

# Gloucestershire County Council

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## Local Flood Risk Management Strategy

Annual Progress and  
Implementation Plan  
2017/18

## Document Status

This annual progress and implementation plan has been produced to consider progress against actions in the adopted Local Flood Risk Management Strategy, and to identify proposed measures to manage flood risk in the county for the forthcoming year.

### Amendment Record:

Revision	Description	Date	Signed
1	First Draft	August	PS
2	Second Draft	October	DP
3	Third Draft	November	SE

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# 1. Introduction

1. Gloucestershire County Council's Local Flood Risk Management Strategy was adopted in 2014. It identified the extent of flooding in Gloucestershire, established priorities for managing flooding, and identified how GCC will work together with Risk Management Authorities (RMAs)<sup>1</sup>, other stakeholders, and local communities to manage flood risk. It is important to note, that in keeping with our statutory duties, the Strategy focused on flooding from surface runoff, groundwater and ordinary watercourses, whilst considering the linkages with other sources of flooding. However, as part of our leadership role, we identified flood risk which is the operational responsibility of other organisations and will continue to work closely in partnership to support reduction in flood risk across the county irrespective of source. The Strategy was made up of several documents, which are outlined in Table 1-1 below.

**Table 1-1 Documents generated as part of the Local Strategy**

Name of Document	Purpose of document and summary of contents
Main Document	This is the main strategy document which details the objectives of the Local Strategy and our approach to working in partnership. It also sets out our understanding of flood risk and how we'll prioritise investment in specific locations. It considers broad actions we will take with our partners across the county to manage flood risk. This is supported by a series of Annexes which deal with some of the key issues in detail.
Summary Document	This provides an overview of the Local Strategy, including the background, key roles and responsibilities, and actions to manage flood risk.
Annual progress and implementation plan	Because there will inevitably be legislative, regulatory and financial changes over this period, GCC will need to maintain some flexibility over the delivery period of the Local Strategy. To reflect future uncertainty and maintain flexibility, GCC will develop and maintain an 'annual progress and implementation plan'. The annual progress and implementation plan will provide more specific details on: progress against the Local Strategy objectives; changes which impact the delivery of the Local Strategy (e.g. funding opportunities or legislative changes), and the priorities for investment for the forthcoming year.
Strategic Environmental Assessment (SEA) Environmental Report	The SEA is a process for considering the potential environmental impacts of addressing flood risk.

<sup>1</sup> Risk Management Authorities are defined in the Flood and Water Management Act as the LLFA, district/borough councils, the Environment Agency, water and sewerage companies, the highway authorities and Internal Drainage Boards. Their roles are discussed in Section 2 of the Local Strategy.

2. The Main Document and Summary document provided an overview of the objectives for managing flood risk, set out the key roles and responsibilities, identified the extent of flood risk, and identified actions we will take in partnership with others to reduce flood risk. The actions we proposed were divided into those we will take across Gloucestershire and those we will take in specific locations prioritised by the level of flood risk and cost benefits.

3. As part of the Strategy we outlined the need for an 'annual progress and implementation plan' which would set out:

- a summary of progress since the previous annual progress and implementation plan was published;
- an up to date prioritisation list based on most vulnerable locations<sup>2</sup> for the forthcoming year, and;
- an up to date list of the actions carried out in each parish.

4. This document is the annual progress and implementation plan. It sets out the actions we intend to take subject to available resource and funding. It considers those actions we propose to take across Gloucestershire and those we will take in specific locations prioritised by the level of flood risk.

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<sup>2</sup> This could be based on new information being available due to better modelling and mapping, or a flood incident within a parish or ward.

## 2. Actions we propose to take across Gloucestershire

5. The Main Document of the Strategy identified actions we will take across Gloucestershire to manage and reduce flood risk, and ensure we have appropriate processes and procedures in place. Table 2-1 summarises the agreed actions, the progress to date, and the proposed activities for the forthcoming year to meet these actions. Since the publication of the Main Document, these actions have been altered to take in to account legislative and policy changes by Government, and progress made by the LLFA.

**Table 2-1 Progress against proposed action across Gloucestershire**

Measures	Responsibility	How will we measure success	Timescale for action	Progress (from Summer 2016)	Planned activities 2017/2018
Undertake further studies to improve our understanding of local flood risk, and in response to flooding incidents	GCC in partnership with RMAs	Completion of studies which identify potential mitigation measures to alleviate flooding. Further hydraulic modelling to understand future risks due to climate change	Ongoing with annual progress updates to assess whether objective is being delivered.	<ul style="list-style-type: none"> <li>The second phase of a study into possible flood alleviation schemes in Cirencester was completed in July 2017. GCC will work with partners to decide and fund the most appropriate schemes from the report.</li> </ul>	<ul style="list-style-type: none"> <li>Continuing investigations into reports of flooding and potential flood schemes.</li> </ul>
Undertake S.19 Investigations (of flooding incidents) where criteria are met. The purpose of these investigations is to establish the relevant RMA and whether they have responded appropriately. The criteria for a S.19 investigation is 5 or more properties flooded, 2 or more businesses flooded, 1 critical service flooded, whether there are safety concerns or a transport link is impassable for a significant period.	GCC in partnership with RMAs	Completion and publication of S.19 Investigations	Ongoing	<ul style="list-style-type: none"> <li>GCC carried out one Section 19 investigation in Leckhampton Ward, Cheltenham following severe rainfall in June 2016. See website for details: <a href="http://www.gloucestershire.gov.uk/your-community/emergencies-and-your-safety/flooding-and-drainage/">http://www.gloucestershire.gov.uk/your-community/emergencies-and-your-safety/flooding-and-drainage/</a></li> </ul>	<ul style="list-style-type: none"> <li>Undertake S.19 Investigations when appropriate within 3 months of flooding which meet the criteria.</li> </ul>
Deliver consenting and enforcement role in relation to the Land Drainage Act 1991 and the Flood and Water Management Act 2010. This responsibility has been delegated to the district and borough councils except for Gloucester City which GCC still hold.	GCC in partnership with RMAs	Consent applications will be subject to rigorous scrutiny prior to approval / rejection Enforcement action will be undertaken when necessary and must comply with protocol	Ongoing	<ul style="list-style-type: none"> <li>No changes made to the consenting and enforcement procedure since the previous Annual Progress and Implementation Plan.</li> <li>GCC in continuous discussion with the district councils regarding the procedure and any issues that arise.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to work with the district councils to monitor consenting and enforcement activities.</li> </ul>
Develop consistent approach for designating structures	GCC in partnership with RMAs	Agreed protocol between designating authorities	Ongoing	<ul style="list-style-type: none"> <li>To date, GCC have not designated any structures so no clear procedure has been developed.</li> </ul>	<ul style="list-style-type: none"> <li>Draft designation procedure.</li> </ul>
Collate flood data from parish councils and other RMAs onto the Flood Data Register (FDR)	GCC in partnership with RMAs	Establishment of process to collate additional data. Collection of additional flood data	Ongoing	<ul style="list-style-type: none"> <li>The district councils are in agreement to update the FDR when a report of a flood is made and when an asset is identified.</li> </ul>	<ul style="list-style-type: none"> <li>GCC is upgrading the FDR. It is working towards an online flood data collection service called SWIM (Severe Weather Information Management System). It has been developed by Dorset County Council in partnership with the Environment Agency and allows members of the public, as well as officers, to record instances of flooding and will hopefully, over time, give a more comprehensive picture of the highest risk areas in the county.</li> </ul>
Seek to increase funding from external sources	GCC in partnership with RMAs	Seek to increase in external contributions towards funding applications over the next 5 years	Ongoing	<ul style="list-style-type: none"> <li>We continue to work with the Environment Agency and other organisations to encourage partnership working and funding.</li> <li>Successful applications for contributions from the Regional Flood and Coastal Committee Local Levy</li> </ul>	<ul style="list-style-type: none"> <li>Continue to seek to secure external sources of funding for all schemes, projects, investigations and studies.</li> </ul>

				include the Priors/Oakley scheme.	
Populate S.21 Asset Register	GCC in partnership with RMAs	S.21 Asset Register populated and available for public inspection	Ongoing	<ul style="list-style-type: none"> <li>There are currently 177 registered assets in Gloucestershire.</li> <li>The asset register (in spreadsheet format) is available for public inspection upon request.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to work with RMAs to add further records to the asset register where appropriate.</li> </ul>
Undertake ditch mapping and clearance with parish councils	GCC in partnership with district and parish councils	<p>Targeted parishes and wards have more comprehensive mapping of location and condition of drainage ditches, including pinch points.</p> <p>More drainage ditches across the county being cleared by riparian owners</p>	Ongoing	<ul style="list-style-type: none"> <li>In 2017 11 parishes have been engaged with and have been provided maps to aid in watercourse maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to raise awareness of the importance of watercourse maintenance with parish councils.</li> <li>Explore potential in partnership work with Gloucestershire Rural Community Council.</li> </ul>
Statutory consultee to all Local Planning Authorities for major developments	GCC	Provide statutory consultee comments on surface water management and surface water flood risk for all major planning applications in Gloucestershire to the relevant Local Planning Authority (LPA)	Ongoing	<ul style="list-style-type: none"> <li>A Gloucestershire SuDS Design and Maintenance Guide has been produced and is available at: <a href="http://www.gloucestershire.gov.uk/extra/CHttpHandler.ashx?id=63334&amp;p=0">http://www.gloucestershire.gov.uk/extra/CHttpHandler.ashx?id=63334&amp;p=0</a></li> </ul>	<ul style="list-style-type: none"> <li>Continue with statutory consultee role.</li> <li>Continue to provide pre-application advice within resources available.</li> </ul>
Raise awareness of flood risk management	GCC in partnership with district councils and the Environment Agency	Increase in amount of media activity related to flood risk management	Ongoing	<ul style="list-style-type: none"> <li>GCC in partnership with the Flood Advisory Service (FAS) and the EA attended two public events to raise awareness of flooding; Gloucester Carnival on 22nd July 2017 and the Police Open Day on 16th September 2017. This was to mark the 10 year anniversary of the 2007 floods and raise awareness of the continued risk of flooding. The Police Open Day was more focused on what protective measures people could make to their property to protect against flooding. We also contributed to the leaflet for the service at Gloucester Cathedral.</li> </ul>	<ul style="list-style-type: none"> <li>An “Ask-an-Expert” campaign is taking place at the start of December 2017. This will allow members of the public the opportunity to ask questions about flood risk to a member of our staff. The campaign will be carried out over social media and will be assisted by the Civil Protection Team and the EA.</li> <li>This campaign will be accompanied by a press release on being flood prepared and watercourse maintenance including a video by Cllr Vernon Smith.</li> <li>When SWIM has been introduced (see collating flood data section above) there will be promotional material released to ensure the public are aware of it.</li> </ul>
Meet regularly with Risk Management Authorities and ensure good lines of communication between organisations	GCC in partnership with RMAs	By the frequency and attendance of the meetings	Ongoing	<ul style="list-style-type: none"> <li>These meetings have been carrying on throughout the year and have been a useful way to update the RMAs on the work that is ongoing.</li> </ul>	<ul style="list-style-type: none"> <li>Hold 4 monthly LLFA liaisons meeting with all district councils and relevant parties present.</li> <li>Hold 6 to 8 week meeting with all district and borough council drainage engineers.</li> </ul>
Work with Civil Protection Team (CPT) to raise awareness of flooding and ensure joined up approach	GCC	Evidence of local communities becoming more prepared for flooding (e.g. preparation of community flood plans). Civil Protection Team have access to latest mapping to inform planning	Ongoing	<ul style="list-style-type: none"> <li>Members of the Flood Risk Management Team and the CPT attended an away day to test the government mapping system, which is being developed.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to work alongside CPT and attend any of their promotional events throughout the year.</li> </ul>
Apply a robust scoring matrix for prioritising a rolling programme of works	GCC	Schemes are developed and funded based on most at risk and cost effectiveness	Ongoing	<ul style="list-style-type: none"> <li>To encourage partnership working, an extra parameter has been incorporated into the PFAS list that gives schemes with more external funding a higher score. Details can be found in Table 5-2 <b>PFAS list partnership scoring</b> below.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to the monitor and adjust the scoring matrix as appropriate.</li> </ul>
Keep parish prioritisation up to date	GCC	Ranked parishes based on flood risk that reflects known flood issues and most recent flood maps	Ongoing	<ul style="list-style-type: none"> <li>The parish prioritisation is regularly updated to reflect additions of flood reports to the Flood Data Register as well as progress to flood alleviation schemes.</li> <li>The modelled data will be updated following any significant upgrades to flood models.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to update the prioritisation list as before</li> <li>The new data from SWIM will need to be incorporated into the prioritisation and may require some changes being made.</li> </ul>

## 3. Location-specific actions

### 3.1. Parish prioritisation

6. Parish prioritisation is a method used to help understand and investigate flood risk in Gloucestershire. It uses the flood reports from the FDR, modelled flood risk and previous flood alleviation work to rank parishes based on their relative risk<sup>3</sup>. It is regularly updated to include new information and the latest table is shown in Table 3-1.

7. Once a flood alleviation scheme has been completed in a parish, the risk is revised and shown as “-”. This helps keep track of which areas have had flood alleviation work and which still require investigating. It doesn’t mean the risk in the whole parish has been resolved.

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<sup>3</sup> Details of the scoring system can be found in the Annual Progress and Implementation Plan 2016-17: <http://www.gloucestershire.gov.uk/your-community/emergencies-and-your-safety/flooding-and-drainage/gloucestershire-county-councils-local-flood-risk-management-strategy-lfrms/>



**Table 3-1**      **Prioritised Parishes and Wards**

Parish or Ward	District	FDR number of reports of internal flooding	FDR number of properties affected	uFMfSW number of high risk properties (1 in 30 year)	Initial Calculated Risk	Revised calculated risk	Actions
Abbeydale Ward	Gloucester	Less than 5	Less than 5	Less than 5	Medium-Low	Medium-High	Scheme in progress
Adlestrop CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Alderley CP	Stroud	Less than 5	Less than 5	50 - 75	Low	Low	-
Alderton CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Low	Low	-
Aldsworth CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Alkington CP	Stroud	5 - 25	5 - 25	50 - 75	Medium-Low	Medium-Low	-
All Saints Ward	Cheltenham	Less than 5	Less than 5	Less than 5	Medium-Low	Medium-Low	-
Alvington CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
Ampney Crucis CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Ampney St. Mary CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Ampney St. Peter CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Andoversford CP	Cotswold	Less than 5	5 - 25	50 - 75	Medium-Low	Medium-Low	Study complete
Arlingham CP	Stroud	Less than 5	Less than 5	50 - 75	Medium-Low	Medium-High	-
Ashchurch Rural CP	Tewkesbury	Less than 5	Less than 5	75 - 100	Medium-Low	Medium-Low	Study complete
Ashleworth CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Medium-Low	-
Ashley CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Aston Subedge CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Avening CP	Cotswold	Less than 5	Less than 5	50 - 75	Low	Medium-Low	-
Awre CP	Forest	Less than 5	5 - 25	75 - 100	Medium-High	High	Study complete
Aylburton CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
Badgeworth CP	Tewkesbury	Less than 5	Less than 5	Greater than 100	Medium-Low	Medium-High	SWMP complete
Bagendon CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Barnsley CP	Cotswold	Less than 5	5 - 25	Less than 5	Low	Low	-
Barnwood Ward	Gloucester	Less than 5	5 - 25	5 - 25	Medium-High	High	Scheme in progress
Barrington CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Barton and Tredworth Ward	Gloucester	Less than 5	Less than 5	Greater than 100	High	High	SWMP complete
Batsford CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Battledown Ward	Cheltenham	Less than 5	50 - 75	Less than 5	Medium-Low	Medium-Low	-
Baunton CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Benhall and the Reddings Ward	Cheltenham	Less than 5	Less than 5	Less than 5	Low	Low	-
Berkeley CP	Stroud	Less than 5	Less than 5	5 - 25	Low	Medium-Low	-
Beverston CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Bibury CP	Cotswold	Less than 5	5 - 25	5 - 25	Low	Low	-
Bishop's Cleeve CP	Tewkesbury	Less than 5	Less than 5	Greater than 100	Medium-High	Medium-High	Scheme in progress
Bisley-with-Lypiatt CP	Stroud	5 - 25	5 - 25	50 - 75	Medium-Low	Medium-Low	-
Blaisdon CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
Bledington CP	Cotswold	Less than 5	5 - 25	75 - 100	Medium-Low	-	Scheme complete
Blockley CP	Cotswold	Less than 5	Less than 5	Greater than 100	Medium-High	-	Scheme complete
Boddington CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Medium-Low	-
Bourton-on-the-Hill CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Bourton-on-the-Water CP	Cotswold	Less than 5	Greater than 100	Greater than 100	High	-	Scheme complete
Boxwell with Leighterton CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Brimpsfield CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Brimscombe and Thrupp CP	Stroud	Less than 5	Less than 5	Greater than 100	Medium-High	Medium-High	-
Broadwell CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Brockworth CP	Tewkesbury	Less than 5	Less than 5	Greater than 100	Medium-Low	Medium-Low	Scheme in progress
Bromesberrow CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
Brookthorpe-with-Whaddon CP	Stroud	Less than 5	Less than 5	50 - 75	Low	Low	SWMP complete
Buckland CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Low	Low	-
Cainscross CP	Stroud	5 - 25	50 - 75	Greater than 100	High	High	Scheme in progress
Cam CP	Stroud	5 - 25	5 - 25	Greater than 100	Medium-High	Medium-High	Study complete
Chaceley CP	Tewkesbury	Less than 5	5 - 25	5 - 25	Low	-	Scheme complete
Chalford CP	Stroud	5 - 25	5 - 25	Greater than 100	Medium-High	High	-
Charlton Kings Ward	Cheltenham	Less than 5	Less than 5	50 - 75	Medium-High	-	Scheme complete
Charlton Park Ward	Cheltenham	Less than 5	Less than 5	5 - 25	Medium-High	Medium-High	-
Chedworth CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Cherington CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Chipping Campden CP	Cotswold	Less than 5	Greater than 100	Greater than 100	High	-	Scheme complete
Churcham CP	Forest	Less than 5	Less than 5	50 - 75	Low	Low	-
Churchdown CP	Tewkesbury	Less than 5	Less than 5	Greater than 100	Medium-High	Medium-High	Scheme in progress

\*The “Calculated Risk” remains the same for parishes or wards where a flood alleviation scheme has not been completed. A “Revised Calculated Risk” takes into account where schemes have been completed to address known flood risk issues, this is signified by a “-”. The remainder of the parishes and wards are reprioritised accordingly.

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Cinderford CP	Forest	Less than 5	5 - 25	Greater than 100	Medium-High	-	Scheme complete
Cirencester CP	Cotswold	5 - 25	Greater than 100	Greater than 100	High	High	Scheme in progress
Clapton CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Coaley CP	Stroud	Less than 5	Less than 5	50 - 75	Low	Medium-Low	-
Coates CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Coberley CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Cold Aston CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Coleford CP	Forest	Less than 5	Less than 5	Greater than 100	High	-	Scheme complete
Colesbourne CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
College Ward	Cheltenham	Less than 5	Greater than 100	50 - 75	High	-	Scheme complete
Coln St. Aldwyns CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Coln St. Dennis CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Compton Abdale CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Condicote CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Corse CP	Forest	Less than 5	Less than 5	50 - 75	Low	Low	-
Cowley CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Cranham CP	Stroud	Less than 5	Less than 5	Less than 5	Low	Low	-
Cutsdean CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Daglingworth CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Deerhurst CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	-	Scheme complete
Didmarton CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Donnington CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Dowdeswell CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Down Ampney CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Down Hatherley CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	SWMP complete
Driffild CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Drybrook CP	Forest	Less than 5	Less than 5	Greater than 100	Medium-Low	Medium-Low	-
Dumbleton CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Low	Low	-
Duntisbourne Abbots CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Duntisbourne Rouse CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Dursley CP	Stroud	5 - 25	5 - 25	Greater than 100	Medium-High	High	-
Dymock CP	Forest	Less than 5	Less than 5	50 - 75	Low	Medium-Low	-
Eastington CP	Stroud	5 - 25	5 - 25	50 - 75	Medium-Low	Medium-High	-
Eastleach CP	Cotswold	Less than 5	5 - 25	5 - 25	Low	Low	-
Ebrington CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Edgeworth CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Elkstone CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Elmbridge Ward	Gloucester	Less than 5	Greater than 100	5 - 25	Medium-High	-	Scheme complete
Elmore CP	Stroud	Less than 5	Less than 5	Less than 5	Low	Medium-Low	-
Elmstone Hardwicke CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
English Bicknor CP	Forest	Less than 5	Less than 5	Less than 5	Low	Low	-
Evenlode CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Fairford CP	Cotswold	Less than 5	Greater than 100	50 - 75	High	-	Scheme complete
Farmington CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Forthampton CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
Frampton on Severn CP	Stroud	5 - 25	5 - 25	5 - 25	Medium-High	-	Scheme complete
Fretherne with Saul CP	Stroud	Less than 5	Less than 5	5 - 25	Medium-High	Medium-High	-
Frocester CP	Stroud	5 - 25	50 - 75	5 - 25	Low	Low	-
Gorsley and Kilcot CP	Forest	Less than 5	Less than 5	Less than 5	Low	Low	-
Gotherington CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
Grange Ward	Gloucester	Less than 5	Greater than 100	5 - 25	Medium-High	Medium-High	SWMP complete
Great Rissington CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Great Witcombe CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	SWMP complete
Gretton CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
Guiting Power CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Ham and Stone CP	Stroud	Less than 5	Less than 5	50 - 75	Medium-Low	Medium-Low	-
Hamfallow CP	Stroud	5 - 25	5 - 25	50 - 75	Medium-Low	Medium-Low	-
Hampnett CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Hardwicke CP	Stroud	Less than 5	5 - 25	50 - 75	Medium-Low	Medium-Low	SWMP complete
Harescombe CP	Stroud	Less than 5	Less than 5	5 - 25	Low	Low	-
Haresfield CP	Stroud	5 - 25	5 - 25	50 - 75	Low	Low	-
Hartpur CP	Forest	Less than 5	Less than 5	50 - 75	Low	Low	-
Hasfield CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
Hatherop CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Hawling CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
Hazleton CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Hesters Way Ward	Cheltenham	Less than 5	Less than 5	Less than 5	Low	Medium-Low	-

\*The “Calculated Risk” remains the same for parishes or wards where a flood alleviation scheme has not been completed. A “Revised Calculated Risk” takes into account where schemes have been completed to address known flood risk issues, this is signified by a “-”. The remainder of the parishes and wards are reprioritised accordingly.

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Hewelsfield and Brockweir CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
Highnam CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Medium-Low	-
Hillesley and Tresham CP	Stroud	Less than 5	Less than 5	50 - 75	Low	Low	-
Hinton CP	Stroud	Less than 5	Less than 5	50 - 75	Low	Medium-Low	-
Horsley CP	Stroud	Less than 5	Less than 5	5 - 25	Low	Low	-
Hucclecote CP	Tewkesbury	Less than 5	Less than 5	Less than 5	Low	Low	-
Hucclecote Ward	Gloucester	Less than 5	50 - 75	5 - 25	Medium-High	Medium-High	Scheme in progress
Huntley CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
Icomb CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Innsworth CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Medium-Low	SWMP complete
Kemble CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Kempley CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
Kempsford CP	Cotswold	Less than 5	50 - 75	50 - 75	Medium-Low	-	Scheme complete
King's Stanley CP	Stroud	5 - 25	5 - 25	5 - 25	Medium-Low	Medium-Low	-
Kingscote CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Kingsholm and Wotton Ward	Gloucester	5 - 25	Greater than 100	5 - 25	High	High	-
Kingswood CP	Stroud	Less than 5	5 - 25	75 - 100	Medium-Low	Medium-High	-
Lansdown Ward	Cheltenham	Less than 5	Less than 5	5 - 25	Medium-High	High	SWMP complete
Lechlade CP	Cotswold	Less than 5	Greater than 100	5 - 25	High	-	Scheme complete
Leckhampton Ward	Cheltenham	Less than 5	5 - 25	Less than 5	Medium-Low	Medium-Low	-
Leigh CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	-	Scheme complete
Leonard Stanley CP	Stroud	5 - 25	5 - 25	5 - 25	Medium-Low	Medium-Low	-
Little Rissington CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Littledean CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
Long Newnton CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Longborough CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Longford CP	Tewkesbury	5 - 25	5 - 25	Less than 5	Medium-High	Medium-High	SWMP complete
Longhope CP	Forest	Less than 5	5 - 25	75 - 100	Medium-Low	Medium-Low	-
Longlevens Ward	Gloucester	Less than 5	Greater than 100	Less than 5	High	High	SWMP complete
Longney and Epney CP	Stroud	Less than 5	Less than 5	Less than 5	Medium-Low	Medium-Low	-
Lower Slaughter CP	Cotswold	Less than 5	5 - 25	5 - 25	Low	-	Scheme complete
Lydbrook CP	Forest	5 - 25	5 - 25	Greater than 100	Medium-High	-	Scheme complete
Lydney CP	Forest	Less than 5	5 - 25	Greater than 100	High	-	Scheme complete
Maisemore CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
Maiseyhampton CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Matson and Robinswood Ward	Gloucester	Less than 5	Greater than 100	5 - 25	Medium-High	High	-
Maugersbury CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Mickleton CP	Cotswold	Less than 5	Less than 5	75 - 100	Medium-Low	Medium-Low	-
Minchinhampton CP	Stroud	5 - 25	5 - 25	Greater than 100	Medium-High	High	-
Minsterworth CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Medium-Low	Medium-Low	-
Miserden CP	Stroud	Less than 5	Less than 5	5 - 25	Low	Low	-
Mitcheldean CP	Forest	Less than 5	Less than 5	Greater than 100	Low	Medium-Low	Study complete
Moreland Ward	Gloucester	5 - 25	Greater than 100	5 - 25	High	High	Study complete
Moreton Valence CP	Stroud	Less than 5	Greater than 100	5 - 25	Medium-Low	Medium-Low	-
Moreton-in-Marsh CP	Cotswold	Less than 5	Less than 5	Greater than 100	High	-	Scheme complete
Nailsworth CP	Stroud	5 - 25	5 - 25	Greater than 100	High	High	Scheme in progress
Naunton CP	Cotswold	Less than 5	5 - 25	50 - 75	Low	Low	-
Newent CP	Forest	Less than 5	Less than 5	Greater than 100	Medium-High	Medium-High	Scheme in progress
Newland CP	Forest	Less than 5	Less than 5	50 - 75	Medium-Low	Medium-High	Study complete
Newnham CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
North Cerney CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
North Nibley CP	Stroud	Less than 5	Less than 5	5 - 25	Low	Low	-
Northleach with Eastington CP	Cotswold	Less than 5	5 - 25	50 - 75	Medium-Low	Medium-High	-
Northway CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Medium-Low	Medium-Low	SWMP complete
Norton CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	SWMP complete
Notgrove CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Nympsfield CP	Stroud	Less than 5	Less than 5	5 - 25	Low	Low	-
Oakley Ward	Cheltenham	Less than 5	Greater than 100	Less than 5	Medium-High	Medium-High	Scheme in progress
Oddington CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Owlpen CP	Stroud	Less than 5	Less than 5	Less than 5	Low	Low	-
Oxenhall CP	Forest	Less than 5	Less than 5	Less than 5	Low	Low	-
Oxenton CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Low	Low	-
Ozleworth CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Painswick CP	Stroud	5 - 25	5 - 25	50 - 75	Medium-Low	Medium-Low	-
Park Ward	Cheltenham	Less than 5	Less than 5	5 - 25	Medium-Low	Medium-Low	-
Pauntley CP	Forest	Less than 5	Less than 5	Less than 5	Low	Low	-
Pitchcombe CP	Stroud	Less than 5	Less than 5	Less than 5	Low	Low	-

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Pittville Ward	Cheltenham	Less than 5	Less than 5	50 - 75	Medium-Low	Medium-High	Study complete
Podsmead Ward	Gloucester	Less than 5	Greater than 100	5 - 25	Medium-Low	Medium-High	Scheme in progress
Poole Keynes CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Poultton CP	Cotswold	Less than 5	5 - 25	5 - 25	Low	Low	-
Prescott CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
Prestbury Ward	Cheltenham	Less than 5	5 - 25	Less than 5	Medium-Low	Medium-Low	-
Preston CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Quedgeley Fieldcourt Ward	Gloucester	5 - 25	5 - 25	Less than 5	Medium-Low	Medium-High	SWMP complete
Quedgeley Severn Vale Ward	Gloucester	Less than 5	Less than 5	Less than 5	Medium-Low	-	Scheme complete
Quenington CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Randwick CP	Stroud	5 - 25	5 - 25	5 - 25	Low	Low	-
Redmarley D'abitot CP	Forest	Less than 5	5 - 25	50 - 75	Low	Medium-Low	-
Rendcomb CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Rodborough CP	Stroud	Less than 5	Less than 5	50 - 75	Medium-High	Medium-High	-
Rodmarton CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Ruardean CP	Forest	Less than 5	Less than 5	Less than 5	Low	Low	-
Rudford and Highleadon CP	Forest	Less than 5	Less than 5	50 - 75	Low	Low	-
Ruspidge and Soudley CP	Forest	Less than 5	Less than 5	75 - 100	Medium-Low	Medium-High	-
Saintbury CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Sandhurst CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Medium-Low	Medium-Low	SWMP complete
Sapperton CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Sevenhampton CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Sezincote CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Sherborne CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Shipton CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Shipton Moyne CP	Cotswold	Less than 5	Less than 5	50 - 75	Low	Low	-
Shurdington CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Medium-Low	SWMP complete
Siddington CP	Cotswold	Less than 5	Less than 5	5 - 25	Medium-Low	Medium-High	-
Slimbridge CP	Stroud	Less than 5	5 - 25	5 - 25	Medium-Low	Medium-High	Scheme in progress
Snowhill CP	Tewkesbury	Less than 5	Less than 5	Less than 5	Low	Low	-
Somerford Keynes CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Medium-Low	-
South Cerney CP	Cotswold	5 - 25	5 - 25	5 - 25	High	-	Scheme complete
Southam CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Low	Low	SWMP complete
Southrop CP	Cotswold	Less than 5	5 - 25	5 - 25	Low	Low	-
Springbank Ward	Cheltenham	Less than 5	Greater than 100	Less than 5	High	High	-
St. Briavels CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
St. Mark's Ward	Cheltenham	Less than 5	Less than 5	Less than 5	Low	Medium-Low	-
St. Paul's Ward	Cheltenham	Less than 5	Less than 5	Less than 5	Low	Low	-
St. Peter's Ward	Cheltenham	Less than 5	Less than 5	Less than 5	Medium-Low	Medium-High	-
Standish CP	Stroud	Less than 5	5 - 25	50 - 75	Low	Low	-
Stanton CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
Stanway CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Low	Medium-Low	Study complete
Staunton Coleford CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
Staunton CP	Forest	Less than 5	Less than 5	50 - 75	Low	Low	-
Staverton CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Low	Low	-
Stinchcombe CP	Stroud	Less than 5	Less than 5	5 - 25	Low	Low	-
Stoke Orchard CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Low	Low	SWMP complete
Stonehouse CP	Stroud	5 - 25	75 - 100	75 - 100	Medium-High	High	-
Stow-on-the-Wold CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Stroud CP	Stroud	5 - 25	50 - 75	Greater than 100	High	High	Study complete
Sudeley CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
Swell CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Swindon Village Ward	Cheltenham	Less than 5	Less than 5	Less than 5	Medium-Low	-	Scheme complete
Syde CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Taynton CP	Forest	Less than 5	Less than 5	50 - 75	Low	Low	-
Teddington CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	-
Temple Guiting CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Tetbury CP	Cotswold	Less than 5	Less than 5	75 - 100	Medium-Low	Medium-High	Study complete
Tetbury Upton CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Tewkesbury CP	Tewkesbury	5 - 25	5 - 25	50 - 75	Medium-High	High	-
Tibberton CP	Forest	Less than 5	Less than 5	50 - 75	Low	Low	-
Tidenham CP	Forest	Less than 5	Less than 5	75 - 100	Medium-Low	Medium-Low	Study complete
Tirley CP	Tewkesbury	5 - 25	5 - 25	50 - 75	Medium-Low	-	Scheme complete
Toddington CP	Tewkesbury	Less than 5	Less than 5	50 - 75	Low	Low	-
Todenham CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Tuffley Ward	Gloucester	Less than 5	50 - 75	5 - 25	Medium-Low	Medium-Low	Scheme in progress
Turkdean CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-

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Twigworth CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Low	SWMP complete
Twyning CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Medium-Low	-
Uckington CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Medium-Low	-
Uley CP	Stroud	5 - 25	5 - 25	5 - 25	Low	Low	-
Up Hatherley Ward	Cheltenham	Less than 5	Less than 5	Less than 5	Low	Low	-
Upleadon CP	Forest	Less than 5	Less than 5	50 - 75	Low	Low	-
Upper Rissington CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Upper Slaughter CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Upton St. Leonards CP	Stroud	Less than 5	Less than 5	75 - 100	Medium-Low	Medium-Low	-
Warden Hill Ward	Cheltenham	Less than 5	Greater than 100	Less than 5	Medium-Low	Medium-High	-
West Dean CP	Forest	Less than 5	Less than 5	Greater than 100	Medium-Low	Medium-High	Study complete
Westbury-on-Severn CP	Forest	Less than 5	Less than 5	Greater than 100	High	High	Scheme in progress
Westcote CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Westgate Ward	Gloucester	Less than 5	Greater than 100	5 - 25	High	-	Scheme complete
Weston Subedge CP	Cotswold	Less than 5	5 - 25	75 - 100	Medium-Low	-	Scheme complete
Weston Subedge CP (DET)	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Westonbirt with Lasborough CP	Cotswold	Less than 5	Less than 5	50 - 75	Low	Low	-
Wheatpieces CP	Tewkesbury	Less than 5	Less than 5	5 - 25	Low	Medium-Low	SWMP complete
Whiteshill and Ruscombe CP	Stroud	Less than 5	Less than 5	Less than 5	Low	Low	-
Whitminster CP	Stroud	Less than 5	5 - 25	5 - 25	Low	Medium-Low	-
Whittington CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Wick Rissington CP	Cotswold	Less than 5	Less than 5	5 - 25	Low	Low	-
Willersey CP	Cotswold	Less than 5	50 - 75	50 - 75	Low	Low	Study complete
Winchcombe CP	Tewkesbury	Less than 5	Less than 5	Greater than 100	Medium-High	-	Scheme complete
Windrush CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Winson CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	-	Scheme complete
Winstone CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Withington CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-
Woodchester CP	Stroud	Less than 5	5 - 25	5 - 25	Low	Medium-Low	-
Woodmancote CP	Tewkesbury	Less than 5	Less than 5	75 - 100	Medium-Low	Medium-Low	SWMP complete
Woolaston CP	Forest	Less than 5	Less than 5	5 - 25	Low	Low	-
Wotton-under-Edge CP	Stroud	Less than 5	5 - 25	Greater than 100	Medium-High	High	Study complete
Yanworth CP	Cotswold	Less than 5	Less than 5	Less than 5	Low	Low	-

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### 3.2. Gloucestershire County Council Lead Schemes

8. The notable update to Gloucestershire County Council lead schemes is the two flood storage areas to the east of Cheltenham which will capture excess surface water from the Wymans Brook and Noverton Brook and restrict the amount of water entering the town to a safe volume. The scheme, which was developed from the Surface Water Management Plans, has been granted planning permission and work is being carried out to discharge the specified conditions. These conditions have produced unforeseen costs to the scheme, pushing it from £1.9M to approximately £2.6M. Construction of the scheme is currently scheduled to commence in January 2018.

9. Several other schemes from the Surface Water Management Plans are beginning to be implemented. In Bishops Cleeve, there will be a number of flood alleviation measures within the town centre to help mitigate surface water runoff from Cleeve Hill. Property Level Resilience measures are being considered for areas in Churchdown and Brockworth.

10. A scheme in Slimbridge to replace a culvert, which is causing flooding to a number of residents, with a new surface water pipe in the highway began on 11<sup>th</sup> September 2017. The scheme is being jointly funded by the Flood Risk Management Team, Gloucestershire County Council Highways, Severn Trent Water and the Environment Agency. It is due to be completed on 17<sup>th</sup> November 2017.

11. Finally, there are plans for a flood alleviation scheme to be incorporated into the redevelopment of the sports field at Blackbridge, Podsmead. The scheme will serve to protect properties at risk of surface water flooding downstream of the field as well as creating a community space with enhanced biodiversity aspects.

### 3.3. Flood Alleviation Schemes with Gloucestershire County Council Contributions

12. A number of flood alleviation schemes have been completed by the District and Borough Councils using contributions from GCC since last year's Annual Progress and Implementation Plan.

13. Forest of Dean District Council has completed a scheme to reduce flooding at Lakeside Avenue in Lydney. The scheme involved a number of measures including installing a flood relief culvert and the redesigning of a trash screen.

14. Cheltenham Borough Council has installed a flood defence bund and formed a flood storage area to protect properties in the Southfield Manor Estate in Charlton Kings Ward. The bunds will prevent surface water from entering the estate from adjacent fields and the storage area will hold excess water from the Southfield Brook.

15. A new trash screen was installed by Gloucester City Council on the Whaddon Brook at the entrance to the culvert as it passes underneath Stroud Road in Tuffley. The upgraded design will reduce the risk of the culvert blocking and has given easier access to clear the screen of debris. This is part of a larger scheme which is currently ongoing in the Stroud Road, Grange Road and Bybrook Road area.

16. A list of some of the completed schemes GCC has contributed to in the year can be found in Table 3-2 while Table 3-3 has a list of schemes GCC is contributing to that are currently ongoing.

Table 3-2 Completed flood alleviation schemes with Gloucestershire County Council contributions

Project Lead	Parish	Location	Scheme/Works description
Cheltenham Borough Council	Charlton Kings Ward	Southfield Brook, Charlton Kings	Southfield Brook flood alleviation scheme - flood bund and storage area.
Cotswold District Council	Moreton-in-Marsh CP	Moreton	Flood relief culvert & ditch improvements on Batsford Estate
Forest of Dean District Council	Lydney CP	Lakeside Avenue, Lydney	Upstream attenuation/flow reduction via rural SuDS, re-design of trash screen, reconnect downstream culvert pathway
Gloucestershire County Council	Hucclecote Ward	Trevor Road	Watercourse Clearance. Removal of vegetation and debris to improve flow.
	Quedgeley Severn Vale Ward	Quedgeley various sites	Watercourse clearance in 3 stretches in Quedgeley. Vegetation, culvert and debris removal to improve flow.
Lower Severn Internal Drainage Board	Slimbridge CP	Slimbridge	Watercourse clearing by IDB
Tewkesbury Borough Council	Chaceley CP	Chaceley	Watercourse diversion and clearing

Table 3-3 Current flood alleviation schemes with Gloucestershire County Council contributions

Project Lead	Parish	Location	Scheme/Works description
Gloucestershire County Council	Bishop's Cleeve CP	Bishop's Cleeve, Tewks	Surface Water Management Plan Scheme - a number of measures across the town centre
	Brockworth CP	Medway Crescent, Brockworth	Surface Water Management Plan Scheme - Property Level Resilience
	Churchdown CP	Anne Hatahway Drive, Churchdown	Surface Water Management Plan Scheme - Property Level Resilience
	Cirencester CP	Cirencester	Upstream catchment natural attenuation measures
	Hucclecote Ward	Appleton Way, Hucclecote	Optimising the flood storage at Appleton Way Lagoon as well as improving the conveyance of flood water over highway culverts on Green Lane, Brookfield Road and Millbridge Road.
	Nailsworth CP	George Street, Nailsworth	Investigation into flooding to properties from highway as a result of runoff from steep escarpment.
	Oakley Ward	Priors/Oakley	Surface Water Management Plan Scheme - Two large flood attenuation areas
	Podsmead Ward	Sports Complex SuDS, Podsmead	Incorporate SuDS into the drainage plan for the proposed sports complex development in order to hold enough flood water to alleviate risk downstream.
	Slimbridge CP	Slimbridge	Culvert remediation/improvement
	Westbury-On-Severn CP	Elton, Westbury-On-Severn	Improve existing culvert, install additional pipe culverts and improve channel
Forest of Dean District Council	Newent CP	Newent - Peacock Brook	Upstream attenuation/flow reduction via rural SuDS, redesign culvert
Gloucester City Council	Abbeydale Ward	Abbeydale downstream of Community Centre, River Twyver	Renaturalise channel. Removing concrete channel and replacing with a two stage channel with wetland plants.
	Barnwood Ward	Barnwood Park, Barnwood	Barnwood Park Balancing Pond improvement works
	Hucclecote Ward	Porchester Road, Hucclecote	Additional funding for Individual Property Protection for 9 properties.
	Tuffley Ward	Stroud Rd, Grange Rd, Bybrook Rd and Harwell Close, Tuffley	Earth bund extension, trash screen replacement and access path, and watercourse diversion.
Stroud District Council	Cainscross CP	Devereaux Crescent	Rural SuDS in upper catchment
	Nailsworth CP	Nailsworth Rural SuDS	Rural SuDS work to be continued in the Nailsworth Catchment.

### 3.4. Potential Future Schemes

17. The updated prioritised flood alleviations schemes list (PFAS) can be seen below. It is an ongoing task for the GCC Flood Risk Team to investigate the viability of the schemes on the list and either recommend them for future funding or remove them from the list. New schemes will be added to the list when requests for funding are made to GCC or when new schemes come to light. This means the list will continue to be altered and updated.

18. An extra parameter has been added to the scoring system to encourage partnership funding. Details of this can be found in section **5.2 Updates to Prioritisation Flood Alleviation Scheme List**. For details of how the list was developed see the Annual Progress and Implementation Plan 2016-17: <http://www.gloucestershire.gov.uk/your-community/emergencies-and-your-safety/flooding-and-drainage/gloucestershire-county-councils-local-flood-risk-management-strategy-lfrms/>.



**Table 3-4 Prioritised Flood Alleviation Scheme List**

Rank	District	Parish / ward	Location	Proposed method of alleviation	Number of properties at risk	Estimated Scheme Cost
1	Stroud	Stroud CP	Slad Road - Slad Brook Watercourse	Improvements to the Slad Brook watercourse	115	£283,500
2	Stroud	Stroud CP	Slad Road - Folly Lane	Divert flows from Folly Lane to the Painswick Stream	115	£546,260
3	Forest of Dean	Coleford CP	Coleford Town Centre	Install channel drains and a new drainage network in the centre of Coleford	179	£405,996
4	Stroud	Stroud CP	Slad Road - Slad Brook Culvert	Construct a sealed pipe drainage system from Folly Lane to the Slad Brook Culvert	115	£636,746
5	Forest of Dean	Mitcheldean CP	Mitcheldean - Baynham Road	Intercept surface runoff at Baynham Road and installation of SuDS storage	121	£781,632
6	Forest of Dean	Mitcheldean CP	Mitcheldean - Unnamed Watercourse	Interception of surface water runoff and convey to unnamed watercourse at A4136 highway	121	£1,114,521
7	Stroud	Wotton-under-Edge CP	Knapp Road and Locombe Place	Construct a flood bund above Hentley Tor and Worlds End Lane to divert flow	97	£853,349
8	Gloucester	Hucclecote Ward	Millbridge Rd and Porchester Rd - Culvert replacement	Replace Millbridge Road culvert and enlarge the downstream channel as far as Spencer Close	67	£247,050
9	Stroud	Chalford CP	Chalford Round House to Iles Mill	Dredge two pounds to remove heavy vegetation which fills water channel	16	£16,000
10	Gloucester	Hucclecote Ward	Green Lane - Highway culvert	Alter highway at the Green Lane culvert to allow flood water to re-enter the watercourse	26	£12,398
11	Forest of Dean	Newland CP	Clearwell	Reconstruct the canalised Valley Brook channel through Clearwell	45	£445,050
12	Cotswold	Andoversford CP	Hunter's way/Station Road - Culvert replacement	Culvert replacement	30	£100,617
13	Gloucester	Hucclecote Ward	Green Lane - Culvert removal	Remove the culverted section of Wootton Brook at Cousley Close	26	£29,325
13	Gloucester	Hucclecote Ward	Green Lane - Culvert replacement	Replace the Green Lane culvert with a larger culvert	26	£36,936
15	Cheltenham	Pittville Ward	Windsor Street and Little Cleevemount	Reduce road levels and create flood storage area in school playing field	38	£459,625
16	Gloucester	Podsmead Ward	Milton Avenue - Trash screen	Install a new trash screen to the open channel	21	£6,831
17	Cotswold	Willersey CP	The Quinary - Headwall	Reconstruct the headwall and wingwalls protruding into the watercourse	10	£16,560
18	Gloucester	Podsmead Ward	Milton Avenue - Drainage improvements	Improvements to the surface water drainage system and storage pond	21	£12,903
18	Gloucester	Podsmead Ward	Milton Avenue - Flow paths	Improvements to overland flow path at Milton Avenue	21	£15,028
20	Stroud	Stroud CP	Slad Road - Upper Catchment	Divert flows from the upper catchment towards Painswick Stream	115	£2,834,467
21	Gloucester	Hucclecote Ward	Brookfield Rd - Culvert replacement	Replace Brookfield Road culvert	18	£36,936
22	Forest of Dean	Mitcheldean CP	Mitcheldean - Industrial Estate	Construct a surface water pumping station at a low point in the industrial estate	121	£2,589,379
23	Forest of Dean	West Dean CP	Sling	Install drainage improvement measures	29	£221,169
24	Stroud	Chalford CP	Chalford	Watercourse management	5	£5,000
25	Stroud	Nailsworth CP	George Street - Gullies	Install a high capacity gully and new carrier drain to the Nailsworth Stream	19	£171,973
26	Cotswold	Andoversford CP	Centre of Andoversford and Coln Park	Increase upstream flood storage northwards of the disused railway embankment	81	£1,566,729
27	Stroud	Haresfield CP	Haresfields	Retro fitting of SuDs measures (i.e. rainwater gardens, etc) to reduce flooding issues	6	£11,600
28	Cotswold	Andoversford CP	Station Road and Gloucester Road - Flood defence walls	Construct flood defence walls and embankment	41	£1,050,655
29	Gloucester	Tuffley Ward	Langate House, Robinswood Hill, Tuffley	To retro-fit SUDS features including swales and ponds to provide attenuation and manage flows	6	£15,000
29	Gloucester	Tuffley Ward	Robinswood Hill - Stroud Road, Tuffley	To carry out drainage improvements on Robinswood Hill in addition to the construction of swales and a number of ponds to provide attenuation and storage	6	£15,000
31	Cotswold	Andoversford CP	Station Road and Gloucester Road - Property Level Protection	Install property level protection to at risk properties	37	£834,141
32	Stroud	Nailsworth CP	Brewery Lane - Property Level Protection	Install individual property level protection to the flood risk properties	34	£1,051,215
32	Stroud	Nailsworth CP	Brewery Lane - training walls	Replacement of upstream and downstream training walls with flood walls reaching higher level	34	£1,059,075

Rank	District	Parish / ward	Location	Proposed method of alleviation	Number of properties at risk	Estimated Scheme Cost
34	Cheltenham	Pittville Ward	Prestbury Road - light industrial units	Raised vehicle thresholds	36	£276,044
35	Tewkesbury	Ashchurch Rural CP	Aston-on-Carrant	Install high capacity gullies and drains to Carrant Brook	17	£223,788
36	Gloucester	Tuffley Ward	Forest View Road	Reinstating ditch which runs to the rear of properties	6	£20,000
37	Stroud	Wotton-under-Edge CP	Wortley Road - Commercial property	Replace the downstream culvert parapet wall with a guardrail and re-profile the highway	8	£70,780
38	Stroud	Nailsworth CP	Fountain Street and Tabrams Pitch - kerb re-setting	Re-set the kerb line along Fountains Road and install individual property protection	24	£344,735
38	Stroud	Nailsworth CP	Old Market and Spring Hill - Flood Walls	Construction of flood walls around the open channel section of the Nailsworth Stream	18	£265,275
38	Stroud	Nailsworth CP	Old Market and Spring Hill - Property Level Protection	Installation of individual property protection to the rear of the properties next to the bus terminus	18	£239,844
41	Stroud	Wotton-under-Edge CP	Holywell Road	Repair the existing masonry culvert	4	£14,400
42	Forest of Dean	Westbury-on-Severn CP	Elton	Improve existing culvert, install additional pipe culverts and improve channel	14	£158,355
43	Forest of Dean	Awre CP	Blakeney - Bridge Street	Remove the weir in Blackpool Brook located off Bridge Street	10	£1,065,188
43	Forest of Dean	Awre CP	Blakeney - Moorfield Avenue	Construct a flow control structure and flood defence embankment upstream of the old mill	10	£647,041
45	Gloucester	Hucclecote Ward	Millbridge Rd and Porchester Rd - Property Level Protection	Install property level protection to at risk properties	58	£1,099,032
46	Forest of Dean	Westbury-on-Severn CP	Broad oak - Pumping Station	Install a package pumping station and construct a flood storage area	21	£391,072
47	Forest of Dean	West Dean CP	Phipps Bottom and Whitecroft - Property Level Protection	Install flood protection measures to flood risk properties	9	£227,700
48	Forest of Dean	Newland CP	Redbrook - Property Level Protection	Install individual property level protection to the flood risk properties on Newland road	16	£471,339
49	Forest of Dean	West Dean CP	Parkend	Use the recreation ground for flood storage	39	£598,973
50	Tewkesbury	Ashchurch Rural CP	Natton - railway embankment	Construct a new culvert through the railway embankment	21	£259,586
51	Tewkesbury	Ashchurch Rural CP	Aston-on-Carrant West end of village	Construct a flood defence embankment at the western end of the village	17	£280,361
51	Tewkesbury	Ashchurch Rural CP	DSDC Ashchurch	Construct a new drainage system at the MoD site	62	£3,839,319
53	Forest of Dean	Westbury-on-Severn CP	Broad oak - Property Level Protection	Install property level protection to flood risk properties	11	£378,422
54	Cheltenham	Pittville Ward	Wellington Square	Package pumping station	7	£67,620
55	Cotswold	Andoversford CP	Hunter's Way - Flood defence embankment	Construct flood defence embankment upstream	30	£710,156
55	Cotswold	Andoversford CP	Hunter's way - Property Level Protection	Install property level protection to at risk properties	30	£702,075
57	Forest of Dean	West Dean CP	Phipps Bottom and Whitecroft - Whitecroft industrial units	Construct flood defence wall adjacent to the industrial units at Whitecroft	10	£310,824
58	Gloucester	Barton and Tredworth Ward	63 Jersey Road	The installation of individual property level protection measures	1	£5,000
59	Gloucester	Hucclecote Ward	Green Lane - Upstream flood storage	Increase upstream flood storage near Hathorn Road	26	£562,500
60	Forest of Dean	Westbury-on-Severn CP	Upper Ley - Embankment	Construct a flood defence embankment around the village	18	£545,695
61	Forest of Dean	Tidenham CP	Sedbury and Tidenham - Wyedean School	Interception and diversion of surface water flows from Wyedean School	17	£648,520
62	Gloucester	Podsmead Ward	Shelly Avenue, Tennyson Avenue and Shakespeare Avenue	Install individual property protection to the flood risk properties	38	£736,230
63	Gloucester	Hucclecote CP	57 & 59 Churchdown Lane, Hucclecote	The installation of individual property level protection measures	2	£10,000
64	Gloucester	Kingsholm and Wotton Ward	Castlevilla, Sandhurst Lane	The installation of an earth bund, flood barriers and pump.	2	£15,000
64	Stroud	Stroud CP	Wallbridge	Install high capacity gullies on Bath Road and install new kerbs at upper section of Wallbridge	6	£147,817
64	Stroud	Nailsworth CP	George Street - Property Level Protection	Individual property protection to the flood risk properties and package pumping station	13	£313,578
67	Gloucester	Hucclecote Ward	Green Lane - Property Level Protection	Install individual property protection to the flood risk properties	14	£286,143
68	Stroud	Cam CP	Alexandra Close	Excavate a deeper ditch and construct a new inlet headwall on the existing culvert	1	£5,063

Rank	District	Parish / ward	Location	Proposed method of alleviation	Number of properties at risk	Estimated Scheme Cost
69	Forest of Dean	Westbury-on-Severn CP	Upper Ley - Property Level Protection	Install property level protection to flood risk properties	9	£246,675
70	Cotswold	Willersey CP	The Quinary - Property Level Protection	Install individual property protection to the flood risk properties	10	£166,980
71	Forest of Dean	Tidenham CP	Sedbury and Tidenham - Day House Farm	Construct flood defence bund around Day House Farm	9	£506,394
72	Gloucester	Barton and Tredworth Ward	Tredworth School	Retro fitting of SuDs measures (i.e. rainwater gardens, etc) to reduce flooding issues.	2	£20,000
72	Gloucester	Matson and Robinswood Ward	Finlay Community School, Finlay Road	Retro fitting of SuDs measures (i.e. rainwater gardens, etc) to reduce flooding issues.	2	£20,000
72	Stroud	Wotton-under-Edge CP	Wortley Road - Dyers Brook	Replace the existing culvert and raise the downstream channel walls	8	£396,035
75	Gloucester	Hucclecote Ward	Brookfield Rd - Property Level Protection	Install property level protection to at risk properties	16	£368,115
76	Forest of Dean	West Dean CP	Bream	Install flood protection measures to flood risk properties	9	£227,700
77	Cotswold	Andoversford CP	Coln Park - Drain and pumping station	Install improved drainage and pumping station	24	£732,499
77	Cotswold	Andoversford CP	Coln Park - Property Level Protection	Install property level protection to properties at a risk of flooding	24	£527,505
77	Cotswold	Andoversford CP	Coln Park - Raise thresholds	Raise the thresholds of flood risk properties	24	£1,184,274
80	Cotswold	Willersey CP	Campden Lane - Property Level Protection	Install individual property protection to the flood risk properties	8	£242,880
80	Cotswold	Willersey CP	Campden Lane - Land drain	Install land drain, high capacity gullies and new drainage ditch	8	£185,742
82	Forest of Dean	Awre CP	Blakeney - Nibley	Construct a flood defence embankment to protect low lying properties at Nibley	6	£365,359
83	Tewkesbury	Ashchurch Rural CP	Natton	Construct a flood defence earthwork around the flood risk properties	21	£530,681
84	Stroud	Wotton-under-Edge CP	Wortley Road - Property Level Protection	Individual property protection to the flood risk properties	5	£140,415
85	Forest of Dean	Newland CP	Newland - Culvert	Excavate new channel and replace existing highway culvert	6	£177,758
85	Forest of Dean	Newland CP	Newland - Property Level Protection	Install individual property level protection to the flood risk properties	6	£151,800
87	Forest of Dean	Coleford CP	Crucible Close and Stepbridge Road	Improve drainage infrastructure at the Industrial estate	26	£661,644
88	Tewkesbury	Ashchurch Rural CP	Walton Cardiff - Brook Cottage	Install property level protection at Brook Cottage	1	£10,419
89	Tewkesbury	Stanway CP	Hailes	Construct a flood defence embankment around the flood risk property	17	£623,641
90	Forest of Dean	Westbury-on-Severn CP	Westbury-on-Severn - A48	Construct a new culvert under the A48 highway	5	£69,377
91	Stroud	Dursley CP	Caswell Mews	Watercourse realignment	1	£5,000
92	Cotswold	Willersey CP	Willersey Industrial Estate - Flood relief culvert	Install a flood relief culvert through the railway embankment	6	£283,378
92	Cotswold	Willersey CP	Willersey Industrial Estate - Property Level Protection	Install property level protection measures to the industrial units	6	£220,110
94	Forest of Dean	West Dean CP	Berry Hill	Construct flood bund, new culvert and outfall at The Gamekeeper's Inn	4	£245,811
94	Forest of Dean	Awre CP	Blakeney - Doctor's Surgery	Flood protection to the Doctor's surgery off Millend	1	£36,514
94	Stroud	Cam CP	Alexandra Close - Kingshill Lane	Improve surface water drainage along Kingshill Lane	1	£103,170
97	Cotswold	Andoversford CP	STW asset	Construct flood defence wall and embankment	1	£307,484
97	Tewkesbury	Ashchurch Rural CP	Walton Cardiff - M5	Restrict the volume of flow through the M5 culvert	1	£43,828
99	Forest of Dean	Westbury-on-Severn CP	Westbury-on-Severn - Railway Embankment	Constrict flows through the upstream culverts passing through the railway embankment	5	£77,625
99	Forest of Dean	Westbury-on-Severn CP	Westbury-on-Severn - Upstream of A48	Construct a flow control structure and flood defence embankment upstream of the A48 highway	5	£466,121

## 4. Preliminary Flood Risk Assessment Review

19. Under the Flood Risk Regulations 2009<sup>4</sup>, Gloucestershire County Council, as the LLFA, was required to undertake a Preliminary Flood Risk Assessment (PFRA) to identify the areas in Gloucestershire at significant flood risk. The first PFRA was completed in 2011<sup>5</sup> and should be reviewed every 6 years. Phase 1 of the PFRA review was completed and submitted to the Environment Agency by 22<sup>nd</sup> June 2017 for their evaluation by 22<sup>nd</sup> December 2017.

20. By using the latest surface water flood risk model “Risk of Flooding from Surface Water” (previously known as the “updated Flood Maps for Surface Water”), which was released in 2013, after the first PFRA, the review has shown that Gloucestershire now has an area at significant flood risk or a “Flood Risk Area” (FRA)<sup>6</sup>. The FRA is in Cheltenham town centre and covers the Wards of Lansdown, College, All Saints, Oakley and Charlton Park among others.

21. The FRA will be reviewed by the Environment Agency and, if it is decided the FRA should remain, GCC may be required to produce a Flood Hazard Map and a Flood Risk Map of the area. This will be made public either by GCC and/or by the Environment Agency.

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<sup>4</sup> Flood Risk Regulations 2009: <http://www.legislation.gov.uk/uksi/2009/3042/made>.

<sup>5</sup> The first PFRA report can be found at: <http://www.gloucestershire.gov.uk/roads-parking-and-rights-of-way/plans-policies-procedures-manuals/surface-water-management-plans/>.

<sup>6</sup> These are defined by 5 or more “blue squares” (a 1km square with either 200 or more people [number of residential properties x2.34 people], 20 or more non-residential properties or 1 or more key services [e.g. emergency services, hospitals, schools, utilities] at risk of flooding) are found within a 3x3 km grid.

## 5. Appendix

### 5.1. Table of definitions

**Table 5-1**      **Table of definitions**

	Definition
CPT	Civil Protection Team
EA	Environment Agency
FAS	Flood Advisory Service – a not for profit organisation who promote flood awareness.
FDR	Flood Data Register – an application used by the LLFA to record property flooding.
FRA	Flood Risk Area - an area which has 5 or more “blue squares” (a 1km square with either 200 or more people [number of residential properties x2.34 people], 20 or more non-residential properties or 1 or more key services [e.g. emergency services, hospitals, schools, utilities] at risk of flooding) are found within a 3x3 km grid.
GCC	Gloucestershire County Council
LLFA	Lead Local Flood Authority – Gloucestershire County Council was made the LLFA for Gloucestershire following the Flood and Water Management Act 2010.
PFRA	Preliminary Flood Risk Assessment - a countywide assessment of flood risk identifying high risk areas. This is to be reviewed every 6 years.
RMA	Risk Management Authority - are defined in the Flood and Water Management Act as the LLFA, district/borough councils, the Environment Agency, water and sewerage companies, the highway authorities and Internal Drainage Boards. Their roles are discussed in Section 2 of the Local Strategy.
RoFfSW	Risk of Flooding from Surface Water – formally the updated Flood Maps for Surface Water (uFMfSW), it is a national computer model demonstrating the risk of flooding from surface water across the country.
SEA	Strategic Environmental Assessment - a process for considering the potential environmental impacts of addressing flood risk.
SuDS	Sustainable Drainage System – a form of surface water drainage which tries to mimic the natural environment.
SWIM	Severe Weather Information Management – an online flood reporting system which allows members of the public to report flooding directly to the website.
SWMP	Surface Water Management Plan – a report completed in 2011 for several areas around Gloucestershire which investigates the surface water flooding in 2007 and with recommended alleviation measures.

## 5.2. Updates to Prioritisation Flood Alleviation Scheme List

22. To encourage partnership working and exploring external funding opportunities, an extra stage in the scoring matrix of the PFAS list has been added. This means schemes with external funding secured, i.e. GCC is not funding 100% of the scheme, will have a higher score than those being funded solely by GCC. This score is multiplied with the other parameters as detailed in the [Annual Progress and Implementation Plan 2016-17](#). Table 5-2 outlines the details of this update.

**Table 5-2 PFAS list partnership scoring**

GCC's Contribution (%)	Partnership Score
0-10	0.55
11-20	0.5
21-30	0.45
31-40	0.4
41-50	0.35
51-60	0.3
61-70	0.25
71-80	0.2
81-90	0.15
91-100	0.1