

**Flood Risk Management  
in  
Worcestershire**

**Annual Report  
2018**

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## ABBREVIATIONS

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
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
PFR	Property Flood Resilience
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
STWL	Severn Trent Water Limited
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

On 27th May 2018 a rain storm hit Hollywood and parts of the wider Wythall parish in north east Worcestershire resulting in surface water and ordinary watercourse flooding which impacted infrastructure and more than 300 residential properties and businesses. A combination of Risk Management Authorities, first responders and the local community worked together to respond to the initial flood event emergency and then to deal with the ongoing recovery process.

Worcestershire County Council led a multi-agency investigation into the Hollywood flood event and the investigation report was published in December 2018. This was the first formal investigation carried out by the council in response to its statutory duty under the Flood & Water Management Act to investigate flooding which it deems to be significant.

The Hollywood flood event re-enforced why flood risk management remains a high priority for Worcestershire County Council and the other Risk Management Authorities i.e. the District Councils, the Environment Agency (EA), Severn Trent Water Ltd (STWL) and the Lower Severn Internal Drainage Board (LSIDB).

Implementation of the Local Flood Risk Management Strategy action plan over the last 12 months has led to progress on a significant number of schemes and initiatives and it has been regularly scrutinised and updated.

During the last 12 months the RMAs 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 increasing emphasis on using natural solutions to hold back and slow water down upstream of where it can have a negative impact has been significantly bolstered by the commencement of the Worcestershire Natural Flood Management Project. The £500,000 project is funded by central Government and it will focus on three key catchment areas across Worcestershire.

The Risk Management Authorities have continued to work increasingly closely with each other in Worcestershire over the last 12 months and with other partners, local communities and landowners. By working together on the delivery of more flood alleviation schemes, management of watercourses and surface water, increased community resilience and improved drainage, sewerage and flood defence infrastructure more homes, businesses and pieces of important infrastructure have had their risk of flooding reduced.

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

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

Flood risk management in Worcestershire has continued to be guided by the Local Flood Risk Management Strategy (LFRMS) and particularly its regularly updated action plan. This contains a number of key actions which have ensured a continuing increase in the understanding of flood risk and efficient prioritisation of resources such as the installation and scrutiny of water level gauges and weather monitoring stations.

### **2.2. Preliminary Flood Risk Assessment review**

The Preliminary Flood Risk Assessment (PFRA) is a document which was required to be produced by each LLFA in 2011 in response to the EU Flood Directive.

When the Worcestershire PFRA was reviewed in 2017 a revised national assessment methodology resulted in central Redditch being identified as a 'Flood Risk Area' (previously called 'Areas of Significant Risk'), the first in Worcestershire. As a result a multi-RMA group was established and over the last 12 months it has been assessing flood risk in Redditch in more detail and producing a plan for its mitigation which is due to be published in early 2019.

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

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

Detailed information is held about each location which enables them to be investigated and prioritised. This information is updated as investigations are carried out, mitigation schemes completed and new floodspots identified following further flood events.

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 flooded but which are considered to be potentially at risk of flooding in the future.

## **2.4. Local Flood Risk 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 Flood Risk Management Plan' (FRMP) process and reporting structure has been adopted and followed at a number of locations such as Bromsgrove, Droitwich, Hagley and more recently, Redditch.

One of the key recommendations in the Hollywood flood event investigation report is that a local FRMP should be produced for the area by a new multi-agency working group. The establishment of which is another key recommendation in the Section 19 flood event investigation report.

## **2.5. Investigations**

The Flood and Water Management Act (2010) places a duty on the LLFA to formally investigate flooding it deems to be significant and publish a report of the findings. A policy defining the LLFA's approach to this and criteria for what represents 'significant' is set out in the Local Flood Risk Management Strategy.

The Hollywood flood event in May 2018 resulted in more than 250 properties being internally flooded – easily triggering the commencement of a formal investigation. The LLFA worked closely with its partners, local members and the local community in order to carry out the investigation and produce the investigation report. Published on the Worcestershire County Council's website in December 2018, the investigation report reviews both the flood event and the response to it. In addition it includes a number of key recommendations for future response and mitigation actions.

A copy of the report can be found here:

[http://www.worcestershire.gov.uk/download/downloads/id/10708/hollywood\\_flood\\_event\\_may\\_2018\\_investigation\\_report.pdf](http://www.worcestershire.gov.uk/download/downloads/id/10708/hollywood_flood_event_may_2018_investigation_report.pdf)

In the meantime 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, nearly 3,000 land drainage investigations and 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, key roads and other pieces of critical infrastructure. Locations include:

- Broadway
- Severn Stoke
- Upton-upon-Severn
- Worcester
- Bewdley
- Birlingham
- Suckley
- Cowleigh

The GIS-based 'Register of FRM Schemes' produced by the flood risk management team has been kept up to date with information on past, current and forthcoming schemes in Worcestershire; all led by different RMAs.

#### **3.2. Highway surface water & drainage improvement schemes**

More than 60 highway surface water and drainage improvement schemes have also been completed over the last 12 months.

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

- A44, New Road, Worcester – completed
- A4104 Upton-upon-Severn – phases 1 and 2 completed and final phase 3 significantly constructed and due for completion in Spring 2019

These 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 30,000 gullies jetted.



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

The RMAs have assessed and commented on the drainage plans of over 1,600 planning applications over the last 12 months.

In early 2018 the Worcestershire Sustainable Drainage Design and Evaluation Guide was completed and made public on the Worcestershire County Council website.

Other planning related work has included:

- Contribution to the development of the Wyre Forest Local Plan and its water and flood risk management policies
- Contribution to the development of the South Worcestershire Development Plan accompanying SFRA and water and flood risk management policies
- Continued contribution to the development of Game Changer sites including Worcester Six and the Redditch Eastern Gateway
- Response to and work with communities developing their Neighbourhood Plans
- Contribution to the emerging Minerals Local Plan and its water and flood risk management policies
- Contribution to key infrastructure projects including :
  - Worcestershire Parkway station
  - Southern Link Road phases 3 and 4

### **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 and maintained. This has been achieved through:

- Inspection of over 130km of the watercourse network
- Liaison with riparian owners about maintenance and management of watercourses on their land
- Implementation of land drainage consenting duties and powers including more than 60 applications processed and numerous others avoided by pre-application discussions
- Implementation of land drainage enforcement powers including more than 100 successful informal enforcement actions
- Recording and monitoring of flood risk management assets on the statutory 'Register & Record of Structures & Features'
- Direct maintenance by the Lower Severn Internal Drainage Board of 13km of watercourse in the Eldersfield area of the County

### 3.6. Main River management

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

- Completion of a £4m flood alleviation scheme on the Badsey Brook at Broadway. This scheme will reduce flood risk for approximately 250 properties.
- Development of flood alleviation schemes at Severn Stoke and Toronto Close in Powick. All partners are working closely with the local communities to develop affordable and effective schemes.
- Further preparation for property flood resilience schemes in Worcester, Himbleton, Evesham, Wickhamford and Droitwich.
- Maintenance of the EA's existing flood defences and structures in good condition, ensuring they are fit for purpose when next called upon in times of flood.
- Proactive maintenance works on more than 20 watercourses in Worcestershire including vegetation, debris and silt removal.

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

- Within the 6 year capital investment programme 2015 – 2021 Worcestershire County Council, the RMAs and the Environment Agency have worked with the English Severn and Wye Regional Flood and Coastal Committee to secure over £12 million in flood defence benefits. This will reduce flood risk to over 500 homes. The future programme beyond 2021 is currently being worked up with a further £14 million being bid for to better protect over 1,000 homes.
- Processed 10 Environmental Permitting Regulation applications.
- Responded to 25 planning application consultations.
- Provided flood risk technical support and guidance on a number of major infrastructure projects including the New Road and Upton highway flood adaptation schemes, Southern Link Road Phases 3 and 4.
- Worked with partners to align economic growth and local development plans with flood and environmental risks but moreover align the opportunities across all programmes.

In order to deliver its 'Warn, Inform and Winter Ready' campaign the EA:

- Regularly trained and exercised with the military to ensure that their support can be called upon when required. At any time the military have approximately 1,200 soldiers trained to support flood incident response.

- Made amendments to the flood alerts and warnings to fit a national consistent line. There is now more information relating to the impacts associated with the flood levels.

### **3.7. Natural flood management**

The EA secured £500,000 Government funding for a Worcestershire Natural Flood Management Project, hosted by Worcestershire County Council. The project is focused on three catchments areas within Worcestershire (with some upper catchment in Gloucestershire and Shropshire) as follows:

- The Cotswold tributaries – River Isbourne, Merry Brook and Badsey Brook
- Dowles Brook
- Barbourne Brook

During the last 12 months a project officer has been appointed and they have made good progress with engaging with key partners, landowners and communities and developing plans for works on the ground.

The governance structure has also commenced with a project partnership steering group and operational catchment working groups.

### **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, in close collaboration with the other RMAs, including:

- Responding to and dealing with reports of sewer flooding – over 100 internal sewer flooding and over 3000 external sewer flooding incidents dealt with in the STWL Worcestershire & Gloucestershire operational area
- Monitoring and management of the sewerage network through telemetry, CCTV, asset surveys and hydraulic modelling
- Preparing sewerage network modelling projects in Kidderminster, Malvern and Evesham
- Increasing the proactive sewer surveying, cleansing and repairing programme to reduce the risk of flooding from sewers
- Delivering customer education programmes on saving water and to reduce the incidents of sewer misuse (incorrect items being disposed of into sewers) which can lead to blockages and flooding including more than 30 visits to schools in Worcestershire delivering their messages to over 4,000 children
- Delivering a flood alleviation scheme at Beales Corner, Bewdley in partnership with the EA to reduce the impact of flooding to 12 properties.

- Contributing to implementation of the EA property flood resilience scheme at Beale's Corner in Bewdley.
- Developing other flood alleviation schemes at Bromsgrove, Wythall, Pebworth, Broadmarston and Broadway.
- Continuing partnership working with the EA and WCC on flood alleviation schemes in Severn Stoke, Toronto Close and Broadway.
- Progressing proposals to increase the capacity of the sewerage system at Ryall and Malvern.
- Supporting the Worcestershire Wildlife Trust, the Environment Agency and Bromsgrove District Council with the 'Love your Rivers' Bromsgrove project
- Contributing to a number of ongoing multi-agency engagements with community flood groups

### **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:

- Help co-ordinate response to and recovery from the Hollywood flood event
- Contribute to and help co-ordinate the Hollywood flood event response de-brief process
- Contribute to the Hollywood flood event formal investigation and production of the investigation report
- Continue development of a network of local rain gauges to assist in future investigations and flood warning
- 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
- Further review sandbag policies
- Produce generic resident update sheets for use during and after a flood event

## **4. GOVERNANCE & PARTNERSHIPS**

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

The English Severn & Wye Regional Flood & Coastal Committee (RFCC) comprises of 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 coordinating 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 plan of flood alleviation schemes.

There have been four full RFCC meetings during 2018 and two additional meetings focused on the 6 year programme.

At its October meeting the RFCC voted to increase the LLFA Local Levy contributions by 2% in order to maintain momentum with delivery of the 6 year programme.

### **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
- Regional EA / LLFA Networking Group
- Worcestershire NFM Project Steering Group
- The West Mercia LRF (Worcestershire) Severe Weather Group
- The Local Government Flood Forum
- The Worcestershire 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**

The Risk Management Authorities 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 a range of drainage issues throughout the parish
- Callow End about their community led flood alleviation scheme
- Wolverley about a range of local flood management mitigation measures
- Tenbury about the potential for a flood alleviation scheme and community resilience measures

This work has largely been facilitated by the Community Engagement Officer, employed via the Bewdley-based charity the National Flood Forum and shared with Warwickshire County Council.

The contract between Worcestershire County Council and the National Flood Forum for the Community Engagement Officer post was extended at the end of 2018 for a further 12 months in order that the development of existing groups can continue and support for the emergence of a new group in Hollywood be given.

### **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.

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

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

The Strategy Action Plan articulates a number of challenging targets for the RMAs until 2021. Progress with implementation has been monitored by the Worcestershire Flood Risk Management Strategic Co-ordinating Group.

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

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

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

## 7. FUTURE SCOPING

### 7.1. Future actions

Despite the significant capacity required for the response to, recovery from and investigation of the Hollywood flood event a great deal of progress has been made with all aspects of flood risk management over the last 12 months.

However, a very great deal more work is required, not least at Hollywood, and a combination of sufficient capacity and continued investment is needed in order to maintain momentum.

Priorities for the next 12 months include:

- Production and implementation of the Hollywood Flood Risk Management Plan
- Establishment of a local Hollywood Community Flood Action Group
- Continued implementation of the Local Flood Risk Management Strategy Action Plan
- Assessment of priority future potential flood risk areas
- Review of the Local Flood Risk Management Strategy and accompanying action plan
- Development and implementation of the local flood risk management plan for the new Redditch 'Flood Risk Area', as identified by the review of the Preliminary Flood Risk Assessment
- Implementation of the Worcestershire Natural Flood Risk Management Project
- Identification of additional, supplementary 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
- Further development of plans for the STWL Asset Management Plan 7 (2020-2025)
- Ongoing delivery of the highway surface water drainage scheme programme
- Greater use of natural solutions / upstream catchment management
- Further development and testing of emergency plans
- Continued maintenance of FRM infrastructure including highway drainage and flood defences
- Further development and monitoring of the Register & Record of flood risk structures and features
- Further development and updating of the Register of FRM Schemes
- Further engagement with communities and landowners focusing on the development of local engagement and resilience



- Ongoing scrutiny of planning application drainage plans
- Exploration of options for the future maintenance of SuDS
- Further integration between economic growth, infrastructure development and flood risk management
- Continued liaison with communities to support existing flood action groups and establish new ones in areas at risk of flooding
- Organisation of the first Worcestershire Flood Action Group Forum
- Establishment of a Worcestershire Community Liaison Group
- Development of a new 'vocabulary' to better describe the size and likelihood of flood events, linking to work by the Environment Agency, Met Office, Cambridge University, Defra Science Advisory Group and others

## APPENDIX 1. RISK MANAGEMENT AUTHORITY ROLES

<b>Risk Management Authority</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, local leadership
Highway Authority (WCC)	Flooding caused by rain falling on the highway, highway drainage
District Councils (BDC, MHDC, RBC, WCityC, WDC, WFDC)	Ordinary watercourses
Internal Drainage Board (LSIDB)	Ordinary watercourses

## APPENDIX 2. ROLE OF WORCESTERSHIRE COUNTY COUNCIL AS LEAD LOCAL FLOOD AUTHORITY

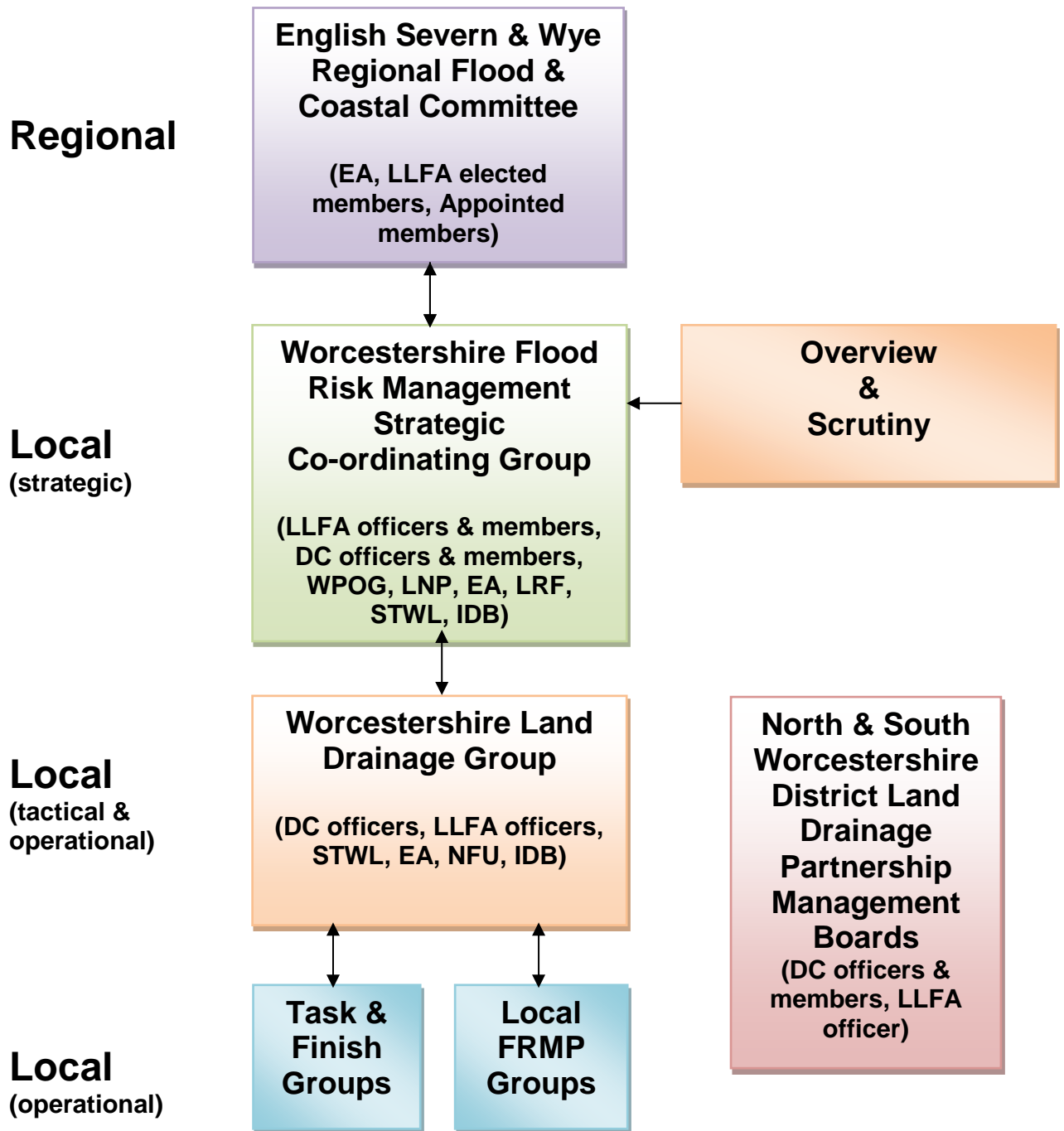
The Flood and Water Management Act 2010 (the Act) designated upper tier / unitary local authorities as Lead Local Flood Authorities (LLFA) and gave them a number of duties and powers including those listed below.

LLFA Role	Summary of requirements
<b>Duty to publish a Local Flood Risk Management Strategy</b>	Develop, maintain, apply and monitor a strategy for local flood risk management of the area.
<b>Duty to investigate flooding</b>	Co-ordinate the investigation of significant flood events.
<b>Duty to produce a record and register of structures and features</b>	Maintain a register and record of structures and features which have a significant impact on flood risk.
<b>Power to designate flood risk structures and features</b>	Designate structures and features that affect flooding in order to safeguard them.
<b>Power to carry out works</b>	Undertake works to manage flood risk from surface runoff and groundwater.
<b>Duty to administer and enforce the Land Drainage Act with regard to Ordinary Watercourses</b>	Discharge consent applications for significant changes to ordinary watercourses and take enforcement action under the provisions of the act as required.

Under the Flood Risk Regulations (2009) LLFAs have some additional duties listed below.

LLFA Role	Summary of requirements
<b>Duty to produce a PFRA</b>	Produce a Preliminary Flood Risk Assessment by 2011 in partnership with the EA
<b>Duty to review the PFRA every six years</b>	Carry out a review in partnership with the EA
<b>Duty to produce a map and Flood Risk Management Plan for 'Flood Risk Areas'</b>	Production of Maps and Flood Risk Management Plans led by the EA supported by LLFAs

**APPENDIX 3. MAIN FLOOD RISK MANAGEMENT GOVERNANCE GROUPS**



**APPENDIX 4. OTHER FLOOD RISK MANAGEMENT RELATED GROUPS**

