

**Flood Risk Management  
in  
Worcestershire  
  
Annual Report  
2016**

## Contents

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<b>GLOSSARY</b>	<b>3.</b>
<b>1. INTRODUCTION</b>	<b>4.</b>
<b>2. UNDERSTANDING AND PRIORITISING FLOOD RISK</b>	<b>5.</b>
2.1. Worcestershire Surface Water Management Plan	5.
2.2. Local Surface Water Management Plans	5.
2.3. Investigations	5.
<b>3. REDUCING THE LIKELIHOOD AND IMPACT OF FLOODING</b>	<b>6.</b>
3.1. Flood alleviation schemes	6.
3.2. Highway drainage improvement schemes	6.
3.3. Highway drainage maintenance	7.
3.4. Planning & Sustainable Drainage Systems	7.
3.5. Ordinary Watercourse management	7.
3.6. Main River management	8.
3.7. Natural solutions	9.
3.8. Sewerage system management	9.
3.9. Emergency planning and response	10.
<b>4. GOVERNANCE &amp; PARTNERSHIPS</b>	<b>11.</b>
4.1. Regional Flood & Coastal Committee	11.
4.2. Other groups, partnerships and fora	11.
<b>5. COMMUNICATIONS &amp; ENGAGEMENT</b>	<b>12.</b>
5.1. Flood groups	12.
5.2. Parish Lengthsmen	12.
5.3. Flood action campaign	12.
5.4. Web site	12.
<b>6. PLANS, POLICIES &amp; STRATEGIES</b>	<b>13.</b>
6.1. Local Flood Risk Management Strategy	13.
6.2. Other related plans, policies & strategies	13.
<b>7. FUTURE SCOPING</b>	<b>14.</b>
7.1. Future actions	14.
<b>APPENDIX 1. RISK MANAGEMENT AUTHORITY ROLES</b>	<b>15.</b>

## GLOSSARY

Acronym	Definition
CFMP	Catchment Flood Management Plan
CIL	Community Infrastructure Levy
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EU	European Union
FDGiA	Flood Defence Grant in Aid
FMfSW	Flood Map for Surface Water
FRM	Flood Risk Management
FRMSCG	Flood Risk Management Strategic Co-ordinating Group
FRR	Flood Risk Regulations
FWMA	Flood & Water Management Act 2010
GIS	Geographical Information System
HRA	Habitats Regulation Assessment
IDB	Internal Drainage Board
LEP	Local Economic Partnership
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
LRF	Local Resilience Forum
LSIDB	Lower Severn Internal Drainage Board
MAFP	Multi-agency Flood Plan
NFU	National Farmers Union
OWC	Ordinary Watercourse
PLP	Property Level Protection
PLR	Property Level Resilience
PFRA	Preliminary Flood Risk Assessment
RFCC	Regional Flood & Coastal Committee
RMA	Risk Management Authority
SAB	SUDS Approving Body
SEA	Strategic Environmental Assessment
SEP	Strategic Economic Plan
SFRA	Strategic Flood Risk Assessment
SLA	Service Level Agreement
STW	Severn Trent Water
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
SWDP	South Worcestershire Development Plan
WCC	Worcestershire County Council
WLDG	Worcestershire Land Drainage Group

## **1. INTRODUCTION**

The devastating floods in the north of England in early 2016 and the localised but significant surface water flooding in Worcestershire in March and June were a reminder of the importance of continued efforts to manage and reduce flood risk in Worcestershire.

Accordingly flood risk management has recently been re-confirmed as a high priority for Worcestershire County Council and it also remains a high priority for the other Risk Management Authorities ie the District Councils, the Environment Agency (EA), Severn Trent Water Ltd (STWL) and the Lower Severn Internal Drainage Board (LSIDB).

The statutory Local Flood Risk Management Strategy has recently been published after a comprehensive period of development and consultation amongst key partners, stakeholders and the public. The Strategy defines how flood risk will be managed in Worcestershire over the next five years.

During the last 12 months Worcestershire County Council and the District Councils have continued to scrutinise planning application drainage plans in order to ensure that new developments are at minimal risk of flooding and that they have a neutral or positive impact on flood risk elsewhere.

The potential to hold back and slow water down upstream of where it can have a negative impact has continued to be explored. In addition, natural solutions have increasingly been sought to getting water away downstream in a more sustainable way.

In the meantime the RMAs have worked increasingly closely with each other and with partners, local communities and landowners to deliver more flood alleviation schemes, monitor and manage watercourses and surface water, increase resilience and improve and maintain drainage, sewerage and flood defence infrastructure.

## **2. UNDERSTANDING AND PRIORITISING FLOOD RISK**

### **2.1. Worcestershire Surface Water Management Plan**

The Worcestershire Surface Water Management Plan (SWMP) provided the key evidence base for the Local Flood Risk Management Strategy (LFRMS). It identifies over 1,700 known floodspots across Worcestershire – each one a location where a flood is known to have occurred which had a negative impact on property, business or infrastructure.

Detailed information is held about each location which enables it to be prioritised in relation to all other locations and progress with mitigation actions to be monitored. This information is constantly updated as investigations are carried out, mitigation schemes completed and new floodspots identified.

The SWMP data has continued to help prioritise the procurement and deployment of resources and to inform plans for new infrastructure development.

Information about known past floodspots is currently being augmented by the identification and investigation of locations which haven't ever suffered from flooding but which are considered to be potentially at risk of flooding in the future.

### **2.2. Local Surface Water Management Plans**

Multi-RMA working groups have continued to assess and plan mitigation measures to address flooding where there are high concentrations of past and future potential floodspots.

A standard 'Local SWMP' process and reporting structure has been adopted and followed at a number of locations such as Bromsgrove, Droitwich, Hagley, Bournheath, Kemerton and Caunsall.

### **2.3. Investigations**

The RMAs have continued to carry out onsite and desk top investigations of hundreds of floodspots throughout the County to clarify how and why flooding occurred, confirm the impact and determine what, if any, interventions are appropriate. These investigations also help to confirm relevant roles, responsibilities, timescales and necessary resources.

In addition, more than 300 land drainage investigations and 1,500 highway drainage surveys and investigations have been carried out over the last 12 months.

### **3. REDUCING THE LIKELIHOOD AND IMPACT OF FLOODING**

#### **3.1. Flood alleviation schemes**

A number of flood alleviation schemes have been completed or further developed over the last 12 months reducing the risk of flooding to more properties, businesses and pieces of critical infrastructure. Locations include:

- Callow End
- Belbroughton
- Bewdley
- Bournheath
- Broadway
- Kidderminster
- Tibberton
- Wick

During the last year the RMAs have worked with the Regional Flood & Coastal Committee (RFCC) to secure a place within its Medium Term Plan for schemes worth over £5m and which will reduce the risk of flooding for a further 555 homes over the next 4 years. In addition, a number of schemes have been brought into the RFCC's project pipeline which will see this investment rise to over £7.5m and protect over 400 additional homes.

A GIS-based Register of FRM Schemes has been developed over the last 12 months which includes all recent, current and forthcoming schemes in Worcestershire. This is the first time that information about schemes being led by all of the RMAs has been captured and made visible in one place.

#### **3.2. Highway drainage improvement schemes**

60 more capital highway drainage improvement schemes have also been completed over the last 12 months bringing the total number to over 900.

In addition, delivery of the three year, Local Enterprise Partnership-funded programme of larger scale capital highway flood adaptation schemes has made good progress as follows:

- A44 Wood Norton - complete
- A44 Powick - complete
- A44 Craycombe – under way
- B4084 Pershore – on schedule for Spring 2017
- A44 Worcester - on schedule for Autumn 2017
- A4104 Upton-upon-Severn – on schedule for Autumn 2017

The schemes will increase the resilience of these key transport routes, helping to reduce congestion and ensure that Worcestershire stays open for business.

### 3.3. Highway drainage maintenance

Essential ongoing maintenance of highway drainage infrastructure has continued over the last 12 months. For example another 200 broken gully connections have been repaired over the last 12 months and more than 17,000 gullies emptied since April 2016.

### 3.4. Planning & Sustainable Drainage Systems (SuDS)

The RMAs have assessed and commented on the drainage plans of over 1,500 planning applications over the last 12 months.

In addition, local SuDS guidelines have been produced to augment the revised National Guidelines.

Other planning related work has included:

- Support for the South Worcestershire councils on the South Worcestershire Development Plan (SWDP)
- Ongoing discussion with Wyre Forest District Council on their revised Core Strategy
- Contribution to the development of Game Changer sites including Worcester Six, Redditch Eastern Gateway and the Efficient Infrastructure Report
- Contribution to the draft Infrastructure Strategy for the County and the Infrastructure Development Plans which support the emerging District Local Plans.
- Response to consultation on Neighbourhood Plans
- Contribution to the emerging Minerals Local Plan, and its water and flood risk management policies
- Contribution to key infrastructure projects such as:
  - Hoo Brook Link Road
  - Hartlebury EfW
  - Worcestershire Parkway
  - Norton Roundabout
  - Southern Link Road
  - Eastham Bridge

### 3.5. Ordinary Watercourse management

The District Council land drainage partnerships and the Lower Severn Internal Drainage Board have continued to ensure that the extensive network of smaller watercourses and ditches are appropriately managed.

This has been achieved through:

- the inspection of over 100km of the watercourse network
- liaison with riparian owners
- the effective delivery of land drainage consenting and powers including more than 50 applications processed and numerous others avoided by pre-application discussions

- the effective delivery of land drainage enforcement powers including more than 100 informal enforcement actions achieving satisfactory results and none requiring court proceedings
- direct maintenance by the LSIDB of 25km of watercourse in the Longdon and Eldersfield area of the County

### 3.6. **Main River management**

The Environment Agency has continued to deliver its responsibility for the management of flood risk on the 'Main Rivers' including:

- Further progression of the flood alleviation scheme on the Badsey Brook at Broadway
- Further investigation into the potential flood alleviation scheme at Severn Stoke
- Maintenance of existing flood defences and infrastructure
- Delivery of a wide range of improvements to existing flood defences
- Continued engagement with stakeholders and the public about future deployment of the temporary flood barriers at Beale's Corner in Bewdley
- Progression of the Property Level Resilience (PLR) scheme at Beale's Corner
- Further development of PLR schemes in Worcester, Himbleton, Evesham, Wickhamford and Droitwich

In its strategic role, the EA has, during the last 12 months:

- Implemented the new Environmental Permitting Regulations which replaced Land Drainage Consents. This included briefing and induction of the other RMAs
- Introduced and briefed RMAs about new climate change figures for the planning process
- Provided technical support and guidance on a number of major infrastructure projects
- Continued to bed in its new structure following removal of its regional layer of operations
- Administered and supported the Regional Flood & Coastal Committee
- Co-ordinated the ongoing review and development of the RFCC 6 year medium term plan of FRM schemes
- Led or contributed to a number of water quality / biodiversity enhancement projects
- Responded to planning application consultations
- Continued to implement the 'Rapid Response Catchment' project
- Carried out a range of incident response preparations

### 3.7. **Natural solutions**

Over the last 12 months the RMAs and other key partners, particularly those within the Local Nature Partnership, have

continued to explore ways in which water can be held back and slowed down upstream of where it has a negative impact.

A number of so called 'catchment based' initiatives have emerged which, in addition to reducing flood risk, have multiple potential benefits including improved biodiversity, landscape, water quality, soil quality and recreation.

The scope of these initiatives can vary significantly for example from the replacement of a highway gully with a small soakaway in the adjacent highway verge to the land management strategy for whole River Severn catchment.

Initiatives developed during the last 12 months include the Worcestershire Wildlife Trust led 'Love Your Rivers – Bromsgrove' project which aims to engage the community in the management and improvement of local watercourses and the HLF funded 'Vale Landscape Project' which will focus on a wide range of schemes in the Vale of Evesham.

At a strategic level WCC has continued to map the various initiatives which are underway in order to help improve co-ordination between them. At a tactical level WCC and its partners have continued to improve their familiarity with potential natural solution techniques, learning from initiatives such as the Stroud Valley Rural SuDS Project. At an operational level, upstream natural solutions are already being deployed at a number of locations and other potential sites are being investigated.

### **3.8. Sewerage system management**

Severn Trent Water Ltd has continued to deliver its flood risk management duties through a range of activities and schemes over the last 12 months, increasingly in collaboration with the other RMAs, including:

- Responding to and dealing with reports of sewer flooding – 85 internal sewer flooding and 588 external sewer flooding incidents dealt with in the Worcestershire & Gloucestershire area
- Monitoring and management of the sewerage network through telemetry, CCTV, asset surveys and hydraulic modelling
- Increasing the proactive sewer surveying, cleansing and repairing programme to reduce the risk of flooding from sewers
- Delivering customer education programmes to reduce the incidents of sewer misuse (incorrect items being disposed of into sewers) which can lead to blockages and flooding
- Responding to pre-planning developer enquiries seeking new connections to the sewerage system and responding to local planning authorities on planning applications

- Developing the feasibility of potential partnership flood alleviation schemes at Hagley, Bournheath, Beales Corner in Bewdley, Linnet Rise in Kidderminster and Upton upon Severn
- Developing other flood alleviation schemes at Broad Street in Bromsgrove, Childswickham and Kinsham
- Progressing proposals to increase the capacity of the sewerage system at Ryall and Malvern
- Installing Property Level Protection at 350 properties across the region including a number in Worcestershire
- Progressing capital maintenance projects at Madresfield and Droitwich
- Carrying out temporary pumping in accordance with multi-agency incident response plans at Bewdley Beales Corner, Upton-Upon-Severn, Worcester Hylton Road on three occasions between November 2015 and February 2016
- Updating and testing pumping plans in preparation for Winter 2016 / 17.
- Enhancing the pumps, sewerage system and incident response plans at Hylton Road in Worcester
- Supporting the Worcestershire Wildlife Trust, the Environment Agency and Bromsgrove DC with the Love your Rivers Bromsgrove project

### 3.9. **Emergency planning and response**

WCC and district council emergency planning and drainage officers have worked with other RMA partners, responders and the overarching West Mercia Local Resilience Forum in order to:

- Develop a network of local rain gauges to assist in future investigations and flood warning
- Finalise an updated and improved resilience plan for Beale's Corner in Bewdley
- Review and produce streamlined versions of the Multi-Agency Flood Plans
- Administer and support the Worcestershire Severe Weather Group
- Attend parish council emergency planning fora and work with local communities to develop local resilience plans
- Further develop individual organisation response plans
- Install more remote watercourse monitoring equipment
- Monitor and respond to watercourse gauge triggers
- Respond to localised flooding incidents
- Update sandbag policies
- Develop the Wyre Forest reservoir plan
- Develop the Dick Brook Rapid Response Catchment resilience plan

## **4. GOVERNANCE & PARTNERSHIPS**

### **4.1. Regional Flood & Coastal Committee**

The English Severn & Wye Regional Flood & Coastal Committee (RFCC) comprises elected representatives from each of the LLFAs within the catchment area along with a number of EA representatives and co-opted specialists.

The RFCC plays an important role in co-ordinating flood risk management including assessing proposed flood related schemes and allocating both Local Levy and Central Government Flood Defence Grant in Aid capital funding via its 6 year medium term plan of flood alleviation schemes.

The RFCC has met 5 times over the last 12 months.

### **4.2. Other groups, partnerships and fora**

Representatives from WCC, the district councils and often the other RMAs have attended meetings and fora including:

- Worcestershire FRM Strategic Coordinating Group
- Worcestershire Land Drainage Group
- District Council Land Drainage Partnership Boards
- EA / LLFA Networking Group
- The West Mercia LRF (Worcestershire) Severe Weather Group
- The Local Government Flood Forum
- The Local Nature Partnership
- The Worcestershire Green Infrastructure Partnership
- The Worcestershire Infrastructure Steering Group
- The Worcestershire Local Transport Board

## **5. COMMUNICATIONS & ENGAGEMENT**

### **5.1. Local flood groups**

Officers from the RMAs have worked closely with a number of community flood groups over the last 12 months and some examples include:

- Sedgeberrow about upstream catchment management on the River Isbourne
- Himbleton about drainage through the parish
- Astley about early warning systems on the Dick Brook and resilience plans
- Callow End about their community led flood alleviation scheme
- Wick about the installation of Property Level Resilience
- Bewdley about the temporary barriers and Property Level Resilience
- Callow Brook about further development of the flood alleviation scheme
- Wolverley about watercourse level gauges

This work has been supplemented by the arrival of a new Community Engagement Officer, employed via the Bewdley-based charity the National Flood Forum and shared with Warwickshire County Council.

### **5.2. Parish Lengthsmen**

Parish Lengthsmen have continued to play an increasingly important local role in contributing to the maintenance of local drainage infrastructure such as clearing gullies and maintaining gripps in the highway verge.

### **5.3. Flood action campaign**

The EA's Autumn 2016 flood action campaign targeted young people and their awareness of flood risk.

The campaign included engagement with students at Worcester University and communications via social media, web site bulletins and press releases.

### **5.4. Website**

The WCC website has been updated and made more streamlined and accessible. It includes information about roles, responsibilities and key contacts and provides advice about actions to take before, during and after a flood.

## **6. PLANS, POLICIES & STRATEGIES**

### **6.1. Local Flood Risk Management Strategy**

Over the last 12 months the draft Strategy was taken through extensive stakeholder and public consultation and the Worcestershire County Council Cabinet approval process. It has recently been published on the WCC website.

The Strategy Action Plan articulates a number of challenging targets for the RMAs over the coming five years. Progress will be monitored by the Worcestershire Flood Risk Management Strategic Co-ordinating Group and reported to the WCC Overview & Scrutiny Panel via the Annual Report.

### **6.2. Other related plans, policies and strategies**

A range of other related plans, policies and strategies have been produced and / or contributed to by the RMAs over the last 12 months including:

- Worcestershire Surface Water Management Plan
- Local Surface Water Management Plans
- Multi-Agency Flood Plans
- Worcs Green Infrastructure Strategy
- Green Infrastructure Concept Plans
- Worcs Infrastructure Strategy
- Minerals Local Plan
- District Local Plans
- Neighbourhood Plans
- Catchment Flood Management Plan
- Flood Risk Management Plan

## 7. FUTURE SCOPING

### 7.1. Future actions

Significant progress has been made over the last 12 months but momentum needs to be maintained and investment continued in order that flood risk and its potential impacts can be further reduced.

Priorities for the next 12 months include:

- Implementation of the Local Flood Risk Management Strategy Action Plan
- Engagement with further stages of the Flood Risk Management Plan which covers Worcestershire
- Review and update of the Preliminary Flood Risk Assessment
- Securing core budget and highway drainage capital and maintenance funding for beyond 2017-18
- Securing alternative sources of funding for FRM delivery
- Completion of schemes already on the RFCC 6 year Medium Term Plan
- Introduction of new schemes onto the RFCC 6 year Medium Term Plan
- Development of plans for the STWL Asset Management Plan 7 (2020-2025)
- Further delivery of the highway drainage scheme programme
- Greater use of natural solutions / upstream catchment management
- Further development and exercising of emergency plans
- Continued maintenance of FRM infrastructure inc highway drainage and flood defences
- Further completion of the Register & Record of flood risk assets and features
- Further engagement with communities and landowners focusing on the development of local engagement and resilience
- Ongoing commitment to comment on planning application drainage plans
- Co-ordination of training on SuDs and natural solutions
- Exploration of options for the future maintenance of SuDS

## APPENDIX 1. RISK MANAGEMENT AUTHORITY ROLES

<b>RMA</b>	<b>Core flood risk management role</b>
Environment Agency	Main rivers, the sea and reservoirs
Water Authority (STWL)	Sewerage system
Lead Local Flood Authority (WCC)	Surface water, groundwater, ordinary watercourses, Local Flood Risk Management Strategy
Highway Authority (WCC)	Flooding caused by rain falling on the highway
District Councils (BDC, MHDC, RBC, WCityC, WDC, WFDC)	Ordinary watercourses
Internal Drainage Board (LSIDB)	Ordinary watercourses