

**Draft
Local Flood Risk
Management
Strategy**

**Annex D
Action Plan**



November 2014

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Table D.1. Flood risk management actions covering the whole of Cumbria

No	Action (measure)	Local Strategy Objective (Policy)	Driver	Responsible Body	Time frame for delivery	Previous Quarter Q2 14/15	Quarter Q3 14/15
A1	Establish register of structures & features	P2	FWMA 2010	LLFA	2015	Green	Green
A2	Establish SuDS approving role (SAB)	P3	FWMA 2010	DEFRA, LLFA	2015	Red	Red
A3	Produce SuDS guidance	P3	Local Strategy	LLFA	2015	Green	Green
A4	Local Flood Risk Management Strategy	P1,P2	FWMA 2010	LLFA	2015	Green	Green
A5	Power to request information	P2	Local Strategy	LLFA; EA	On-going	Green	Green
A6	Flood investigations	P2	FWMA 2010	LLFA	On-going	Green	Green
A7	Consenting works on ordinary watercourses	P3	FWMA 2010	LLFA	On-going	Green	Green
A8	Scrutiny arrangements (internal & external)	P2	FWMA 2010	LLFA	On-going	Green	Green
A9	SWMP development	P1,P2	Local Strategy	LLFA	2017	Green	Green
A10	Develop an integrated asset management strategy	P1, P2, P4	Local Strategy	LLFA	2017	Green	Green
A11	Establish register of sites suitable for habitat restoration	P1	Local Strategy	LLFA	On-going	Green	Green

MSfWG Actions

No	Action (measure)	Local Strategy Objective (Policy)	Driver	Responsible Body	Time frame for delivery	Previous Quarter Q3 13/14	Quarter Q4 3/14
A20	Raise awareness of flood risk and local flooding issues for the public and how they can reduce the risks	P1,P2, P5	Local Strategy	LLFA, EA	On-going	Green	Green
A21	Contributions to register of structures & features	P2	Local Strategy	LLFA	On-going	Green	Green
A22	Coordinated flood risk planning and delivery	P1	Local Strategy	LLFA	On-going	Green	Green
A23	Flood investigations	P2	FWMA 2010	LLFA	On-going	Green	Green
A24	Improve community resilience through awareness of flood risk.	P1, P2, P4 & P5	Local Strategy	LLFA, EA	On-going	Green	Green
A25	Define scope of FRM functions; see Section 5.3.5	All	Local Strategy	LLFA	2015	Green	Green

Table D.2. Actions/measures that will be undertaken by the LLFA to reduce flood risk locally**Cumbria**

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Cumbria wide	Critical services potentially at risk of surface water flooding have been mapped and provided to key stakeholders.	The risk needs confirming. All relevant stakeholders to review the maps and provide a list of the assets that are potentially at risk.	CRF	All

Allerdale

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Wet Areas				
Dearham	Historic surface water and sewer flooding problems and the prospect of future development mean that surface water management in parts of Dearham needs careful consideration via the planning or SAB approval system.	Before connection to the drainage system, the developer should undertake a study to understand what they are connecting to and where it is draining. Alternatively, surface water should be dealt with on site and not discharged into the existing system.	ABC - LLFA, UU	P1, P2, P3
Keswick	Development in Keswick has constrained the drainage network which leads to flooding in many locations. Future development is likely to increase these problems as SuDS will be difficult to implement due to lack of space and ground conditions. Of particular concern is the main culvert flowing from Ambleside Road to Penrith Road and into the River Greta. Due to a lack of capacity, this culvert surcharges and floods many properties before entering the River Greta. The contributing catchment to the south of Ambleside Road (around Castlehead Wood) is undeveloped greenfield land.	Development in this area should be avoided in order to limit peak runoff volumes. s.106 arrangements should be sought for all new development in Keswick to facilitate improvements to existing networks e.g. replace culverted highway crossings with clear span bridges, improved screen designs, etc. CCC's Planning Obligations Policy outlines the expectations on developers to make contributions secured through s.106 Agreements.	LDNPA - LLFA, ABC	P1, P2, P3

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Schemes in Wet Areas				
Elliot Park - Keswick	Elliot Park is a residential area that is prone to flooding from the River Greta, sewers and surface water. Schemes in place from UU and EA to reduce river and sewer flooding. Remaining risk from surface water flooding	Feasibility study undertaken early 2013. FCERM GiA bid made for pump solution June 2013. Feasibility study completed and scheme out to tender Autumn 2014. Completion 2015/16.	LLFA – ABC, KFAG, EA, UU, Booths, Impact Housing	P1, P2, P4, P5
Upper Penrith Road - Keswick	Surface water flooding due to a combination of a number of surface water flow pathways that combine at Penrith Road where most of the damage is caused.	Bridge/culvert improvement, new single span highway bridge and improved trash screen design on Chestnut Hill recommended. Trash screen has been improved. Consent granted for renewal of a bridge on private property that was restricting flows and causing water to overtop the watercourse and cascade onto the highway.	LLFA – ABC, KFAG, residents	P1, P2, P4, P5
Penrith Road /Ambleside Road - Keswick	Significant surface water flood risk location up to 50 properties from an ordinary watercourse.	Modelling and feasibility study undertaken for upland attenuation and progressing to project approval. FCERM GiA bid made March 2014.	LLFA - ABC EA, KFAG.	P1, P2, P4, P5
Dearham Crossroads	Inadequate and damaged culverted watercourses.	Some MSfWG actions completed. UU are to provide a new drainage system for the full length of Central Road along with storage areas.	LLFA - ABC UU.	P1, P2, P4
Dearham Post Office	The flood flow path at Dearham Crossroads continues down Central Road where the Post Office and several properties to the rear are prone to flooding.	UU are to provide a new drainage system for the full length of Central Road along with storage areas.	LLFA - ABC	P1, P2, P4

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Other Allerdale schemes				
Cockermouth The Gote	Over 25 properties at risk as surface water collects in the low spot in the Gote Road area.	Cumbria Highways have provided an overflow pipe in 2011 that has greatly reduced the regular flooding that had been occurring. EA provided a pumping station to deal with surface water trapped behind the new raised embankment constructed in 2010. Issue still remains of ordinary watercourse blockage during flood events that effects the Corn Mill flats.	LLFA - ABC, EA, CFAG	P1, P2, P4
Cockermouth Isel Road	Flooding to Cockermouth Castle cottages from the Isel Road, highway drainage. Only 2 properties have flooded in the past.	MSfWG monitoring the situation and liaising with castle ground owners on improvement measures	MSfWG	P1, P2, P4
Blennerhasset	River flooding / highway flooding and internal flooding to properties.	Property level protection (PLP) measures installed by resident. EA have modelled and proved that the river does not need gravel removal to effect flood risk. Residents have removed gravel from the river. LLFA investigating highway flooding impacts. Cumbria Highways have surveyed the highway drainage in the area and released a jammed flap valve in the river.	LLFA – Cumbria Highways; ABC	P1, P2, P4, P5
Greysouthen	Ordinary watercourse culvert under properties is undersized (broken by development) leading to flooding of under 10 properties.	Cumbria Highways have diverted drains from the private land at 15a Main Street into a separate highway system.	LLFA – ABC, Cumbria Highways	P1, P2, P4
Lorton	A number of flood risk locations. Some are main river based, some are local sources. A culvert blocks on a private watercourse leading to the flooding of 8 properties.	Culverted watercourse runs beneath highway and through private property. County Highways have installed a new overflow pipe at Lorton Bridge. Additional small works have been undertaken to reduce flooding impacts.	LLFA – Cumbria Highways, ABC, private land owners.	P1, P2, P4

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Wigton – Speet Gill	Flooding from Speet Gill into the Burnfoot area of Wigton. Heavily modified section of watercourse through the town with no room for increasing capacity.	Modelling work and initial landowner negotiations started for providing upstream storage to enable a flood warning. EA have met with MP and Town Council about flooding issues and funding gap. FCERM GiA bid made in March 2014	EA - Wigton Town Council	P1, P2, P4, P5
Wigton – Station Road	Flooding from Wiza Beck primarily affecting Station Road but also the Innovia factory.	2012 flood storage basin constructed to enable a flood warning on the rapidly responding catchment. Flood Warning area being formally created. Action plan enabled by EA. FCERM GiA bid made in March 2014	EA - Cumbria Highways, Innovia	P1, P2, P4, P5
Millhouse	A floodbank protects 9 properties from the River Caldew at Millhouse but there is also a highways flooding issue. Cumbria Highways have installed large gullies and extra pipework to try and deal with the overland flows but some properties are still vulnerable in extreme rainfall events.	Embankment asset is failing but no funding currently available. Potential to reduce length of embankment and give more space to the river. Community is looking into contributions in kind. FCERM GiA bid made March 2014.	EA	P1, P2, P5
Flimby – Penny Gill	Development at Rye Hill Farm has interrupted an overland flow route near Penny Gill increasing flood risk to school drive.	Potential to re-route Penny Gill to remove flooding problem but would need contribution from site development in the area. CCC's Planning Obligations Policy outlines the expectations on developers to make contributions secured through s.106 Agreements.	EA - ABC, UU	P1, P2, P3, P4
Braithwaite – Coledale Beck	Coledale Beck at Braithwaite has a flooding threshold of approximately 30 years. Benefits are insufficient to develop a scheme.	Maintenance carried out to maximise flow in watercourse. Gravel trap emptied once a year – more if required.	EA	P1, P2
Harrington – River Wyre	Ongoing issues with flooding from the River Wyre. Watercourse is maintained by EA. Feasibility project completed but not cost beneficial.	Continued monitoring by MSfWG. Reconstruction of existing walls, investigation of existing reservoir and other structures along watercourse - FCERM GiA bid made March 2014.	EA - MSfWG	P1, P2, P4, P5

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Waver & Wampool	Waver and Wampool Land Drainage Futures project.	On-going with EA removing resources from Land Drainage	EA	P1, P2, P4, P5
Brigham	Flooding to old pub in village. Complex problem from two existing quarries now used for commercial vehicles and a caravan site respectively. Outflow rout from quarry has become blocked. New outlet required.	Levels required to prove new outfall route as solution to surface water flooding.	LLFA - MSFWG	P1, P2, P4, P5
West Newton, Crookhurst Beck	Property Level Protection	FCERM GiA bid made in March 2014	EA	P1, P2, P5

Eden

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Schemes (no defined Wet Areas)				
Newbiggin	Groundwater / surface water flooding. Water collects in a field swallow hole which overtops and floods properties.	Solutions to resolve flooding are difficult to identify.	LLFA - EDC	P1, P2, P5
Patterdale	Whilst one area is a Main River issue there are a number of sites in the Patterdale area which flood from surface water flooding. This is a direct result of run-off from the hills.	It is unclear whether much can be done because of the topography and the relatively few properties affected at each location. Maybe education, awareness and PLP.MSfWG actions on-going.	LLFA - EDC	P1, P2, P4, P5
Appleby	Flood gate replacement	FCERM GiA made March 2014	EA	P1
Penrith	Flood risk from Thacka Beck has been reduced through a flood alleviation scheme, reducing the main risk of flooding.	Residual flood risk may be an issue, specifically surface water not being able to access Thacka Beck culvert. Monitoring during heavy rain in Penrith will help to identify whether or not a problem exists here. ACT/EA engaging with communities to raise awareness of residual risk of surface water flooding and develop Community Action Plan. EA made a FCERM GiA bid for pumping station investigation March 2014.	LLFA - EA, EDC	All
Gamblesby	Generally has not experienced regular flooding but there are historic reports, however, occurred 3 times during 2012 and 2013.	Recent events do warrant investigation and survey of highway drainage systems. Parish Councils have identified measures that might help to reduce flood risk. Flood Investigation Report published by the LLFA. Some improvement works carried out by Community and Cumbria Highways. FCERM GiA bid March 2014 to investigate feasibility of upstream flood storage.	LLFA - Cumbria Highways, UU & Parish Councils	P1, P2, P4, P5

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Pooley Bridge	Finkle Street has a well-established flooding problem that has a UU and surface water/highway aspect. Main river and highway issues exist on the opposite side of the River Eamont at the point it outfalls from Ullswater. All problems are associated with high lake levels which prevent drainage systems from discharging.	On the B5320 - investigations made and flood relief system in place. UU, Cumbria Highways and LLFA need to identify appropriate solution for Finkle Street. MSfWG are continuing to work with the community to reduce the risk of flooding. EA FCERM GiA bid for PLP made March 2014.	LLFA - UU, EDC, Cumbria Highways, EA	All
Renwick	Flooding of up to 9 properties from surcharging of watercourse and culverts through village in June 2012 and May 2013.	Flood Investigation Report published by the LLFA. Further investigation required into culvert condition, capacity and riparian ownership. FCERM GiA bid made March 2014. MSfWG actions on-going.	LLFA – UU, EDC, Cumbria Highways	P1, P2, P4, P5
Hoff	Surface water flooding of 4 properties	FCERM GiA bid made March 2014 for PLP. Cumbria Highways also investigating possible ways of reducing risk. Scheme to be progressed when funding available.	LLFA – Cumbria Highways	P1, P2, P4
Threlkeld	Old dam on Gate Gill Beck in poor condition posing flood risk to those downstream. Constructed for historic mining industry so pollution risk also a consideration.	Successful FCERM GiA bid made June 2013. Scheme starts December 2014	EA	P1, P2, P4
Alston	Surface water runoff and watercourse surcharge resulted in over 30 properties flooding in May 2013.	Flood Forum held to consult with community in October 2013. Flood investigation report currently being finalised, Autumn 2014. Funding bid to be made to North-East Regional Flood & Coastal Committee.	LLFA – EA, Northumbrian Water, EDC	P2, P4, P5
Croglin	Surface water flooding from surrounding fells and from Croglin Beck. 4 properties affected.	FCERM GiA bid made in March 2014.	LLFA – Cumbria Highways, EDC	P1, P2, P5
Crosby Ravensworth	Property level protection	FCERM GiA bid made in March 2014.	EA	P1, P2, P5
Eamont Bridge, River Eamont	Flood alleviation scheme based on walls and embankments	FCERM GiA bid made in March 2014.	EA	P1, P2, P5
Great Asby, Asby Beck	Property level protection	FCERM GiA bid made in March 2014.	EA	P1, P2, P5

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Bomby and Bampton, River Lowther	Property level protection	FCERM GiA bid made in March 2014.	EA	P1, P2, P5
Lazonby, Harrow Beck	Works to existing culvert and access crossings in order to improve conveyance	FCERM GiA bid made in March 2014.	EA	P1
Maulds Meaburn, River Lyvennet	Property level protection	FCERM GiA bid made in March 2014.	EA	P1, P2, P5
Morland Beck, Morland	Property level protection	FCERM GiA bid made in March 2014.	EA	P1, P2, P5
North Petteril, Greystoke	Property level protection	FCERM GiA bid made in March 2014.	EA	P1, P2, P5
Soulby, Scandal Beck	Property level protection	FCERM GiA bid made in March 2014.	EA	P1, P2, P5

Carlisle

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Schemes (no defined Wet Areas)				
Cumrew	Flooding of properties from exceedance of watercourse and surface water.	LLFA Flood Investigation Report published. FCERM GiA bid made March 2014 for study. MSfWG actions on-going.	LLFA – Cumbria Highways	P1, P2, P4, P5
Gosling Syke	Historic funding due to culverted watercourse downstream. Area above culverted section is an area where future housing development is likely to take place. Also surface water flooding of properties at California Road which may impact on flows in Gosling Syke.	EA have identified upstream storage scheme and FCERM GiA bid made March 2014. Contributions may become available when future development takes place. LLFA investigating flooding issues at California Road.	EA – LLFA	All
Low Crosby	Overtopping of the River Eden	EA scheme has been completed. There is a remaining residual surface water risk. FCERM GiA bid made March 2014 for scheme to provide pumping equipment for residual surface water risk Scheme to be progressed when funding available.	LLFA – EA, Carlisle CC	P1, P2, P4, P5

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Great Corby	Ordinary Watercourse and surface water / highway flooding to 6 properties.	Surface water. MSfWG actions on-going.	LLFA – Carlisle CC	P1, P2, P4, P5
California Rd Carlisle	Surface water flooding from fields and runoff from new housing	Road and land drainage improvements. LLFA producing investigation report following flooding in July 2013.	LLFA - Cumbria Highways	P2, P2, P5
Wetheral	Drainage issues causing internal property flooding to between 5 and 10 houses.	UU installed pump in sewer to reduce surcharging of foul sewers. LLFA published Flood Investigation Report. MSfWG actions on-going	LLFA – Carlisle CC, UU	All
Cummersdale	River flooding from the River Caldew to industry site.	FCERM GiA bid made March 2014	EA - LLFA	P1, P4
Brampton Beck, Brampton	Flood alleviation scheme based on upstream storage & possible culvert improvements	FCERM GiA bid made in March 2014	EA	P1, P2, P4, P5
Stockdalewath, River Roe	Catchment based approach to flood risk management	FCERM GiA bid made in March 2014	EA -LLFA, Eden Rivers Trust	P1, P2, P4, P5
Warwick Bridge, Trout Beck mill leat	Flood embankment along mill leat on Cairn Beck	FCERM GiA bid made in March 2014	EA	P1

South Lakeland

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Wet Areas				
Windermere	There have been historic flooding problems throughout Windermere due to inadequate surface water drainage systems. UU's combined sewer system receives runoff from unofficial sources meaning that they system lacks capacity during heavy rainfall events. New development could compound these if surface water management is not adequately considered. UU is currently undertaking a study to identify the main areas of risk and potential solutions.	Future development is likely to increase these problems as SuDS will be difficult to implement due to lack of space and ground conditions. Green space should be allowed for in development proposals to account for surface water flood flow pathways.	SLDC – LLFA,	P1, P3, P4
Ulverston	Area to the south of Swarthmoor and Croftlands (Park Head Road) and the associated sub catchment has had historic drainage problems. The line has been drawn to encompass the development allocations in this area and make some consideration of the sub-catchments. Another area for consideration is the area between Dragley Beck and the Ulverston Canal where low lying land has drainage problems, often exacerbated by high tides and river levels in Dragley Beck.	For new development, surface water runoff should be retained as close to new developments as possible. Lower density development should be considered in order to accommodate SuDS. Green spaces should be allowed for within development masterplans. It is recommended that the recorded flood extents are used to inform development layouts and locations of SuDS measures. Alternatively, existing structures such as Ulverston canal could be used for the storage of surface water on a larger scale.	SLDC - LLFA	P1, P2, P3, P4
Kendal	A number of small catchments drain the hilly area to the east of Kendal and result in watercourses that flow from east to west across the urban boundary, many of them in culvert. The topography and geology results in attenuation of peak flood flows into these catchments which provides a natural flood risk management function. This natural attenuation needs to be preserved or replicated as new development takes place.	New development sites should look to preserve and utilise as many of the existing landscape features as possible these will help to recreate the natural greenfield run off processes.	SLDC – LLFA	P1, P3

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Schemes in Wet Areas				
North Lonsdale Terrace – Ulverston	Flood risk in this location is heavily linked to Dragley Beck (main river). Direct flooding from Dragley Beck to the North Lonsdale Road area is mitigated by a flood defence bund. However. The low lying, flat topography means that the existing drainage system struggles to get a gravity outfall. The drainage system here includes UU sewers, highway drainage and minor watercourses that have been culverted and built over. During heavy rainfall events, surface water enters the UU sewers, causing them to surcharge. During the November 2009 flood event, the bund was bypassed and the sewers surcharged, 109 properties were flooded.	<p>Some intervention is economically beneficial although the cost benefit ratio is low. Property level protection or redirecting some of the surface water sewers appears to be the best options.</p> <p>Potential for development gain. CCC's Planning Obligations Policy outlines the expectations on developers to make contributions secured through s.106 Agreements.</p> <p>MSfWG continuing to work together to complete actions when funding becomes available.</p> <p>FCERM GiA bid for investigation and study work made in March 2014.</p>	LLFA EA – SLDC, Ulverston FAG, UU, Ulverston Canal owners, landowners/ developers	P1, P2, P3, P4
North Lonsdale Road – Ulverston	In this area, there are problems relating to the disused Ulverston Canal. In the North Lonsdale Terrace area (Honeypot Estate), the highway outfalls are unable to discharge into the canal due to siltation. This causes surcharging and surface water flooding in the surrounding area. The flood extents and depths are not as significant as in North Lonsdale Road, but this is a pure surface water flooding problem. This area has also been highlighted due to the potential future development in the area. Future development may take place either side of the canal, adjacent to the Honeypot Estate. The natural surface water outfall for the new development would be the canal. This solution is therefore linked to the North Lonsdale Road canal storage option.	<p>Works are required to improve the capacity of the canal to allow a free discharge during flood events, or new drainage arrangements for the existing and proposed development. Stakeholders should be encouraged to partner in a plan for this area that should include the following issues: surface water discharge into the Canal and backing up, leakage from the canal, surface water recommendations for the development of land around the canal.</p> <p>Extensive works to be undertaken in the area to improve drainage and river issues by the EA. MSfWG continue to monitor and investigate various drainage issues in this location.</p>	LLFA – SLDC Ulverston FAG, UU, Ulverston Canal owners, landowners/ developers	All
Arrad Marsh/ Canal Foot, Ulverston	South Lakeland Coastal Strategy	FCERM GiA bid for study work made in March 2014	EA - SLDC	All

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Beckside Road – Ulverston	Surface water flood flows that pass over Old Hall Road and then along Beckside Road. The source of the flood water is a mill race.	Due to the number of properties at risk and the severity of flooding, only small scale intervention would be appropriate. The capacity of the highway culvert should be assessed and options for increasing its capacity should be considered.	LLFA – EA, SLDC	P1, P2, P4, P5
Ulverston Town Beck	Flooding from Town Beck	Flood alleviation scheme. Start on site Spring 2015. Scheme construction phase to reduce flooding to 184 homes and 116 business premises. FCERM GiA Bid made for Ulverston FRM Scheme March 2014	EA	P1, P4,
Ulverston Urban Drainage	Study to investigate flood risk issues of development sites on southern fringe of town	FCERM GiA bid made in March 2014	LLFA - EA, SLDC, UU	P1, P2, P3, P4
Hallgarth, Kendal	Residential estate with surface water and sewer flooding issues. Extensive flooding to properties in June 2012.	Survey and inspection of sewer and highway drainage network. Identification of key flood storage and flood flow routes i.e. off Acre Moss Road. Property level resilience measures. Extensive sewer infrastructure improvements carried out by UU. Progress in all areas of recommendations. LLFA has published a Flood Investigation Report. MSfWG actions on-going	LLFA, - UU, SLDC	All
Kendal, River Kent	Review of existing flood alleviation scheme	FCERM GiA bid made in March 2014	EA	P1
Carrus Green, Kendal	Surface water flooding risk to 10 potential properties	FCERM GiA bid made March 2014.	LLFA	P1, P2, P4
Windermere (Craig Walk) Meadow Beck	Meadow Beck (Main River) is the main source but there are other sources inc. drainage, highway and sewers which flood 7 residential properties.	Culvert has been replaced by EA. Craig Walk still has issues with residual surface water risk.	EA – LLFA, SLDC	P1, P4

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Schemes outside Wet Areas				
Grange-over-Sands	A culvert that is part main river and part ordinary watercourse and highway drainage surcharges and floods around 22 properties off Windermere Road.	Flood relief culvert through railway underpass has been constructed as per pre-feasibility report. Also options looked at are upland storage above Windermere Road towards Hazel Bank where the water course is culverted. Works in February 2014 to CCTV the drains from the businesses into the ornamental pond opposite and take levels to find a correlation between cellar flooding and the levels of the pond when in flood. FCERM GiA bid made March 2014.	EA – LLFA, developers, SLDC	P1, P2, P3, P4
Grasmere	Blockage of certain culverts is resulting in more water entering the River Rothay above Grasmere. Under 10 properties at risk.	Flood alleviation scheme based on walls and channel re-profiling / restoration including high level flood relief channel. FCERM GiA bid made March 2014. UU investigating possibility of replacing/relining the sewers. Both EA and UU works subject to funding availability.	LLFA – SLDC, LDNPA, UU and EA.	P1, P2, P4
Troutbeck Bridge	Predominantly main river flooding (Bell Beck) up to 12 properties flooded including a school and hotel.	Predominantly a main river issue but highway works also required. MSfWG continuing to work with FAG to review various options to protect properties. FAG also has contribution for scheme. FCERM GiA bid made March 2014 for culvert capacity improvements.	EA – LLFA, SLDC LDNPA	P1, P2, P4, P5
Coniston, Church Beck	Property Level Protection	FCERM GiA bid made in March 2014	EA	P1, P2, P5
Fisher Beck, Ambleside	Property Level Protection	FCERM GiA bid made in March 2014	EA	P1, P2, P5
Stock Ghyll, Ambleside	Property Level Protection and flood resistance measures	FCERM GiA bid made in March 2014	EA	P1, P2, P5

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Millness	Channel conveyance and flood flow routing lead to 3 properties flooding. This is a complex situation. Ordinary water course/ canal/ main river. Highway and property flooding. Problem extends to School Houses upstream of the Lancaster Canal and there is a highway aspect to this as road conveys and stores flood water which cannot subsequently return to the watercourse.	Minor gravel removal works investigated. Highway verge works along road past School Houses to ensure flood water can return to channel of Skip Beck. LLFA produced a Flood Investigation Report that was delivered to the communities of Millness and School Houses in November 2013. MSfWG actions on-going.	LLFA – SLDC, EA, canal owner.	P1, P2, P4, P5
Burneside (Steels Row, Bridge Street)	Drainage, sewers and surface water occurs every 2-3 years flooding 5 residential properties.	UU working on solution and non-return valve (NRV) installed and aim to divert surface water downstream of NRV. Wall on Bridge Street repaired by EA. SLDC investigating culvert that comes through Croppers Mill. MSfWG continuing to work with FAG to progress works to reduce flood risk.	LLFA – SLDC, EA, UU	P1, P2, P4, P5
Beck Side	Flooding to properties from surface water runoff from surrounding high ground. Numerous highway interventions to intercept flows made in the past.	Highway drainage improvements made in Low Beckside. LLFA Flood Investigation report delivered to community in October 2014. FCERM GiA bid made in March 2014 for PLP. MSfWG actions on-going	LLFA – Cumbria Highways; SLDC; landowners.	P1, P2, P4, P5
Staveley	Properties at risk of flooding from River Gowan/River Kent and surface water.	LLFA have delivered Flood Investigation report to community regarding surface water flooding event that occurred in 2012. EA have carried out works in 2013 on River Kent upstream of Staveley to reduce the levels and reconnect the river to its flood plains. Repairs required to damaged weir to be investigated.	LLFA – EA	P1, P2, P5

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Milnthorpe, Strands River Bela	Tidal flooding in 2013	FCERM GiA bid made March 2014	EA - LLFA, SLDC	P1, P2, P4, P5
Lindale Beck, Grange-over-Sands	Works to existing culvert and access crossings in order to improve conveyance	FCERM GiA bid made in March 2014.	EA	P1
Lyth Valley	Lyth Valley Drainage Futures project	On-going with EA removing resources from land drainage	EA	P1, P2, P4, P5

Barrow

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Schemes (no defined Wet Areas)				
Walney South	Problem occurs during heavy rainfall. Gullies unable to cope with flood waters between Falmouth Street and Bristol Street resulting in the flooding of 4 properties.	UU have been undertaking some studies in this area.	LLFA – BBC, UU	P1, P2, P4, P5
Dalton-in-Furness	Extensive flooding across town centre and Newton Road in 2012. Goose Green is at risk of flooding from Hagg Ghyll and Poaka Beck. Property flooding in cul-de-sacs off Hollygate Road from surface water.	Some improvements have been made. Culvert cleansing complete and CCTV survey carried out. Improvements on-going. Flood Investigation Report delivered to the community in October 2014 by the LLFA. MSfWG working to identify works to reduce flood risk. Works will be subject to funding availability. FCERM GiA bid made March 2014 - Poaka Beck flood alleviation scheme.	LLFA – BBC, EA, Cumbria Highways, UU.	P1, P2, P4, P5
Mill Beck, Barrow in Furness	Study/investigation	FCERM GiA bid made in March 2014	EA	P1, P2
Roa Island	Flood defence replacement & improvement scheme	FCERM GiA bid made in March 2014	BBC -EA	P1, P4

Copeland

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Wet Areas				
Whitehaven	The topography and geology of Whitehaven results in an extensive area at risk from surface water and sewer system flooding along the Pow Beck Valley. This area would be sensitive to any additional flows as a result of future development. Urban extents and hydraulic boundaries have formed boundary of a Wet Area which includes Moresby Parks.	Future development in the Kells / Woodhouse / Marchon area should drain to the sea to the west or via an attenuated system to Rottington Beck to the south. Disposal of surface water to the combined or foul sewer network should be prevented. The drainage in Whitehaven is a combined system to West Strand Pumping station, during intense rain the pumping station can surcharge causing flooding to the lower part of Whitehaven. Any failure at West Strand pumping station during rainfall could be critical to flooding.	CBC - LLFA, EA, UU	All
Schemes in Wet Areas				
Mirehouse, Whitehaven	The high water table and high levels on Pow Beck result in backing up and surcharging of the surface water drainage system and smaller watercourses. Many of the problems are related to private sewers, but UU have had sewer flooding problems. Direct surface water runoff from fields can also cause property flooding. The mining legacy in this area also contributes to the drainage complexities in this area.	It is not conclusively clear that any one solution would resolve the problems in Mirehouse, it will probably require a combination of measures and planning controls to manage the flood risk in this location. MSfWG actions on-going.	LLFA, EA - UU, CBC	All
Parton, nr Whitehaven	A culverted ordinary watercourses (Lambhill Gill) passes through the village of Parton and can surcharge, possibly due to tide locking, blockage and inadequate culvert capacity. This has flooded between 20 and 30 properties in the lower part of the village.	MSfWG decision on next steps. Participating in community investigations and discussions throughout 2014. FCERM GiA bid made in March 2014 for investigation works and study.	LLFA – quarry owners, CBC, Parton PC.	P1, P2, P4, P5

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Coach Road, Whitehaven	This is a low lying area to the east of Pow Beck, downstream of Mirehouse. The lack of capacity in the combined system and backing up from Pow Beck can cause flooding. Although the impact of flooding is not significant, the regularity of flooding (every year) means intervention is necessary.	Property level protection appears to be the most cost beneficial approach for reducing risk to properties. However, the highway will still be liable to flooding and this may be a key objective for the MSfWG.	LLFA, UU - CBC, EA	All
Whitehaven -Springfield Avenue.	During heavy rain, the combined system surcharges a manhole causing flooding to properties in 3 separate areas.	Monitoring continues in the MSfWG. LLFA investigation made.	LLFA - CBC, UU	P1, P2, P4
Whitehaven Town Centre - Harbour roads	Heavy rain over Whitehaven town centre has resulted in flooding of retail and residential premises, including cellars.	Further investigations are required so that the source of flooding can be clearly defined. EA led investigations with harbour authorities undertaken. LLFA Flood Investigation Report to be produced.	EA, LLFA - Cumbria Highways, UU	All
Moresby Parks	Flooding occurs to individual properties through poor surface water drainage capacity and lack of attention to drainage provision from recent development.	MSfWG has carried numerous investigations in the area. Flooding to properties in 2012. FCERM GiA bid made in March 2014 for investigatory works and study.	MSfWG - LLFA, UU	P1, P2, P4 & P5
East Whitehaven culverts	Overland flows from high ground on the east side of Whitehaven surcharge culverts contributing to flooding in the town centre.	FCERM GiA bid made in March 2014 for investigatory works and study.	LLFA - Cumbria Highways	P1, P2, P4 & P5
Whitehaven	Coastal erosion & flooding protection	FCERM GiA bid made in March 2014	CBC - EA	P1, P4

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Schemes outside Wet Areas				
Orgill Estate, Egremont.	Extensive flooding to a large number of properties on this housing estate occurred in 2012. Results from surface water runoff from agricultural land above the estate and lack of capacity of Skirting Beck culvert which flows under it. Skirting Beck is a main river and the capacity issues are being addressed by the EA.	LLFA support in recovery plan post-2012 floods; highway drainage and Whang Beck culvert investigations; identifying costs and funding sources for PLP. Cumbria Highways have completed various measures to control overland flow routes and divert water away from vulnerable areas. Recording of different drainage systems and relevant responsibilities are on-going. Flood defence measures introduced to protect Church View estate from surface water flooding complete December 2013. EA carrying out optioneering for Skirting and Whangs Becks – contract awarded January 2014.	LLFA – EA, Cumbria Highways; CBC; UU; Home Group Housing Assn.; Two Castles Housing Assn.; landowners.	All
Ravenglass	Various locations across the village suffering from surface water flooding, sheet run-off, sewer, highway drainage related issues.	Extensive flooding in 2012. LLFA Flood Investigation Report published. Highway drainage improvements proposed. FCERM GiA bid made March 2014 for surface water drainage study. Cumbria Highways have carried out various drainage improvements to sections of drainage in the village including 2 overflow systems onto the foreshore.	LLFA - Cumbria Highways, UU, LDNPA	P1, P2, P4, P5
St Bees	Various locations across the village suffering from surface water flooding, sheet run-off and highway drainage related issues	Extensive flooding in 2012. LLFA Flood Investigation Report published. Investigations and liaison with landowners to reduce surface water runoff continuing,	LLFA - County Highways, 3rd party asset owners	P1, P2, P4, P5
Seascale	Surface water flooding and culvert surcharging at Fairways and Santon Way. Surcharging culvert at Railway terrace.	Extensive flooding in 2012. LLFA Flood Investigation Report published. Initial investigations in advance of 2 FCERM GiA bids March 2014.	LLFA - Cumbria Highways, Network Rail, CBC, landowners, UU	All
Black Beck, Millom	Property Level Protection	FCERM GiA bid made in March 2014	EA	P1, P2, P5

Location	Issue	Actions and progress	Lead Organisation and Partners	Policies served
Gosforth	A number of locations across Gosforth and Wellington areas. Issues around culverts, surface water runoff and highway related issues	Extensive flooding in 2012. LLFA Flood Investigation Report published. FCERM GiA bid made March 2014. Cumbria Highways have carried out improvements in the village to the highway drainage.	LLFA - Cumbria Highways, 3rd party asset owners	All
Ennerdale Bridge Croasdale Beck	Property Level Protection	FCERM GiA bid made in March 2014	EA	P1, P2, P5
St. Bees, Seamill	Coastal erosion protection	FCERM GiA bid made in March 2014	CBC - EA	P1, P4
Seascale	Coastal erosion protection	FCERM GiA bid made in March 2014	CBC - EA	P1, P4
Various, nr. Egremont	How Man, nr. Egremont; Springfield, Middletown; Townend Farm, Caulderton; Gill Cottage, nr. Middletown. Properties in the above locations suffered repeated flooding in 2012 as a result of extensive surface water runoff from adjacent agricultural land. Cumbria LLFA will work with a wide range of partners to influence land management practices to reduce the risk of flooding.	LLFA produced flood investigation reports for all of these locations listed in consultation with residents and communities. Associated highway drainage infrastructure at each location has been investigated. Discussions to be held with Natural England and river catchment host partner organisations to identify a way forward.	LLFA – Cumbria Highways; CBC; National Farmers Union landowners; EA & Natural England land management specialists.	P1, P2, P4, P5

Table D.3. Flood 'Hotspots' and priorities by area

West

Allerdale		Copeland	
High	12	High	27
Medium	25	Medium	18
Low	16	Low	17
Total	53	Total	62

East

Carlisle		Eden	
High	5	High	9
Medium	8	Medium	8
Low	20	Low	5
Total	33	Total	22

South

South Lakeland		Barrow	
High	9	High	6
Medium	31	Medium	17
Low	18	Low	1
Total	58	Total	24

The location of the Hotspots currently managed by the MSfWGs can be viewed here:

http://hims.cumbria.gov.uk/wip3_no_login/map.aspx?cg=lfrm

MSFWG investigation priority

A priority has been devised for dealing with Hotspots: -

- High
 - o Internal flooding of five or more properties during a single event or internal flooding of one or more properties that has been experienced on more than one occasion in a 10 year period or there is a risk to life as a result of flooding.
- Medium
 - o All other internal flooding that does not meet the criteria above
- Low
 - o External flooding (including gardens, driveways and detached garages/sheds)

**Local Flood Risk Management
Environment and Community Services
Cumbria County Council
Parkhouse Building
Kingmoor Business Park
Carlisle CA6 4SJ
Tel: 01228 221330
lfrm@cumbria.gov.uk**