mobile pumps before/during flood incidents.	Resilience – reduce impact and improve recovery time from flooding.	Throughout Cumbria	Autumn 2016	Short-term	Environment Agency	Community and Local Resilience Forum
7		Share modelling and performance data to better understand links between rivers and sewerage systems, and develop common ways of managing flooding.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	Autumn 2016	Short-term	United Utilities	Cumbria Flood Risk Strategic Partnership







Cumbria-wide

Upstream management – to help manage the landscape in a way that reduces impacts downstream we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
8		Identify further land management opportunities and locations for natural flood management projects by working with landowners, commoners, and the farming communities to use their knowledge of the catchments. These will include; soil aeration, bunds, leaky dams, woodland creation, woodland management and river restoration.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Short-list of options by October 2016	Short-term	Environment Agency and Cumbria County Council as lead local flood authority	Forestry Commission, Natural England, Lake District National Park, National Farmers Union, Farmers Network, Countryside Landowners Association, National Trust, Rivers Trusts and environmental non-governmental organisations
9		Identify 3 sub-catchments for intensive natural flood management development. Use these to test a range of approaches and improve the evidence needed future for expansion across Cumbria.	Flood risk reduction actions provide environmental benefits.	Upstream of communities at risk of flooding	Sub-catchment work begins September 2016	Short-term	Environment Agency and Cumbria County Council as lead local flood authority	Forestry Commission, Natural England, Lake District National Park, National Farmers Union, Farmers Network, Countryside Landowners Association, National Trust, Rivers Trusts and environmental non-governmental organisations
10		Identify locations where woodland creation and changes in woodland management will reduce flood risk.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	End of July 2016	Short-term	Forestry Commission Forest Services and the Environment Agency	United Utilities, National Trust and other owners of woodland holdings
11		Identify target areas where woodland creation and changes in woodland management could reduce flood risk within the four pilot catchments of Stockdalewath, Patterdale and Glenridding, Staveley and Braithwaite.	Best practice - improving the way we share knowledge and experience to benefit all.	Four pilot locations	June 2016 - December 2016	Short-term	Forestry Commission	Environment Agency, Natural England, community action groups and parishes






Cumbria-wide

Upstream management – to help manage the landscape in a way that reduces impacts downstream we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
12		Undertake projects such as weir removal, re-meandering channels and re-connecting rivers to the natural flood plain across Cumbria beyond 2016 as part of the Cumbrian River Restoration Strategy.	Flood risk reduction actions provide environmental benefits.	All catchments	2021	Short to medium	Environment Agency and Natural England	South Cumbria Rivers Trust, West Cumbria Rivers Trust, Eden Rivers Trust, National Trust, RSPB
13		Survey six high-priority peatland sites and secure funding to restore 350 hectares of peatland to hold water upstream for longer.	Flood risk reduction actions provide environmental benefits.	Eden, Derwent and Kent and Leven Catchment	Survey sites - by September 2016 Secure funding - by December 2020	Short-term Medium-term	Cumbria Wildlife Trust (Cumbria Peat Partnership)	Farmers, landowners and land managers
14		Apply the learning from the European LIFE Integrated Project to enable all issues on a river catchment to be considered collectively.	Flood risk reduction actions provide environmental benefits.	Derwent, South Cumbria and Eden	2016 (for the NFM modelling tool) 2025 overall	Long	Environment Agency (DEFRA)	United Utilities, Natural England, Rivers Trust and Local Rivers Trusts as affiliates of the Rivers Trust
15		Increase the uptake of natural flood management measures through schemes such as Countryside Stewardship and Catchment Sensitive Farming as part of an integrated approach to managing catchment.	Flood risk reduction actions provide environmental benefits.	Throughout Cumbria	Tbc	Medium-term	Natural England and Forestry Commission	Farmers, landowners and land managers
16		Update Catchment Sensitive Farming proposals (including new Farm Advice Framework contracts) to include natural flood management advice.	Flood risk reduction actions provide environmental benefits.	Throughout Cumbria	January 2017	Short-term	Natural England	Farmers, landowners and land managers
17		Run a bidding round for the Countryside Stewardship facilitation fund, targeted at flood risk areas. This will build on existing farmer engagement and encourage farmer collaboration with natural flood risk management measures.	Flood risk reduction actions provide environmental benefits.	Throughout Cumbria	January 2017	Short-term	Natural England	Farmers, landowners and land managers









Cumbria-wide



Upstream management – to help manage the landscape in a way that reduces impacts downstream we will:





	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
18		Review understanding of surface water management across the county to ensure appropriate actions and investments.	Reduce flood risk to communities.	Throughout Cumbria	Winter 2016	Short-term	Cumbria County Council	District councils, United Utilities
19		Identify further locations for building flood storage basins and/or improving storage of flood water upstream of communities.	Reduce flood risk to communities.	Throughout Cumbria	Begin identification Autumn 2016	Short-term	Environment Agency, Lead local flood authority, Natural England, farmers, landowners, land managers, Cumbrian Rivers Trusts and Wildlife Trust	Planning authorities, universities, Natural England
20		Use the Regional Flood and Coastal Committee Slow the Flow project to work with a range of partners to enable the development of natural flood management schemes across the Eden, Derwent and Leven and Kent catchments.	Flood risk reduction actions provide environmental benefits.	Throughout Cumbria	2020	Short - Medium	North West Regional Flood and Coastal Committee	Cumbria Wildlife Trust, Environment Agency, Natural England, Forestry Commission, Rivers Trusts and other environmental NGOs
21		Maintain and repair upland footpaths to reduce erosion and sediment and surface water runoff, improve visual impacts and biodiversity.	Environmental - flood risk reduction actions provide environmental benefits.	All catchments in the Lake District National Park	10+ years	Long-term	National Trust, Lake District National Park Authority	Friends of the Lake District, Nurture Lakeland, Cumbria County Council
22		Promote the Charter for Collaborative Actions on Natural Flood Management (instigated by the Foundation for Common Land and the Federation of Cumbrian Commoners) and follow its principles of collaborative working in the creation of upstream management.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	October 2016	Short-term	Cumbria Floods Partnership	Environment Agency, Forestry Commission, Natural England and Lake District National Park, Lead local flood authority, National Farmers Union, Countryside Landowners Association, the National Trust, Rivers Trusts and other environmental NGOs

Cumbria-wide

Maintenance – to keep flood defences, rivers, bridges, roads and other infrastructure in good working order we will:



	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
23		Repair the 159 flood defences, embankments, gauging stations, pumping stations and other assets damaged by Storm Desmond.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Autumn 2016	Short-term	Environment Agency and other Risk Management Authorities	
24		Repair bridges and highways damaged by Storm Desmond.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Programme published Summer 2016 Repairs complete May 2017	Short-term	Cumbria County Council	United Utilities, Lake District National Park authority
25		Repair footpaths and footbridges damaged by Storm Desmond.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	2019	Short-term	Lake District National Park authority and Cumbria County Council	
26		Inspect, repair and return to full operation all company assets damaged by Storm Desmond such as reservoirs, culverts and treatment works.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	June 2017	Short-term	United Utilities	
27		Improve the published maintenance programme to make it easier for communities to find out what and where maintenance is planned.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	April 2017	Short-term	Environment Agency	
28		Support local communities, landowners / occupiers to carry out maintenance works legally.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Ongoing	Short-term	Cumbria Floods Partnership and Cumbria Flood Risk Strategic Partnership	
29	 	Identify further options for improving the flow of water at bridge crossings and pinch points, including reviewing gravel removal where appropriate. Assess the environmental impact of any gravel removal.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	March 2017	Short-term	Environment Agency	Cumbria County Council, District Councils

Cumbria-wide								
Maintenance – to keep flood defences, rivers, bridges, roads and other infrastructure in good working order we will:								
	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
30		Remove 70,000 tonnes of gravel and debris deposited by winter storms from local rivers and streams.	Reduce flood risk to communities.	Throughout Cumbria	September 2016	Short-term	Environment Agency	
31		Make changes to how we maintain rivers and flood defences based on a better understanding of the dramatic changes in geography and landslips that occurred during Storm Desmond. Assess the impacts on the environment of any maintenance changes we make.	Reduce flood risk to communities.	Throughout Cumbria	April 2017	Short-term	Environment Agency	Cumbria Flood Partnership

Cumbria-wide								
Resilience – to help communities and businesses get back on their feet as quickly as possible after a flood we will:								
	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
32		Establish a network for community flood action groups and community action groups across the county so they can better help communities prepare, respond and recover.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	June 2016	Short-term	Community Resilience Network (subgroup of Cumbria Local Resilience Forum)	Flood action groups/ community action groups
33		Meet with the community and flood action group network once a year to assess how effectively and efficiently the emergency response agencies and communities are working together.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Summer 2017	Short-term	Community Resilience Network (subgroup of Cumbria Local Resilience Forum)	Flood action groups/ community action groups
34		Recruit more flood action group or community action group volunteers who live outside the areas at risk of flooding.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Ongoing	Ongoing	Community Resilience Network (subgroup of Cumbria Local Resilience Forum)	Flood action groups/ community action groups
35		Develop multi agency flood plans to ensure organisations and local communities are ready for Winter 2016.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Autumn 2016	Short-term	Cumbria Flood Risk Strategic Partnership Cumbria County Council, district authorities, Environment Agency	Flood action groups/ community action groups



Cumbria-wide

Resilience – to help communities and businesses get back on their feet as quickly as possible after a flood we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
36		Update strategic flood risk assessments (local councils' documents which represent their understanding of flood risk across their district) by using the latest knowledge and data following Storm Desmond.	Reduce flood risk to communities	Throughout Cumbria	Summer 2017	Short-term	Planning authorities; Cumbria County Council, Carlisle City Council, Eden District Council, South Lakeland District Council, Copeland Borough Council, Allerdale Borough Council, Lake District National Park, Yorkshire Dales National Park	Environment Agency and lead local flood authority
37		Update long term spatial plans (which are used to decide where housing and other building works can take place) in response to Storm Desmond.	Reduce flood risk to communities	Allerdale local plan site allocations	Winter 2017	Medium-term	Allerdale Borough Council	Neighbouring local planning authorities and statutory consultees
				Barrow local plan	Summer 2017	Medium-term	Barrow Borough Council	
				Copeland Local plan site allocations and policies	Spring 2018	Medium-term	Copeland Borough Council	
				Eden local plan in examination at the moment, with no land allocations for development in areas at risk of flooding	Review by 2021	Long-term	Eden District Council	





Cumbria-wide

Resilience – to help communities and businesses get back on their feet as quickly as possible after a flood we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
				Carlisle South, major mixed use development	Evidence gathering ongoing with first consultation in early 2017	Medium-term	Carlisle City Council	
				Lake District National Park authority	October 2018	Medium-term	Lake District National Park	
				South Lakeland Local plan part 3 – Development management policies Kendal town centre development masterplan	December 2017 Consultation November 2016	Short-term	South Lakeland District Council, Lake District National Park	
38		Learn from other areas of the country that have faced significant risk of flooding or erosion. Learn what action they took and apply that in Cumbria in an ambitious way that suits the scale of the problem.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	Summer 2017	Medium-term	Planning authorities	Communities, Environment Agency, Town and Country Planning Association, Landscape Foundation, Royal Town Planning Institute, Royal Society of Architects
39		Organise a seminar for local planning authorities to improve knowledge and implementation of planning measures to reduce flood risk.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	July - September 2016	Short-term	Cumbria Planners Training Service and Town and Country Planning Association	







Cumbria-wide

Resilience – to help communities and businesses get back on their feet as quickly as possible after a flood we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
40		Conduct a research project: "Planning for Climate Change in Local Plans". Working with selected Local Authorities to review Local Plans in terms of Climate Change legislation and Flood Risk measures.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	June - December 2016	Short-term	Joseph Rowntree Foundation and Town and Country Planning Association	
41		Promote the uptake of property level resilience grants available to householders and businesses affected by the 2015 floods.	Resilience – reduce impact and improve recovery time from flooding.	Throughout Cumbria	December 2016	Short-term	District councils, Allerdale, South Lakeland, Eden and Carlisle	People who were flooded in December 2015. Defra, Department for Communities and Local Government (DCLG) and third sector organisations including Business Emergency Resilience Group (part of the Princes Trust for Businesses in the Community)
42		Understand the needs of businesses across Cumbria in terms of preparedness and resilience and investigate possible mitigation measures.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Ongoing	Short-term	Lake District National Park Partnership Business Task Force Subgroup including Local Economic Partnership (LEP), district and county council and business representatives	
43		Work with children and young people affected by flooding to help them cope and to engage them in the building resilience. Head Start and the Suitcase project (Lancaster University).	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	Winter 2017	Short-term	Lancaster University and Save the Children	





Cumbria-wide

Resilience – to help communities and businesses get back on their feet as quickly as possible after a flood we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
44		Implement appropriate agreed improvement actions from Cumbria Local Resilience Forum debrief (both acute and recovery phases).	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Actions available July 2016	Short-term	Cumbria County Council	
45		Investigate the use of existing environmental monitoring technology in improving flood warnings for communities, particularly where the Environment Agency cannot currently provide conventional flood warnings. Trial any potential systems in catchments that respond rapidly to rain.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	December 2016	Short-term	Risk management authorities reporting to Cumbria Strategic Floods Partnership	
46		Increase, by 4% every year, the number of people at risk of flooding who are signed up to our flood warning service so they can take action to prevent harm to themselves and their property.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Ongoing	Short-term	Environment Agency	
47		Improve and expand the flood warning service so it is integrated across response authorities providing a seamless, robust service to the public and businesses so they receive the kind of advance warning they need to take effective action to prepare for flooding.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	2020	Medium-term	Environment Agency	
48		Promote the new flood warning areas in Kendal, Wigton, Windermere and River Leven at Newby Bridge and Backbarrow and River Roe at Stockdalewath and those being planned for Ulverston and Dalton in Furness so they can help provide better warning to communities.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	April 2016 Expansion by April 2017	Short-term	Environment Agency	
49		Trail expanding the availability of business insurance for businesses most affected by flooding.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Summer 2017	Short-term	British Insurance Brokers' Association (BIBA)	

Cumbria-wide

Resilience – to help communities and businesses get back on their feet as quickly as possible after a flood we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
50		Make improvements to the incident training and capability of people and equipment across the county, including the creation of Major Incident Plans - NW Coastal Flooding Plan being the first.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	October 2016	Short-term	Environment Agency	
51		Promote slowing the flow of water into the drains by using sustainable drainage. (Sustainable drainage systems are methods that builders can use when developing new sites).	Best practice – improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	December 2016	Short-term	Cumbria County Council as lead local flood authority	Planning authorities; Carlisle City Council, Eden District Council, South Lakeland District Council, Copeland Borough Council, Allerdale Borough Council, Lake District National Park, Yorkshire Dales National Park, Environment Agency
52		Investigate the loss of telecommunications during Storm Desmond. Work with those communities to protect services or establish a contingency plan in the event of future flooding.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	June 2017	Short-term	Tele-communications industry, risk management authorities reporting to Cumbria Strategic Floods Partnership	
53		Increase the number of communities, individuals and families that have an Emergency Plan in place and develop an evaluation tool that can be used to measure the effectiveness of Community Emergency Plans.	Resilience - reduce impact and improve recovery time from flooding.	Throughout Cumbria	Ongoing with evaluation tool available from October 2016	Short Term	Community Resilience Network (subgroup of Cumbria Local Resilience Forum)	

Cumbria-wide								
We will also:								
	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
54	All	Use data from Storm Desmond to test, improve and expand the computer flood risk modelling used to inform flood warnings, flood risk mapping and flood alleviation scheme design standards.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	December 2016	Short-term	Environment Agency	Cumbria County Council, United Utilities, Highways England, District councils
55	All	Using latest science of rainfall, hydrology and climate change where appropriate to update models and inform decisions on flood risk management.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	Ongoing	Short-term	Cumbria Flood Risk Strategic Partnership and Cumbria Flood Partnership	Academics, Met Office
56	All	Carry out aerial surveys of main river catchments, to assess geographical changes including landslip. Make the information available for others to use. Interpret the results in combination with partners including Natural England to identify, understand and mitigate the risks.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	The information from the aerial surveys should be available in August 2016.	Short-term	Environment Agency	Forestry Commission and Natural England
57	All	Run a series of webinars to increase understanding of how rivers work, the risk of flooding people face, what to do to prepare for a flood, what to do if it floods, and what we are doing to reduce the risk.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	Winter 2016	Short-term	Cumbria Floods Partnership	Cumbria Flood Risk Strategic Partnership
58	All	Understand more about the risk of flooding in disadvantaged areas and share learning across Cumbria.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	October 2016	Short-term	Joseph Rowntree Foundation and Paul Sayers	Environment Agency and local authorities
59	All	Identify all potential sources of funding available to manage water and land-use and to reduce the risk of flooding. Develop guidance to explain who is responsible for funding and how it can be accessed.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	Spring 2017	Short-term	Environment Agency	Cumbria Flood Risk Strategic Partnership

Cumbria-wide

We will also:


	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
60	All	Share the learning from the 4 pilots. (See corresponding actions, 78, 79, 91 and 102).	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	June 2016 - December 2016	Short-term	Environment Agency, relevant flood action groups and local partners	Natural England, Forestry Commission, farmers, land owners, and land managers, Rivers Trusts, National Trust, Wildlife Trusts, District Councils, county council, Lake District National Park
61	All	Learn from Science Wise and others nationally and internationally (e.g. North Atlantic Programme - US Army Corp of Engineers), to improve the communication of flood risk.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	Ongoing	Short-term	Environment Agency	Cumbria Floods Partnership
62	All	Review Cumbria Flood Risk Strategic Partnership's current governance.	Better partnerships - improving the ways we work and achieve action together.	Throughout Cumbria	July 2016	Short-term	Cumbria Flood Risk Strategic Partnership and Cumbria Floods Partnership.	
63	All	Update the action plan when recommendations from the flood investigation reports are published.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	Summer 2017	Short-term	Environment Agency, Cumbria County Council	
64	All	Apply the Cumbria Flood Partnership approach of community led, integrated working to all other river catchments in Cumbria.	Best practice - improving the way we share knowledge and experience to benefit all.	Throughout Cumbria	Summer 2017	Short-term	Cumbria Flood Risk Strategic Partnership	

Cumbria-wide**We will also:**

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
65	All	Make it easier for communities and organisations to work together, for example, by holding joint meetings, sharing knowledge and agreeing decisions.	Better partnerships - improving the ways we work and achieve action together.	Throughout Cumbria	Tbc	Short-term	Cumbria Flood Risk Strategic Partnership and Cumbria Floods Partnership	Parish council; communities, Cumbria County Council, District Council, National Trust, Lake District National Park authority, Environment Agency, Natural England, Rivers Trusts, flood action groups, community action groups, Forestry Commission


Eden catchment actions

Strengthening defences – to improve flood defences, roads, bridges and other infrastructure we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
66		Assess, design and construct projects shown in the Flood and Coastal Risk Management Investment Plan and Local Flood Risk Management Strategy.	Reduce flood risk to communities.	Appleby	Currently under investigation By March 2020	Medium-term	Lead risk management authority	Cumbria Flood Partnership
				Carlisle (post 2015 works)	Currently under investigation By March 2020	Medium-term		
				Eamont Bridge	Currently under investigation By March 2020	Medium-term		
				Rickerby Park	Currently under investigation By March 2020	Medium-term		
				Gamblesby, Carlisle.	Currently under investigation By March 2020	Medium-term		
				Goslingsike, Carlisle	Currently under investigation By March 2020	Medium-term		
				Wigton	Currently under investigation By March 2020	Medium-term		





Eden catchment actions

Strengthening defences – to improve flood defences, roads, bridges and other infrastructure we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
				Pooley Bridge	Currently under investigation By March 2020	Medium-term		
67		Assess the vulnerability of the West Coast Main Line Railway particularly at bridge crossings, and take action where appropriate.	Reduce flood risk to communities.	Carlisle	May 2017	Short-term	Network Rail	Environment Agency and Cumbria County Council as lead local flood authority


Eden catchment actions

Upstream management – to help manage the landscape in a way that reduces impacts downstream we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
68		Review the role of Haweswater and Wet Sleddale Reservoirs in contributing to flood risk management. Understand, through modelling, the potential benefit of changing operating regimes as well as the impact on public water supply and dam safety. Work in partnership with the Environment Agency, community groups and other statutory agencies to agree actions.	Reduce flood risk to communities.	Eden catchment	Scope investigation and agree actions by August 2016	Short-term	United Utilities	Environment Agency and downstream communities
69		River restoration projects in Swindale. Realignment of channel and valley management offering natural flood risk management benefits, including 6 hectares of bankside woodland and 2 flood storage areas.	Environmental - flood risk reduction actions provide environmental benefits.	Swindale on the Lowther Catchment.	2018	Short-term	RSPB	Environment Agency, Natural England and United Utilities
70		Reduce soil compaction, install woody debris dams and identify locations for additional storage of floodwater upstream of the villages of Gamblesby, Cumrew and Stockdalewath.	Environmental - flood risk reduction actions provide environmental benefits.	Eden catchment and Roe and Ive.	Ongoing	Short-term	Eden Rivers Trust	Environment Agency and land owners
71		Plant tree in ghylls and wet areas at Mallerstang, upstream of Appleby.	Environmental - flood risk reduction actions provide environmental benefits.	Eden catchment	Ongoing	Short-term	Woodland Trust	Natural England and landowners

Eden catchment actions

Upstream management – to help manage the landscape in a way that reduces impacts downstream we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
72		As part of a larger scheme of work looking at the flood risk and habitat benefits of weir removal, a strategic assessment of the natural flood management potential of the Caldew, Eamont and Lowther sub-catchments of the Eden will be completed in 2016.	Environmental - flood risk reduction actions provide environmental benefits.	Eden	2016	Short-term	Eden Rivers Trust	Environment Agency, Natural England, Cumbria County Council, Carlisle City Council, land owners, farming tenants, Lake District National Park Authority


Eden catchment actions

Maintenance – to keep flood defences, rivers, bridges, roads and other infrastructure in good working order we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
73		Remove the build-up of gravel from the winter storms.	Reduce flood risk to communities.	River Caldew at Holme Head Weir in Carlisle, River Petteril at Botcherby Bridge in Carlisle	Autumn 2016	Short-term	Environment Agency	
74		Monitor and remove gravel when it reaches a defined trigger level.	Reduce flood risk to communities.	Appleby Bridge, Appleby Swimming Pool, Bampton Grange, Brougham, Carlisle Botcherby Bridge, Carlisle Holme Head Weir, Carlisle London Road Retail Park, Carlisle Nelson Bridge, Carlisle Skew Bridge, Eamont Bridge, Glenridding, Newton Reigny, Pooley Bridge, Soulby	Ongoing	Short-term	Environment Agency	


Eden catchment actions

Resilience – to help communities and businesses get back on their feet as quickly as possible after a flood we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
75		Develop a Carlisle flood plan to ensure organisations and local communities are better prepared.	Resilience - reduce impact and improve recovery time from flooding.	Carlisle	Tbc	Short-term	Carlisle City Council	Flood action groups / community action groups

Eden catchment actions

To better manage water levels we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
76		Extend the notice period to end of March 2017, during this time we will provide financial and technical support to the local community, landowners, environmental interest groups, beneficiaries and the Local Authority developing proposals for a new Lyth Valley Water Level Management Board. The proposals will reflect the needs of the area socially, economically and environmentally and further consultation on the revised proposals will take place in early 2017. If there is support, the notice period will be extended to June 2019 and a local funding solution to support the WLMB's operation costs will be found including a financial contribution to make any necessary repairs or improvements to assets as they are transferred to new ownership.	Better partnerships - improving the ways we work and achieve action together.	Waver Wampool	March 2017 review point Board establishment by June 2019	Short-term	Environment Agency, National Farmers Union	Waver Wampool Advisory Group, Water Level Management Project Board

Eden catchment actions

We will also:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
77	All	Hold a flood risk management and modelling competition on the Eden catchment.	Best practice - improving the way we share knowledge and experience to benefit all.	Eden catchment	September 2016	Short-term	Defra	


Eden catchment actions

We will also:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
78	All	Undertake the Patterdale and Glenridding pilot where agencies and communities are working together to reduce and manage flood risk in a way that best suits their community and catchment characteristics.	Reduce flood risk to communities.	Glenridding, Patterdale and Hartsop	Begin Summer 2016	Short-term	Patterdale parish community flood group	Lake District National Park Authority, National Trust, Cumbria County Council, Eden District Council, Environment Agency, Forestry Commission, Natural England
79	All	Undertake the Stockdalewath pilot where agencies and communities are working together to reduce and manage flood risk in a way that best suits their community and catchment characteristics.	Reduce flood risk to communities.	Stockdalewath	Begin Summer 2016	Short-term	Stockdalewath Flood Action Group, parish council	The Eden Rivers Trusts, Eden District Council, Cumbria County Council, Forestry Commission, Natural England



Derwent catchment actions

Strengthening defences – to improve flood defences, roads, bridges and other infrastructure we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
80		Assess, design and construct projects shown in the Flood and Coastal Risk Management Investment Plan and Local Flood Risk Management Strategy.	Reduce flood risk to communities.	Flimby	Currently under investigation By March 2020	Medium-term	Lead risk management authorities	
				Braithwaite	Construction 2016/2017	Short-term	Lead risk management authorities	
				Penrith Road, Keswick	Construction 2017/2018	Medium-term	Lead risk management authorities	
				Maryport	By March 2020	Short-term	Lead risk management authorities	





Derwent catchment actions

Upstream management – to help manage the landscape in a way that reduces impacts downstream we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
81		Modify the Whit Beck channel to slow the flow, create new floodplain and woodland habitat and links to existing habitat.	Environmental - flood risk reduction actions provide environmental benefits.	Whit Beck Lorton valley	2017	Short-term	West Cumbria Rivers Trust	Environment Agency, Natural England, Catchment Sensitive Farming, Woodland Trust, National Trust, Aberystwyth University
82		Reconnect water courses to the flood plain and re-meander channels at locations above Cockermouth and Workington to slow the flow.	Environmental - flood risk reduction actions provide environmental benefits.	Derwent catchment	2021	Long-term	Environment Agency, Natural England and West Cumbria Rivers Trust	



Derwent catchment actions

Upstream management – to help manage the landscape in a way that reduces impacts downstream we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
83		Review the role of Thirlmere Reservoir in contributing to flood risk management. Understand, through modelling, the potential benefit of changing operating regimes as well as the impact on public water supply and dam safety. Work in partnership with the Environment Agency, community groups and other statutory agencies to balance the risks and opportunities associated with any changes and recommend a proposed way forward.	Reduce flood risk to communities.	Derwent catchment, Keswick and communities downstream	Scope investigation and agree actions by August 2016 Modelling: summer 2017 Agreement of operating changes to operating regime Summer 2019	Short- and medium-term	United Utilities	Keswick Flood Action Group and Environment Agency
84		Through the River Cocker Crag End Farm Floodplain Re-connection Project remove flood embankments to improve connectivity of river to 20 hectares of floodplain and increase natural flood storage capacity. Add to the flood management benefits by planting of willow crops.	Environmental - flood risk reduction actions provide environmental benefits.	Derwent	2017	Short-medium	West Cumbria Rivers Trust	Environment Agency, Natural England, Iggesund
85		Restore land and watercourses at Eycott Hill to contribute towards managing river flows in the River Glendermakin.	Environmental - flood risk reduction actions provide environmental benefits.	Derwent	Tbc	Short-term	Cumbria Wildlife Trust	
86		Undertake a study of river restoration options in the Borrowdale Valley including re-meandering watercourses and flood plain reconnection. Part of the 'Catchments in Trust' approach for sustainable catchment management in the Borrowdale.	Environmental - flood risk reduction actions provide environmental benefits.	Derwent	2016	Short-term	The National Trust	Natural England


Derwent catchment actions

Maintenance – to keep flood defences, rivers, bridges, roads and other infrastructure in good working order we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
87		Remove build-up of gravel from the winter storms.	Reduce flood risk to communities.	Town Field in Keswick, upstream and downstream of Gote Bridge in Cockermouth, Coledale Beck in Braithwaite, Halls Beck at Bassenthwaite, River Derwent at Workington	Autumn 2016	Short-term	Environment Agency	
88		Monitor and remove gravel when it reaches a defined trigger level.	Reduce flood risk to communities.	Braithwaite Gravel Trap, Braithwaite Village, Cockermouth Cocker, Cockermouth Derwent, Coupland Beck, River Derwent at Grange, River Derwent at Workington, River Ellen at Baggrow, Halls Beck, Bassenthwaite, Keswick, Low Lorton, Egremont, Whit Beck, Lorton	Ongoing	Short-term	Environment Agency	


Derwent catchment actions

Resilience – to help communities and businesses get back on their feet as quickly as possible after a flood we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
89		Consider long-term development options for the area of Cockermouth around the Gote Road. To reduce risk to existing housing and implement the recommendations from the flood investigation report.	Reduce flood risk to communities.	Cockermouth	Tbc	Medium-term	Allerdale Borough Council	Community, residence and Environment Agency

Derwent catchment actions

To better manage water levels we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
90		Explore inclusion of the Black Dub sub-catchment within the Waver Wampool Water Level Management Board proposals.	Better partnerships - improving the ways we work and achieve action together.	North of Allonby	December 2016	Short-term	NFU and CLA with landowners	

Derwent catchment actions

We will also:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
91	All	Undertake the Braithwaite Pilot where agencies and communities are working together to reduce and manage flood risk in a way that best suits their community and catchment characteristics.	Reduce flood risk to communities.	Newlands Beck, Coldale, Whinlatter and Braithwaite Bog.	June 2016 - December 2016	Short-term	Parish council, Above Derwent Flood Action Group	Environment Agency, Natural England, West Cumbria Rivers Trust, National Trust, Forestry Commission, Lake District National Park and other partners




Kent and Leven catchment actions

Strengthening defences – to improve flood defences, roads, bridges and other infrastructure we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
92		Assess, design and construct projects shown in the FCRM Investment Plan and Local Flood Risk Management Strategy.	Reduce flood risk to communities.	Kendal Burnside Staveley	Currently under investigation By March 2020	Medium-term	Lead risk management authorities	
				Kendal Carrus Green	Construction 2016/2017	Short-term	Lead risk management authorities	
				Grasmere	Currently under investigation By March 2020	Medium-term	Lead risk management authorities	
				Grange-over-Sands	Currently under investigation April 2019	Medium-term	Lead risk management authorities	


Kent and Leven catchment actions

Upstream management – to help manage the landscape in a way that reduces impacts downstream we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
93		Develop a range of measures to 'slow the flow', reduce erosion and improve water quality in Kentmere, River Gowan, Longsleden, River Mint and River Sprint.	Environmental - flood risk reduction actions provide environmental benefits.	East Kendal including Sandylands	summer 2017	Short-term	South Lakeland District Council, United Utilities Cumbria County Council and the Environment Agency	
94		Investigate the use of the redundant Birds Park Reservoir and adjacent land to slow the flow of water into one of the Stock Beck tributaries to the east of Kendal.	Reduce flood risk to communities.	Kendal	March 2017	Short-term	United Utilities	Environment Agency, Cumbria Wildlife Trust, South Cumbria River Trust
95		Remove embankment to reconnect the river with its floodplain, at the confluence of the River Kent and the River Gowan.	Environmental - flood risk reduction actions provide environmental benefits.	Staveley	2016	Short-term	South Cumbria Rivers Trust	Landowner, Environment Agency, Natural England



Kent and Leven catchment actions

Upstream management – to help manage the landscape in a way that reduces impacts downstream we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
96		Continue to manage and support the sub-soiling programme on farmland around Windermere. Sub-soiling breaks up compacted layers of soil increasing water infiltration, reducing run-off and increasing crop yield.	Environmental - flood risk reduction actions provide environmental benefits.	Leven catchment	2025	Long-term	South Cumbria Rivers Trust	Landowners, Natural England - Catchment Sensitive Farming


Kent and Leven catchment actions

Maintenance – to keep flood defences, rivers, bridges, roads and other infrastructure in good working order we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
97		Remove build-up of gravel from the winter storms.	Reduce flood risk to communities.	Miller Bridge Aynam Road in Kendal, River Kent, upstream of Victoria Road Bridge in Kendal Stocks Ghyll in Ambleside	Autumn 2016	Short-term	Environment Agency	
98		Monitor and remove gravel when it reaches a defined trigger level.	Reduce flood risk to communities.	Yewdale Beck at Coniston, Dragley Beck at Ulverston, Grasmere, Kendal Mintsfeet Industrial Estate, Aynam Road in Kendal, Dockray Hall in Kendal, Romney Road in Kendal, Stramongate Weir in Kendal, Burneside, Spark Bridge, River Gowan at Staveley, River Kent at Staveley	Ongoing	Short-term	Environment Agency	


Kent and Leven catchment actions

Maintenance – to keep flood defences, rivers, bridges, roads and other infrastructure in good working order we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
99		Improve understanding of the impact of water levels in Lake Windermere and the operation of sluices at Newby on the economy of South Cumbria.	Reduce flood risk to communities.	Kent and Leven	Autumn 2016	Short-term	Lake Windermere Level Group	Business Task Force, South Lakeland District Council, Environment Agency and Lake District National Park Authority


Kent and Leven catchment actions

Resilience – to help communities and businesses get back on their feet as quickly as possible after a flood we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
100		Replace the damaged bridge at Staveley with a single span bridge.	Reduce flood risk to communities.	Staveley	June 2017	Short-term	Cumbria County Council Highways	

Kent and Leven catchment actions

To better manage water levels we will:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
101		Extend the notice period to the end of June 2019, during this time we will provide financial and technical support to the local community, landowners, environmental interest groups, beneficiaries and the Local Authority developing proposals for a new Lyth Valley Water Level Management Board. The proposals will reflect the needs of the area socially, economically and environmentally and further consultation on the revised proposals will take place in early 2017. A local funding solution to support the WLMB's operation costs will be found including a financial contribution to make any necessary repairs or improvements to assets as they are transferred to new ownership.	Better partnerships - improving the ways we work and achieve action together.	Lyth Valley	Review point March 2017 Board establishment by June 2019	Medium-term	Environment Agency, National Farmers Union	Lyth Valley Advisory Group, Water Level Management Project Board

Kent and Leven catchment actions

We will also:

	Themes	What	Why	Where	When	Time-scale	Who leads	Who supports
102	All	Undertake the Staveley Pilot where agencies and communities are working together to reduce and manage flood risk in a way that best suits their community and catchment characteristics.	Reduce flood risk to communities	River Gowan, Kentmere and Staveley	Begin Summer 2016	Short-term	Staveley and Kentmere Parish Councils, Staveley Flood Action Group	Environment Agency, Cumbria County Council, South Lakeland District Council, Natural England, Cumbria Wildlife Trust, Lake District National Park and other partners