

Working with the
Calderdale Flood Partnership



how we're reducing the risk of flooding for Calderdale



Calderdale flood action plan

Full action plan
June 2017

The 2015 Boxing Day floods had a devastating impact on the communities in Calderdale with over 3,500 homes and businesses affected. This plan contains the actions that communities and partners feel are essential to help Calderdale recover from the floods and to improve resilience and reduce the risk of flooding.

The majority of the actions were gathered through workshops, drop-in sessions and meetings. Many of the actions are ongoing and form part of other plans and programmes, including the Calderdale Local Flood Risk Management Strategy, the 6-year investment programme and recommendations from the Calderdale Flood Commission Report.

This action plan is a 'living document' that will be discussed, monitored and updated by the Calderdale Flood Partnership. This document is the first review of progress and new activity up to April 2017. Lead delivery organisations and members of the Calderdale Flood Partnership were asked to update their actions to reflect the progress they had made and any new information now available to them. Operations Groups commented on the revised draft plan and the document was approved by the Calderdale Flood Partnership Board.


All members of the partnership are committed to its delivery and want an action plan that is available to everyone and which sets out a clear vision to inspire and encourage communities and organisations to work together to reduce the impact of future flooding.

Calderdale is a special place and will always need to prepare, respond and adapt to floods. This action plan outlines how this will be achieved and we will continue to identify and deliver actions to reduce flood risk and protect and improve the environment.¹

A summary document of the original 2016 action plan can be found on www.gov.uk if you search for 'Calderdale flood action plan'. Quarterly reports on how we are progressing on this plan will be published on the 'Eye on Calderdale' website.

For further information and if you have any comments on the Calderdale flood action plan please email calderdalefloodplan@environment-agency.gov.uk.

Please note: Where you see this icon  it means that the action will deliver wider benefits for people and wildlife in addition to reducing the risk of flooding.

 means that an action has been completed. An appendix is available online at 'Eye on Calderdale', which details all changes and additions made to the original action plan published in October 2016. The original number of the action in the 2016 plan is shown alongside the number in this version of the plan. Actions are shown as complete as of the end of March 2017.

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 following partnerships are delivering work to support this action plan:

Aire and Calder Catchment Partnership: a wide range of partners representing this large and varied catchment including local authorities, Environment Agency, Yorkshire Water and other statutory organisations, in addition to Yorkshire Wildlife Trust, Groundwork and other Non-Governmental Organisations.

Clough Woodland Project Partners: Environment Agency, Forestry Commission, Natural England, National Trust, Peak District National Park Authority, RSPB, Severn Trent Water, Woodland Trust, National Farmers Union.

Moors for the Future/ MoorLIFE: a partnership between the National Trust, Peak District National Park Authority, RSPB, Natural England, Yorkshire Water, Environment Agency, Forestry Commission, National Farmers Union.

SOURCE Partnership: a partnership between Treeresponsibility, Calder and Colne Rivers Trust, Upper Calderdale Wildlife Group, Calder Future, Slow the Flow Calderdale, Sticks and Stones, Facilitation Fund, Calderdale Metropolitan Borough Council, Environment Agency, Pennine Prospects, National Trust, Yorkshire Water and the White Rose Forest.

South Pennines Local Nature Partnership: Pennine Prospects achieved Local Nature Partnership status for the South Pennines in 2012. For more information, visit: www.pennineprospects.co.uk/local/what-is-a-local-nature-partnership.

West Yorkshire Local Resilience Forum: The aim of the West Yorkshire Resilience Forum is to co-ordinate the actions and arrangements between responding services in the area to provide the most effective and efficient response to civil emergencies when they occur. The forum includes: Bradford Metropolitan Council, Calderdale Council, Dept. of Communities and Local Government, Environment Agency, Kirklees Council, Leeds City Council, The Highways Agency, The Met Office, NHS England, Northern Powergrid, Public Health England, Wakefield Metropolitan District Council, West Yorkshire Fire and Rescue Service, West Yorkshire Police, Yorkshire Ambulance Service, Yorkshire Water, The Military, Representatives of Voluntary Organisations.

White Rose Forest Partnership: A Leeds City region-wide urban forestry and green infrastructure partnership. Kirklees Council (Accountable body), The National Trust, Trees for Cities, Treeresponsibility, Community Forest Trust, The Aire Rivers Trust, Colne Valley Tree Society, Barnsley Metropolitan Council, Groundwork North Yorkshire, Harrogate Borough Council, Craven District Council, Calderdale Council, Bradford Council, Bradford Environmental Action Trust, British Trust for Conservation Volunteers, Natural England, Leeds City Council, Groundwork – Leeds, Woodland Trust, Forestry Commission, Wakefield Council, RSPB, Sustrans, Yorkshire Wildlife Trust.

Yorkshire West Local Nature Partnership: takes the strategic lead on natural environmental issues across West Yorkshire and the Leeds City Region and includes the five West Yorkshire local authorities.



Strengthening defences

Actions in this theme are about understanding the issues and developing programmes of work to reduce flooding from rivers and surface water.

Work is underway to plan and construct flood alleviation schemes in Mytholmroyd and Hebden Bridge.

The Environment Agency and Yorkshire Water are working together to identify those reservoirs which could help reduce the risk of flooding. The Canal & River Trust is studying whether the canal can be used to store flood water, and also to identify where towpaths need to be raised to prevent flooding.


Yorkshire Water is reviewing and improving their sewer network where flooding has occurred in the past and several investigations have been completed. Calderdale Metropolitan Borough Council is investigating and reducing the risk of flooding from smaller watercourses, encouraging the implementation of more sustainable drainage and producing surface water management plans.

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
Understanding the issues and developing responses					
1	7/ 2016	Implement the Calderdale flood investment plan to secure match funding.	Ongoing to end of 2018	Calderdale Metropolitan Borough Council	Environment Agency
2	8/2016	The Environment Agency will submit a flood management programme on behalf of the Calderdale Flood Partnership for the endorsement of the Regional Flood and Coastal Committee. The programme will be based on evidence of risk and impact and include flood risk reduction schemes and capital maintenance projects. The programme will be refreshed annually.	May 2017/Annual Review	Environment Agency	Calderdale Metropolitan Borough Council Yorkshire Water


2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
3	9/2016	Compile a detailed register of all flood risk assets, including all potential flood defences, high risk culverts, watercourses, highway drains and other drainage assets, structures and locations. (Links to action 71).	Ongoing to end of 2018	Calderdale Metropolitan Borough Council	Yorkshire Water Environment Agency
4	10/2016	Carry out further investigations into the level of risk of flooding from groundwater, ordinary watercourses and surface water across Calderdale.	End of 2021	Calderdale Metropolitan Borough Council	Environment Agency
5	5/2016	Carry out further modelling, identified during the initial assessment, to appraise the various options to reduce flood risk in Brighouse from various flood sources.	Ongoing to end of 2020	Environment Agency	Calderdale Metropolitan Borough Council Yorkshire Water
6	19/2016	Carry out a study to upgrade the existing culvert and reduce the risk of flooding to downstream properties at Stoodley Grange/Lee Bottom Road.	2021 - onwards	Calderdale Metropolitan Borough Council	Environment Agency
7	20/2016	Carry out a study of and improvements to the Swineshead Clough reservoir to reduce the risk of flooding from the nearby watercourse.	End of 2023	Calderdale Metropolitan Borough Council	Environment Agency
8	21/2016	Investigate the condition, location and capacity of the culverted watercourse on the steep hillside at Willowfield Estate to reduce the risk of flooding to nearby houses.	2021 - onwards	Calderdale Metropolitan Borough Council	Environment Agency
9	22 /2016	Update existing surface water management plans using information from studies on the existing drainage system to identify where there is not enough capacity.	Ongoing to end of 2018	Calderdale Metropolitan Borough Council	Yorkshire Water



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10	23/2016	Identify joint schemes to reduce the risk of flooding by better understanding the links between surface water and sewer networks.	Ongoing to end of 2019	Calderdale Metropolitan Borough Council	Environment Agency Yorkshire Water Network Rail
11	25/2016	Work with partners to investigate the feasibility of measures to reduce sewer flooding in Todmorden.	Ongoing to end of June 2017	Yorkshire Water	Environment Agency Calderdale Metropolitan Borough Council
12	26/2016	Work with partners to investigate the feasibility of measures to reduce sewer flooding in Brighouse.	Ongoing to end of June 2017	Yorkshire Water	Environment Agency Calderdale Metropolitan Borough Council
13	29/2016	Investigate feasibility of measures to solve flooding in properties on Rochdale Road, Walsden.	Ongoing to end of April 2017	Yorkshire Water	
14	30/2016	Investigate feasibility of measures to solve flooding in properties on Oldham Road, Ripponden.	Ongoing to end of 2017	Yorkshire Water	
15	32/2016	Investigate feasibility of measures to solve flooding in properties on Armytage Road, Brighouse.	To be confirmed	Yorkshire Water	
16	33/2016	Investigate feasibility of measures to solve flooding in properties on West Street, Brighouse. Suspected link between land drainage and combined networks. (See follow-up action 43).	Complete ✓	Yorkshire Water	
17	34/2016	Investigate feasibility of measures to solve flooding in properties on Prospect Place, Norwood Green, Halifax.	Ongoing to April 2017	Yorkshire Water	
18	35/2016	Investigate feasibility of measures to improve free discharge from combined sewer overflow to reduce flooding at Old Bridge Inn, Ripponden.	Ongoing to April 2019	Yorkshire Water	

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19	70/2016	Identify and review historical water infrastructure such as old mill ponds, water tanks, dams, land drains, to understand whether they can be reused to reduce flood risk.	Ongoing to March 2021	Environment Agency	Yorkshire Water Calderdale Metropolitan Borough Council
20	156/2016	Carry out a screening exercise to identify those reservoirs that could store water to reduce the risk of flooding.	Complete 	Environment Agency	Yorkshire Water
21	157/2016	Complete regional study to understand the impacts of using water supply assets to reduce flooding (flood attenuation).	Ongoing to end of 2017	Yorkshire Water	Environment Agency
22	158/2016	Review a range of operating scenarios where reservoirs could be used to store water to help reduce the risk of flooding.	Ongoing to end of 2017	Environment Agency	Yorkshire Water
23	159/2016	Build a drainage area plan model for Luddenden Foot drainage area zonation. Carry out a full hydraulic and serviceability assessment of foul, combined and surface water network to understand the risk of flooding to the network under a range of conditions.	Ongoing to end of June 2017	Yorkshire Water	
24	160/2016	Build a drainage area plan model for Sowerby Bridge drainage area zonation. Carry out a full hydraulic and serviceability assessment of foul, combined and surface water network to understand the risk of flooding to the network under a range of conditions.	Ongoing to end of August 2017	Yorkshire Water	
25	161/2016	Build a drainage area plan model for Elland drainage area zonation. Carry out a full hydraulic and serviceability assessment of foul, combined and surface water network to understand the risk of flooding to the network under a range of conditions.	Ongoing to end of November 2017	Yorkshire Water	



2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
26	162/2016	Build a drainage area plan model for Hebden Bridge drainage area zonation. Carry out a full hydraulic and serviceability assessment of foul, combined and surface water network to understand the risk of flooding to the network under a range of conditions.	Ongoing to end of February 2018	Yorkshire Water	
27	163/2016	Update and improve the Environment Agency and other flood models, where appropriate, to include the risk of flooding from and to canals and canal pounds, and to accurately represent the interactions between canals and rivers.	Complete ✓	Environment Agency	Canal & River Trust Calderdale Metropolitan Borough Council Yorkshire Water
28	164/2016	Investigate the lowering of canal pounds, and determine if they could be used to store flood water.	Ongoing to mid-2018	Canal & River Trust	
29	165/2016 	Study the impact and possibility of using canals to protect against flooding, considering navigational safety (boating customers), water resource losses, damage to canal infrastructure, and the wider network.	Ongoing to mid-2018	Canal & River Trust	
30	167/2016	Review and map past flood data and information to identify the most significant issues on the canal system, to inform and help prioritise alleviation or mitigation actions on the canal system where cost beneficial.	Ongoing to mid-2018	Canal & River Trust	



Delivering flood alleviation schemes


31	1/2016 	Develop and deliver a flood alleviation scheme for Mytholmroyd.	Ongoing to end of 2019	Environment Agency	Calderdale Metropolitan Borough Council
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32	2/2016 	Develop and deliver a flood alleviation scheme for Hebden Bridge.	Ongoing to end of 2020	Environment Agency	Calderdale Metropolitan Borough Council
33	3/2016 	Develop and deliver, where feasible, flood risk management work as part of the first phase of the flood risk reduction schemes at: <ul style="list-style-type: none"> • Pin Hill Lane, Midgley • Burnt Acres Wood, Callis Bridge • Erringden Hillside, Hebden Bridge • Park Road, Elland • Woodland View, Eastwood • Shop Lock, Todmorden • Nutclough, Hebden Bridge • Bacup Rd., Todmorden 	Ongoing to 2018/19	Environment Agency	Calderdale Metropolitan Borough Council
34	6/2016	Carry out improvements to access and telemetry at Hebble Brook screen to prevent blockage of screen and potential flooding.	End of 2017	Calderdale Metropolitan Borough Council	Environment Agency
35	11/2016	Work with partners to inspect and carry out work to address any structural defects in the Hebble Brook culvert.	End of 2021	Environment Agency	
36	12/2016	Assess, design and carry out improvements to Cragg Road culvert.	2021 - onwards	Calderdale Metropolitan Borough Council	Environment Agency
37	13/2016	Repair the Harley Wood bypass channel that is currently in a poor condition.	2022 - onwards	Calderdale Metropolitan Borough Council	Environment Agency

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38	15/2016	Carry out a feasibility study to remove or raise the Kingfisher Chase, Sowerby footbridge that prevents water flowing in times of high floods.	2022 - onwards	Calderdale Metropolitan Borough Council	Environment Agency
39	4/2016 	Undertake initial assessments, develop and deliver (if applicable) flood risk management works at the following (but not limited to) locations, as part of the second phase of the flood risk reduction schemes: <ol style="list-style-type: none"> 1. Walsden 2. Cross Stone Rd, Todmorden 3. Oak Hill Clough, Todmorden 4. Commercial Street, Todmorden 5. Shaw Wood Rd, Todmorden 6. Calderside, Hebden Bridge 7. Machpelah screen, Hebden Bridge 8. Calder-Ryburn, Sowerby Bridge 9. King Street, Mytholmroyd 10. Lower Bank House, Barkisland 11. Railes Close, Midgely 12. Dean Clough, Halifax 13. A646 The Square, Mytholmroyd 14. Copley Village 15. Luddenden Brook 16. Cottonstones 17. Ripponden 18. Rossendale View 	Ongoing to end of 2021	Environment Agency	Calderdale Metropolitan Borough Council Yorkshire Water Network Rail Canal & River Trust
40	16/2016 	Remove the weir at Lobb Mill to reduce flood levels to reduce the risk of flooding in Todmorden.	2024 - onwards	Calderdale Metropolitan Borough Council	Environment Agency

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41	17/2016	Carry out a study of and improvements to the Shoebroad Clough reservoir to reduce the risk of flooding from the nearby watercourse.	2021 - onwards	Calderdale Metropolitan Borough Council	Environment Agency
42	18/2016	Improve the culvert to reduce the risk of flooding at Smithy Lane, Colden.	2021 - onwards	Calderdale Metropolitan Borough Council	Environment Agency
43	New	Removal of land drain to solve flooding in properties at West Street, Brighouse. (Follow- on from action 33/2016)	Summer 2017 to March 2018	Yorkshire Water	
44	37/2016	Investigate the feasibility of automating the radial gate at Turvin Clough. This would mean the gate could be opened automatically in the event of a flood warning, diverting floodwater away from Turvin Clough, helping to protect properties on Cragg Brook and in Mytholmroyd.	Ongoing to August 2017	Yorkshire Water	
45	43/2016 	Investigate surface water flow routes and ponding, consider using sustainable drainage systems more widely across the catchment.	End of 2018	Calderdale Metropolitan Borough Council	
46	44/2016	Investigate the feasibility of using low risk areas to manage highway flooding from overland flows in a sustainable manner.	End of 2018	Calderdale Metropolitan Borough Council	Environment Agency
47	45/2016 	Develop further planning guidance that encourages sustainable drainage systems in areas with critical drainage problems, and reduces run-off in line with greenfield sites.	End of 2017	Calderdale Metropolitan Borough Council	Yorkshire Water

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48	46/2016 	Continue to support community led projects that raise awareness of the benefits of sustainable drainage systems, as well as further promoting the Construction Industry Research and Information Association sustainable drainage systems manual.	Ongoing	Calderdale Metropolitan Borough Council	Yorkshire Water
49	47/2016 	Create an online information resource - 'You Can Slow the Flow' designed to encourage and enable smaller landowners throughout the Calder catchment to implement sustainable drainage systems on their land.	Complete 	Slow the Flow: Calderdale (SOURCE Partnership)	Environment Agency
50	New	Create physical demonstration interventions in high profile locations, to showcase and encourage uptake of the principles detailed in the 'You Can Slow The Flow' project, and promote both these and the online resource widely.	Ongoing from Spring 2017	Slow The Flow: Calderdale (SOURCE Partnership)	SOURCE Partners
51	New	Develop clear online information to enable anyone to identify highway issues (in particular around drainage) which affect flooding.	October 2017	Calderdale Metropolitan Borough Council	
52	New	Change management of drainage gullies to minimise blockage and silting issues; including improved data on condition of drainage gullies to enable smarter, tailored management based on silting levels.	Ongoing to end of 2019	Calderdale Metropolitan Borough Council	
53	New	Bid for funding to replace existing drainage gully lids with improved designs.	Ongoing to summer 2017	Calderdale Metropolitan Borough Council	
54	New	Work to enable reporting on online maps regarding location of drainage gully issues.	Ongoing to end of 2019	Calderdale Metropolitan Borough Council	

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
55	97/2016 	Cut grass three times a year at Environment Agency owned flood embankments and washlands in the Upper Calder Valley, allowing inspection of assets and maintenance of grass cover to protect banks from erosion. Also carry out vermin control to ensure that the banks are structurally sound.	Ongoing	Environment Agency	
56	98/2016	Inspect and maintain assets and structures in the Upper Calder Valley that the Environment Agency owns, three times a year.	Ongoing	Environment Agency	
57	99/2016	Carry out a programme of inspecting culverts to check that they are structurally sound and that water can flow freely through them.	Ongoing	Environment Agency	
58	100/2016	Clear out trash screens and silt traps at Environment Agency assets in the Calder Valley on a weekly basis.	Ongoing	Environment Agency	
59	91/2016	Carry out structural lining of a sewer in Savile Park Mills and Moorfield Street in Halifax, reducing the risk of flooding in the area.	To be confirmed	Yorkshire Water	
60	New	Work to identify places that would benefit from temporary flood barriers, including independent modelling to assess the impact of barriers, and engage with highways and emergency planning for relevant permissions.	Ongoing until end of 2018	Calder Catchment Flood Studies Network	Flood Protection Solutions Hebden Bridge Flood Group



Natural flood management

Actions in this theme are divided into four main areas of activity with the aim of managing the landscape to slow the flow of water.

- *Understanding the relationships between catchment management and flooding.*
- *Promotion and delivery of Natural Flood Management (NFM) techniques which can contribute to flood mitigation and alleviation in the valley bottom.*
- *The engagement of catchment landowners and land managers to contribute to Natural Flood Management solutions.*
- *Influencing government policy (related to NFM and catchment management) and adequate regulation to secure necessary flood related interventions.*

Actions include temporarily storing water, planting trees or changing the way farmland and moorland is managed so that it absorbs more water. A guide will be created for landowners to help them design and implement natural flood management measures such as leaky dams, tree planting or alternative stock management.

Agri-environment schemes will help support flood management, and we are exploring the opportunities for the Countryside Stewardship Facilitation Fund to help more farmers and land managers undertake natural flood management projects. Over winter 2016/17 over 8,000 trees (5 hectares) have been planted, multiple leaky dams built in the Upper Calder Valley and landslides at six sites stabilised to reduce erosion and sedimentation of watercourses.

The catchment plan model has been completed which indicates the potential to reduce peak flows by up to 9% in the upper and middle water catchments, if water flows are slowed by up to an hour in sub-catchments. Work has also been carried out to map the opportunities for Natural Flood Management across the catchment.

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
Understanding catchment management and flood relationships					
61	New	Collate and evaluate what is known about the connections between land management and flooding in general, and specifically in relation to the Calder catchment, including a gap analysis to advise further research where appropriate, to help inform strategic priorities for Natural Flood Management and ensure affected communities can better understand that relationship.	Ongoing to June 2018	Natural Flood Management Operational Group	
62	63/2016 	Coordinate the production of natural flood management opportunity maps to show places where the risk of flooding could potentially be reduced through NFM techniques, and multiple benefits to people and the environment realised.	Ongoing to end of 2017	Natural Flood Management Operational Group	Calderdale Metropolitan Borough Council
63	67/2016 	Identify places where creating woodland and changing the way woodland is managed will reduce the risk of flooding.	Ongoing	Forestry Services (Forestry Commission)	Yorkshire Water National Trust Other owners of woodland holdings Environment Agency White Rose Forest
64	68/2016 	Carry out modelling to identify communities and properties where natural flood management measures could potentially reduce the risk of flooding.	Ongoing to end of 2017	Environment Agency	
65	71/2016	Model the risk of rural highway flooding and resulting impacts. Identify ways of using NFM solutions where practical, for modelled critical flood risk areas (rural highways).	End of 2018	Calderdale Metropolitan Borough Council	

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
66	72/2016	Investigate/model the impacts of boundary features to manage water flow pathways and attenuating flows to identify and understand any opportunities to reduce flood risk. Specifically looking at: blocking features in water channels; hedges/walls/gates on the land.	Ongoing to March 2019	Natural Flood Management Operational Group	
67	73/2016	Commission research into the techniques which could be used to monitor ground saturation and use that information to better forecast and manage flooding.	Ongoing to end of 2017	Natural Flood Management Operational Group	Leeds University

Promotion and delivery of NFM techniques





68	50/2016 	Ongoing investigation of new and existing funding sources identified by partners for potential collaborative bids, including Leeds City Region Local Growth Fund.	Ongoing to end of 2017	Natural Flood Management Operational Group	Calderdale Metropolitan Borough Council Environment Agency South Pennines Facilitation Fund Natural England Yorkshire Wildlife Trust Canal & River Trust Moors for the Future
69	50/2016	Develop a funding strategy for the Calderdale Natural Flood Management programme, ensuring linkages are made to the Leeds City Region Green Infrastructure Investment Plan and other local, regional and national funding strategies.	End of 2017	Natural Flood Management Operational Group	Calderdale Metropolitan Borough Council Environment Agency South Pennines Facilitation Fund Natural England White Rose Forest Yorkshire West Local Nature Partnership



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70	51/2016 	Introduce the Community Infrastructure Levy in Calderdale, which will allow for potential use on flood risk mitigation schemes.	End of 2017	Calderdale Metropolitan Borough Council	
71	64/2016 	List natural flood management structures on an asset register and produce a natural flood management asset map of the catchment. (Links to action 3).	Ongoing to end of 2017	Natural Flood Management Operational Group	Calderdale Metropolitan Borough Council Environment Agency Slow the Flow
72	66/2016 	Produce a map of land use to inform potential locations for natural flood management.	Ongoing to summer 2017	Environment Agency	
73	48/2016 	Produce a tree and woodland management strategy for Calderdale which will include strategic actions for the creation and management of woodlands (created by all relevant partners) for natural flood management.	Ongoing to end of 2017	Calderdale Metropolitan Borough Council	The National Trust, Forestry Commission, Woodland Trust Treesresponsibility Pennine Prospects Yorkshire Water Slow the Flow South Pennine Facilitation Fund White Rose Forest
74	74/2016 	Secure GIS data and license to establish existing tree canopy cover in Calderdale as base line to help set targets for tree planting as part of the Leeds City Region wide White Rose Forest Plan.	April 2018	White Rose Forest Partnership	

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75	65/2016 	Use geographical information systems and partnership analysis of Yorkshire Water owned-land across the region to find the best areas to create woodland and carry out natural flood management.	Ongoing to July 2017	Yorkshire Water	White Rose Forest Environment Agency Calderdale Metropolitan Borough Council Woodland Trust Forestry Commission
76	75/2016 	Tree planting as part of Trees for Yorkshire at Wilcroft House, Stonebooth Cottage, Upper Crimsworth, Pinnacle Farm, Lodge Farm, Trial Holes (Upper Calder Catchment), Pickwood House, Lower Springs Farm	Complete 	Treesresponsibility	Woodland Trust White Rose Forest Moors for the Future
77	New 	Complete tree planting at Hardcastle Craggs and plant 50,000 trees in Upper Calder catchment by the end of 2018.	Ongoing to end of 2018	Treesresponsibility	Woodland Trust White Rose Forest Moors for the Future
78	49/2016 	Production of revised Clough Woodland Project Guiding Principles to support the following activities across the South Pennine Moors National Character Area : <ul style="list-style-type: none"> • Appropriate (careful and considered) design of landscape scale native broadleaved woodland creation schemes, to deliver benefits to reduce downstream flood risk, stabilise eroding soils, improve water quality and enhance biodiversity. • Gaining consent from Natural England under the Habitat Regulations, to ensure woodland creation does not have a detrimental impact on the interest features of designated/protected areas. 	Ongoing to October 2017	Moors for the Future Partnership	Clough Woodland Project Partners Calderdale Metropolitan Borough Council SOURCE Partnership White Rose Forest South Pennines Local Nature Partners




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79	76/2016 	Work to address soil erosion and landslide stabilisation in Upper Calder Catchment: Treating landslips with fascines; Removing Himalayan balsam; Removing/thinning shallow rooted beech trees to encourage woodland understorey.	Ongoing to end of 2020	Treesponsibility (SOURCE Partnership)	National Trust Facilitation Fund Sticks and Stones Calder Future Calderdale Metropolitan Borough Council
80	77/2016	Build leaky dams and carry out other natural flood management measures at sites including: Inchfield Pasture, Longfield, Stonebooth Cottage.	Complete 	Treesponsibility	Environment Agency Calderdale Metropolitan Borough Council Slow the Flow EGG Consultants
81	New 	Deliver physical NFM interventions to slow the flow and contribute to reducing downstream flood risk in high priority sub catchments, particularly at Hebden Water, Walsden, Calder from Source, Cragg Vale. Develop demonstration sites at multiple locations including Hardcastle Craggs and Gorpley.	Ongoing to end of 2020	Treesponsibility (SOURCE Partnership)	Environment Agency Calderdale Metropolitan Borough Council Slow the Flow National Trust EGG Consultants Cragg Vale Business Park
82	78/2016 	Carry out a project to create plate weirs, woody debris and leaky dams on sites within and adjacent to Crimsworth Dean Beck, Hardcastle Craggs and Hebden Water to reduce flood water and flood peak.	Ongoing to end of 2018	National Trust	Slow the Flow Natural England Environment Agency Calderdale Metropolitan Borough Council Yorkshire Water Various private landowners


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83	69/2016 	Use hydrological and land cover information to identify priority areas for grip blocking (blocking drainage ditches to hold water) within the Special Area of Conservation (SAC). Continue to block a further 110 kilometres of blanket bog grips across the Upper Calder Valley, including Walshaw Moor.	Ongoing	Natural England	Environment Agency Moors for the Future University of Leeds
84	52/2016 	Investigate how heather cutting, as a preferred management technique, could be introduced into future land management agreements. Produce clear guidance for partners on basis of best practice.	Ongoing to end of 2017	Natural England	
85	81/2016 	Carry out, where appropriate, parts of the South Pennine Moors Special Areas of Conservation / Special Protected Areas Site Improvement Plan to restore and stabilise peat, which could reduce run-off.	Ongoing	Natural England	Yorkshire Water Environment Agency Moors for the Future Landowners
86	79/2016 	Through the support of MoorLIFE 2020, identify priority blanket bog restoration areas and appropriate techniques within the South Pennine Moors Special Area of Conservation located in the Upper Calder Valley.	Ongoing to end of 2020	Moors For The Future	Pennine Prospects Yorkshire Wildlife Trust Natural England Environment Agency Yorkshire Water Moorland Association National Trust
87	82/2016 	Build on past work to restore moorland on Yorkshire Water land by improving the habitat in target locations, for example by trialling the introduction of sphagnum moss.	Ongoing	Yorkshire Water	Natural England Moors for the Future Tenants and Commoners

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88	83/2016 	Improve Clifton Beck as part of the Clifton Beck Diffuse Pollution Project to also reduce the risk of flooding through: Creating buffer zone strips, planting trees and plants on river banks, restricting livestock access to the beck and removing invasive non-native plants.	End of 2021	Yorkshire Wildlife Trust	Environment Agency Calder & Colne Rivers Trust Riverfly Landowners
89	80/2016 	Create wetland habitat and wet woodland, linked to environmental education work at Brearley Fields, Mytholmroyd.	2021	Calderdale Metropolitan Borough Council	Canal & River Trust Calder & Colne Rivers Trust Environment Agency Yorkshire Wildlife Trust
90	84/2016 	Develop a long-term, evidence based costed strategy for managing invasive plant species. The strategy will identify the damage caused, ways of managing both invasive species and the soil, and how we will fund and carry out this work.	Ongoing to end of 2017	Environment Agency	Calderdale Metropolitan Borough Council Riparian owners Calder Future Calder Valley Clean-up Team Treesresponsibility River Stewardship Company Yorkshire Water Yorkshire Wildlife Trust Yorkshire Invasive Species Forum Canal & River Trust
91	85/2016 	Prepare an evidence based channel maintenance programme (to include vegetation, gravel, silt and debris) that has been developed with the community and which allocates activity between the Environment Agency and other (including voluntary sector) providers.	End of 2017	Environment Agency	Riparian owners Community organisations Calder Future Calder Valley Clean-up Team Calderdale Metropolitan Borough Council Treesresponsibility

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
92	85/2016	Support community-led channel maintenance and stewardship, including the development of further sources of sustainable funding and investment.	Ongoing	Environment Agency	Riparian owners Community organisations Calder Future Calder Valley Clean-up Team Treesponsibility River Stewardship Company
93	89/2016 	Investigate with local groups carrying out river stewardship work where access to river channels needs to be improved to enable community led maintenance.	End of 2017	Environment Agency	Calderdale Metropolitan Borough Council Canal & River Trust Landowners Calder Future Calder Valley Clean-up team
94	101/2016	In addition to our annual maintenance programme, where necessary, remove any debris and vegetation that is causing a blockage in rivers and channels that could increase the risk of flooding.	Reactive as required	Environment Agency	
Engagement of landowners and land managers					
95	53/2016 	Share good practice and provide guidance in drawing up maintenance agreements for natural flood management with landowners and land managers.	Ongoing	Calderdale Metropolitan Borough Council	Natural Flood Management Operational Group Pennine Prospects Slow the Flow

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
96	54/2016 	Share findings and lessons learnt from the DEFRA 25 year Environment Plan Pioneer Areas looking at ways of working at the catchment scale, how we value the environment through natural capital and ways of funding improvements through different mechanisms over the next 3 years, to provide benefits to local communities and the economy.	Ongoing to 2020	Natural Flood Management Operational Group	Environment Agency
97	57/2016 	Develop a plan to coordinate the engagement of landowners and land managers, (across the Calderdale Flood Partnership), to support landowners and land managers in identifying and implementing a range of natural flood management measures; and publicise the extent of engagement.	Ongoing to July 2017	Calderdale Metropolitan Borough Council	South Pennines Facilitation Fund, Moors for the Future Yorkshire Wildlife Trust Treesponsibility Slow the Flow Natural England Pennine Prospects Environment Agency Canal & River Trust
98	58/2016 	Create natural flood management guidance, specific to Calderdale, for farmers, landowners and other practitioners similar to that being produced in the Dales National Park.	Ongoing to end of 2017	Natural Flood Management Operational Group	Environment Agency Yorkshire Dales National Park White Rose Forest Aire & Calder Catchment Partnership Natural England Leeds City Region Natural Flood Management Task Group

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
99	59/2016 	Through the Countryside Stewardship Scheme and the South Pennine Facilitation Fund, encourage more farmers in specific areas to carry out and maintain natural flood management for the 2018 application year.	Ongoing to end of 2018	Natural England	Yorkshire landowners Environment Agency Calderdale Metropolitan Borough Council
100	61/2016 	Work with landowners and land managers to collate information on and improve existing drainage infrastructure where it will have flood risk benefits.	Ongoing	Calderdale Metropolitan Borough Council	
101	62/2016 	Work with landowners/occupiers to progressively review the three existing burning consents and agreements as part of the consideration for the long-term management requirements for the restoration of blanket bog.	2019 onwards	Natural England	Yorkshire Water Private landowners
102	87/2016 	Share best practice advice with landowners and communities to help them best understand the roles and responsibilities of managing and maintaining watercourses along with flood risk assets as riparian owners.	End of 2017	Calderdale Metropolitan Borough Council	Landowners Agents Brokers Yorkshire Water National Trust Environment Agency
Policy and adequate regulation					
103	55/2016 	Facilitate and co-ordinate Calderdale Flood Partnership Board responses to government consultations on catchment management in relation to flood mitigation and alleviation.	Ongoing	Natural Flood Management Operational Group	Calderdale Flood Partnership Board

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
104	55/2016	Proactively raise policy issues related to catchment management and flood mitigation with government ministers and committees, and bodies representing land owners and land managers.	Ongoing	Natural Flood Management Operational Group	
105	56/2016 	Undertake habitat regulations assessment of all emerging Local Plan policies and proposals prior to publication of the plan in the autumn of 2017.	Ongoing to Autumn 2017	Calderdale Metropolitan Borough Council	Natural England Environment Agency



Resilient Infrastructure


This theme details actions to increase the resilience of infrastructure, such as sewer systems, electricity substations, telecommunications and transport routes, to flooding.

Following the Boxing Day 2015 floods, action was taken to repair and strengthen infrastructure to ensure it is operational for future floods. We will continue to review the flood risk of roads, railways, water and power supplies that are locally critical, and we will take action, where appropriate, to protect them and maintain them so that they remain in good working order.



All partners have committed to holding an annual meeting where the Environment Agency, Calderdale Metropolitan Borough Council, Yorkshire Water and Canal & River Trust will set out their maintenance plans and support local communities to carry out their own maintenance work.

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
Energy					
106	39/2016	Repair or replace power substations at Scout Road 864, HX7 5DU; Lock Hill Mill 577, HX6 2LA; Mayroyd 641, HX7 6AT; Der Street Mills 1145, OL14 5QT; Gauxholme 383, OL14 7PD and Hebble End 2243, HX7 6AT.	Complete ✓	Northern Power Grid	
107	New	Recover (remove the equipment) from the following sites Hebble End 2243, HX7 6AT, Mayroyd 641, HX7 6AT, Calder Mill 196, HX7 5NA, Market Street 633, HX7 6AT, Cheetham St 1827, HX7 8EJ to new sites at Bridge Lanes and Hollins Place.	End of 2018	Northern Power Grid	

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
108	40/2016	Relocate current power substations at: Calder House Mill 1225, HX7 5QF Scout Road 864, HX7 5DU Der Street Mills 1145, OL14 5QT; Gauxholme 383, OL14 7PD.	End of 2018 End of 2017 End of 2021	Northern Power Grid	
109	41/2016	Improve resilience of power substations at Walton St 775, HX6 1AN, Lock Hill Mill 577 HX6 2LA.	End of 2022	Northern Power Grid	
110	38/2016	Maintain and improve the security of the gas network through generic actions across the network: Introducing syphon points as standard on replacement schemes; Adding new water extraction equipment; Investing more in managing pressure remotely to monitor changes in pressure and adjust them to avoid loss of supply; Investing in overcrossing, aiming in the long term to put vulnerable crossings underground.	Ongoing	Northern Gas Network	Calderdale Metropolitan Borough Council
111	New	Business case being developed for asset survey and low energy lamp upgrade of 30,000 street lights which will include installation of battery back-up in flood prone areas and potential incorporation of wifi on columns.	Ongoing to end of 2020	Calderdale Metropolitan Borough Council	
Telecommunications					
112	103/2016	Work with utility and telecommunication companies to improve the resilience of critical infrastructure and the provision of back-up systems where needed, for example temporary mobile phone masts and internet access.	End of 2017	Calderdale Metropolitan Borough Council	West Yorkshire Local Resilience Forum Utility and telecommunication sector

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
Transport					
113	104/2016	Carry out a resilience review of the Calderdale rail lines and identify ways of reducing the probability of flooding and reducing the time taken to reopen after a flood. Work will include: Major works to improve rail reliability including drainage where required; Obtain additional funding for detailed analysis of rail-related flood risk throughout the Calder valley; Site-by-site action plans for all areas of route that are vulnerable to flood risk.	Ongoing to end of 2017	Network Rail	Environment Agency
114	New	Investigate measures to improve the resilience of the main highway routes in Calderdale, in particular the A646 in the Upper Calder Valley. (Links to actions 31, 32 and 52)	To be confirmed	Calderdale Metropolitan Borough Council	Environment Agency Department for Transport
115	96/2016 	Repair and maintain rights of way to prevent them from flooding and becoming eroded.	Ongoing to Autumn 2017	Calderdale Metropolitan Borough Council	Local Access Forum Pennine Prospects Canal & River Trust CROWS
116	14/2016	Identify sections of the towpath that can be hardened to improve resilience, developing an ongoing programme for improvements subject to funding.	Ongoing to mid-2018	Canal & River Trust	

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
Water and Wastewater					
117	27/2016	Replace spring drain at Widdop to ensure stability of reservoir embankment.	Complete ✓	Yorkshire Water	
118	28/2016	Replace storm pumps and control panel at Elland Lowfield sewage pumping station.	Ongoing to end of 2019	Yorkshire Water	
119	31/2016	Investigate feasibility of measures to replace support structures at Walker Lane, Sowerby Bridge, and Huddersfield that were washed away during the December 2015 floods. Measures are currently in place here to prevent loss of service and flooding.	Complete ✓	Yorkshire Water	
120	36/2016	Investigate the feasibility of repairing abutments of reservoir overflow crest bridge at Baitings.	Ongoing to May 2017	Yorkshire Water	
121	92/2016	Carry out Widdop flood study and refurbishment of the spillway to make sure it operates safely during flooding.	Complete ✓	Yorkshire Water	
122	93/2016	Carry out work to protect the embankment on the upstream face of the dam at Gorpley from further erosion.	Complete ✓	Yorkshire Water	
123	94/2016	Carry out work to protect the embankment on the upstream face of the dam at Dean Head Lower from further erosion.	Complete ✓	Yorkshire Water	
124	166/2016	Ensure relevant water control assets on the Rochdale Canal have been updated and proportionate maintenance plans are in place.	Ongoing to mid-2018	Canal & River Trust	

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
125	168/2016 	Review feeder arrangements for the Rochdale Canal, to identify where improvements could be made, taking into account heritage and environmental factors.	Ongoing to mid-2018	Canal & River Trust	
126	New	As part of the preparation of their first National Flood Risk Management Strategy in 2017, the Canal & River Trust will use experiences and lessons learnt on the Rochdale Canal, from the December 2015 floods, to inform and influence national approaches and policy development in relation to flood risk management. The creation of the Strategy will also present relevant outputs to feed into the Calderdale Flood Action Plan work, particularly actions 28-30 and action 125.	End of 2017	Canal & River Trust	
General Infrastructure					
127	New	Complete outstanding Calderdale highways recovery work, subject to funding, including work or repairs to damaged bridges – collapsed bridges, scour damage, repairs to inverts; landslips, and repairs to a culvert, a wall and drainage. See Appendix 2 for details	Ongoing	Calderdale Metropolitan Borough Council	
128	42/2016 	Find information on landslips that have occurred in the past and investigate the possibility of them happening again.	Ongoing to end of 2017	Calderdale Metropolitan Borough Council	

2017 Action No	Original Ref No/ Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
129	95/2016	Identify and model the impact of flooding and damage to critical assets such as silt traps, gullies and screens to inform inspections and maintenance.	Ongoing to end of 2017	Calderdale Metropolitan Borough Council	Public to report blockages
130	86/2016	Host an annual maintenance meeting to discuss and review the planned maintenance work of Calderdale Metropolitan Borough Council, Environment Agency and Canal & River Trust. Involve local community representatives to promote a joined up approach and increase community involvement.	End of 2017	Calderdale Metropolitan Borough Council	Local community representative Calder Future Calder Valley Clean-up Team Canal & River Trust
131	88/2016	Support communities to share knowledge of how to report maintenance issues and requirements, who to report to and the roles, remits and responsibilities of organisations	End of 2017	Calderdale Metropolitan Borough Council	Canal & River Trust Environment Agency



Community resilience

Actions in this theme are about making sure that people and property are as resilient as they can be when facing the perils of floods and what might follow, by taking actions ahead of time to help life get back to normal as quickly as possible. It includes people signing up to flood warnings, developing a community action plan or making alterations to their home or business so flood water causes less damage.

Effective warnings are vital, and since December 2015 many more people have signed up to get flood warnings and we have carried out an annual emergency planning exercise. We are investigating using new methods to warn communities in areas where river levels rise quickly and continuing to support schools, nurseries, care homes, and other groups of vulnerable people who need to have emergency plans in place.

We have established a network for community flood action groups to share learning and ideas and set up a database of volunteers who can help out during and after a flood. We are working hard to help communities in the immediate aftermath of a flood and have investigated the potential for mobile banking services and pop-up shops such as chemists, post office and groceries. We will also host a workshop for the business and insurance community to help increase access to flood insurance.

Calderdale Metropolitan Borough Council is updating local spatial plans so that new development is located and designed to keep people safe during a flood.

A key message to remember in terms of resilience is that it begins with the individual; the householder; the business. When floods occur, the roads flood, emergency services have trouble getting to us and we are thrown onto our own resources. We need to make these as good as we can. The best person to understand your risk and what you can do about it, is you. Look at your home, think about flooding and what steps you can take to limit the impact of these events. Think about what you need to do if alarms sound, and be prepared. Think about your neighbours, if they may need help in times of crisis, and talk to them.

2017 Action No	Original Ref No/Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
Preparedness					
132	105/2016	Review the resilience and business continuity of essential emergency and community services such as fire, police stations and community facilities, including schools.	Annual	Calderdale Metropolitan Borough Council	Environment Agency West Yorkshire Local Resilience Forum
133	108/2016	Investigate if Lloyds Bank will provide emergency banking services to conduct business transactions on behalf of other banks.	Complete 	Calderdale Metropolitan Borough Council	Lloyds Bank
134	109/2016	Link willing shops to the local flood hubs so they can be used in the event of a future flood, work to ensure coverage is robust and exploring provision of other local amenities.	Ongoing to July 2017	Calderdale Metropolitan Borough Council	Banks and local business; NHS/ Health emergency planning Adult health and social care team Staying Well
135	New	Review business continuity plans on a regular basis, ensuring assets and people are protected and able to function in a flood, including emergency duty teams in place for adult and children's services and children and older people's homes.	Ongoing	Calderdale Metropolitan Borough Council	
136	152/2016	Work with the Integrated Commissioning Board and Commissioning Plan to ensure that statutory and voluntary organisations have actions in existing plans to support vulnerable people during and after flood events.	Ongoing	Calderdale Metropolitan Borough Council	Integrated Commissioning Board Community and Voluntary Sector
137	106/2016	Improve communications with public transport operators to enable them to better plan adjustments to their services and to issue travel warnings.	April 2018	Calderdale Metropolitan Borough Council	Environment Agency West Yorkshire Combined Authority

2017 Action No	Original Ref No/Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
138	110/2016	Hold an annual flood emergency practice day in each area throughout Calderdale to practice flood plans.	Annual	Calderdale Metropolitan Borough Council	Environment Agency Flood warden groups Yorkshire Water Community Resilience Operations Group Community Foundation for Calderdale
139	111/2016	Work with state schools across Calderdale to provide evacuation and invacuation training to support school emergency plans.	Ongoing to end of 2017	Calderdale Metropolitan Borough Council	Environment Agency
140	111/2016	Work with nurseries across Calderdale to provide evacuation and invacuation training to support nursery emergency plans.	To be confirmed	To be confirmed	
141	111/2016	Work with housing providers of vulnerable residents (care and nursing homes, Registered Social Landlords) across Calderdale to provide evacuation and invacuation training to support school emergency plans.	Complete ✓	Calderdale Metropolitan Borough Council	
142	112/2016	Set up a network for flood wardens and flood groups to work together and share knowledge and experience.	Complete ✓	Community Resilience Operations Group	Environment Agency Calderdale Metropolitan Borough Council Community Foundation for Calderdale
143	New	Ongoing regular communication, training, support and sharing of knowledge and experience across networks of flood wardens and flood groups.	Ongoing	Community Resilience Operations Group	Environment Agency Calderdale Metropolitan Borough Council

2017 Action No	Original Ref No/Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
144	113/2016	Run a volunteer recruitment campaign to set up additional flood warden groups throughout the Calder Valley, including Sowerby Bridge, Elland, Luddenden Foot and Brighouse.	Complete 	Environment Agency	Calderdale Metropolitan Borough Council Community Resilience Operations Group
145	New	Ongoing volunteer recruitment to attract additional flood warden volunteers to the existing groups and continue support and training for new flood wardens.	Ongoing	Environment Agency	Calderdale Metropolitan Borough Council Community Resilience Operations Group
146	114/2016	Produce and maintain a database of volunteers willing to offer support and help in response to flood events and ongoing public education and awareness of flooding.	Ongoing to end of 2017	Calderdale Metropolitan Borough Council	Local Resilience Forum Community Resilience Operations Group Town Parish councils
147	115/2016	Set up and advertise a flood hub to help and support each community at risk of flooding.	Complete 	Calderdale Metropolitan Borough Council	Community Resilience Operations Group
148	New	Ongoing maintenance of community support hub and training and support to volunteers running community hub.	Ongoing	Calderdale Metropolitan Borough Council	
149	116/2016	Work with flood groups to produce community flood plans.	Ongoing	Environment Agency	Calderdale Metropolitan Borough Council Community Resilience Operations Group

2017 Action No	Original Ref No/Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
150	117/2016	Ongoing updates to key household information for households at risk of flooding, provided on laminated cards and fridge magnets, as and when contact information changes.	Ongoing to June 2017	Calderdale Metropolitan Borough Council	Community Resilience Operations Group Public Health Infection Prevention & Control Team
151	118/2016	Carry out a survey to find out how many people are still without insurance cover and promote Flood Re insurance scheme to those at high risk.	End of 2018	Calderdale Metropolitan Borough Council	Relevant insurance companies
152	119/2016	Host a workshop with community, business and insurance industry stakeholders to review and develop insurance options for uninsurable private rented homes and businesses.	By the end of 2017	Calderdale Metropolitan Borough Council	
153	120/2016	Continue to support the development and promotion of Watermark for local flood fundraising.	Ongoing	Community Foundation For Calderdale	Calderdale Metropolitan Borough Council
154	121/2016	Issue and delivery of work through business' resilience grants to be completed; Business team also making linkages through business advice and practices for flood preparation.	Ongoing to September 2017	Calderdale Metropolitan Borough Council	
155	122/2016	Incorporate flood resilience advice into Calderdale's privately rented property registration scheme to encourage landlords to make information on flood risk available to tenants; incorporate resilient works into any improvement works; and make it easier for tenants to find alternative accommodation while repairs are being carried out.	October 2018	Calderdale Metropolitan Borough Council	Private landlords National Landlord Association
156	123/2016	Work with estate agents and landlords to develop a floodmark symbol to use in tenancy agreement for properties in areas at risk of flooding.	End of 2017	Calderdale Metropolitan Borough Council	

2017 Action No	Original Ref No/Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
157	124/2016	Create a communications and engagement plan to promote and encourage the floodmark symbol to be used throughout the local area. (Dependant on outcome of action 156)	To be confirmed	Calderdale Metropolitan Borough Council	
158	125/2016	Run local flood awareness campaigns to target visitors as well as residents and local businesses.	Complete 	Calderdale Metropolitan Borough Council	Environment Agency Yorkshire Water
159	126/2016	Target schools at high risk to raise awareness of flooding with students and staff to develop knowledge and skills and to keep safe during flooding.	Ongoing	Environment Agency	Calderdale Metropolitan Borough Council Community Resilience Operations Group
160	127/2016	Work with the Health and Wellbeing Board of Calderdale Metropolitan Borough Council to plan for the effects of future flooding on people's health.	Ongoing	Calderdale Metropolitan Borough Council	Yorkshire Water Environment Agency
161	128/2016	Review initiatives carried out under the Joseph Rowntree Foundation Kindliness initiative locally and nationally, identify best practice and what would support community resilience in flooding.	Ongoing to end of 2017	Calderdale Metropolitan Borough Council	Community Resilience Operations Group
162	129/2016	Continue to develop the community led web portal 'Eye on Calderdale', providing up to date information about flooding and resilience across Calderdale, including review of the current website.	Ongoing	Calderdale Metropolitan Borough Council	Environment Agency Community Resilience Operations Group
163	130/2016	Completion of Level 2 work of Strategic Flood Risk Assessments, to inform the Local Plan policies and land allocation.	Ongoing to autumn 2017	Calderdale Metropolitan Borough Council	Environment Agency

2017 Action No	Original Ref No/Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
164	131/2016	Hold a workshop for planners and architects to share best practice and discuss how, through locating and designing new developments, the risk of flooding can be reduced.	End of 2017	Calderdale Metropolitan Borough Council	Town and Country Planning Association Environment Agency Yorkshire Water
165	132/2016	Identify and select four show homes along the Calder Valley to showcase flood resilient design on websites, social media and local press. Owner occupiers to support with drop-in events.	Ongoing to autumn 2017	Calderdale Metropolitan Borough Council	Environment Agency Slow the Flow (Calderdale)
166	133/2016	Signpost homeowners who are renovating or constructing new property to advice on flood resilience and resistance works to minimise the impact of future floods. This will include information on any financial assistance, when it is available.	Ongoing	Calderdale Metropolitan Borough Council	Environment Agency
167	New	Delivery of FloodSave - to encourage businesses and residents to save monthly for new flood events. Each £ saved is equally matched, savers can access up to £2000 in flood events.	Ongoing	Community Foundation For Calderdale	Calderdale Credit Union
168	New	Delivery of Calderdale Metropolitan Borough Council actions resulting from the Council S19 report (lead local authority requirement following major flood event) on the winter 2015 floods; future S19 reviews will be incorporated into the learning and Council actions resulting from any other Calderdale floods.	Ongoing	Calderdale Metropolitan Borough Council	
Warnings					
169	134/2016	Assess and improve the performance of Environment Agency flood warnings (coverage and triggers) so that people know what to expect earlier and have more time to take effective action.	Ongoing	Environment Agency	Community Resilience Operations Group

2017 Action No	Original Ref No/Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
170	135/ 2016	Work with Google to use Environment Agency data from the Environment Agency flood warning system to enable greater visibility of flood warnings and to alert those at flood risk based on their location.	Ongoing to end of 2018	Environment Agency	Google
171	136/ 2016	Investigate flood wardens receiving river level alarms to give them a heads-up of flood forecasts and warnings.	Complete 	Environment Agency	Community Resilience Operations Group
172	137/ 2016	Help communities at high risk of flash flooding to install their own methods of monitoring weather and river conditions and triggering alerting systems.	Ongoing to end of 2017	Slow the Flow	Community Resilience Operations Group Environment Agency
173	139/ 2016	Contact all properties within our flood warning areas every three years to promote our service and ensure those already registered have the correct contact details registered.	Triennial	Environment Agency	Calderdale Metropolitan Borough Council
174	140/ 2016	Agreements being developed with mobile phone companies to enable recruitment of customers to the flood warning system through an opt-out approach.	Ongoing to March 2018	Environment Agency	Community Resilience Operations Group O2 Other mobile phone companies
175	141/ 2016	Support and, where needed, provide training to professional partners, including flood groups, on using social media to raise awareness of the risk of flooding, flood warnings and how to be better prepared for flooding.	Ongoing to end of 2017	Environment Agency	Calderdale Metropolitan Borough Council
176	142/ 2016	Investigate the potential use and introduction of automated alerts and warnings to residents (linked to river level monitoring), through telephone, text and email.	Ongoing to end of 2020	Environment Agency	Community Resilience Operations Group

2017 Action No	Original Ref No/Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
177	144/2016	Provide more online forecasts, including communicating the probabilities of flooding and flash flooding, measuring river levels and showing forecast river level up to 36 hours in advance.	Ongoing to end of June 2018	Environment Agency	Community Resilience Operations Group
178	145/2016	Investigate how we can integrate risks from groundwater flooding into our existing flood warning service, and help local councils reach those people at risk of flooding from local sources.	End of 2018	Environment Agency	Calderdale Metropolitan Borough Council Community Resilience Operations Group
179	146/2016	Investigate improvement of existing flood warning measures by prioritised hydrometry: the network of rain gauges throughout Calderdale, using telemetry, the CCTV network and Flood Forecasting Centre.	Ongoing to end of 2017	Environment Agency	Calderdale Metropolitan Borough Council Community Resilience Operations Group
180	147/2016	Investigate producing maps (preferably in real time) that show roads affected by and impassable due to flood water and make them available including the use of social media.	Ongoing	Calderdale Metropolitan Borough Council	
181	106/2016	Installation of variable message signing at key decision points across Calderdale's major highway network to warn drivers of closures and incidents.	Spring 2019	Calderdale Metropolitan Borough Council	

Recovery

182	90/2016	Work with partners, charities and local groups to continue to produce a regular newsletter that shows the local community the actions on flood recovery and updates on resilience news from partners, charities and community groups.	Bi-monthly	Calderdale Metropolitan Borough Council	Environment Agency Canal & River Trust Yorkshire Water Calder Future Calder Valley Clean-up Team
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2017 Action No	Original Ref No/Year	What we're going to do	When we will do it by	Who's leading	Who's supporting
183	148/2016	Provide an information hub where people can access help, counselling, welfare support and advice to reduce the emotional and psychological effects of flooding.	Complete ✓	Calderdale Metropolitan Borough Council	
184	149/2016	Review and communicate how flood recovery grants were allocated in 2015 to 2016. Consider any policy modifications to promote take up.	March 2018	Calderdale Metropolitan Borough Council	
185	150/2016	Establish a team and enterprise programme to identify empty properties which could be reused by local businesses following a flood. This will be tested in Mytholmroyd.	Complete ✓	Calderdale Metropolitan Borough Council	
186	151/2016	Explore the option for bridging loans to keep businesses open.	Complete ✓	Calderdale Metropolitan Borough Council	Leeds City Region
187	153/2016	Create a programme of social activities for vulnerable or older people to maintain social contacts if they have been forced out of their local area due to flooding.	Complete ✓	Calderdale Metropolitan Borough Council	Older peoples committee Together Housing Group
188	154/2016	Provision of skips to support flood clean-ups as and when required.	Ongoing	Calderdale Metropolitan Borough Council Flood Hubs	
189	155/2016	Identify those properties that have structural damage and let the owners know that they are at risk of collapsing, and advice on emergency contractors.	Complete ✓	Calderdale Metropolitan Borough Council	Building surveyors Property owners
190	New	Delivery of mental health support, information and advice to improve health and well-being of Todmorden residents.	Ongoing to March 2018	Healthy Minds	Community Foundation for Calderdale

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