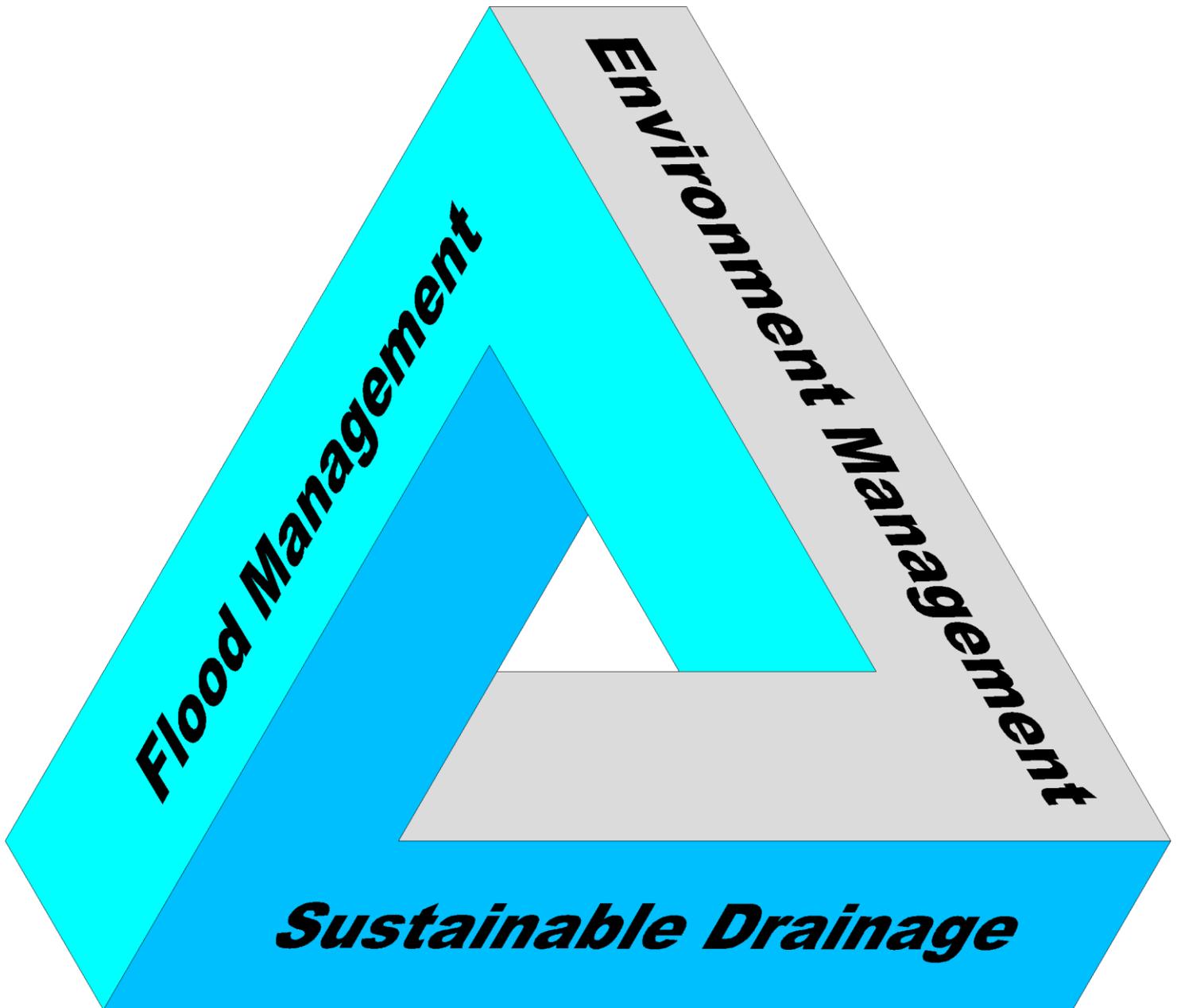


Coventry Local Flood Risk Management Strategy

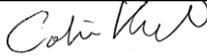


Revision History

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Statements of Support

As partners of Coventry City Council, we endorse this Local Flood Risk Management Strategy and will continue to work in partnership with CCC to deliver effective flood risk management to the residents and businesses of Coventry.

Risk Management Authority	Name	Position	Signature
Coventry City Council	Colin Knight	Director	
Environment Agency		Team Leader, Partnerships & Strategic Overview, South	
Severn Trent	Tim Smith	Flooding and Partnerships Lead	
Warwickshire Wildlife Trust	Gina Rowe	Living Landscape Manager	

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Executive Summary

Flooding can have a serious effect on people and communities. The flood events of 2007 resulted in a full review of Flood Risk Management in England by Sir Michael Pitt. Whilst the floods of 2007 did not hit Coventry hard, the challenges remain real, as there are many water channels flowing through our city, which means we must not be complacent. Since 2007 however, Coventry has been affected by many smaller localised surface water flooding incidents.

Coventry City Council has and continues to work extremely closely with our partners to help manage and reduce flood risk to properties and businesses. We have also gone to considerable lengths to ensure that targeted investment reduces the risks of flooding and much of what has been undertaken by the Council has been in partnership with other organisations.

Considerable resources have been invested in improving flood risk in the City, but it must be recognised that large engineering schemes to improve flood risk will be fewer. In the future, self-help and personal responsibility must play a greater part in property and business resilience and must be part of the package of measures.

The Local Flood Risk Management Strategy for Coventry is an important document that sets out how we can better understand, manage, and deal with flooding where it may occur. In support of the Strategy, other key documents have been produced and these form part of the Surface Water Management Plan for Coventry City.



Cabinet Member (City Services)

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1 Introduction

Under the Flood and Water Management Act (FWMA) 2010, Coventry City Council is designated as a Lead Local Flood Authority (LLFA) and as such, has statutory powers and responsibilities for co-ordinating local flood risk management. The FWMA was given Royal Assent in April 2010, with LLFAs being established in September that year. Section 9 of the Act lists one of the duties of the LLFA being to develop, maintain, apply and monitor a strategy for local flood risk management.

The Local Flood Risk Management Strategy (LFRMS) is an important tool to help residents, neighbourhood and business communities understand the Council's management of flood risk throughout the city. This strategy has been developed in collaboration with the Council's local partners.

Flooding is defined as the inundation of properties and infrastructure by water that causes damage or nuisance to property or infrastructure. The type of flooding is often defined by its source. Local flood risk includes but is not limited to flood risk from surface water runoff, groundwater sources and flooding from ordinary watercourses; for further details see [Section 2](#) of this document.

This strategy will help develop a better understanding of local flood risk and how sustained partnership working can successfully manage down the risks of flooding by setting out several objectives that the Council must meet to fulfil the aims of this strategy. This strategy is consistent with the National Flood and Coastal Erosion Risk Management Strategy (NFCERMS), which is a requirement under Section 9 of the FWMA.

This strategy should be reviewed and updated regularly to keep partners, stakeholders, organisations, and the community updated on the LLFAs management of flood risk in the local area.

2 Purpose of the Strategy

2.1 Overview of the Strategic Objectives

The aim of this strategy is to produce a plan to reduce and manage local flood risk in a way that will benefit people, property, and the environment.

The FWMA states that the LFRMS must consider:

- The risk management authorities within the LLFA area
- The flood risk management functions that may be exercised by those authorities
- The objectives for managing local flood risk
- The measures proposed to achieve those objectives
- How and when the measures are expected to be implemented
- The cost and benefits of those measures and how they are to be funded
- The assessment of local flood risk
- How and when the strategy is to be reviewed
- How the strategy contributes to the reduction of flood risk

This will be achieved through several objectives that have been developed to direct local flood risk management in Coventry.

Strategic Objectives

1. ***Understand flood risk:*** Develop a greater understanding of local flood risk by improving awareness and understanding of historic and future flood risks from local sources.
2. ***Engage with Riparian Owners:*** Engage with Riparian Owners on the responsibilities that they have under the Flood and Water Management Act and the Land Drainage Act.
3. ***Manage local flood risk sustainably:*** Utilise a more sustainable approach to reducing flood risk to deliver environmental enhancement as well as benefits to public health and open space.
4. ***Support resilient communities:*** Engage with communities to improve community awareness of flood risk and preparing communities for flooding in order that the impact of flooding is reduced and aids recovery; and to enhance planning policy to reduce flood risk from new developments, delivering improvements through smarter design and planning.
5. ***Achieve an economically sustainable approach to managing risk:*** Utilise partnership funding and collaborative working to find ways to reduce the economic impact of flood defences, asset operation and maintenance.

To achieve the objectives, the Council have identified the necessary actions and measures which are presented in the Action plan (from page 44). The measures will be fulfilled by the Council with support from its local flood risk management partners.

Local Flood Risk in Coventry

2.2 Sources of Flooding

The focus of the strategy is the following sources of flooding. It is recognised that severe flooding is often caused when different types of sources combine in one event.

2.2.1 River Flooding

River flooding, also known as Fluvial Flooding, occurs when a river cannot hold the volume of water that drains into it from the surrounding land (known as a catchment). In the context of this strategy, river flooding is also referred to as flooding from Main Rivers.

Main Rivers are defined as watercourses with strategic drainage importance and tend to be larger watercourses. If a river or larger watercourse is designated as a Main River, then the Environment Agency (EA) is the responsible authority for flood risk governance from that waterbody.

Watercourses which are not designated as Main Rivers are known as '*ordinary watercourses*' and are the responsibility of the Council or the Unitary Authority. Coventry LLFA is responsible for flood risk governance in relation to flooding from ordinary watercourses within its area.

2.2.2 Surface Water Flooding

Surface water flooding, also known as Pluvial flooding, occurs when rainfall cannot soak into the ground, overwhelms the local drainage systems or catchment, and flows across the ground in both urban and rural settings. This type of flooding is often but not exclusively associated with high intensity rainfall and occurs very quickly during or after a heavy rainfall event. This can also occur following a prolonged period of low intensity rainfall when ground conditions are nearing saturation. Surface water flooding is often quite localised and is much more difficult to predict than river flooding, often resulting in limited advanced warning.

On the rural transport routes within the LLFA area there are roadside ditches. Figure 1 shows which party is responsible for the maintenance of which elements of a typical rural transport route.

2.2.3 Groundwater Flooding

Water held within permeable rocks and soils beneath the surface of the ground is known as groundwater. This typically can cause flooding when the water levels rise above the ground or building basement level.

Levels of groundwater tend to respond to rainfall at a slower rate than water levels in rivers or on the surface. Depending upon ground conditions, groundwater levels are highest in the spring following the winter when there is generally more rainfall or a longer period of less heavy rainfall.

Groundwater flooding may become more common in years to come in Coventry due to a reduction in groundwater abstraction by heavy industry over the last 15 years. Reduced

abstraction rates now see groundwater returning to its natural pre-abstracted levels. This potentially puts local infrastructure at risk from flooding.

Groundwater flooding issues associated with increased rainfall patterns due to progressive climate change are becoming increasingly more common. Groundwater quality also suffers as the water level rises through areas where shallow sub surface contaminants are present and are soluble or become migrant.

2.2.4 Sewer Flooding

Flooding from sewers can be a result of blocked drains or the sewer network being unable to convey all the water flowing into it. This often occurs at the same time as other types of flooding, particularly surface water flooding. Severn Trent (STW) are responsible for the management of all flood risk from sewers within the City of Coventry's area.

2.2.5 Engineered Waterbodies

Reservoir flooding occurs when a reservoir structure is overtopped or the structure fails, resulting in an uncontrolled release of a large volume of water that floods land, properties and infrastructure. This type of flooding can be caused by several factors including damage, improper maintenance, periods of intense rainfall or prolonged periods of less intense rainfall.

Coombe Pool is managed by the Council and is indicated on the EA's risk of flooding from reservoir maps to pose a risk to the city. The EA reservoir flood risk maps show areas at risk of flooding from a reservoir that holds over 25,000 cubic metres. Reservoirs are regulated under the Reservoirs Act 1975 and are under the governance of the EA.

Canal flooding is similarly the overtopping or failure of the canal network resulting in the inundation of land, properties and infrastructure with water. The City of Coventry is intersected by the Coventry Canal and the Oxford Canal. Canals are the responsibility of the Canals and River Trust.

2.2.6 Highway Flooding

Flooding on the Highway is caused when the drainage system capacity is overwhelmed by the amount of water draining into it. This can result in drains becoming blocked and overflowing, causing water to pond on the Highway. Flooding can also be caused by blockages from surface debris and drainage overflowing.

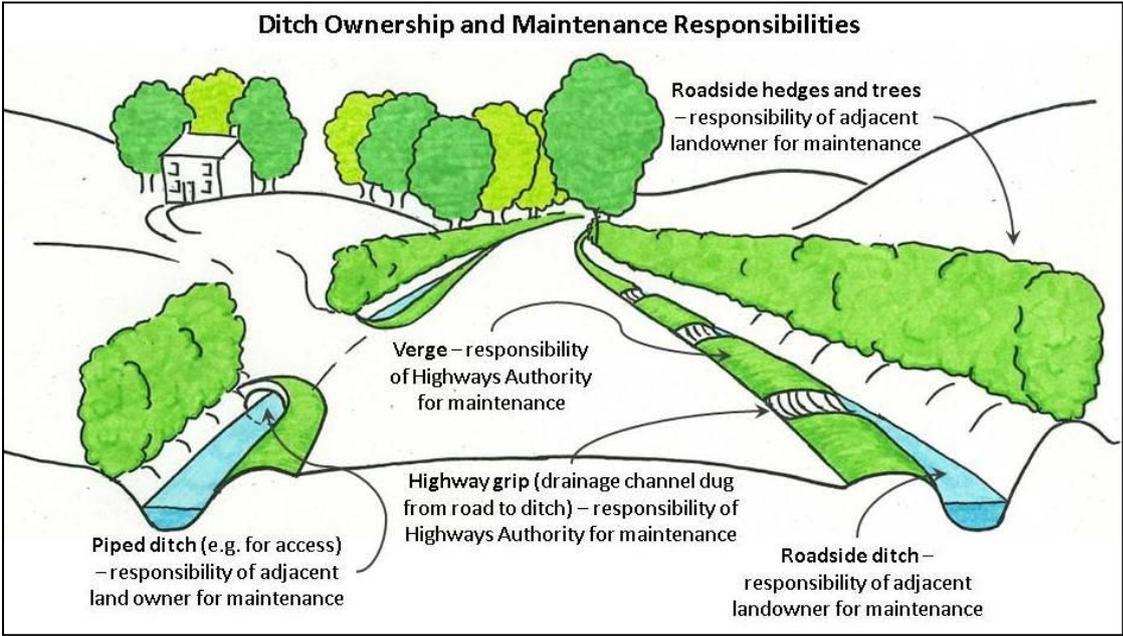


Figure 1 - Ditch Ownership and Maintenance Responsibilities

2.3 Coventry's water infrastructure

Blue Infrastructure refers to water related infrastructure within the city, including rivers, watercourses, canals, reservoirs, ponds, wetlands, floodplains, and water treatment facilities.

Coventry's administrative area covers approximately 98 square kilometres, with the River Sherbourne bisecting the city and the River Sowe flowing northeast to southeast close to the city boundary. The Canley Brook and other tributaries feed into the two main rivers in the south of the city, this is illustrated in Figure 2.

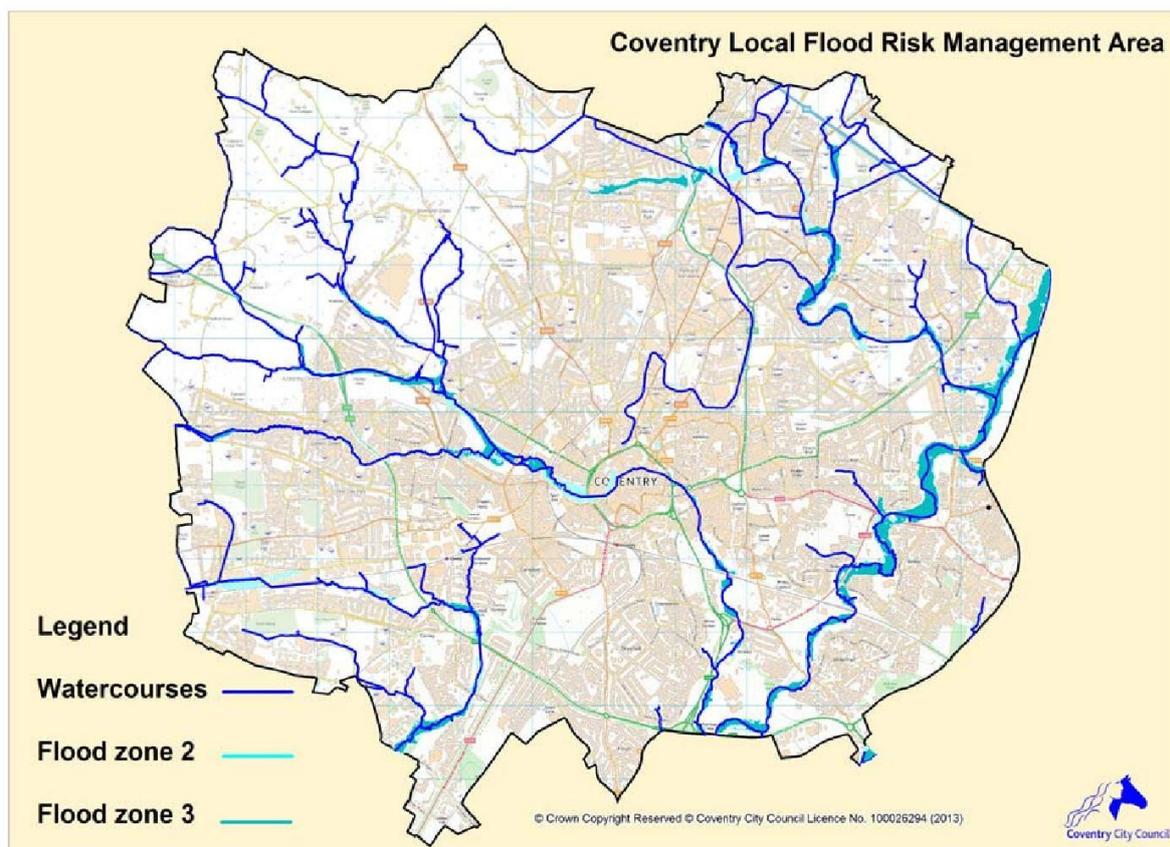


Figure 2 - Watercourses and National Flood Zones within Coventry's administrative area

Through developing this strategy and other supporting documents, the Council are working to "build in" safeguards and flood risk controls. These improvements will also help to manage water quality and work towards improving the whole environment associated with the waterways, to comply with the Water Framework Directive (WFD).

The objectives to achieve these aims will be met by the production and use of the supporting documents and tools identified within the Local Policy.

The following WFD waterbodies are located in the Coventry City Council area and are all presently failing under WFD standards requiring improvement to good status:

Table 1 - Water Quality Status for Watercourses in Coventry

Name	ID	Overall Ecological Status	Highlighted Negative Aspects
River Sherbourne - Source to Conference, River Sowe	GB109054044620	Poor	Invertebrates, Phosphate, Hydrological Regime, Mercury, PFOS, PBDE
River Sowe - Conference Breach Brook to Conference Withy Brook	GB109054044660	Poor	Macrophytes and Phytobenthos Combined, Phosphate, Hydrological Regime, Mercury, PFOS, PBDE
River Sowe - Conference Withy Brook to Conference River Avon	GB109054044540	Moderate	Phosphate, Benzo(g-h-i)perylene, Mercury, PFOS, PBDE
Withy Brook - Source to Conference River Sowe	GB109054044640	Poor	Macrophytes and Phytobenthos Combined, Mercury, PFOS, PBDE
Canley Brook - Source to Conference Finham Brook	GB109054044520	Moderate	Hydrological Regime, Mercury, PFOS, PBDE

The measures the Council are taking will improve the ecological status of these watercourses. Nature based solutions including Natural Flood Management (NFM) are being deployed in Coventry's admin area, by partners including WWT, the EA and the Council. There are plans to enhance Coventry's rivers, to encourage the community to engage with the river and its environment.

The Sherbourne Valley Project, with a partnership led by WWT, is working towards daylighting part of the River Sherbourne, and engaging with people in valuing their environment and the river.

2.4 Why is flood risk management important in Coventry?

In the national context the risk of major scale flooding in Coventry is low. The city area is not low lying like the Somerset Levels and is not subject to Tidal Surge River Flows. However, there are some areas of the city which are more susceptible to flooding from rivers and surface water, following heavy or prolonged rainfall.

Flooding can never be completely prevented, but the frequency of flooding and the impacts upon the communities can be reduced. Local flooding is becoming increasingly common and

the impacts increasingly more significant. Historically, flood risk management has concentrated on high impact and often low frequency flood events.

This strategy is an important tool to help individuals, communities, businesses, and Risk Management Authorities understand flood risk throughout the city.

Council led flood risk management needs to be supported by stakeholders working together and by those at-risk taking responsibility to help themselves. Through robust planning policies, good land management practices and regular maintenance of waterbodies, reductions to risk are achieved. Where investment is required, it is important that it is spent in areas defined as at the highest risk and spent as effectively as possible.

It is recognised that for those affected by flooding, it matters little what type of flooding is causing the problem; what is important is who to contact in an emergency, who to contact when you have experienced flooding, who is responsible for the management of flood risk and what you can do to protect yourself. There has also been some confusion over who to contact about flooding, particularly where surface water flooding occurs. This strategy therefore provides information about all forms of flooding and the organisations involved in flood risk management from localised small scale flood protection to dealing with a major flood event. The area covered by this strategy can be seen in Figure 2.

A detailed assessment of flood risk within Coventry is contained in the Preliminary Flood Risk Assessment (PFRA). This is the basis of the live hazard mapping document and systems being constructed to be held within the Flood Risk Management and Drainage team.

3 Legislative Background

3.1 Flood and Water Management Act 2010

The Flood and Water Management Act (FWMA) revises, modernises and consolidates significant elements of existing legislation covering flooding, land drainage, coastal erosion and reservoir safety. It also strengthens and extends existing flood and water legislation including implementing appropriate recommendations from the Pitt Review following the floods of 2007.

The key provisions of the FWMA include:

- **New statutory responsibilities for managing flood risk** – There are national strategies and guidance on managing flood risk in England and Wales. LLFAs bring together the relevant bodies to develop local strategies for managing local flood risk.
- **Protection of assets which help manage flood risk** – The EA and Local Authorities are able to ensure that private assets help manage flood risk cannot be altered without consent.
- **Sustainable Drainage** – Drainage systems for all new developments will need to be in line with National Standards to help manage and reduce the flow of surface water.
- **Powers to carry out environmental works** – The EA and Local Authorities are able to manage water levels to deliver leisure, habitat and other environmental benefits.
- **Reservoir safety** – The public will be protected by a risk-based regime for reservoir safety which will reduce the burden on regulated reservoirs where people are not at risk but introduce regulation for some potentially higher-risk reservoirs currently outside of the system.
- **New sewer standards** – All sewers will be built to agreed standards in future so that they are adopted and maintained by the relevant sewerage company.

The FWMA created clearer roles and responsibilities including LLFA roles in managing local flood risk. It also includes a strategic overview role for all flood risk for the EA which retains responsibility for main river flooding. The FWMA requires the EA to 'develop, maintain, apply and monitor a strategy for flood and coastal erosion risk management in England'. The EA's NFCERMS, an update to the 2011 version was published in 2020, describes at a high level what needs to be done by all organisations involved in flood and coastal erosion risk management. These include Local Authorities, water and sewerage companies, Highways Authorities and the EA.

The EA's NFCERMS sets out a statutory framework to help communities, the public sector and other organisations to work together to manage flood and coastal erosion risk. It supports local decision-making and engagement in flood risk management, making sure that risks are managed in a co-ordinated way across all catchments. This includes the

development of local flood risk management strategies by LLFAs as well as the EA's strategic overview of all sources of flooding and coastal erosion.

The NFCERMS encourages more effective risk management by enabling people, communities, business, infrastructures operators and the public sector to work together to:

- Ensure a clear understanding of the risks of flooding and coastal erosion, nationally and locally, so that investment in risk management can be prioritised more effectively.
- Set out clear and consistent plans for risk management so that communities and businesses can make informed decisions about the management of the remaining risk.
- Manage flood and coastal erosion risks in an appropriate way, taking account of the needs of communities and the environment.
- Ensure that emergency plans and responses to flood incidents are effective and that communities are able to respond effectively to flood forecasts, warnings and advice.
- Help communities recover more quickly and effectively after incidents.

The NFCERMS shows how communities can be more involved in local flood and coastal erosion risk management. It also emphasises the need to balance national and local activities and funding.

In carrying out its new role as the LLFA, the Council's key duties and responsibilities include:

- To develop, maintain and apply in consultation with key stakeholders a Local Flood Risk Management Strategy, which should include risks from surface water run-off, groundwater and ordinary watercourses i.e. those watercourses not the responsibility of the EA.
- To establish local management and governance arrangements with other key stakeholders to ensure delivery of effective joined up management of flood risk.
- To fulfil the requirements of the EU Floods Directive in relation to sources of flood risk by contribution to the completion of preliminary flood risk assessments, the identification of Flood Risk Areas (FRAs) and preparing Surface Water Management Plans for the City.
- To approve Sustainable Drainage Systems (SuDS) that meet National Standards for development.
- To establish and maintain a register of flood risk management assets with a record of each structure, together with details of ownership and state of repair where known, and where appropriate, designate such structures / features which may affect flood risk so they cannot be altered without consent. Assets can be designated by the LLFA and the EA.
- To investigate flooding incidents to understand their cause and ensure that appropriate agencies play their role in the effective management of flooding incidents and recovery.

- A power to undertake works to manage flood risk from surface water run-off and groundwater.
- To plan for the emergency management of flooding as a key partner of the West Midlands Conurbation Local Resilience Forum (LRF).

3.2 Flood Risk Regulations 2009

The Flood Risk Regulations (FRR) 2009 incorporate the requirements of the European Floods Directive into nation law in England and Wales. As with most European Union law, the Directive was written for the benefit of many different countries. The FRR are concerned with identifying and taking action in relation to areas with the most significant flood risks across the country. During the first stage of implementing the FRR, the Preliminary Flood Risk Assessment was undertaken by the Council in June 2011 and supported by the EA; this and the updated version in 2017 have supported the preparation of this strategy.

The Regulations:

- Give responsibility to the EA for the production of PFRAs, flood risk maps, hazard maps and Flood Risk Management Plans (FRMPs) for flood risk from the sea, main rivers and reservoirs.
- Give responsibility to the LLFAs to do the same for all other forms of flooding (excluding sewer flooding), including surface water run-off, groundwater flooding and flooding from ordinary watercourses.
- Require areas of nationally significant risk to be identified, and flood risk maps, hazard maps and management plans to be produced for those areas.

The EA supplied the core national datasets to undertake this work, and guidance was provided on how to identify areas of nationally significant flood risk affecting more than 30,000 people in a 5km² area.

This report showed that no areas in Coventry met the significant flood risk criteria as set out by the FRR.

Under the Regulations, LLFAs need to produce flood hazard and risk maps and FRMPs where appropriate. As Coventry is not within one of these defined FRAs, there is no requirement to produce a FRMP or hazard and risk maps.

FRMPS set out how RMAs and communities will work together to reduce the potential adverse consequences of flooding. The EA worked in partnership with LLFAs and other RMAs to develop these plans at a catchment scale by pooling information from various plans such as Catchment Flood Management Plans and Reservoir Plans. The EA worked with LLFAs to pool information from LFRMS and this information on local flood risk management will be set within the context of the broader catchment plan.

The EA has now produced a single surface water flood map for all of England and Wales now termed the 'Risk of Surface Water Flooding'. This benefits LLFAs by allowing them to focus on managing surface water flood risk and enables the public to better understand how the risk of surface water flooding may affect them via the online portal.

All of the documents under the FRR are to be reviewed and updated every 6 years.

3.3 The Pitt Review 2007

Following the 2007 severe flood events, an independent review of the flood-related emergencies that occurred was undertaken by Sir Michael Pitt on behalf of the Government. The final report published in 2008 entitled “Learning Lessons from the 2007 Floods” called for urgent and fundamental changes in the way the country was adapting to the likelihood of more frequent and intense periods of heavy rainfall.

The report included 92 Recommendations, of which 21 are specifically referred to Local Authorities. Particularly important was the recommendation that local authorities should play a major role in the management of local flood risk, taking the lead in tackling local problems of flooding and co-ordinating with all relevant agencies. The FWMA puts in place the recommendations by Sir Michael Pitt.

3.4 Reservoirs Act 1975

Responsibility for the management and supervision of reservoirs in England and Wales is regulated by the Reservoirs Act 1975. The Act applies to all reservoirs termed as ‘large, raised reservoirs’. The FWMA crucially defined a ‘large, raised reservoir’ as those with a volume above 10,000 cubic meters.

Key changes as a result of the FWMA:

- *Large, raised reservoirs that are assessed as ‘high risk’ will be subject to full regulation,*
- *Large, raised reservoirs that are not assessed as ‘high risk’ will need to be registered with the EA Reservoirs team but will not be subject to full regulation,*
- *All incidents at reservoirs will need to be reported,*
- *All reservoirs that hold more than 10,000 cubic meters may be registered in the future,*
- *If registered, reservoirs that hold more than 10,000 cubic meters that are assessed as ‘high risk’ will be subject to full regulation.*

A reservoir is designated as ‘high risk’ if the EA considers that ‘human life could be endangered in the event of an uncontrolled release of water from the reservoir and the reservoir does not satisfy certain conditions’.

Reservoirs that hold less than 25,000 cubic metres are subject to safety regulations managed by the Health and Safety Executive and Local Authorities. As part of this regulation, both onsite and offsite Reservoir Emergency Plans are produced to assess the impacts of safety breaches.

3.4.1 Reservoir Flood Mapping

The EA has produced flood maps to show the impact that a dam or reservoir failure and an uncontrolled release of water could have downstream. The outline extent is showing on the EA’s online mapping with more detailed maps only available to upper-tier Local and Unitary

Authorities, reservoir owners, operators and emergency responders. These maps are used to develop the offsite plans within the LRFs.

3.5 Other Legislation

3.5.1 National Planning Policy Framework 2021

The National Planning Policy Framework (NPPF) 2011 version was updated in 2021 and outlines the core planning principles taking flood risk management into consideration, and highlights the need for effective planning for flood risk infrastructure. The framework emphasizes that flood risk should be included in the environmental assessment of development and that Pre-application engagement and front-loading is essential for developers to understand what is required of them in relation to flood risk assessment, mitigation and water management. The framework also includes objectives to minimise the vulnerability to climate change and to manage the risk of flooding. The Planning Practice Guidance (PPG) supports the NPPF and indicates how it should be used in practice.

3.5.2 The Localism Act 2011

The Localism Act, Section 9FH, requires LLFAs to make arrangements for the overview and scrutiny committees to review and scrutinise RMAs. RMAs are now under a duty to comply with a request made by an overview and scrutiny committee for information or a response to a report in relation to its flood or coastal erosion risk management functions.

Local Authorities, the EA and other prescribed bodies are obliged to work together on certain strategic matters under the 'duty to co-operate' across boundaries because flood risk often requires more than just local consideration. As a further outcome, Flood Risk Management is to be delivered within Local Authorities.

The Government published the Water For Life in 2011 to highlight that water is essential for economic growth and that the environment should be protected for further generations. It also:

- Outlined plans to modernise the rules which govern how we take water from our rivers
- Explained how we will improve the condition of our rivers by encouraging local organisations to improve water quality and ensure we are extracting water from our environment in the least harmful way
- Announced plans to reform the water industry and deregulate water markets to drive economic growth
- Enabled businesses and public sector customers to negotiate better services from suppliers and cut their costs.

3.5.3 The Conservation of Habitats and Species Regulations (CHSR) 2010

The CHSR which transpose the Habitats Directive into UK law was updated in 2017 and aim to help maintain and enhance biodiversity through the EU by conservation of natural habitats, and by the preservation, maintenance and re-establishment of a sufficient diversity

and area of habitat for wild birds. The main way it does this is by establishing a coherent network of protected areas and strict protection measures for particularly rare and threatened species.

3.5.4 The Climate Change Act 2008

The Climate Change Act requires a UK-wide climate change risk assessment every five years accompanied by a national adaptation programme that is also reviewed every five years. This Act has given the Government powers to require public bodies and statutory organisations such as water companies to report on how they are adapting to climate change.

3.5.5 Making Space for Water 2004

Making Space for Water states that the Government will, over the 20-year lifetime of the strategy, implement a more holistic approach to managing flood and coastal erosion risk in England. The approach involved taking account of all sources of flooding and embedding flood and coastal risk management across a range of Government policies. The aim is to manage risk by employing integrated approaches which reflect both national and local priorities so as to reduce the threat to people and property and deliver the greatest environmental, social and economic benefit consistent with the Government's sustainable development principles.

3.5.6 The Civil Contingencies Act 2004

This Act aims to deliver a single framework for civil protection in the UK and sets out actions that need to be taken in the event of a flood. This Act separated into two substantive parts; local arrangements for civil protection (part 1) and emergency powers (part 2).

3.37. Responsibilities under part 1 of the Act include:

- *Undertake risk assessments,*
- *Develop Emergency Plans,*
- *Develop Business Continuity Plans,*
- *Arrange to make information available to the public about civil protection matters and maintain arrangements to warn, inform and advise the public in the event of an emergency,*
- *Share information with local responders to enable greater co-ordination and efficiency,*
- *Provide advice and assistance to businesses and voluntary organisations about business community management.*

3.5.7 The Strategic Environmental Assessment (SEA) Directive 2001 (EC Directive 2001/42/EC)

The SEA Directive is legislation which aims to increase the consideration of environmental issues during decision making related to strategic documents. The SEA identifies any significant environmental effects that are likely to result from the implementation of a plan, programme or strategy. An SEA has been carried out on this strategy and has been subject to consultation.

3.5.8 The Water Framework Directive (WFD) 2000

The WFD is the most substantial piece of EC water legislation to date and is designed to improve and integrate the way waterbodies are managed through Europe. It came into force on 22 December 2000 and was transposed into UK law in 2003. Member States were directed to reach 'good' chemical and ecological status in inland and coastal waters by 2015. In 2022, only 14% of the English Rivers met 'good' ecological status and 0% met 'good' chemical status.

An updated version of the WFD, also known as the Water Environment Regulations (WER) was released in April 2017.

The WER is designed to:

- *Prevent deterioration of aquatic ecosystems, protect them and improve the ecological condition of waters,*
- *Aim to achieve at least good status for all waters. Where this isn't possible, good status should be achieved by 2021 or 2027,*
- *Promote sustainable use of water as a natural resource,*
- *Conserve habitats and species that depend directly on water,*
- *Progressively reduce or phase out the release of individual pollutants of groups of pollutants that present a significant threat to the aquatic environment,*
- *Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants,*
- *Contribute to mitigating the effects of floods and droughts.*

To address this, the EA is the co-ordinating authority and has produced River Basin Management Plans (RBMPs) to develop new and better ways of protecting and improving the water environment.

The EU Withdrawal Bill will carry over existing EU law including the requirements of the WER into domestic law.

3.5.9 The Land Drainage Act 1991

The Act outlines the duties and powers to manage land drainage for a number of bodies including the EA, Internal Drainage Board's (IDBs), Local Authorities, navigation authorities and riparian owners. The Act has updated many parts of this legislation.

The powers and duties under the Act:

- *Duty on drainage boards to exercise a general supervision over all matters relating to drainage of land,*
- *A general duty to the environment when exercising powers,*
- *Powers to maintain, improve and build new works required for drainage,*
- *Consenting and enforcement powers for ordinary watercourses,*
- *Powers to make byelaws,*
- *General powers of entry onto land for water level management so that statutory authorities can exercise flood risk management for the common good.*

3.5.10 25 Year Environment Plan

The 25-year Environment Plan outlines Government action to improve the natural world and aims to deliver cleaner air and water in rural and urban landscapes. The plan pledges that the Government will focus on using more Natural Flood Management (NFM) solutions, increasing the use of SuDS and improving resilience of properties at risk to reduce the risks from flooding and coastal erosion.

3.5.11 Delivering benefits through evidence

The document cites methods to help assess the effectiveness of a wide portfolio of options that can be employed to help manage flood risk. The advice assists with option selection, identifies the links between the actions and provisions of advice, and climate change adaptation.

4 Risk Management Authorities (RMAs)

RMAs are defined in the FWMA as the EA, LLFAs (Coventry City Council), IDBs and water companies (STW).

LLFAs and the EA are empowered to require information from others needed for their flood and coastal erosion risk management functions. Relevant authorities must co-operate with partners in exercising functions under the Act and can delegate functions to each other by local agreement. If an RMA fails to exercise a flood or coastal erosion risk management function, the Secretary of State can direct another authority can carry out the function.

4.1 Coventry City Council

As LLFA, the Council have a governance role for managing flood risk from ordinary watercourses, surface run-off, groundwater, and land drainage systems.

The Council's key responsibilities:

- *Overseeing, in a governance role including enforcement powers, ordinary watercourses including every stream, ditch, drain cut, dyke, sluice and passage through which water flows and which does not form part of a Main River,*
- *Overseeing, in a governance role including enforcement powers, flood risk from groundwater,*
- *Conduct investigations into flooding to assign responsibility to the relevant RMA or individual.*

The FWMA provides the Council with powers to undertake works for the management of flood risk from various sources; these powers are discretionary, and the Council's policy is generally to exercise them where living accommodation is at risk from flooding.

The FWMA and FRR outlined many flood risk management functions, and these are outlined and explained in Appendix E.

4.2 Severn Trent

Water and sewerage companies are responsible for managing the risks of flooding from Public Sewer systems. A Public Sewer is a conduit, normally a pipe, that is vested in a Water and Sewerage Company, or predecessor, that drains two or more properties and conveys foul, surface water or combined sewerage from one point to another and discharges via a positive outfall. Public Sewers are designed to protect properties from the risk of flooding in normal wet weather conditions. However, in extreme weather conditions there is a risk that sewer systems can become overwhelmed and result in sewer flooding.

In October 2011 under The Water Industry (Schemes for Adoption of Private Sewers), STW adopted piped sewers on private land that are connected to a public sewer and serve more than 1 property. Sewerage Undertakes have a duty under Section 94 of the Water Industry Act 1991, to provide sewers for the drainage of buildings and associated paved areas within property boundaries. This is demonstrated in Figure 4.

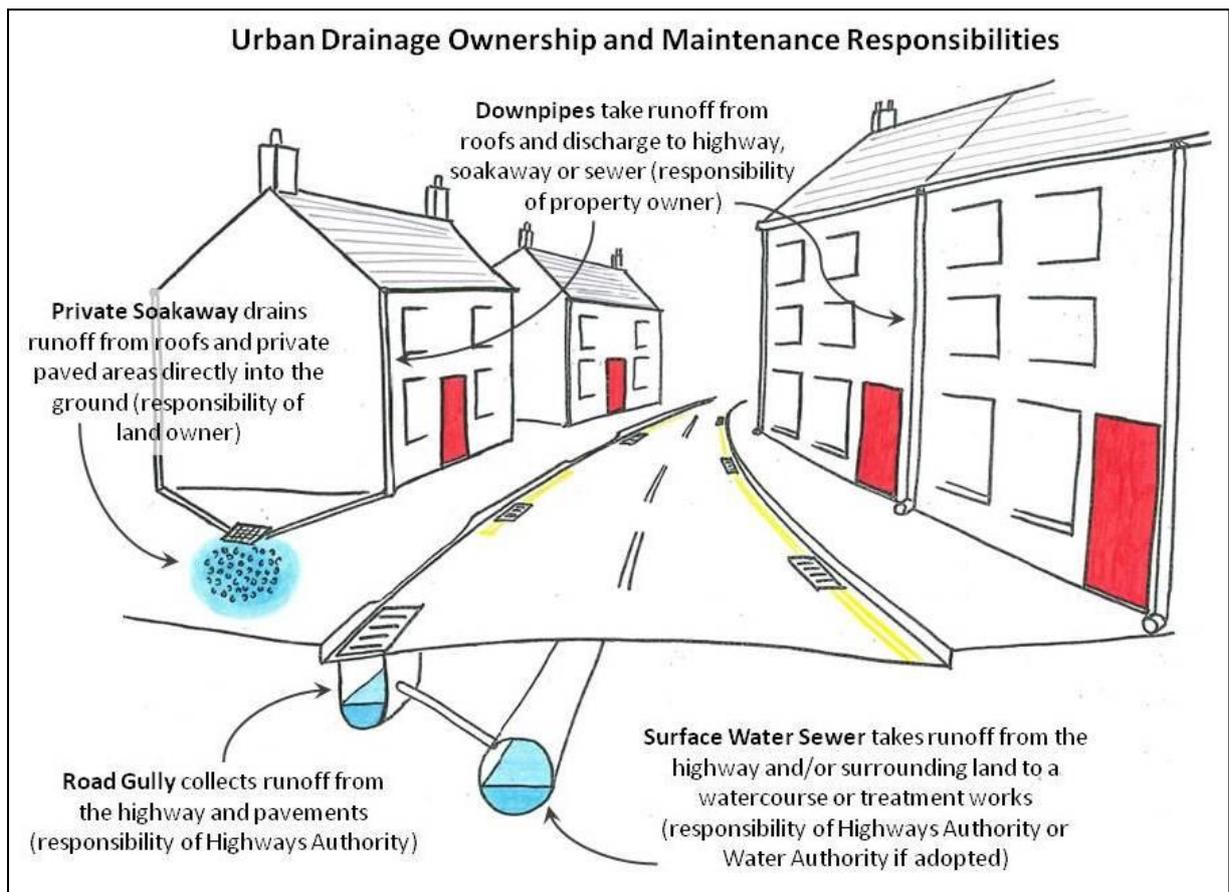


Figure 3 - Urban Drainage Ownership and Maintenance Responsibilities

There is no automatic right of connection for other sources of drainage to the Public Sewer network. Connection is therefore discretionary following an application to connect.

Within Coventry, much of the sewer system is operated by STW. Some private highway drainage is the responsibility of the Council. Below is a figure to show at what point a sewer becomes the responsibility of STW following the asset transfer in 2011.

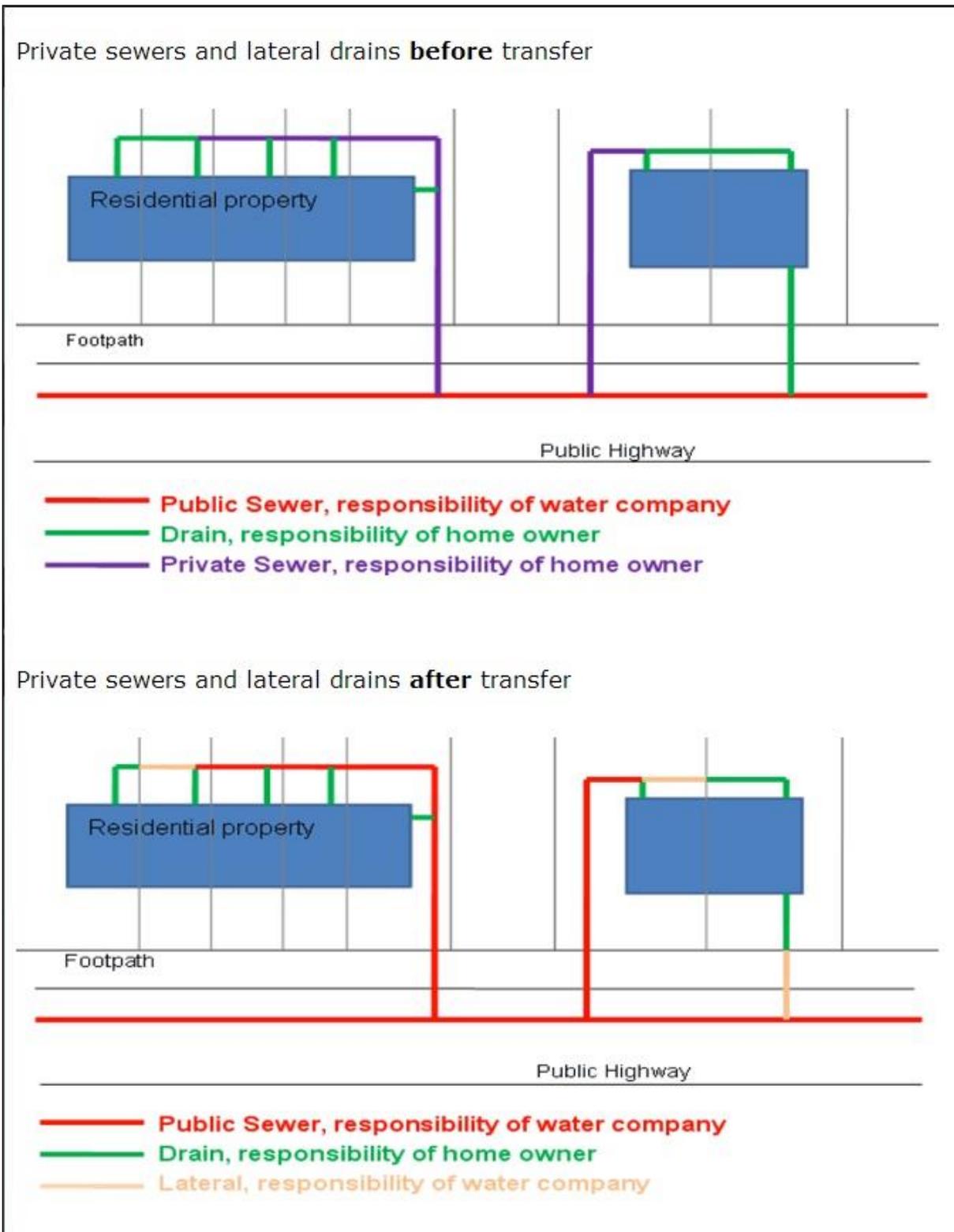


Figure 4 - Sewer responsibilities following transfer

4.3 Environment Agency

The EA's role in flood and coastal erosion risk management has two main components: flood and coastal erosion risk management delivery and the strategic overview of all sources of flooding and coastal erosion.

In its role as Strategic overview, the EA provides:

- *Advice to the Government on flood and coastal erosion risk, supporting future national responses, policy and strategy.*
- *Supervision of flood and coastal erosion risk management.*
- *Support to LLFAs by providing data and guidance on assessing, planning and carrying out flood risk management for flooding from ordinary watercourses, surface run-off and groundwater.*
- *Liaison with Local Authorities, IDBs, water companies, utility companies and others in their support and partnership work with the LLFAS to provide local flood and coastal erosion risk management.*

4.4 Roles and Responsibilities of RMAs

Each of the three partners referenced above have duties under the FWMA. These responsibilities can be summarised as below and are outlined in detail in Appendix E

Roles and Responsibilities:

- *Strategic co-ordinating function in relation to the FWMA,*
- *Duty to act consistently with the NFCERMS,*
- *Duty to act consistently with and have regard to LFRMS,*
- *Duty to investigate a flood from any source where it meets the criteria for a S19 investigation,*
- *Duty to maintain an asset register of structures of features which affect flood risk from all sources,*
- *Power to designate 3rd party assets which affect flood risk from all sources*
- *Duty to co-operate and provide information in connection with flood risk management functions,*
- *Power to request information in connection with flood risk management functions,*
- *Power to enter into arrangements/delegations of responsibilities under the act,*
- *Power to improve existing flood risk management works and to undertake and build new assets,*
- *Environmental works powers to manage flooding and water levels in the interest of nature conservation, the preservation of cultural heritage or people's enjoyment of the environment or cultural heritage,*
- *Enforcement powers for S23, LDA 1991 – Unconsented works or S25, LDA 1991 when a Riparian Owner fails to maintain,*
- *Powers to consent to works which may impede the proper flow of water in ordinary watercourses.*

5 Local Partnerships, Governance and Scrutiny

The Council is ultimately responsible for delivering the LFRMS however it cannot deliver the aims, objectives, and measures alone, it requires co-operation with partners to work together to successfully deliver and implement the LFRMS for Coventry residents.

The Council's aim is to produce a strategy to manage and reduce flood risk in a way that will benefit people, property, and the environment. By working together, the Council are able to share information to develop realistic approaches for achieving good value outcomes.

The most cost-effective measures to improve local flood risk management will only be determined and delivered through partnership working. By working with partners, stakeholders and the community, the Council will identify local flood risk management measures where deliverable and together determine the most appropriate means of funding and delivery these.

5.1 Working Together

Partnership working at the local level is fundamental to achieve the objectives of this strategy, whilst collaboration at the regional and national level will be beneficial. A number of partners are involved in local flood risk management in Coventry.

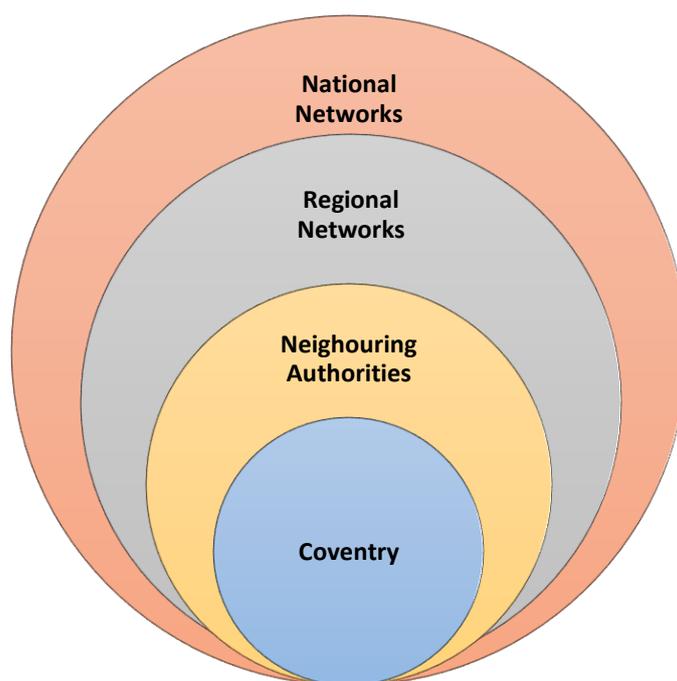


Figure 5 - Collaborative working at multiple levels benefits local flood risk management in Coventry

5.1.1 Flood Risk Management Group (FRMG)

The FRMG was formed to deliver a combined approach to flood risk management within Coventry. This is a bi-annual meeting of partners to discuss flooding. During these meetings, new flood reports and on-going issues are discussed to ensure partners are working together effectively.

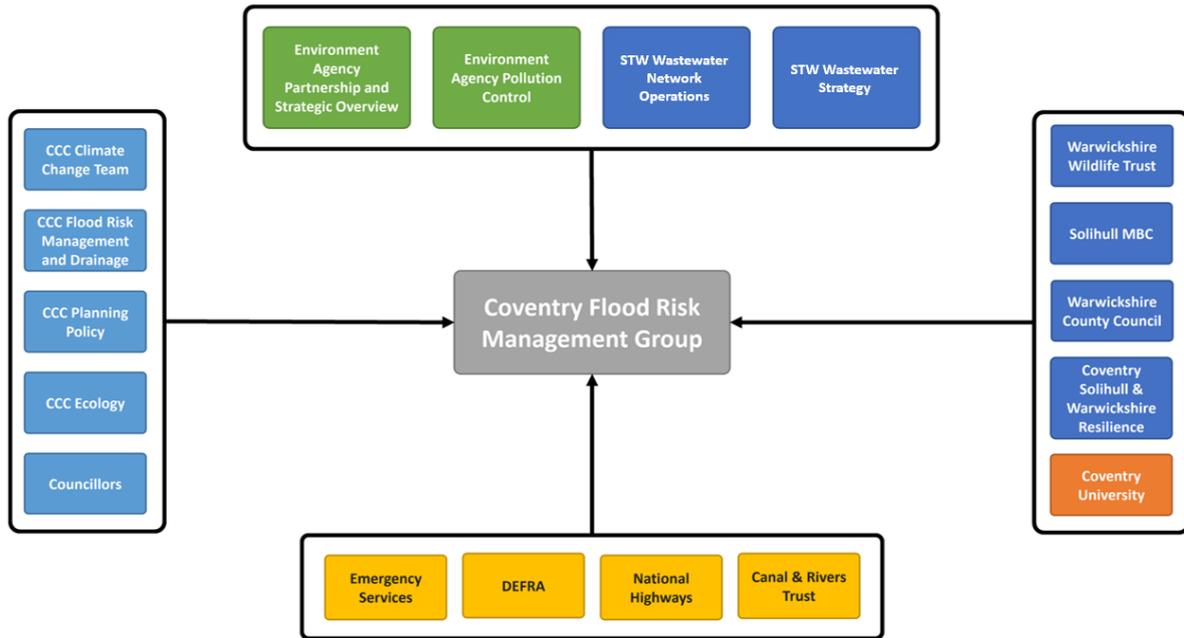


Figure 6 - Flood Risk Management Group Structure

To lead on the management of local flood risk, Coventry LLFA is the chair of the Coventry FRMG. The FRMG is a partnership of all RMAs and other stakeholders in or near Coventry (see RMAs section). The first meeting of the group was held in 2013 and considers flood risk from all sources.

5.1.2 Data Sharing

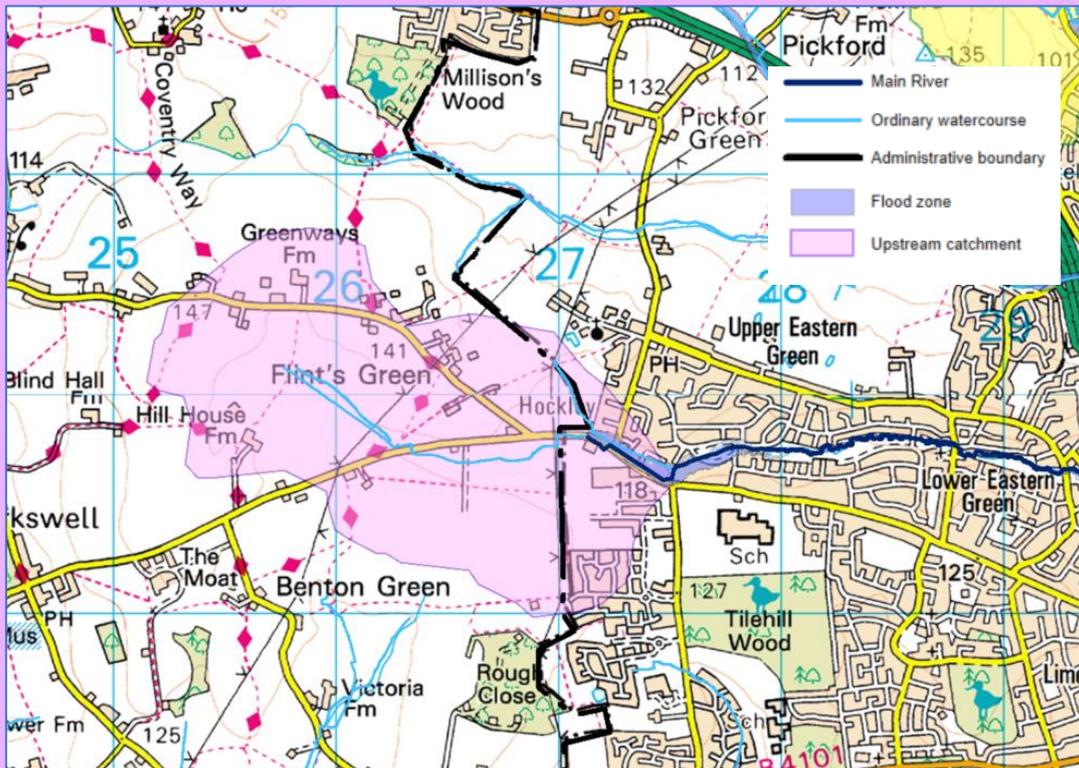
The Council, the EA, STW and Warwickshire Wildlife Trust presently have agreements in place to allow records to be shared. This covers mapped data such as the EA’s Flood Mapping and STW sewer records. Through being able to access multiple data sources the Flood Risk Management and Drainage team are able to quickly and effectively investigate flood reports and verify flood risk for proposed development sites.

5.1.3 Regional and National Collaborative Working

Land use changes and local flood risk extend across administrative boundaries; therefore, the Council work particularly closely with Warwickshire LLFA and Solihull LLFA, attending their FRMG equivalents when necessary, and inviting them to attend Coventry FRMG meetings.

Case Study: Brookstray Partnership Working

The Brookstray flows into the River Sherbourne to the East of the City Centre. In Eastern Green, it flows beside Broad Lane before passing under the road through a culvert at the junction of Banner Lane. Flooding occurs due to a combination of factors, and these are associated with intensity and duration of rainfall, river channel, and sewer and drainage capacity. Flooding has occurred regularly, and 45 homes are at increased risk of flooding.



To reduce the risk of flooding, the most viable solution is upstream catchment slowing-the-flow and flow reduction. Collaborative working between RMAs to achieve this is required at a number of levels:

- Both surface water and main river flows are contributing factors.
- The Brookstray is Main River at the point where it floods, but ordinary watercourse further upstream; and
- Most of the upstream catchment is situated within Solihull MBC's administrative area.

Effective collaborative working is therefore required. Funding has been secured for a flood alleviation scheme and includes NFM and Property Flood Resilience (PFR). This project has been developed in partnership with the EA and Warwickshire Wildlife Trust, and collaboration with Solihull Metropolitan Borough Council.

The FWMA also led to the creation of Regional Flood and Coastal Committee's (RFCC's). RFCC's have a key role in the co-ordination of flood and coastal erosion risk management by advising on and approving the implementation of work programmes and supporting the development of funding for local priority projects and works. RFCCs also provide for local democratic input through the majority membership of representatives from LLFA's.

Multiple Benefits of collaboration:

- *Warwickshire Wildlife Trust and water quality officers from the EA are a part of the Coventry FRMG. The environmental aspects of subjects and other multiple benefits are discussed, as well as flooding from other sources such as main rivers,*
- *Regionally, the LLFA has taken an active role in promoting multiple benefits. For example, the LLFA produced a briefing note on the 25-year Environment Plan which was circulated to other LLFA's within the network,*
- *Sharing our knowledge and experiences regionally has benefits for the management of flood risk elsewhere,*
- *A government action of the 25 Year Environment Plan was: Improving existing arrangements for managing surface water flooding, and the outcomes delivered by LLFAs and other RMAs, including water companies. By engaging regionally, the Council will be able to contribute towards this aim.*

5.1.4 Future Partnership Opportunities

Partnerships are key to delivering flood risk management in Coventry. For this, the Flood Risk Management and Drainage team will continue to identify new opportunities for working collaboratively.

6 Measures to reduce and manage Coventry's flood risk

As LLFA, the Council is responsible for delivering strategies and plans, and will work in partnership with other organisations to manage flooding. The strategies and plans that the Council deliver are set out below as well as how they interact with National, Regional and Local policies and strategies.

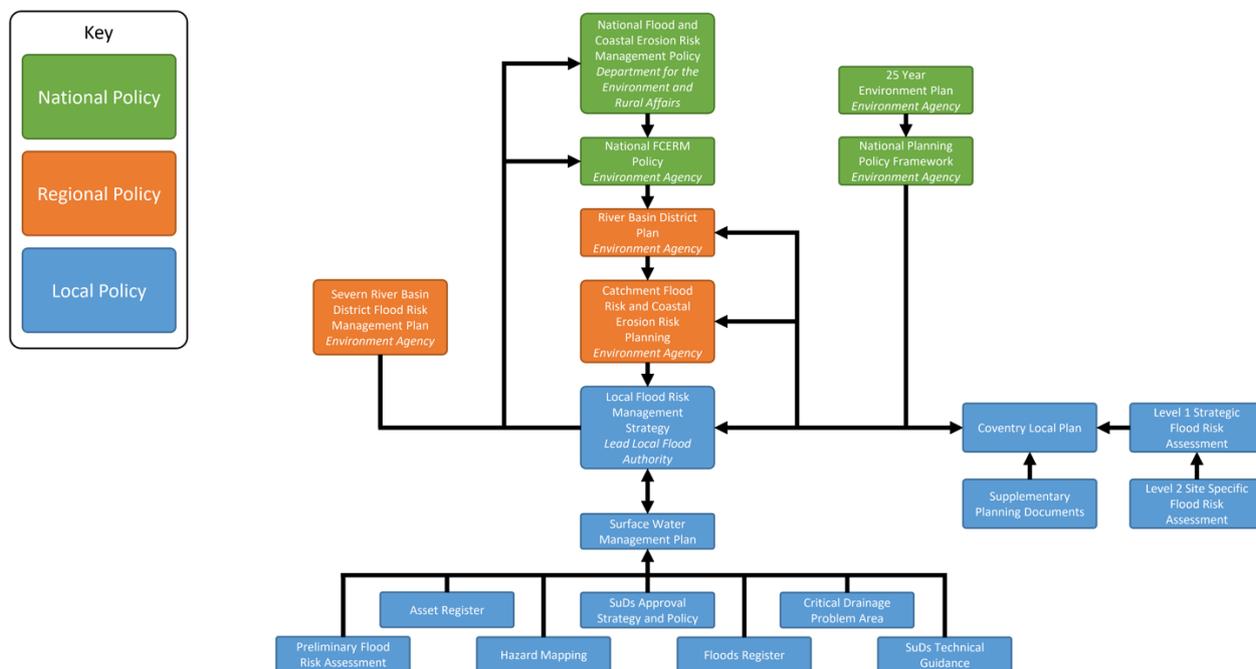


Figure 7 - Hierarchy of Documents

6.1 Surface Water Management Plan

The 18th Recommendation of the Pitt Report endorsed Surface Water Management Plans (SWMP) as the basis for managing all local flood risk.

SWMP's outline the preferred surface water management measures in a given location. In this context surface water flooding describes flooding from sewers, drains, groundwater, and runoff from land, and ordinary watercourses that occurs as a result of heavy rainfall.

A SWMP should establish a long-term action plan to manage surface water and should influence future capital investment, asset management, public engagement and understanding, land-use and development planning, and emergency planning.

The SWMP defines how the LLFA role will be implemented by the Council in relation to surface water flood risk; it was first issued in 2016. It outlines the work that has already been conducted, and future work to increase the knowledge of flood risk within Coventry. The SWMP outlines the long-term plan for reducing flood risk throughout the city and builds upon themes that emerge from the LFRMS. An update to the SWMP will be completed following a review of this strategy.

6.2 Preliminary Flood Risk Assessment

In 2011 the [PFRA](#) was completed for Coventry in line with the requirements of the FRR 2009, which implement the EU Floods Directive in England and Wales. The PFRA was a high-level screening exercise to identify local sources of flood risk. It involved collecting information on historic and future potential floods, assembling it into a preliminary assessment report, and using it to identify Flood Risk Areas (FRA) which are areas where the risk of flooding is significant. Although no nationally significant areas of flood risk were identified within the city area according to external criteria, the information gathered allowed the Council to identify areas of flood risk that are significant at a local scale. The LLFA contributed towards an update in 2017.

6.3 SuDS Technical Guidance and Approval Strategy and Policy

The Coventry SuDS Guide 2018 highlights the need for new developments being established within Coventry to include and incorporate effective surface water management strategies into these developments to help with the management of surface water flooding. SuDS are a way of reducing the risk of surface water flooding whilst also increasing biodiversity, as well as providing joint-use amenity to the local community and improving the overall water quality.

When planning for a new development, it is important for the developers to engage with the Council to be able to showcase their schemes, how they will work, and how they are likely to be maintained. It is essential for SuDS schemes to be maintained to ensure the maximum efficiency of these systems. By incorporating SuDS this helps to mimic the natural processes. This reduces the risk of surface water flooding when there is extreme rainfall.

There are significant opportunities to create valuable semi natural habitat when creating SuDS and these should be taken wherever possible. Management of Suds is critical to their success and sustainability and should be built into the original plans and designs. The cost of maintaining semi natural habitat in SuDs is less than conventional regular mowing of grass.

6.4 Areas of Critical Drainage Problems

Areas of Critical Drainage Problems are locations around the city that are known for flood risk issues from multiple sources. These areas are subject to investigation by the LLFA. There are several areas identified within Coventry that are Areas of Critical Drainage Problems, these are identified in Figure 8 below:

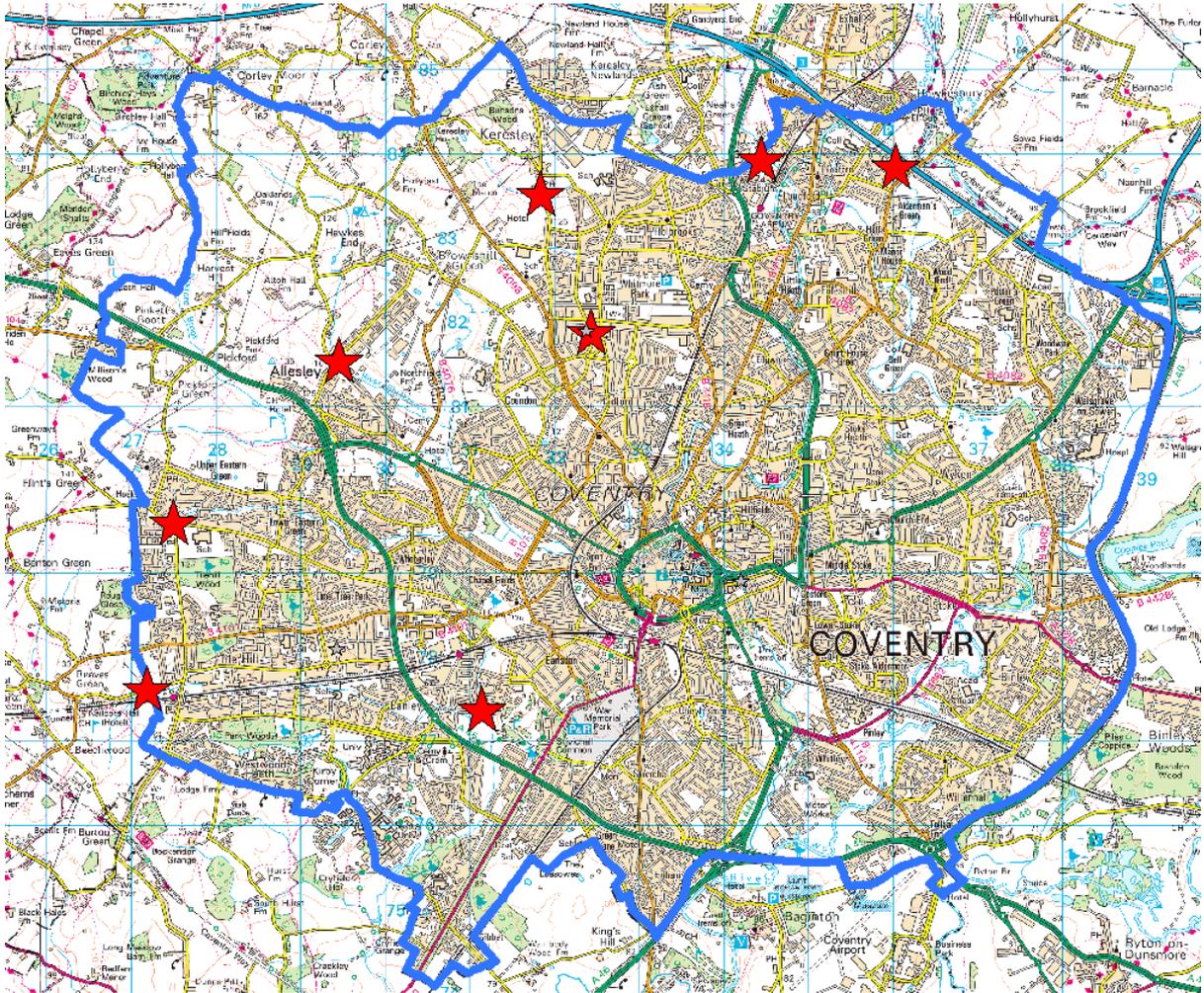


Figure 8 - Map of Coventry highlighting the Areas of Critical Drainage Problems

Case Study: Canberra Road

Canberra Road is an Area of Critical Drainage Problems within Coventry's administration area. A replacement Trash Screen was installed on an ordinary watercourse to reduce the risk of flooding to 27 properties. The project was completed in 2020.



Before



After

Canberra Road Trash Screen on an ordinary watercourse in Coventry

6.5 Community Engagement Plan

Within the LFRMS published in 2015, an action was for the Council to develop a Community Engagement Plan (CEP) to achieve the strategy's objectives and support effective community engagement in the city. The CEP sets out objectives for involving the community in helping reduce local flood risk and increase flood resilience across the city. The CEP will work in conjunction with existing policy and will be a living document.

CEP Objectives:

- *Actively encourage community involvement*
- *Be transparent in the decision-making process*
- *Use information*
- *Build sustainable relationships with communities*
- *Make communication accessible*
- *Encourage community resilience to local flood risk*

A publication date for the Community Engagement Plan will be on the Council's website.

6.6 Multi Agency Flood Plan

The Coventry Multi-Agency Flood Plan (MAFP) outlines the multi-agency arrangements used to facilitate an effective and co-ordinated response to flooding in Coventry.

The objectives of the plan are to:

- *Provide guidance on activating, maintaining and de-escalating Coventry's multi-agency response to flooding,*
- *Outline the activation and co-ordination procedures followed by responders, including triggers for response escalation,*
- *Detail partner's responsibilities as part of the multi-agency response,*
- *Highlight key areas at risk from all sources of flooding in Coventry; and*
- *Provide an overview of recovery actions.*

The plan is not intended to provide detailed operational guidance for individual responders.

6.7 Planning Policies

The Flood Risk Management and Drainage team work with the Planning and Development Management teams to deliver flood risk and drainage advice to help with strategic planning policies and localised planning applications.

6.7.1 Local Plan

The Local Plan sets out the approach to sustainably meeting and managing all the development needs of the city up to 2031. This includes setting out policies that govern how housing, employment, leisure and shopping land uses are managed; and also how proposals for these uses are located through land allocations. Aligned to this will be policies that cover environmental matters such as Green Belt, flood risk, biodiversity, parks and green spaces, and minerals and waste.

6.7.2 Standing Conditions for New and Redevelopment

The points below headline draft conditions that the LLFA will request the LPA to impose upon all developments. These are required to enable sustainable development and to reduce the flood risk associated with development, and ensure that future development is resilient to flooding. These are not exhaustive and site-specific conditions will prevail assessed on a case-by-case basis at the discretion of the LLFA.

Culverting

No ordinary watercourse should be culverted unless there is an overriding need to do so and justified in line with current policy. This is because

- a) The ecology of the watercourse is likely to be degraded by culverting
- b) Culverting introduces an increased risk of blockage (with consequent increase in flood risk); and

- c) It can complicate maintenance because access into the culvert is restricted, classified as a confined space and requiring trained operatives and specialist equipment where manned entry is essential.

Wherever it is feasible, watercourses should be de culverted to make it more cost effective to manage and remove any blockages, and to take the opportunities to enhance habitats and condition of watercourses. An approach to tackling Combined Sewer Outfalls to prevent the flow of foul water into these watercourses is being addressed, to improve the overall quality of the watercourse network, and the associated environment. Where culverting a watercourse is unavoidable, environmental compensation is required onsite to offset the impact.

Introduction of Water or Changes in Flows or Volumes

No person shall as a result of development (even if it has been authorised by the Town and Country Planning Act 1990 or any other regulation or order) introduce water into any ordinary watercourse in the area by means of any channel, siphon, pipeline or sluice or by any other means; to directly or indirectly increase the flow or volume of water without the previous consent of the relevant flood risk management authority.

No Obstructions within 5 metres of the edge of the Ordinary Watercourse

No person without the previous consent of the relevant LLFA shall erect any temporary or permanent building or structure within 5 metres of the landward toe of the bank.

Discharge from Development Sites

No person shall, without consent, cause an increase in runoff volume or flow from any development or redevelopment. Flows and volumes are restricted to the Greenfield Qbar less 20% value for any site using the most appropriate form of calculation agreed with the LLFA as a specific requirement of the SFRA and SWMP. This requirement will apply to both new and redevelopment sites.

Exceedance Flow Routing

The developer shall consider the management of overland flow routes in the event of exceedance or blockage of the drainage system. Details should include demonstration of how the building will be protected in such an event.

Acceptance of flows through a development site

No person shall cause an overland flow route or channel to become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA) so as to prevent damage to property.

Asset Register

The Council will continue to update the asset register and make this available for inspection at reasonable times and by a written 7-day notice request.

Designation of Features Significant to Flood Risk

The LLFA will, as required, utilise the powers of designation to determine structures and assets which have a significant impact on flood risk. No person shall without the previous

consent of the designating authority, remove or alter the designated feature. Should damage occur to the feature, the owner is responsible for repairs to a standard agreed with the designating authority within an agreed timetable.

Water recycling technologies

All developments, unless otherwise evidenced to be unsuitable, will utilise water harvesting techniques to reduce the use of fresh water within the new development and as a method of reducing discharge volumes from the site. This will be assessed in accordance with National and Local standards and guidance as agreed by the LLFA.

SuDS

Unless otherwise evidenced to be unsuitable all developments will utilise open air SuDS techniques such as balancing ponds, swales and green roofs so as to enable biodiversity and water quality improvements. This will be assessed in accordance with National and Local standards and guidance as agreed by the LLFA.

Groundwater

Evidence of existing groundwater levels and that development will not increase, or cause, groundwater flooding risk. This will be assessed in accordance with National and Local standards and guidance as agreed by the LLFA.

Flood Risk Assessment Requirements

All development and redevelopment within the Council administrative area shall require a Flood Risk Assessment appropriate to the scale of the development and to the scope agreed with the LLFA. The Flood Risk Assessment must be produced to the current national and local standards and include information on all current and future flood risk. These documents should utilise the SWMP, PFRA and SFRA for Coventry City as sources of information. Flood Risk Assessments should consider flood risk from all sources, including residual risk. As a starting point information can be obtained from the LLFA, EA and other RMAs.

6.8 Strategic Flood Risk Assessment (SFRA)

A SFRA is in a hierarchy of studies carried out to assess flood risk at all levels from strategic to site specific. They comprise relevant data, guidance and recommendations of local level flood risk issues and are a useful tool to help manage flood risk. The Council published a SFRA in 2015 as part of the evidence base for the current Local Plan 2011 – 2031. The current document includes a Level 1 and a Level 2 SFRA of possible development locations identified for potential allocation within the Local Plan.

6.8.1 Level 1

A Level 1 SFRA should be sufficiently detailed to allow application of the sequential test. The SFRA considered all sources of flooding including river flooding, surface water, groundwater, sewers and reservoir flooding within the study area. The Level 1 SFRA provides strategic flood risk maps which show flooding from all sources; including EA defined flood zones, and areas at risk of flooding from other multiple sources. The assessments also provide an

overview of the implications of climate change for flood risk. The SFRA will help applicants to apply the Sequential Test and prepare site specific Flood Risk Assessments in accordance with the NPPF.

6.8.2 Level 2

A Level 2 SFRA is prepared where land in Flood Zone 1 cannot appropriately accommodate all necessary development, forcing development into Flood Zones 2 and 3, and therefore requiring a need to apply the NPPF's Exception Test. In such circumstances, the assessment should consider the detailed nature of the flood characteristics within a Flood Zone and assessment of other sources of flooding. A Level 2 SFRA refines and builds upon the work undertaken in the Level 1 SFRA. It focuses on improving the Flood Zone information on Main Rivers and several of the smaller watercourses and surface water risk within the city in order to better inform the Sequential Test. This in turn will improve the site selection process as part of Coventry's Local Plan.

7 Strategic Objectives, Actions and Measures for Managing Local Flood Risk

As part of the Council's statutory duty as LLFA to co-ordinate flood risk, included in the LFRMS is a set of objectives to steer the Council towards fulfilling the main aim of the strategy; to produce a plan to reduce and manage local flood risk in a way that will benefit people, property, and the environment.

The strategic objectives align with the NFCERMS and guide the Council towards actions that will reduce flood risk. Several objectives have been developed and refined to support the aim and are expressed in further detail below.

Strategic Objectives

1. **Understand flood risk:** *Develop a greater understanding of local flood risk by improving awareness and understanding of historic and future flood risks from local sources.*
2. **Engage with Riparian Owners:** *Engage with Riparian Owners on the responsibilities that they have under the Flood and Water Management Act and the Land Drainage Act.*
3. **Manage local flood risk sustainably:** *Utilise a more sustainable approach to reducing flood risk to deliver environmental enhancement as well as benefits to public health and open space.*
4. **Support resilient communities:** *Engage with communities to improve community awareness of flood risk and preparing communities for flooding in order that the impact of flooding is reduced and aids recovery; and to enhance planning policy to reduce flood risk from new developments, delivering improvements through smarter design and planning.*
5. **Achieve an economically sustainable approach to managing risk:** *Utilise partnership funding and collaborative working to find ways to reduce the economic impact of flood defences, asset operation and maintenance.*

7.1 Action Plan for achieving Objectives

7.1.1 Scope of the Action Plan

The EU Floods Directive describes risk management measures as prevention, protection, preparedness and recovery and review. In Defra's review of local flood risk management strategies in England, part of the *Evaluation of the Arrangements for Managing Local Flood Risk in England (2017)*, the four terms were defined as:

1. **Prevention** – avoiding putting people or the environment at risk of flooding;
2. **Preparation** – taking actions that prepare people for flooding;
3. **Protection** – protecting people from risk of flooding; and
4. **Recovery and review** – learning from when flooding happens and how to recover from it.

For consistency the Council have used these same definitions to define the scope of the action plan.

7.1.2 Action Plan Principles

Consistency with National Strategy

Section 9(5) of the FWMA requires local strategies to be “consistent with the national flood and coastal erosion risk management strategy for England”, and Section 11(1) of the FWMA requires RMAs in England to “act in a manner which is consistent with the national strategy and guidance”. The NFCERMS has been considered throughout the construction of this strategy and referenced accordingly to demonstrate consistency.

Implementing learning

In the compilation of this plan, the Council considered it important to be explicit in incorporating previous learning. It was estimated that during the summer 2007 floods, two-thirds of the 57,000 properties affected were flooded from local sources; therefore, the findings of the Pitt Review 2007 which followed are particularly important; recommendations of the Pitt Report are referenced accordingly. Another key source of recommendations has been Defra's report *Evaluation of the arrangements for managing local flood risk in England (2017)*. Learning through local, regional, and national collaboration has also been incorporated.

Transparency

This strategy provides a key opportunity to increase public knowledge of what the Council aim to achieve and sets out how the Council will do it. It forms the framework within which communities have a say in local risk management decisions and are supported in becoming better informed about flood risk issues generally. To demonstrate the application of the strategy, where possible the Council have included case studies as examples explaining past activities and challenges.

A sustainable, risk-based approach

The strategy balances the needs of communities, the economy, and the environment. The action plan whilst being ambitious recognises economic constraints; the summary lists

whether objectives are statutory duties, essential or desirable. Following completion of statutory duties, the delivery of objectives and measures are prioritised using a risk-based approach, consistent with the national strategy. This means adopting different levels of assessment according to the level of risk posed, within the remits of policy.

Climate Change

Responding to climate change is a key focus of the NFCERMS. Changes in weather patterns, in particular more torrential rainfall, is likely to increase flood risk from surface water and ordinary watercourses and Coventry is no exception. The impacts of and adaptation to climate change is therefore considered throughout the action plan.

Consideration of multiple benefits

As well as reducing the risks to people and property, local flood risk management can bring significant economic, environmental, and social benefits, and reduce the risk of flooding from other sources, as is stated on page 75:

“The National Planning Policy Framework is clear that planning policies and decisions should contribute to and enhance the natural, local and historic environment in various ways, including by protecting and enhancing valued landscapes, and minimising impacts on and providing net gains for biodiversity.”

A summary of the multiple benefits of objectives is included within each aim, importantly including environmental benefits as required by Section 9 of the FWMA. Throughout the Council have also looked to be consistent with the Governments 25 Year Plan for the Environment, particularly given the same importance is expected to be assigned to the Plan in the new NFCERMS. The integrated catchment management aim is particularly focused on multiple benefits.

7.2 Objective 1 – Understand Local Flood Risk

“Develop a greater understanding of local flood risk by improving the awareness and understanding of historic and future flood risks from all sources.”

In the NFCERMS, it describes: Flood and coastal erosion risks can only be managed effectively if they are properly understood. Key to this is estimating the risks through assessing data, information and modelling and understanding the uncertainty in the predicted levels of risk. The first edition of the Coventry SWMP published in 2016 identified more information was needed on local flood risk. The actions and measures set out how the Council will develop a greater understanding of flood risk from local sources, with consideration of how this risk will change as a result of climate change.

7.2.1 Surface Water Management Plans

The Council recognises the value of SWMPs as a tool to identify flood risk from surface water and ordinary watercourses. This allows the Council to assess options to understand the risk (including potential depth and velocity of flooding), and where possible mitigate the risk and prepare an action plan to reduce risk to life and provide costed solutions.

As part of the development of these plans, consultation with the EA and the relevant water companies will enable the effective consideration of options. The outputs of the plans will be used to inform development control decisions.

In support of the LFRMS, the Council has produced a standalone SWMP.

7.2.2 Flood Reporting, Recording, and Investigating

It is vital that members of the public who are affected by flooding are aware of the appropriate RMA to contact.

The Council as LLFA is proactive in collating information about flood incidents that occur within the city. News reports and social media are used as alerts to flood incidents and also for photographic evidence. All of the information collated is placed on the database of historic flood incidents and will alert the Council to any recurring flooding hotspots. On receipt of flood incident report forms or other information regarding flood incidents, the content is reviewed, and investigative actions determined by following the Council’s Flood Investigation Process (as developed further within the SWMP). The LLFA has a statutory duty to investigate flooding incidents in its area, to the extent that it considers necessary or appropriate. This requirement is set out in Section 19 of the FWMA:

“On becoming aware of a flooding incident, the LLFA must decide whether it is necessary or appropriate to investigate further in order to:

- a) Identify which risk management authorities or individuals have flood risk management functions in respect of the flooding (it could be for example the EA if it comes from Main Rivers or the sea).*

b) Establish whether that authority or individual has responded or is proposing to respond to the flood.”

The LLFA is not obliged under the FWMA to resolve the flooding directly, however they will investigate the cause and assign responsibility to any relevant authority or individual. As a minimum, the LLFA will seek to conduct informal investigations on all flood events. These informal investigations will be shared with the other relevant RMAs and their resulting action plans will be shared with the LLFA.

Upon learning of a flood event within Coventry, the Investigating Officer will follow the ‘Flood Investigations Process’ whereby it will be determined whether an investigation should be carried out, taking into account the available resources and significance of the event.

It is therefore essential to determine what is ‘necessary or appropriate’ in the context of Coventry. The Council chooses to investigate all flooding incidents. A formal flood investigation will generally be carried out if one or more of the following occurs:

- Flooding has affected critical infrastructure or highway for a period in excess of 3 hours from the onset of flooding
- Internal flooding of one property has been experienced on more than one occasion in the last 5 years
- Internal flooding of five properties in close proximity has been experienced during one single flood incident.

Internal flooding is defined as flood water which enters a building; it can also be flooding that passes below a suspended floor. For these purposes, ‘living accommodation’ refers to domestic dwellings and not gardens or outbuildings such as sheds, garages etc.

Close proximity is where it is reasonable to assume that the affected properties were all flooding from the same source or the same interaction of sources.

The Formal Investigations will follow the following process:

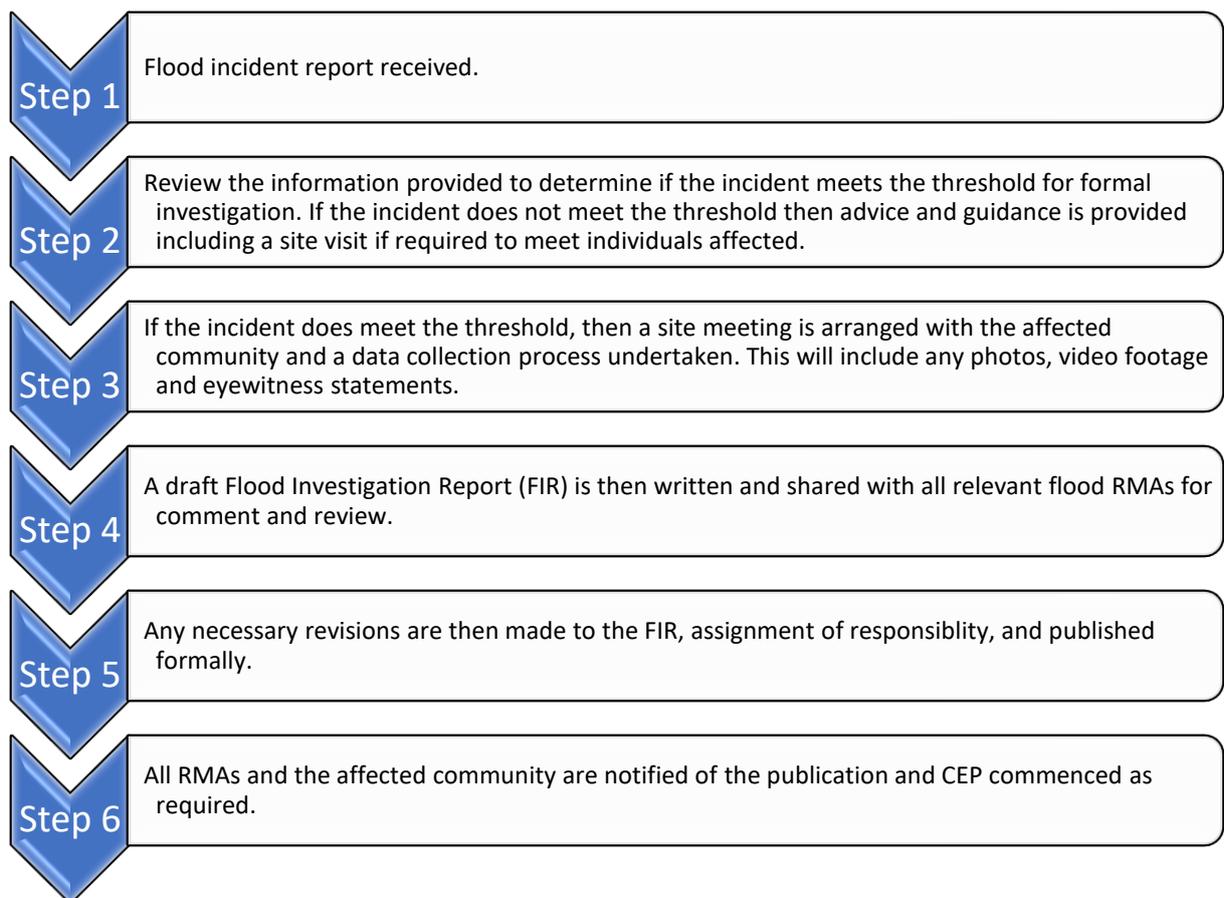


Figure 9 - Step by step guide of the process for Formal Investigations

It is important to note that this is a technical assessment and that it is for the relevant responsible body or persons to assess any recommendations in terms of their legal obligation, resource implications, priority and cost/benefit analysis of undertaking such actions.

Following significant widespread flooding in the city, where a number of incidents meet the thresholds for investigation, the investigations will be undertaken on a priority basis. This will take into consideration factors such as the number of properties affected, the extent, depth and duration of the flooding, the history of flooding, and the impact on infrastructure such as roads.

The 'Flood Investigation Report' will describe the flood incident and aim to determine any contributing factors. The report will explain the roles and responsibilities of those involved, and provide recommendations for future actions. It is important to note that it is for the relevant responsible body or persons to assess each recommendation in terms of the legal obligation, resource implications, priority, and cost/benefit analysis of undertaking such action. The recommendations may be included within the action plan linked to the LFRMS or in the relevant RMAs future work programmes, as appropriate.

7.2.3 Flood Risk Assessment

Action: RMAs will contribute towards updates to the PFRA for Coventry

The next update to the PFRA is expected in 2023.

Action: RMAs will contribute towards further SFRAs produced by the Council

To inform Local Plans, the NPPF requires Local planning authorities to carry out a SFRA to assess flood risk in their area, and the risks to and from surrounding areas. It includes an assessment of flood risk from all sources in Coventry, particularly development sites allocated in the Local Plan; therefore, providing useful analysis of existing flood risk from local sources in these areas. A new SFRA will be required if further sites are allocated in a new local plan. RMAs will contribute towards further SFRAs by providing data and information on flood risk from local sources.

Since the publication of the PFRA, the LLFA has continued to develop and maintain local flood risk hazard mapping. To understand local flood risk, the LLFA makes use of some key national datasets produced by the EA.

Action: The LLFA will continue to develop and maintain local flood risk hazard mapping

Table 2 - National datasets produced by the Environment Agency used for local hazard mapping. All data is freely available online.

Dataset	Function
Fluvial Flood Mapping	The fluvial flood mapping provides flood extents for watercourses with an upstream catchment of over 3km ² . This predominantly is main rivers, however some ordinary watercourses are included, for example the Pickford Brook in Coventry.
Risk of Flooding from Surface Water (RoFSW)	In 2013 the EA acting in their strategic overview role and working with LLFA's, produced the Risk of Flooding from Surface Water (RoFSW) . It is the third national dataset of its kind; the first was produced following a recommendation in the Pitt Report that the EA, supported by local authorities and water companies should urgently identify the areas that are at highest risk from surface water flooding. It can also be useful for understanding flood risk from ordinary watercourses which are not part of the fluvial flood maps.
Areas Susceptible to Groundwater Flooding (AStGWF)	The Areas Susceptible to Groundwater Flooding (AStGWF) is a strategic-scale map showing groundwater flood areas on a 1km square grid.

7.2.4 Community Engagement and Awareness

The Council will engage with the community to ensure that residents are aware of local flood risk and the roles and responsibilities of the various flood RMAs. This will include informing residents of riparian responsibilities where applicable. Communities and residents will be encouraged to be resilient and self-reliant so that the risks from flooding can be reduced. Information will be provided on external agencies that can help during and whilst recovering from a flood event.

For more information on how the Council are engaging with the community, please see the [Community Engagement Plan](#) section.

7.3 Objective 2 - Engage with Riparian Owners

“Engage with Riparian Owners on the responsibilities that they have under the Flood and Water Management Act and the Land Drainage Act.”

The [Owning a Watercourse](#) page on the [gov.uk](#) page is a guide to rights and responsibilities of riverside ownership. It replaced the longstanding Living on the Edge Guidance published by the EA. It applies to people who have watercourses running through their land and offers advice on riparian ownership duties and rights as well as consenting.

The maintenance and clearance of watercourses plays a key role in land drainage and flood risk management. Responsibility for maintenance of ordinary watercourses, particularly in relation to roadside ditches and small streams, has been misunderstood in the past and is not generally well understood by the public.

A Riparian landowner is an owner of land that has a watercourse running through, adjacent to or under it, unless property deeds clearly state otherwise. Where both banks of the watercourse are inside the land boundary, the landowner is fully responsible for that length of watercourse. Where the watercourse separates two pieces of land, both landowners are jointly responsible up to the centre of the watercourse.

Riparian owners under Common Law have responsibility for ensuring the free flow of water within their section of the watercourse. Riparian owner’s rights and responsibilities have been set out in a [Coventry specific guidance note](#), which will be made available on the Council’s Flood and Water webpages. For clarity, Riparian Owners are responsible for flooding by inadequate maintenance of waterbodies for which they are responsible.

Responsibilities include the maintenance of the bank and bed of the watercourse and also the management of trees and shrubs growing on the banks in order to avoid any obstruction to the flow of water. Riparian owners must also clear any debris, even if it did not originate from their land. When a watercourse runs between the boundary of a property and a neighbour’s boundary, each property owner will be responsible for maintenance up to the centre line of the watercourse. The Riparian owner will also be responsible for ensuring sewer outfalls that they own remain clear also.

Action: The LLFA will produce and keep up-to-date local guidance on riparian responsibilities to improve community awareness

The LLFA has produced local guidance on riparian ownership. It is consistent with the content on the “Owning a Watercourse” page, but includes further local standards (e.g., relevant Local Plan policies) and local interpretation of policy. It will be used for potential awareness campaigns and will be made available in both online and paper format.

Multiple Benefits

- *Supporting high risk communities is likely to increase community cohesion with multiple social benefits,*
- *Our local guidance on riparian ownership will also aim to improve the environmental standards of management for watercourses, to help achieve WER Objectives. In rural areas, this will include advice on compliance with the **Rules for farmers and land managers to prevent water pollution.***

The following activities set out below will enable this objective to be achieved:

- Warning and informing of Riparian owners at public meetings and by writing to individual riparian owners.
- Active encouragement and enforcement of flood risk management activities to be undertaken by Riparian owners particularly in locations known to be flood sensitive.
- Sources of advice on how to resolve nuisance flooding.
- Sources of advice on mediation and legal proceedings.

Success will be measured by the frequency of interventions set out in [Enforcement](#) with Objective 3, feedback for review and appropriate action.

7.4 Objective 3 - Manage local flood risk sustainably

“Utilise a more sustainable approach to reducing flood risk to deliver environmental enhancement as well as benefits to public health and open space.”

7.4.1 Natural Resilience

Linkages in policies and design standards are to be made to reinforce the relationship between biodiversity, adapting to climate change and the economic benefits that the use of ‘natural interventions’ such as reinstatement of floodplains, tree planting, green roofs, and sustainable drainage systems can bring to Coventry. This work will be taken forward with other RMAs.

7.4.2 Understanding and enhancing environmental assets

The Warwickshire Wildlife Trust has undertaken a number of studies to assess the condition of watercourses throughout the city area, including the “Coventry Brooks and Streams” report. This report highlights areas where river channel biodiversity could be improved using natural processes and shows areas that would benefit from natural reed beds, flood attenuation or the reinstatement of meanders. These improvements will boost biodiversity, reduce flood risk downstream and help the city achieve its WER targets.

The second stage of these will be, where possible, to restore channels to a natural state. This will include increasing tree coverage, natural bank reinstatement and promoting catchment-based approaches to water quality improvement.

7.4.3 Provide Blue and Green Infrastructure

Blue corridors are a component of green infrastructure, adjacent to watercourses or at key overland flow routes, which are designated for the primary purpose of conveying water, particularly in times of flood. They also provide a wide range of additional functions such as amenity and biodiversity conservation. Working closely with key partners to ensure well planned land-use and the progressive reinstatement of green open spaces (within existing and new developments), together with the introduction of wetlands and woodlands throughout Coventry, could help reduce flood risk and satisfy the requirements of the WER. It is essential that access for maintenance and operation of flood risk assets and watercourses is not restricted as a result of the implementation of any blue and green infrastructure.

It is important that opportunities are sought when new development and redevelopment opportunities arise, and that areas of floodplain reinstatement in conjunction with green and blue infrastructure are identified and realised. This will not only have flood risk benefits, but also ecological, environmental and amenity improvements. There is a valuable opportunity to use existing and proposed green and blue infrastructure corridors as integrated sustainable drainage systems and it is important to raise awareness that these areas will be designed to flood from time-to-time. This will be further explored within the specific Sustainable Drainage guidance to be produced by the Council.

A key aspect to managing pollution run off into water is establishing wide buffers to water courses. A minimum of 10 meters on each side of the watercourse is recommended to protect protected species such as otter and water vole. Coventry is an important stronghold for remaining populations of water voles. The careful and sensitive management of watercourses is important in retaining these species in the area, part of National Environmental Research Council (NERC) duty of Local Authorities.

7.4.4 SuDS Guidance

Action: The LLFA will maintain the Coventry SuDS Design Guide

The Coventry Local Plan 2011-2031 has strengthened requirements for SuDS in Coventry. For example, in policy EM5(1) it is stated:

“All development must apply SuDS and should ensure that surface water runoff is managed as close to its source as possible.”

In support of the application of this policy, the LLFA will publish the Coventry SuDS Design Guide, fulfilling Local Plan Policy EM5(part 5).

“A separate Supplementary Planning Document will be produced to detail how SuDS schemes will be designed in accordance with the technical standards set out by the Coventry LLFA and by the Department for Environment, Food and Rural Affairs.”

The Open Spaces SPD provides guidance on the provision of SuDS and how to integrate these into open spaces, the water environment and complimenting biodiversity. The guide specifies local standards for the design of SuDS. This is achieved through communicating local interpretation of policy and best practice, and also provides guidance on the submission process. The Guide is a living document which is updated by the LLFA following any significant changes to policy or guidance.



An attenuation basin (left) and swale (right). Part of a SuDS scheme on a redeveloped housing estate in Wood End, Coventry

7.4.5 Integrated Catchment Management

The NFCERMS identifies a catchment approach as important for both considering impacts in other parts of the wider catchment and achieving wider benefits through more integrated water management. The 25-year environment strategy also encourages a catchment-based approach.

Coventry is committed to identifying and maximising multiple benefits achieved through all objectives and engaging with other partners to ensure they are aware of the flood risk management benefits that can be delivered through their actions. Working together increases opportunities to develop new sources of funding as well as pooling resources and expertise. Local flood risk alleviation is a benefit which can be derived from projects with alternative primary focuses.

Effective catchment planning will: encourage sustainable development; lead to recognition and maximisation of the multiple benefits of schemes and help secure support for delivery of further schemes through the demonstration of contributions towards wider catchment improvements. Not exclusively, in Coventry this will help achieve:

- Local WER objectives.
- Local Plan objectives.
- LFRMS and SWMP objectives and contributions towards delivery of the Government's 25 Year Environment Plan.

Action: The LLFA will take an active role within the Warwickshire Avon Catchment Partnership to help deliver WER Improvements.

To help deliver EU WER objectives, in 2013 the Government developed the Catchment Based Approach (CaBA), a policy framework to encourage the wider adoption of integrated catchment management to improve the quality of our water environment. This included the formation of catchment partnerships; these partnerships are community led and bring together interested parties involved in water management within catchments.

The Severn River Basin District (RBD) is split up into management catchments; Coventry is part of the Warwickshire Avon catchment, and therefore the Warwickshire Avon Catchment Partnership (WACP). The WACP meets approximately biannually. The partnership has a catchment plan which includes a list of potential schemes to improve the water environment. The LLFA provides insight as to how opportunities for local flood alleviation can be maximised through such schemes.



Figure 10 - A hierarchy of catchment and associated plans and targets

The Warwickshire Avon is split into water bodies. Targets for these water bodies are set in the Severn RBMP. The partnership provides the appropriate forum for the collaboration required to achieve these targets and other goals. Current status and targets for Coventry water bodies are available on the EA's [Catchment Data Explorer](#).

The Council is legally accountable for WER compliance and must not prejudice future opportunities for water quality improvement. Many of the objectives of the WER can be met through the planning process by ensuring new development enhances the water environment and implements measures to prevent pollution to local water bodies.

Deculverting: RMA's are particularly interested in de-culverting.

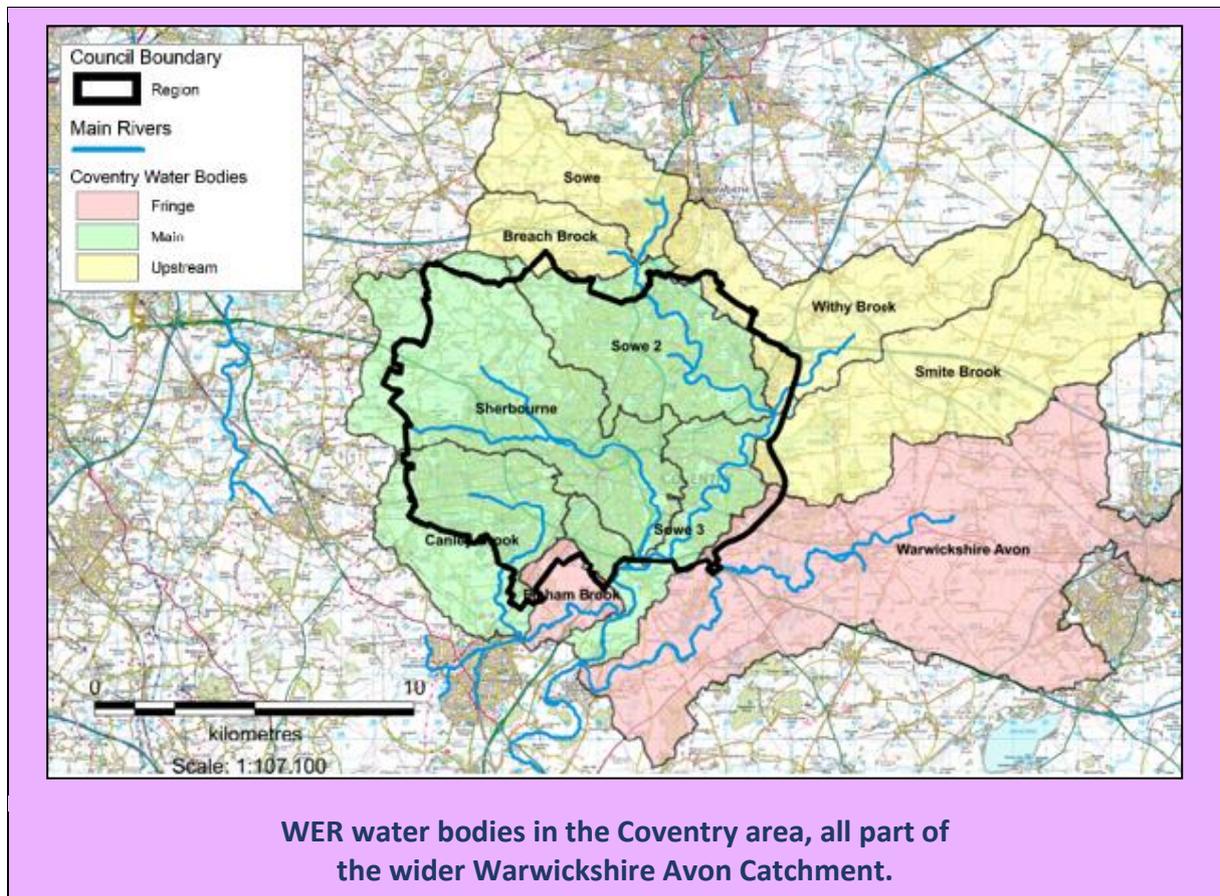
7.4.6 Deculverting

Where practical and specifically linked to new and re-developed areas, the Council when working with its flood risk management partners will endeavour to promote the de-culverting of all reaches of ordinary watercourses and restore them to open channels. This will not only increase conveyance, reduce risk of blockages, and minimise the need for trash screens, but in most cases, will also lead to environmental enhancement of the area. A specific policy has been set relating to the culverting of ordinary watercourses and can be found in the policy section.

Alternatives to culverting include:

- Construction of a clear span bridge – bridges have a much lower impact on the hydraulics and ecology of the watercourse compared with culverts because, in general, the bed and often the banks of the watercourse can remain undisturbed.
- Diverting the watercourse - in exceptional circumstances and where greater flood management and biodiversity benefit can be gained, diversion of the watercourse may be an option. This can provide opportunities for environmental and hydraulic improvements and is particularly useful where a watercourse (or watercourses) bisects a development site, and it can be diverted around the perimeter. While, in

some cases, it can be more expensive in the short term, the benefits in reduced sterilisation of developable land, the opportunity to rationalise a development site and the reduction in expensive and continual maintenance can make this an attractive option. Peripheral watercourses can also act both as landscaping and as part of the site security perimeter.



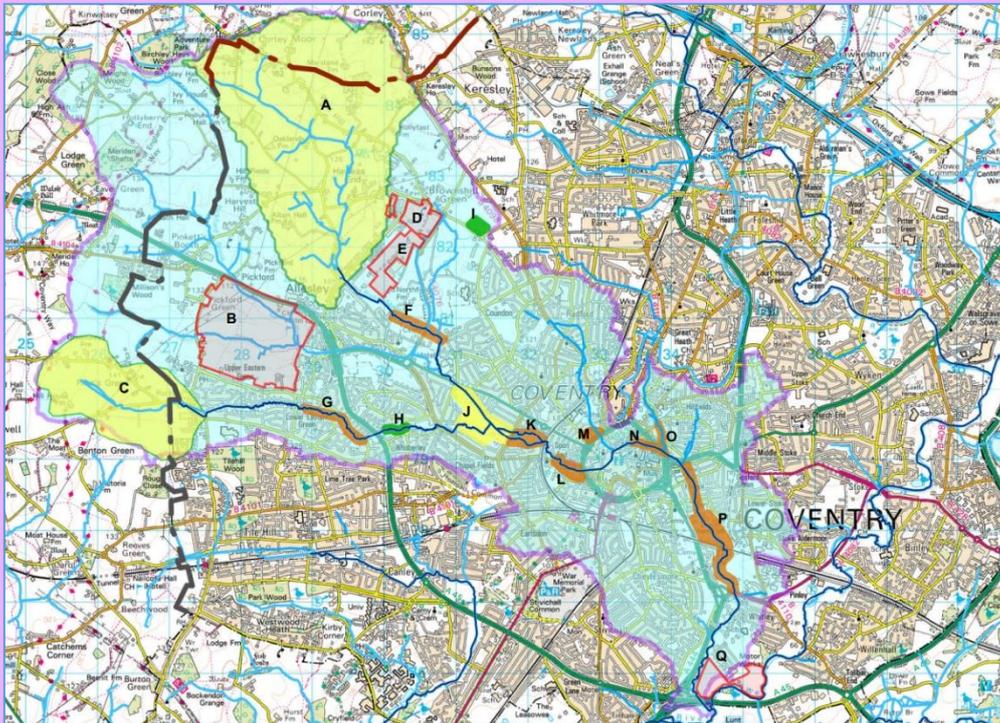
Action: The LLFA will contribute towards the production of integrated catchment mapping for WER water bodies in Coventry.

The combination of the adoption of the Local Plan and upcoming scheme delivery by multiple partners has heightened the need for co-ordination catchment planning between partners. This is particularly true for the Sherbourne water body, where the LLFA has produced maps to illustrate this need (see case study). A key example of this is the Sherbourne Valley Project where the Council are working with WWT to deliver restoration improvements to the River Sherbourne in the city centre. Integrated catchment mapping is important for understanding risks and opportunities, and potential collaboration between partners.

Case Study: Sherbourne Catchment

The Sherbourne is predominantly main river, however the wider water body includes a number of tributaries which are ordinary watercourses (e.g., Pickford Brook, North Brook), and areas with surface water runoff.

The combination of the adoption of the Local Plan and potential scheme delivery by multiple partners within the Sherbourne water body has heightened the need for catchment planning between partners. Therefore, the LLFA has produced catchment mapping.



Integrated catchment mapping of the Sherbourne

The maps produced show key developments, and partner schemes with varying focuses. The mapping has been distributed at partner meetings including the Flood Risk Management Group. It has been useful for increasing collaboration between partners across the catchment.

7.4.7 Ordinary Watercourse Regulation

Under the Section 23 of the Land Drainage Act 1991, consent is needed to build a culvert or structure (such as a weir) to control the flow of water on any ordinary watercourse. It is essential that works which may obstruct or impede the flow of a watercourse or affect flood defences are properly monitored and consented before they are undertaken. This is to

ensure that works are not undertaken which may endanger life or property by increasing flood risk, or cause harm to the water environment.

Consents are required for temporary and permanent changes.

Action: The LLFA will regulate changes to watercourses through duties defined in Section 23 of the Land Drainage Act 1991

Measure: The LLFA will process and issue decisions on land drainage consents within 2 months of receipt of application

Action: The LLFA will maintain local guidance for ordinary watercourse land drainage consent applications

Interpretation of Section 23 of the Land Drainage Act can vary, therefore local standards setting clear criteria are necessary. The LLFA has published guidance on the Coventry City Council [website](#), including a list of cross sections of consentable activities indicates what works may or may not require consent.

Action: The LLFA will offer chargeable pre-application advice for ordinary water course land drainage consent applications.

In addition to the explanatory notes and list of consentable activities provided, the LLFA is able to provide further tailored pre-application advice. The LLFA encourage pre-application discussions and site visits to discuss the appropriateness of proposed plans and check submissions will be well prepared. This is a chargeable service helping us to achieve an economically sustainable approach.

7.4.8 Enforcement

The transfer of regulatory powers on ordinary watercourses from the EA to LLFA's included powers of enforcement. Following formal advice to landowners relating to their riparian maintenance responsibilities, in the event of non-compliance, enforcement action may be required. The broad aims of enforcement in flood risk management and drainage are to ensure:

- the proper flow of water in a watercourse and over the floodplain;
- the control of water levels;
- and the security of existing assets.

To achieve these aims, enforcement action is used to rectify unlawful and damaging or potentially damaging work, always using a risk-based approach. Enforcement action (not

Action: The LLFA will produce and maintain and apply a pre-enforcement and enforcement policy

necessarily criminal sanction) may be taken where damaging or potentially damaging works have been undertaken without consent or are in contravention to an issued consent.

The LLFA may use the following powers of enforcement:

Table 3 - LLFA Powers of Enforcement

Legislation	Title	Description
S14 Land Drainage Act 1991	General drainage powers of boards and local authorities.	Improvements to structures or features.
S21 Land Drainage Act 1991	Enforcement of obligations to repair watercourses, bridges etc.	Predominantly used to request repair to assets in poor condition
S24 Land Drainage Act 1991	Contraventions of provisions on obstructions etc.	Used to request the removal of structures or rectification of alterations to watercourses which have not received S23 consent
S25 Land Drainage Act 1991	Powers to require works for maintaining flow of watercourses	Used to request those responsible for the maintenance of a watercourse (e.g. removal of blockages) to carry out their duty.
S11 Sch1 Flood and Water Management Act	Designation of features	Used if a feature designated under schedule 1 of the FWMA is altered, removed, or replaced.
S59 Buildings Act 1984	Drainage of building	Used to provide the satisfactory provision of drainage for the building, repairing or renewing the drainage features.
S64 Land Drainage Act 1991	Powers of entry for internal drainage boards and local authorities.	Asset inspections.

Preparation is required to ensure enforcement is carried out in appropriate manner.

The key aims of the enforcement policy are to:

1. Ensure an equitable approach;
2. Ensure accountability and legally robust cases; and
3. Ensure officers are prepared for all eventualities.

Due to the varying details within the legislation, different processes are required for each piece of legislation.

Multiple Benefits

- *A sustainable approach to management of ordinary watercourses and associated assets can deliver wider benefits. For example, when reviewing land drainage consent applications, the LLFA also considers the environmental impacts of plans and aesthetics.*

7.4.9 Flood Risk Management Works

LLFAs have powers to undertake works to manage flood risks emanating from ordinary watercourses, surface runoff and groundwater. Powers to undertake works on Main Rivers remain with the EA.

7.4.10 Paving Front Gardens

The historic drainage systems within the city were not designed to cope with ever increasing rainfall due to climate change and are under significant pressure from the rainfall volume of water draining into them. Paved front gardens contribute to the problem by allowing additional water to enter the drainage system instead of infiltrating into the soil. Current techniques for paving front gardens raise concerns over increased water volume in the drainage system and pollution concerns; where areas of hard standing collect pollutants such as oils, petrol and brake dust, which is then washed into the drainage system. Encouraging the use of porous surfaces for paving front gardens is a city-wide interest throughout Coventry.

Permeable paving solutions are most notably integrated using gravel, reinforced grass, hard permeable surfaces with a permeable sub-base, rain gardens or soakaways. These methods allow water to filter into the ground, and the reduction in surface water runoff subsequently decreases local flood risk. Where used appropriately, methods of permeable paving filter pollutants out of the water which decreases environmental risk. Current Council policy encourages the implementation of SuDS including permeable paving. It is outlined in the Council's Local Plan (2017) that SuDS should ensure that surface water runoff is managed as close as possible to the source, whilst following the SuDS hierarchy where discharge by infiltration is the preferred option.

The Council are collaborating with partners to increase the uptake of permeable paving materials throughout the city, including working with the EA and STW.

7.5 Objective 4 - Supports Resilient Communities

“Engage with communities to improve community awareness of flood risk and preparing communities for flooding in order that the impact of flooding is reduced and aids recovery; and to enhance planning policy to reduce flood risk from new developments, delivering improvements through smarter design and planning.”

7.5.1 Improve Emergency planning, response, and recovery within communities

Emergency Planning and the related response to, and recovery from flood events are a key element to local flood risk management. Emergency Planning is quite simply an activity intended to prevent and reduce the disruption and harm to communities from both natural and man-made hazards.

By working with the Emergency Planning team: Coventry Solihull Warwickshire Resilience (CSWR), the LLFA will promote the Multi-Agency Flood Plan and raise awareness of how to respond to flooding within the community.

In specific flood risk areas, the EA issues flood warnings for river and coastal flood risk to those registered on the [Flood Warning Information Service](#) (FWIS). There is also an online service that shows the current flood warning situation in England and Wales. It is essential that those households at risk understand this risk and are encouraged to sign up to the FWIS.

It is important that this flood warning system informs the emergency planning process, to ensure that communities and responders are able to react to flood warnings in a timely and effective manner. Improving the emergency planning procedures in areas at risk from surface water flooding will help to ensure the safety of people, property, and community facilities by ensuring that necessary plans are established.

7.5.2 Improve public awareness and understanding of flood risk and flood risk management

By working with communities at public meetings and Ward Forums the LLFA will raise further awareness of the flood risk areas throughout the city. Reference can be made to Objective 1 relating to community engagement. Through this public engagement, the LLFA and EA will be able to provide residents with information packs and advice.

This advice will be based on EA guides to preparing for, coping with, and recovering following a flood event. The process will ensure residents are able to understand the risk posed to their property. By understanding the risks, residents will be able to make informed choices to purchase supplies in preparation for a future flood event.

Community resilience is about communities using local resources and knowledge to help themselves during an emergency in a way that complements the local emergency services.

Communities will be better prepared to cope during and after a flooding emergency if everyone works together using their local knowledge. Identifying and planning for the risks that may be encountered during a severe flood could help in reducing the potential impact on individuals and the wider community. Being prepared and able to respond to an emergency can also help communities recover more quickly.

7.5.3 Community Flood Plans

Working together as a community or group to complete a [Community Flood Plan](#) will help them respond quickly when flooding happens. It can help them decide what practical actions are to take before and during a flood, helping reduce the damage flooding can cause. The plan should also identify vulnerable people within the community that would need assistance in the event of a flood.

The community flood plan will also provide practical steps that can be taken to inspire and involve other residents within the community to work together to improve their knowledge of the risks of flooding and how to deal with flooding incidents. The Council can provide help and support in how to develop these for a community when approached to do so.

7.5.4 Promote Flood Protection Insurance

Insurance plays a key role in flood resilience. Flood Re will provide a fund to offer people at high risk of flooding who might otherwise struggle to get affordable flood insurance, with cover at a set price. Insurers will put into the fund those high flood risk homes they feel unable to insure themselves, with the premium to cover the flood risk part of the household premium capped.

Flood Re is a joint initiative between the Government and insurers to make flood cover for household insurances more affordable. It is expected to run for 25 years, and began in 2015. While this scheme happens, Association of British Insurers (ABI) members will voluntarily continue to meet their commitments to their existing customers under the old Statement of Principles agreement.

For more information on obtaining flood protection insurance, see the leaflet [“Obtaining Flood Insurance in High-Risk Areas”](#), published in partnership by Defra in July 2012.

The Council will encourage the take up of flood protection insurance and will promote property level protection and resilience measures which can reduce premiums.

7.5.5 Smarter design and planning

As an outcome of the SuDS Approval Body / Sustainable Drainage consultation in December 2014, the ministerial decision was that Local Planning Authorities will approve sustainable drainage solutions similar to all other element of building projects. A further outcome from this is that the LLFA will be Statutory Consultee on the management of surface water effective from April 2015. On this basis, any increases in flood risk can be minimised and in places risk reduction improvements delivered.

National standards and guidance on SuDS will be made available for use by developers for Coventry Council. The implementation of sustainable drainage, source control measures and

water reuse technologies will be encouraged. These measures will be achieved through more detailed guidance set out in a Coventry specific Sustainable Drainage Supplementary Planning Document (SPD) for developers and officers and will be produced in partnership with the EA and STW. The guidance will include:

- The process and information needed for submission for Coventry.
- Legislation and guidance.
- Links to green and blue infrastructure
- Links to the landscape.
- Sustainable use of water.
- Guidance on urban creep and predicted levels of creep
- Water quality treatment processes.
- Principles of adoption and future maintenance requirements.
- SuDS features in private ownership, and the requirements.
- Designation
- Other environmental issues.

Developers should consult with the Council in relation to their SuDS proposals, to ensure that they are adopting the most effective methods for their site.

The Local Planning Authority (LPA) will be responsible for approving all sustainable drainage solutions on all new developments and redevelopments that comply with the Coventry Standards. The LPA will also consult the professional partners listed below, where appropriate;

- Environment Agency
- Severn Trent
- Warwickshire Wildlife Trust
- Other recognised stakeholder groups, as appropriate

The LPA will approve all drainage solutions meeting the Council's Standards.

Policies allow the Council to reduce runoff and deliver flood improvements in areas where there are drainage critical problems. The LPA will develop planning conditions enforceable through legislation and enable enforcement.

Engaging with developers to produce an appropriately scaled Flood Risk Assessment will also ensure that due attention is given to any existing flow routes or areas susceptible to flooding. A tool in this will be the Surface Water Hazard Maps.

The hazard mapping will also inform land allocation and strategic planning by influencing where new developments are located, the impacts to the environment and flood risk. This must specifically include where watercourses, groundwater and overland surface water runoff is routed for both flood flow control and biodiversity enhancements. These strategic spatial elements must be included at the early stages of all plans and allocations.

The LLFA's aim is to utilise the Sustainable Drainage SPD to change the way developments are planned so the first stage of all developments is the identification and utilisation of blue

corridors. These are the areas of the site which would flood or have water flowing through them in rainfall events, at varying intensities prior and post development. By identifying and allocating these areas, early flow routes and SuDS can be planned into the layout and sit within these natural corridors. This will enhance the ability of the sites SuDS system to store, treat and outfall the runoff from the development in an appropriate manner.

The LPA and the LLFA have produced policies and objectives within both the Local Plan and the City Centre Area Action Plan to influence the way water is handled within developments. These policies include limiting discharges, encouraging grey water use, the use of SuDS and making space for water.

7.5.6 Community Engagement and Resilience

One of the intended outcomes of the FWMA was to address the level of understanding of flood risk amongst communities, and to develop their role in helping to address the risk, increasing community resilience.

The strapline of the NFCERMS is “*understanding the risk, empowering communities, building resilience*”. Community focus is a guiding principle of the National Strategy. Richard Benyon in his executive summary said:

“If there is one thing we need to achieve in the coming years, it is to re-engage our communities in the risks they face and the choices that affect them. Our communities deserve greater licence to inform and indeed influence long-term approaches.”

Fellow RMA in Coventry understand the benefits of collaboration with communities at risk. This strategy itself has been written in a way to be accessible to the community to encourage collaborative working and develop resilience. A public consultation was held for the first edition of the strategy.

Action: Risk Management Authorities will promote community resilience to flooding from local sources and produce community engagement plan

Community engagement in Coventry is prioritised in areas at greatest flood risk, with particular focus on deprived communities.

Customer enquiries: Coventry greatly values communication with local communities, particularly the reporting of flooding or asset condition. Customer enquiries can be made via Coventry Direct on the Council’s website. Routine customer enquiries will be responded to within 10 days however more in-depth investigations will require more time to thoroughly investigate, therefore substantive updates will be provided at milestones within the investigation.

Measure: Risk Management Authorities to provide an initial response to all routine customer enquiries related to local flood risk management within 10 days.

Flood Action Groups: The development of Flood Action Groups is supported. This has been a successful model in neighbouring Warwickshire through the Pathfinder and Post Pathfinder Projects.

Community Action Plans: The development of Community Action Plans in high-risk areas is also supported. Though not a substitute for MAFP's, community flood plans can be a part of the approach to flood risk planning and management in some localities. The community engagement needed to develop such a plan is in itself a very positive process.

Property Level Resilience: Where appropriate, the Council will also encourage homeowners and businesses in the purchase and installation property level resilience, as required by Pitt Report Recommendation 13: *Local authorities, in discharging their responsibilities under the Civil Contingencies Act 2004 to promote business continuity, should encourage the take-up of property flood resistance and resilience by businesses.*

Publicly available information: Information is made available online as much as possible, including on the Council's own website. The Community Engagement Plan will be made available.

7.5.7 Influencing development and land use

The Pitt Review identified measures needed in the planning system, citing many developments both at significant risk of flooding and increasing the risk of flooding elsewhere. In the NFCERMS it is stated:

“Unless this development is carried out appropriately, it could increase risks by placing more people and property in areas at risk. As a result, it is essential that spatial planning ensures that new developments take flood and coastal erosion risk fully into account, and are safe from, do not increase, and where possible reduce risk over their lifetimes” (page 11).

The [Coventry Local Plan 2011-2031](#) was adopted in December 2017. Coventry is projected to grow; an assessment completed in support of plan identified around 25,000 properties should be built within the city's boundary, whilst 107 Hectares of employment land has also been allocated. This combined with substantial regeneration plans for the city centre is likely to amount to significant land use changes over the coming years. Influencing this development to ensure local flood risk does not increase and taking opportunities to reduce risk is fundamental to the local flood risk management strategy for Coventry.

7.5.8 Statutory consultee for Surface Water

Action: The Council will fulfil its role as statutory consultee for local flood risk on all major applications.

Following a consultation period, on the 14th of December 2014, DCLG released a [ministerial statement](#) outlining that the Council would become statutory consultees on major planning applications. The [statutory instrument](#) that brought the duty to respond to surface water drainage associated with major development was laid before parliament in March 2015 with, the Council's commencement of the new duty on the 15th April 2015.

The Council has responded to a large number of major consultations, and there has been a noticeable improvement in flood risk and drainage design. Applications are assessed for compliance with a range of National and Local Planning Policies and Guidance, including:

- The National Planning Policy Framework, 2012
- Planning Practice Guidance: Flood Risk and Coastal Change - 2014
- Building Regulations Approved Document H - Drainage and Waste Disposal -2015
- The Coventry Local Plan 2011-2031
- Coventry City Centre Area Action Plan 2011-2031

The aim is to ensure developments are not at significant risk of flooding from local sources, and do not increase the probability of flooding elsewhere. Opportunities should also be taken to reduce flood risk elsewhere, as stated in Local Plan Policy EM5:

“All opportunities to reduce flood risk in the surrounding area must be taken, including creating additional flood storage.”

In this respect there is potential to deliver flood alleviation through development, therefore applications are also assessed for such opportunities using a catchment-based approach (see integrated catchment management section).

The Council provides consultation responses to all major applications, and minor applications when consulted. Conditions are often recommended to the LPA. If used, these help to ensure final drainage designs are policy compliant prior to construction.

Measure: Provide a consultation response to the Local Planning Authority for all major applications

Action: The LLFA will offer a chargeable pre-application service for all developments through the Council’s ‘One Stop’ shop service.

National and local guidance recommends [pre-application discussions](#) between developers and the LLFA. The NPPF highlights the benefit for pre-application discussions to be held in order to assist in resolving issues prior to the formal application stage. This will aid in the submission of the right information that is crucial to good decision taking by the LPA. The LLFA welcomes and encourages discussions before a developer submits a planning application.

Pre-app discussions can result in better quality applications which stand a better chance of a successful outcome and help speed up the decision-making process after submission. Considering the drainage requirements for a site is important in the master planning process. Charging for this service helps us to achieve an economically sustainable approach, funding other activities such as the capital programme.

The Council also offers a [Bespoke Service](#) for pre-application advice, where the developer commissions the Council to produce the information for submission to Planning and at technical approval stage. The flood risk and drainage advice is a material consideration for the Planning Authority when determining planning applications. The LLFA welcomes and encourages developers taking specialist advice before submitting any information whether this is ahead of as a pre-planning submission or planning application. These discussions can

result in better quality pre-planning application submission and subsequent planning applications.

7.5.9 Influencing planning policies and guidance

Action: The LLFA will influence local planning policies and guidance

The LLFA contributed to the development of the City Centre Area Action Plan (CCAAP) and the Local Plan. The Local Plan is supported by several SPDs to guide the implementation of policies. For example, in 2018 the LLFA provided consultation responses to versions of the:

- Sustainable Urban Extension Residential Design Guide SPD; and
- Health Impact Assessments SPD.

Further consultations on SPD's and planning related strategies are expected.

Measure: Provide responses to formal consultations on relevant local planning policy and guidance

Action: The LLFA will influence national planning policies and guidance

Any changes to national policy and guidance will also impact the implementation of SuDS locally. Therefore, where possible it is important for the LLFA and others in Coventry to use their influence. The most important action for achieving this objective is responding to formal consultations. For example, in May 2018 the LLFA contributed towards a Coventry City Council response to the government's consultation on a revised NPPF. Further consultations are expected; in the 25-year Environment Plan the government committed to amending PPG to clarify construction and ongoing maintenance arrangements for SuDS in new developments, tightening links with planning guidance for water quality and biodiversity.

Some team members are part of the Local Authority SuDS Officer Organisation, an informal online network where LLFA's can collaborate.

Measure: Provide responses to consultations on relevant local and national planning policy and guidance

Case Study: Eastern Green Sustainable Urban Extension

The Eastern Green Sustainable Urban Extension is greenfield land allocated in the Local Plan 2011-2031 for the construction of 2250 homes and 15 ha of employment land. Also planned is a new junction on the A45 and a new primary school. Two ordinary watercourses, the Pickford Brook and Slipperslide Brook flow through the site.



The Eastern Green SUE Site

Through input into Local Plan policies and the supporting Residential Design Guide supplementary planning documents, the LLFA and partners have influenced potential development at this site and others. Through pre-application discussions we will look to ensure SuDS are considered as part of master planning.

Without the use of SuDS, converting greenfield into housing and employment would increase the volume and rate at which rainfall leaves the site, increasing flood risk downstream. However, the application of local plan policies EM4 and EM5 will require SuDS to be used to limit flows to existing rates and volumes during heavy rainfall events. Allowances are also made for future increases in rainfall intensity caused by climate change.

The Local Plan also includes site specific policy for the creation of blue-green corridors along the two watercourses. Policy EM4(2d) dictates development should be set back at least 5m to allow maintenance access, and Section 23 Consents will be required for any proposed changes to the watercourses (see ordinary watercourse regulation section). Any opportunities for river restoration will also be encouraged:

Policy EM5(2c) "all opportunities to undertake river restoration and enhancement including de-culverting, removing unnecessary structures and reinstating a natural, sinuous watercourse will be encouraged".



The Slipperslide Brook, Eastern Green SUE Site

Multiple Benefits

- *Attenuating flows to ordinary watercourses in upstream catchments can reduce the risk of main river and sewer flooding downstream,*
- *The water quality, amenity and biodiversity benefits of above ground SuDS are well recognised. SuDS also provide local climate change regulation. These positives are recognised in the 25-year Environment Plan, which encourages further use of SuDS. The SuDS Design Guide provides guidance on how to maximise the multiple benefits derived,*
- *Through our statutory consultee role, the Council also looks to ensure opportunities for deculverting are maximised, in accordance with the Local Plan and CCAAP,*
- *The 25-year Environment Plan includes actions for changes to the NPPF, PPG and Building Regulations to encourage SuDS and maximise water quality and biodiversity benefits. The LLFA will respond to consultations on these,*
- *Biodiversity Offsetting involvement.*

7.6 Objective 5 - Achieve an economically sustainable approach to managing risk

“Utilise partnership funding and collaborative working to find ways to reduce the economic impact of flood defences, asset operation and maintenance.”

The intention of this objective is to give decision makers and investors in flood risk management, the insight into economically sustainable and viable local flood improvement opportunities and how they might be funded. The partners of the Coventry FRMG have agreed that a shared programme of flood risk management should therefore be promoted. The following activities set out below and listed in the Action Plan will enable this objective to be achieved:

- Working together, aligning stakeholders with those who would benefit from further investment in flood risk management
- Prioritised approach to implementing the most sustainably cost-effective measures to reduce flood risk
- Identification of alternative funding sources
- Determine what can be afforded with available funding
- Utilise the new partnership approach to funding
- Create an annual programme of works where possible
- Consider local needs, priorities and pressures.

A key strategic objective of this Strategy is to align stakeholders, particularly those with available funding, with those who would benefit from further investment in flood risk management. Within this process, developing options for investment will need to test the local appetite for reducing the risk of flooding against the willingness to meet any additional costs that are not covered by Central Government support via the FDGiA. It is important to note that at the time of writing this Strategy, this is set against a backdrop of limited resources and low economic activity nationally.

A co-ordinated approach led by the Council as LLFA is therefore considered essential and this will include a partnership approach to FDGiA and other relevant bids. Each proposed flood risk management scheme will be assessed separately to identify which partners should be involved.

Including those with an alternative primary focus, the Council will be considering all forms of funding and will endeavour to ensure that when opportunities arise, detailed and robust bids are submitted. The Council will also provide a co-ordinating and where appropriate, supporting role for the local RMAs to submit scheme specific bids.

Through the close working partnerships established, the Council will ensure:

- Good engagement amongst key decision makers, partners, communities, and other stakeholders
- More effective and transparent prioritisation between competing projects throughout the city and between projects tackling different sources of risk

- A compelling business case for external contributions and other local investment, by showing that relatively small amounts of local investment over time may have a big impact in terms of long-term residual risk for an area, with any implications for property and land values and insurability considered.

7.6.1 Prioritised Approach

Although the benefits of individual flood risk management measures are often many times greater than their cost, it is not technically, economically, or environmentally possible to prevent all flooding. Therefore, this Strategy will implement the most sustainably cost-effective measures that will help to reduce flood risk and help to manage the impacts felt by communities, as each action is considered in more detail.

For each potential project or scheme outlined in the Action Plan, the following will be assessed:

- The potential for these projects to receive national FDGiA funding
- Where schemes are unlikely to be affordable, to suggest where a different approach may be needed, such as a reduced standard of protection or property resilience measures
- How any identified funding gaps might be filled, either by drawing upon partners' resources or pursuing wider sources of funding, where available.

Specific actions and measures have been outlined in the Action Plan to ensure this objective is met and include the need to:

- Continue to develop and establish short and long term funding arrangements to deliver the requirements of the FWMA;
- Ensure Infrastructure Development Plans, Community Infrastructure Strategies and Transport Infrastructure Plans are influenced by this Strategy and that developer funding is sought where considered appropriate and necessary.

The progress of these actions will be monitored and reviewed on an annual basis. These aims also link to the principles of reducing flood risk through new development and regeneration and promoting the development of flood alleviation schemes in partnership with others.

7.6.2 Partnership funding for flood defence schemes

Major capital works for flood defence can be funded by the RFCC, allocating funds from either FDGiA or Local Levy funds. The Council will apply for funding when needed to deliver a scheme which meets the core requirements, a robust business case can be prepared, and applications ranked against national priorities. Funding streams are:

- Coventry City Council
- Environment Agency
- Severn Trent
- Local Residents and Businesses
- Local Developers

For more details on funding mechanisms available to the LLFA please see Appendix D

7.6.3 Asset Register, Record and Maintenance

Action: The LLFA will maintain an asset register and record of structures and features with a significant effect on local flood risk in Coventry, and take a risk-based approach to their management

The Pitt Report recommended that local authorities should collate and map the main flood risk management and drainage assets (over and underground), including a record of their ownership and condition (Recommendation 16), allowing the development of effective maintenance regimes. This recommendation was taken up in Section 19 of the FWMA “Lead local authorities: duty to maintain a register”.

The river network and drainage infrastructure of Coventry is complex. There has been human settlement and therefore influence upon the water environment for over 1000 years. Many watercourses have been culverted, particularly over the course of the early-mid 20th century.

The development of an asset register and record has been a significant undertaking, with in some cases limited baseline records of assets. A number of other LLFA’s have highlighted the resource challenges associated with keeping their asset registers up to date.

Using a risk-based approach, efforts have particularly been focused on sites identified in the SWMP. The data in Table 4 have been key in the development of the asset register and record. The Asset Register is available for inspection and is made available to partners but will not be published. Using GIS software asset data can be mapped against hazard mapping.

The NFCERMS recommends assets are maintained appropriately using a risk-based approach, and consideration of the impacts of climate change upon the standard of protection provided by assets; and consideration of the design life of assets, and when they will require refurbishment or maintenance.

As assets age, they are likely to deteriorate and may become less able to perform their original flood risk management function. The impact on flood risk will vary depending on the type of asset. For example, road drainage ditches may become overgrown, or drains may silt up, reducing their capacity to carry water and therefore increasing the risk of surface water flooding. Other assets, such as flood defence walls can weaken over time, so that they can no longer hold back flood water.

Routine inspection and maintenance can mitigate this risk and extend the lifetime of assets. However, without this regular maintenance and a programme of replacement, the potential failure of assets could increase flood risk. The increase in risk would depend on the significance of the asset and what is protected by the asset. All RMAs within the Coventry area have a responsibility to maintain their own assets to ensure that flood risk within the city is not increased.

The EA manages approximately half of the flood risk assets on main rivers. Local Authorities and individual Riparian owners are responsible for the others, and the EA encourages these owners to maintain their flood risk assets to the right standard. The EA has an Asset Management Plan which explains their approach to the management of assets that reduce the risk of flooding from main rivers.

Under Section 21 of the Act, each LLFA in England and Wales has a statutory duty to establish and maintain:

- *A register of structures or features which, in the opinion of the authority, are likely to have a significant effect on a flood risk in its area*
- *A record of information about each of those structures or features, including information about ownership and state of repair.*

Work is well progressed on the asset register and at present the database contains standardised asset data acquired from the:

- Environment Agency
- Highways Authority
- Canal and River Trust
- National Rail
- Severn Trent

Additional flood risk asset information has been identified by reviewing technical flood and water related documents that have been prepared in the city. This information also contains Public Highways information such as gully locations and highway drainage where known. An annual CCTV programme is underway to identify where dedicated highway drainage runs to increase the knowledge of highway drainage.

SuDS act as flood risk management assets and therefore the location, information regarding ownership, and state of repair should also be included in the Asset Register. Assets on ordinary watercourses will also be identified and included in the Asset Register. Due to the size of the city and the number of ordinary watercourses throughout, this will have to be undertaken on a priority-based approach.

The Asset Register will be made available for inspection at all reasonable times.

Table 4 - Key sources of asset information

Data	Source	Structures and features
Sewer Mapping	Severn Trent	<ul style="list-style-type: none"> • Foul, Surface Water and Combined Sewers.
Detailed River Network	Environment Agency	<ul style="list-style-type: none"> • Main rivers • Ordinary watercourses

Canal Assets	Canal & Rivers Trust	<ul style="list-style-type: none"> • Canal embankments • Culverts under the Canal.
Final drainage designs of developments	Local Planning Authority	<ul style="list-style-type: none"> • Drainage infrastructure including SuDS
Highways records	Coventry City Council Highways	<ul style="list-style-type: none"> • Highways drainage (e.g. gullys)

Measure: The LLFA will develop and maintain a register of structures or features which, in the opinion of the authority, are likely to have a significant effect on flood risk in Coventry

Using a risk-based approach, assets identified as high risk will be prioritised for inspection. A key function of asset inspections is the identification of assets which require repair or replacement. The LLFA will assign responsibility if improvements are required. In some cases, this work can be completed through the capital programme or a flood alleviation scheme. As part of an Asset Management project, the Council will consider the introduction of CCTV cameras at trash screens with critical maintenance regimes.

Measure: The LLFA will develop and maintain a record of information about each of those structures or features, including information about ownership and state of repair.

7.6.4 Asset Designation

Designation is a form of legal protection reserved for certain key structures or features that are privately owned and maintained, but which make a contribution to the flood risk management at a particular location. This is to ensure that the altering or removing a structure or feature, which contributes to flood risk management, is regulated by consent.

Under Schedule 1 of the FWMA, Coventry LLFA and the EA have powers to designate structures and features that affect flooding, to overcome the risk of a person altering or removing a structure or feature (that, for example, may be on private land and is relied on for flood risk management) without consent. Coventry LLFA have not yet used powers of designation, however, may do so in future for asset management purposes.

A designation is a legally binding notice served on the owner by the designating authority and is also a local land charge. This means that the notice will also apply to any successive owners of land or property where a designation exists.

The authorities with the power to designate are:

- The Environment Agency
- The Lead Local Flood Authority

Features applicable for designation will include but not be limited to:

- Weirs
- Surface SuDS

- Bounding walls and bunds
- Headwalls and screens

7.6.5 Active Enforcement, maintenance and inspection

Active regulation and enforcement will be undertaken by the Council when considered necessary to ensure the free-flowing movement of water and to remove obstruction. Following informal advice to landowners relating to their riparian maintenance responsibilities, for non-compliance, enforcement action will be undertaken using the intervention legislative powers of the Land Drainage Act and the Highway Act. Performance monitoring will be undertaken by routine checks initially and the identification of themes of service requests using the Councils' customer service request capture system. This will be supported by the investigation of flooding incidents to identify causal factors as an evidence base. Specifically, landowners and owners of private infrastructure are required to maintain their assets, and this is well established in case law. Where needed, if this informal approach proved to be unsuccessful a legal enforcement approach will be taken to mitigate nuisance.

7.6.6 Trash Screen CCTV monitoring

Following an innovative pilot scheme delivered by the EA, the Council recognises the opportunity to monitor debris build up for intervention as part of a proactive flood risk management approach. As part of an Asset Management project, the Council will consider the introduction of CCTV cameras at trash screens with critical maintenance regimes. Following the identification of these trash screen with critical maintenance regimes, business cases will be prepared for external funding application, ranked against national priorities.

Case Study: Screen Management Project

Trash screens are normally installed to reduce the amount of trash and debris entering a culvert, where it could cause a blockage. Security screens are usually set up to prevent unauthorised access to a culvert, especially by children playing nearby. The goal of a trash screen should not be to trap as much debris as possible. In fact, the screen should trap as little debris as possible while still aiming to prevent blockage of the culvert. However, screens inevitably collect debris over time, and maintenance is required.



Trash screens on ordinary watercourses in Coventry

In 2018 the LLFA completed a project to identify and assess all trash and security screens in Coventry to improve the asset register. Trash screens were prioritised for inspections according to the condition of the screen and the flood risk in the event of blockage.

7.6.7 Flood Risk Management Schemes

The Government have invested £2.5 billion to better protect the country from flooding: which included over 1,500 flood defence schemes, which provided better protection for more than 300,000 properties by 2021.

Responding to flood risk can be achieved through reducing the risk, or adapting to reduce the impact of that risk, for example through property level resilience measures. Alleviation is prioritised in Coventry as it provides a long-term solution.

Action: The LLFA will deliver a capital programme of improvements to drainage infrastructure

Coventry City Council has an annual capital budget for drainage and small-scale flood risk management schemes. The allocation of this budget is prioritised using a risk-based

Action: Risk Management Authorities will aim to secure external funding for and deliver local flood risk alleviation schemes on a prioritised basis

approach. Likely activities include asset replacement or the creation of new assets to improve drainage infrastructure. Further details are provided in the SWMP.

External funding is usually required to deliver larger schemes. Two key sources of external funding for risk management authorities are FDGiA and Local Levy.

FDGiA: The total amount of FDGiA available is distributed across a number of bodies responsible for managing flood risk. These include the EA, Local Authorities and IDBs. Deliverables, particularly the number of properties protected, need to be demonstrated when applying for FDGiA. Applications are scored and compared with other submissions nationally.

Local Levy: As defined in Section 17 of the FWMA 2010, Local Levy is raised from the taxes of local authorities. The RFCC then coordinates the distribution of levy as contributions towards flood risk management projects, predominantly alleviation schemes.

Other sources of funding are possible. For example, the NFCERMS recommends seeking private investment from the beneficiaries of schemes such as local businesses which are better protected. Section 106 contributions from developers are also possible.

This objective includes delivering of schemes included within the Severn FRMP.

Case Study: Bowness Close Trash Screen

The Hall Brook is an ordinary watercourse; a tributary of the River Sowe. It is culverted along much of its length. Through the asset management programme, the LLFA identified a screen at the opening of a culvert to be of poor design. The design increased the chances of blockage and consequent flooding. This was observed in May 2018 when the screen blocked, and the brook overtopped onto surrounding highway. Emergency works were required to remove the blockage.



Before



After

The Bowness Close trash screen

Following an application by the LLFA, £25,000 Flood Defence Grant in Aid funding has now been secured to replace the screen with one less likely to block. This will reduce the risk of flooding to an estimated 37 properties.

Multiple Benefits

- *Historically there has been a hard engineering approach to flood risk management, for example through the construction of flood walls. However, there is now a transition where possible towards working with natural processes to reduce flood risk, commonly known as Natural Flood Risk Management (NFM). An advantage of NFM is the multiple benefits that can be derived, particularly improvements to habitats and water quality. RMAs are looking at the potential for NFM solutions to reduce flood risk in Coventry.*

Case Study: Chesholme Road Flood Alleviation

Flooding on Chesholme Road has been occurring for many years. The last flood event was recorded in July 2014. 19 homes were considered to be at risk from a combination of surface water and foul / storm combined sewer flooding.



Flooding on Chesholme Road, July 2014



**The Foul sewer tank under construction
June 2018**



**The completed swale,
September 2018**

In 2018 STW completed improvements to the foul sewer network. Through working in partnership, the LLFA were also able to secure FDGiA for the construction of a swale to store surface water during heavy rainfall events. The joint construction of the foul network improvements and swale resulted in significant efficiencies. The risk of both sewer and surface water flooding has been significantly reduced.

7.7 Additional Actions and Measures

7.7.1 Collaborative Working

Flood Risk Management Group (FRMG)

Action: The LLFA will co-ordinate the Coventry FRMG

In line with Recommendation 17 of the Pitt Report and Section 13 of the FWMA, regular meetings typically include: a review of actions from previous meetings; round the table updates from all partners; and a longer detailed update from the LLFA.

“All relevant organisations should have a duty to share information and cooperate with local authorities and the Environment Agency to facilitate the management of flood risk”, and “A relevant authority must co-operate with other relevant authorities in the exercise of their flood and coastal erosion risk management functions.”

All members of the Coventry FRMG therefore have a responsibility to participate and share information.

Exception meetings of the FRMG may also need to be convened, for example major flooding incidents or to discuss urgent strategic decisions. A special meeting has not yet been convened.

Measure: Bi-annual meetings of the Flood Risk Management Group

Measure: Exception meetings of the Flood Risk Management Group in response to urgent matters arising

Regional Collaborative Working

Action: The LLFA will take an active role within the regional flood risk management network

The EA is responsible for taking a strategic overview of the management of all sources of flooding. This includes, for example, setting the direction for managing the risks through strategic plans; providing evidence and advice to inform Government policy and support others; working collaboratively to support the development of risk management skills and capacity; and providing a framework to support local delivery.

To help fulfil this responsibility regionally, the EA organises quarterly network meetings of LLFA's and other RMAs. It is important for the LLFA to attend to keep up to date with developments and issues in local flood risk management. Coventry is part of the West Midlands (East) LLFA network.

Measure: The LLFA will attend the Warwickshire Strategic Flood Forum and Solihull Flood Risk Management Partnership Meeting when necessary and respond to consultations and information requests.

Measure: Attend meetings of the West Midlands (East) LLFA network meetings and respond to consultations and information requests.

Action: The LLFA will take an active role within the Severn and Wye RFCC

Coventry's administrative area is situated in the main within the areas of the Severn and Wye RFCC. Coventry LLFA have a Cabinet Member in attendance at the RFCC. Attendance is important as decisions are made on which schemes in the region should be allocated local levy and FDGiA funding, and important strategic issues affecting local flood risk management are discussed.

Measure: Attend quarterly meetings of the Severn and Wye Regional Flood and Coastal Committee and respond to consultations and information requests.

[National Collaborative Working](#)

Action: The LLFA will take an active role in strategic flood risk management matters nationally

Lessons are being learnt across the country, by other LLFA's and the wider industry, and it is important that these are applied to local flood risk management in Coventry. It is also important to be aware of emerging policy, strategies and new standards. There is also an opportunity to influence policy and standards. Changes in policies or guidance may affect local flood risk management in Coventry. For example, following a government consultation in 2014 on proposals to make better use of the planning system to secure sustainable drainage systems, the Council became statutory consultee for local flood risk on all major planning applications.

7.7.2 Surface Water Management Planning

SWMP's should be undertaken in consultation with key local partners who are responsible for surface water management and drainage in their area. Partners should work together to understand the causes and effects of surface water flooding and agree the most cost-effective way of managing surface water flood risk for the long term. The process of working together as a partnership is designed to encourage the development of innovative solutions and practices.

LLFA's are responsible for leading on the management of local flood risk, and therefore leading on the development, application, and maintenance of a SWMP. The SWMP spans across the majority of actions in this strategy, and so is included as a standalone action.

Action: The LLFA will maintain and update where necessary the Surface Water Management Plan for Coventry

The SWMP is more focused on specifics, including the identification of areas with critical drainage problems. An important part of the strategy is a methodology for the identification and assessment of risk, and options for implementation of risk reduction methods.

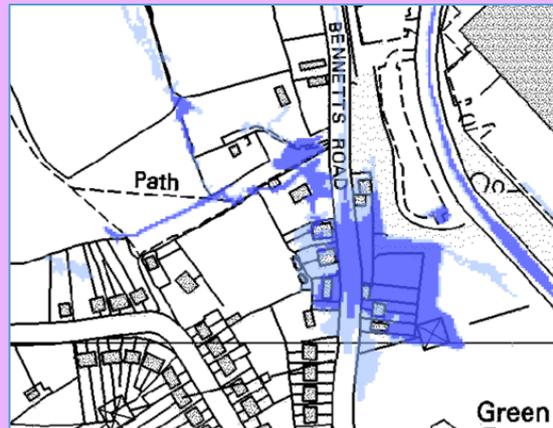
Measure: Maintain the Surface Water Management Plan as a living document; update and reissue every 3 years.

Case Study: Bennetts Road, Keresley

Bennetts Road, Keresley was included within the first edition of the Coventry Surface Water Management Plan as an area at high risk of surface water flooding.



Surface water flooding at Bennetts Road in September 2008



The 1 in 30 and 1 in 100 year event surface water flooding extents

The inclusion of the site within the plan has raised awareness of the issue among RMAs. Following extensive investigatory work to determine causes and potential solutions, FDGiA funding was allocated in 2018/19 to develop a flood alleviation scheme.

7.7.3 Flood Incident Management and Recovery

The Pitt Review identified a number of improvements to be made for flood incident management and recovery. Effective community engagement and partnership working arrangements were identified as key. An independent review of MAFP's published in June 2018 identified further recommendations to improve arrangements for flood incident management and recovery.

7.7.4 Coventry Multi-Agency Flood Plan

Action: Coventry Solihull Warwickshire Resilience will maintain and lead on the delivery of the Coventry Multi-Agency Flood Plan

Recommendation 41 of the Pitt Report was: *“Upper tier local authorities should be the lead responders in relation to multi-agency planning for severe weather emergencies at the local level and for triggering multi-agency arrangements in response to severe weather warnings and local impact assessments.”*

The development of MAFPs allows all responding parties to work together on an agreed coordinated response to severe flooding. The National Flood Emergency Framework (NFEF) for England includes guidance on developing and assessing MAFP's.

CSWR developed the Coventry MAFP in liaison with partners and in consultation with the LRF. The plan was first published in September 2015. The Coventry plan does not cover all types of flooding (e.g., reservoir breach) but does include response to flooding from all local sources. The main objectives of the plan are:

- To provide guidance on activating, maintaining, and de-escalating Coventry's multi-agency response to flooding.
- To outline the activation and coordination procedures followed by responders including triggers for response escalation.
- To detail partners responsibilities as part of the multi-agency response.
- To highlight key areas at risk from all sources of flooding in Coventry; and
- Provide an overview of recovery actions.

As part of the plan, CSWR and partners have worked with Coventry City Council Contact Centre to ensure they are appropriately prepared to respond to a flood event. This is to fulfil Recommendation 66 of the Pitt Report:

"Local authority contact centres should take the lead in dealing with general enquiries from the public during and after major flooding, redirecting calls to other organisations when appropriate."

Arrangements for flood recovery very much depend upon the extent of flooding. The MAFP provides an overview of recovery actions in line with Recommendation 76 of the Pitt Report: *"Local authorities should coordinate a systematic programme of community engagement in their area during the recovery phase."*

CSWR are responsible for continuous review, maintenance and updating of the plan. The Coventry MAFP is not available for public viewing.

Measure: CSWR will maintain the Coventry MAFP, coordinating annual reviews with other emergency responders, and initiate the plan in incidence of flooding where thresholds are met.

7.7.5 Coventry Operational Flood Plan

Action: The LLFA will maintain and lead on delivery of the Coventry Operational Flood Plan

The Operational Flood Plan (OFP) has been developed by the LLFA to promote effective response to localised flooding where the MAFP is not yet enacted. It covers partner response for flooding to highways up to main roads and flooding to up to four properties. Where certain thresholds are met, CSWR are notified in case the MAFP requires activation. The Coventry OPF is not available for public viewing.

Action: The LLFA will maintain the Coventry Sandbag Policy

The [Sandbag Policy](#) is a supporting document to both the MAFP and OFP. Where residential properties are in imminent risk of flooding, the Council respond by delivering sandbags to affected residents as a temporary defence to prevent floodwater entering living accommodation.

Provision of sandbags is not a statutory function of the Council. As resources are limited, it is important to ensure that sandbags are delivered to those who need them most. The policy ensures a risk-based approach is taken to their distribution.



Effective deployment of sandbags on Butt Lane, Allesley

8 Objectives Achieved

The previous version of this strategy outlined several objectives to fulfil the main aim of the strategy. One objective outlined a need to pursue collaborative working within the LLFA area and with neighbouring RMAs: “**Collaborative Working:** *‘Adopt a more collaborative approach to managing flood risk across Risk Management Authorities and Stakeholders. This approach is to be used to identify, secure and optimise expertise and opportunities to reduce local flood risk and increase local resilience.’*”

The 15th Recommendation of the Pitt Review is a requirement for all LLFAs to work with all interested parties to positively tackle local flooding issues, establish ownership and legal responsibility. This was transposed into the FWMA.

Co-ordination between RMAs (the EA, neighbouring LLFAs, STW and the Highways Agency) is achieved through the Coventry FRMG.

Collaborative working amongst partners, neighbouring RMAs and stakeholders has been achieved and is now continually encouraged through the updated objectives. All partners have embraced collaborative working in line with the duty to co-operate under the FWMA.

The previous strategy objectives and their current status are outlined in Table 5:

Table 5 - Previous Strategy Objectives and their on-going status

Objective	Status
<p>Objective 1 – Collaborative Working: <i>“Adopt a more collaborative approach to managing flood risk across Risk Management Authorities and Stakeholders. This approach is to be used to identify, secure and optimise expertise and opportunities to reduce local flood risk and increase local resilience.”</i></p>	<p>Achieved. Collaborative working amongst partners, neighbouring RMAs and stakeholders has been achieved and is now continually encouraged through the updated objectives. All partners have embraced collaborative working in line with the duty to co-operate under the FWMA.</p>
<p>Objective 2 – Understand Local Flood Risk: <i>“Develop a greater understanding of local flood risk by improving the awareness and understanding of historic and future flood risks from local sources.”</i></p>	<p>On-going. This objective is on-going as flood risk changes and increases due to changes in development, and escalating rainfall patterns due to progressive climate change.</p>
<p>Objective 3 – Natural and Historical Environmental Enhancements: <i>“Utilise a more sustainable approach to reducing flood risk to deliver environmental enhancement as well as benefits to public health, open space and the historic environment”</i></p>	<p>On-going. This objective is on-going, under ‘Objective 3: Managing local flood risk sustainably’ to continue to protect the environment as development creep expands.</p>
<p>Objective 4 – Support communities to become more resilient to flooding: <i>“By engaging communities, improve community awareness of flood risk and preparing communities for flooding in order that the impact of flooding is reduced and aids recovery.”</i></p>	<p>On-going. This objective has been combined with the below Objective 6, under the updated ‘Objective 4: Support resilient communities’.</p>
<p>Objective 5 – Engage with Riparian owners: <i>“Engage with Riparian Owners on the responsibilities they have under the Flood and Water Management Act and the Land Drainage Act.”</i></p>	<p>On-going. The Council continue to engage with Riparian owners</p>
<p>Objective 6 – Manage local flood risk through sustainable development policies and practices: <i>“Enhance planning policy to reduce flood risk from new developments and where applicable deliver improvements through smarter design and planning.”</i></p>	<p>On-going. This objective has been combined with the above Objective 4, under the updated ‘Objective 4: Support resilient communities’.</p>
<p>Objective 7- Achieve an Economically Sustainable Approach to Managing Flood Risk: <i>“Utilise partnership funding and collaborative working to find ways to reduce the economic impact of flood defences, asset operation and maintenance.”</i></p>	<p>On-going. The Council are continuing to find ways to reduce the economic impact of flooding on communities, land, infrastructure and properties.</p>

9 Reviewing the Strategy

Continued monitoring, review and development of this Strategy are essential to ensure that local flood risk management is responsive to change. This ongoing monitoring and review will be undertaken through the Local FRMG.

This Strategy will be updated every six years from the date of final approval and the action plan will be updated annually. Key triggers may also require the update of specific sections of this Strategy more regularly, including if the following occur:

- Amendments to partner responsibilities
- Updates to legislation
- Alterations in the nature or understanding of local flood risk
- A significant flood event.

In these circumstances the triggers will be discussed with the FRMG and a decision made as to whether this Strategy requires supplement. If Strategy updates are required, these will be undertaken and posted on the Council's Flood and Water Management web pages, with an explanation as to what the amendments are and the date of review.

9.1 Monitoring

The purpose of monitoring is twofold, as monitoring needs to consider both beneficial and adverse effects. Firstly, to measure the actual significant effects of implementing the objectives and actions of this Strategy and measure contribution towards achievement of desired objectives. Secondly, it assists in identification of unforeseen adverse effects and the need to undertake appropriate action.

The approach taken to monitoring will be objective and target led. It is not necessary to monitor everything or monitor an effect indefinitely; instead monitoring should be focused on significant effects.

Monitoring should aim to ensure that the policies and actions contribute towards the strategies objectives, as well as the Strategic Environment Assessment objectives.

9.2 Review

Through developing this Strategy there are now clear objectives for managing local flood risk in Coventry as well as an associated action plan for delivering these objectives. This Strategy will be the focal document for all flood risk matters in the city and will be informed by and will sign-post to all relevant technical flood risk works undertaken throughout the city in the future.

In preparing this Strategy there is now a greater understanding of local objectives to be advanced in Coventry. The different roles and responsibilities for managing local flood risk have now been clarified and formally set out.

This Strategy and associated Action Plan is a "living document" and will be regularly reviewed to test effectiveness and updated as required.

Appendices

Appendix A – Abbreviations

Appendix B – Glossary

Appendix C – Strategic Objectives, Actions, Measures and Objective Principles

Appendix D – Funding Sources

Appendix E – RMAs Roles and Responsibilities

Appendix F – Image references

Appendix G – Supporting Documents

Appendix A – Abbreviations

Abbreviation	Stands for:
ABI	Association of British Insurers
AStGWF	Areas Susceptible to Groundwater Flooding
CabA	Catchment Based Approach
CCAAP	City Centre Area Action Plan
CEP	Community Engagement Plan
CHSR	Conservation of Habitat and Species Regulations
CSWR	Coventry Solihull Warwickshire Resilience team
EA	Environment Agency
FDGiA	Flood Defence Grant in Aid
FRA	Flood Risk Area
FRMG	Flood Risk Management Group
FRMP	Flood Risk Management Plan
FRR	Flood Risk Regulations
FWIS	Flood Warning Information Service
IDB	Internal Drainage Board
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
LRF	Local Resilience Forum
MAFP	Multi Agency Flood Plan
NERC	National Environmental Research Council
NFCERMS	National Flood and Coastal Erosion Risk Management Strategy
NFEF	National Flood Emergency Framework
NFM	Natural Flood (Risk) Management
NPPF	National Planning Policy Framework
OFP	Operational Flood Plan
PFRA	Preliminary Flood Risk Assessment
PPG	Planning Practice Guidance
RBD	River Basin District
RBMP	River Basin Management Plan
RFCC	Regional Flood and Coastal Committee
RMA	Risk Management Authority
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
SPD	Supplementary Planning Document
STW	Severn Trent Water Ltd.
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
uFMfSW	updated Flood Map for Surface Water
WACP	Warwickshire Avon Catchment Partnership
WER	Water Environment Regulations 2017
WFD	Water Framework Directive

Appendix B – Glossary

Term	Meaning for the purposes of the SWMP
AAP	Annual average probability – the chance of a flood event occurring in any given year. Normally expressed as a percentage. E.g., 2% AAP event means an event with a 2% chance of occurring in a year.
Administrative Area	The area for which the LLFA is responsible.
Adopted Sewer	A surface water, foul or combined sewer that is maintained by Severn Trent. A developer will often design and construct sewers in accordance with Design and Construction Guidance in order that these may be adopted by Severn Trent.
Attenuation	System to reduce the flow and increase the duration of a flood.
Balancing Pond	A pond designed to attenuate flows by storing rainwater run-off during a storm and releasing the water slowly at a controlled rate over an extended period of time. Also known as a <i>detention basin</i> .
Brownfield Site	A piece of land or a site that has previously been developed.
Catchment	The area contributing flow or run-off to a particular point on a watercourse system.
Climate Change	Long-term variations in weather patterns, particularly temperature and rainfall, thought to be a result of an increase in carbon dioxide emissions.
Combined Sewer	A public sewer used to convey both surface water and sewage.
Commuted Sum	A single payment made at the beginning of an adoption agreement to cover maintenance of the drainage system in future years.
Culvert	Covered channel or pipe that forms a watercourse below ground level.
Design Criteria	A set of standards agreed by the developer, planners and regulatory bodies that the proposed system should satisfy.
Design Event	A historic or notional regular flood, against which the suitability of a proposed development is assessed and for which mitigation measures may be designed.

Design Flood Level	The maximum estimated water level during the design event.
Detention Basin	A basin in the landscape that is normally dry, except during heavy rain. Used to store rainwater run-off to attenuate flows. May also enable infiltration.
Development	Works resulting in a change of use or character of a piece of land.
Discharge rate	Rate of flow of water out of a pipe system into another drainage system.
Field or Land Drainage	A drainage system to control the water table in agricultural land.
Filter Drain or Filter Trench	A linear drain consisting of a trench filled with a permeable material, often with a permeable pipe in the base of the trench. Used to store and infiltrate water into the ground. May also act as a conduit to collect and transfer water through a drainage system.
Filter Strip	A vegetated area of gently sloping or flat ground designed to collect water from impermeable areas and convey it to a filter drain.
Filtration	The act of removing particles from fluid by passing it through a filter.
First Flush	The initial run-off from a site or catchment following rain. The initial run-off tends to collect the pollutants on the ground and may be contaminated.
Flap Valve	A simple form of non-return valve, with a hinged flap to prevent reverse flow from a fluvial system into a piped drainage system.
Flood Defence	Infrastructure such as flood walls and embankments to protect an area against flooding to a specified standard of protection.
Flood Defence Crest Level	The top of the walls or embankments, expressed as a level relative to Ordnance Survey Datum.
Flood Event	A flood characterised by its severity.
Flood Risk	Assessed by a combination of the flood probability and the potential consequences of a flood.

Flood Risk Assessment	A study to assess the risk of a site or area flooding. Used to assess the impact a development might have on the site or area's flood risk.
Flow Control Device	A mechanical device to limit or manage flow.
Fluvial Flooding	Flooding from a river or watercourse.
Freeboard	The difference between the flood defence crest level and the maximum envisaged design flood level.
Greenfield Run-off Rate	The rate of runoff of water from a piece of land in an undeveloped or natural state.
Groundwater	Water within the ground - often referred to as the water below the <i>water table</i> . May exist at a number of different levels underground, depending on the types of material in the ground. The water table often lies parallel to the ground surface.
Groundwater Flooding	When the water table rises above the surface. A common feature of this type is a spring line.
Hydrograph	A graph showing the variation in water flow in a watercourse.
Impermeable Surface	An artificial surface that water can't pass through.
Infiltration	The passage of water through the surface and into the ground.
Infiltration Basin	A dry basin designed to help infiltrate surface water into the ground.
Infiltration Capacity	A characteristic of soil that determines the rate at which water enters the ground.
Infiltration Trench	A trench excavated in permeable ground and filled with permeable granular material. Used to help the infiltration of water into the ground.
Land Drain	Drain used in agriculture to control to level of the local water table and reduce waterlogging.
Local Development Documents	Documents and plans that set out the development strategy for the <i>Local Planning Authority</i> .
Local Planning Authority	Body with responsibility for planning and controlling development through the planning application system.

Mitigation Measure	An aspect of the design of a development that reduces the impact on the local environment, particularly on the flood risk.
Ordinary Watercourse	A watercourse that falls under the control of the local drainage authority and is neither a private drain nor a main river.
Overland Flow	A situation that arises when the ground surface becomes saturated and can't hold any more rain. The rainwater then collects on the surface and flows in the direction of the steepest gradient. May result in <i>pluvial flooding</i> .
Permeable Surface & Permeable Paving	Material that allows water to pass through gaps between the constituent materials into the layers below.
Pluvial Flooding	Flooding generated when floodwater hasn't entered any watercourse or sewer system. It is a particular problem in dense urban areas, although it may occur in rural areas.
Storage Pond	A permanently wet feature used to store water in times of heavy rainfall. Can be home to wildlife.
Rainwater recycling	Systems that collect and enable the redistribution or re-use of rainwater on roofs or pavements. Can include water butts, underground tanks and pumping systems.
Retention Pond	A pond where water stays long enough to allow settlement of suspended solids and possibly biological treatment of some pollutants.
Riparian Ownership	The ownership of land next to or containing a watercourse. The rights and responsibilities of the landowners are often referred to as riparian rights and responsibilities.
Run-off	Water flow over-ground to the local drainage system. This occurs if the ground is impermeable or saturated, or if rain is heavy. It might be thought of as the remainder of the rainfall that neither get absorbed into the ground nor evaporates back into the atmosphere.
Sewerage Undertaker	The organisation responsible for the maintenance of the sewer systems and the treatment and disposal of surface water and foul sewage.
Sewer System	The private and public network of drainage used to convey surface water and foul sewage from roads and buildings.

Soakaway	An underground structure into which surface water is conveyed to allow it to infiltrate into the ground
Source Control	The control, attenuation and/or treatment of runoff or pollution near to its source or origin.
Standard of Protection	Refers to the lowest probability flooding at a particular site due to the extent of the mitigation measures in place. Often referred to as '25, 50 or 100 year protection'.
Sustainable Drainage Systems	An approach to the management of rainwater to reduce the flood risk impact of new developments on the surrounding areas.
Swale	A shallow linear trench used to convey and store runoff, particularly from car parks, roads and other paved areas. May also incorporate infiltration.
Treatment	Improving the quality of water by biological, chemical or physical means.
Urban Creep	The increase in impermeable area resulting from planned and unplanned urban expansion. This includes infill developments and also small domestic works (extensions, conservatories, drive widening, hard paving of gardens). Results in increased run-off and rate of run-off
Water Table	The level of groundwater in soil and rock below which the ground is saturated.
Watercourse	Any natural or artificial channel that conveys surface water.
Washland	An area subjected to frequent flooding at least every 20 years and used to store, attenuate or convey floodwater.
Wetlands	An area where the natural saturation of the ground is the determining factor for the particular biodiversity of the area.
Whole Life Costing	An approach to the accounting of the cost of a particular flood risk reduction scheme or other system that includes all the costs of the construction, operation and maintenance and eventual decommissioning. These costs are usually referenced to a 'present day' cost to enable the comparison between different alternatives.

Appendix C – Strategic Objectives, Actions and Measures

Objectives	Actions to fulfil the Objectives	Relevant Measures (if any)
<i>Understand flood risk: Develop a greater understanding of local flood risk by improving awareness and understanding of historic and future flood risks from local sources.</i>	RMA's will contribute towards updates to the PFRA for Coventry	
	RMA's will contribute towards further SFRA's produced by the Council	
	The LLFA will continue to develop and maintain local flood risk hazard mapping	
<i>Engage with Riparian owners: "Engage with Riparian Owners on the responsibilities that they have under the Flood and Water Management Act and the Land Drainage Act."</i>	The LLFA will produce and keep up-to-date local guidance on riparian responsibilities to improve community awareness.	
<i>Manage local flood risk sustainably: Utilise a more sustainable approach to reducing flood risk to deliver environmental enhancement as well as benefits to public health and open space</i>	The LLFA will maintain the Coventry SuDS Design Guide	
	The LLFA will take an active role within the Warwickshire Avon Catchment Partnership to help deliver WER Improvements.	
	The LLFA will contribute towards the production of integrated catchment mapping for WER water bodies in Coventry.	
	The LLFA will regulate changes to watercourses through duties defined in Section 23 of the Land Drainage Act 1991	The LLFA will process and decide issue decisions on land drainage consents within 2 months of receipt of application
	The LLFA will maintain local guidance for ordinary watercourse land drainage consent applications	
	The LLFA will offer chargeable pre-application advice for ordinary water course land drainage consent applications.	

	The LLFA will produce and maintain and apply a pre-enforcement and enforcement policy	
<i>Support resilient communities: “Engage with communities to improve community awareness of flood risk and preparing communities for flooding in order that the impact of flooding is reduced and aids recovery; and to enhance planning policy to reduce flood risk from new developments, delivering improvements through smarter design and planning.”</i>	Risk Management Authorities will promote community resilience to flooding from local sources and produce community engagement plan	Risk Management Authorities to provide an initial response to all routine customer enquiries related to local flood risk management within 10 days
	The Council will fulfil its role as statutory consultee for local flood risk on all major applications.	Provide a consultation response to the Local Planning Authority for all major applications
	The LLFA will offer a chargeable pre-application service for all developments through the Council’s ‘One Stop’ shop service.	
	The LLFA will influence local planning policies and guidance	Provide responses to formal consultations on relevant local planning policy and guidance
	The LLFA will influence national planning policies and guidance	Provide responses to consultations on relevant local and national planning policy and guidance
	<i>Achieve an economically sustainable approach to managing risk: Utilise partnership funding and collaborative working to find ways to reduce the economic impact of flood defences, asset operation and maintenance.</i>	The LLFA will maintain an asset register and record of structures and features with a significant effect on local flood risk in Coventry, and take a risk-based approach to their management.
The LLFA will deliver a capital programme of improvements to drainage infrastructure		

	Risk Management Authorities will aim to secure external funding for and deliver local flood risk alleviation schemes on a prioritised basis	
<i>Additional, Stand-alone Actions and measures</i>	The LLFA will co-ordinate the Coventry Flood Risk Management Group (FRMG)	Biannual meetings of the FRMG
		Exception meetings of the Flood Risk Management Group in response to urgent matters arising
	The LLFA will take an active role within the regional flood risk management network.	The LLFA will attend the Warwickshire Strategic Flood Forum and Solihull Flood Risk Management Partnership Meeting when necessary and respond to consultations and information requests.
		Attend meetings of the West Midlands (East) LLFA network meetings and respond to consultations and information requests.
	The LLFA will take an active role within the Severn and Wye RFCC	Attend quarterly meetings of the Severn and Wye Regional Flood and Coastal Committee and respond to consultations and information requests.
The LLFA will maintain and update where necessary the Surface Water Management Plan for Coventry	Maintain the Surface Water Management Plan as a living document; update and reissue every 3 years.	

	CSWR will maintain and lead on the delivery of the Coventry Multi-Agency Flood Plan	CSWR will maintain the Coventry MAFP, coordinating annual reviews with other emergency responders, and initiate the plan in incidence of flooding where thresholds are met
	The LLFA will maintain and lead on delivery of the Coventry Operational Flood Plan	
	The LLFA will maintain the Coventry Sandbag Policy	

Appendix D – Funding Sources

Traditionally, flood defence schemes have often been built as a reactive response to past flooding and funding decisions have largely been made based on the relative costs and benefits (in terms of damages from flooding avoided) of a scheme. This led to those schemes that scored highly, in terms of the benefits outweighing the costs, going forwards with central government funding. Whilst those that didn't wait on a list to be taken forwards, once the cost to benefit ratio needed to secure funding changed or funding from other local sources could be found.

Recently there has been a step change in direction, from the 'all or nothing' situation to one where securing local contributions and achieving multiple benefits through schemes will help to secure central government funding (known as Flood Defence Grant in Aid) and/ or regional Local Levy funding. The Pitt Review (2008) into the 2007 floods recommended that 'The Government should develop a scheme which allows and encourages local communities to invest in flood risk management measures'. This approach has been taken forward and in 2011, Defra published their new funding policy on Partnership Funding, which is based on payments for the benefits that a scheme delivers. If this payment for the benefits does not cover the cost of the scheme, then the scheme cost will need to reduce and/ or local contributions will need to be found. The principles of encouraging beneficiaries to invest in flood risk management, delivering multiple benefits and taking a risk-based approach are also in the NFCERMS.

The approach of others is also changing. Traditionally the water companies, through the regulator Ofwat, were required to invest to remove properties from their DG5 Register (which is where the property owner had specifically notified the water company that they had been flooded). Water companies are now planning for the next five-year period of investment, known as Asset Management Period 8 (AMP6 2025-2030) and water companies are moving towards a more proactive approach to solving flooding problems, working in partnership with other organisations and with the support of Ofwat.

European Union funding can also be utilised for Flood Defence schemes. This includes Life+ funding and Regional Development Funding. The European Funding could be utilised to deliver a scheme which encourages growth of both residential and commercial benefit to the city or region. Schemes have been developed to reduce the flood risk to an area to facilitate growth. This type of funding can be matched with funding from Local Enterprise Partnerships and Business Improvement Districts. Business Improvement Districts are areas where businesses come together through LEP or Chambers of Commerce to fund a flood scheme. These schemes provide benefits for the sponsoring companies as well as encouraging local growth.

The Council also has a capital budget for Drainage and small-scale Flood Risk Management schemes. Prioritised on a risk basis this budget can be allocated to small flood relief projects when appropriate and balanced against other projects within the programme.

Following the announcements of new funding sources by Central Government the LLFA will seek to utilise these sources where appropriate. This could include funds such as DEFRA's

Repair and Renew Grant, Business Rate and Council Tax Reduction Scheme and the Business Support Scheme.

Appendix E – RMAs Roles and Responsibilities

	Lead Local Flood Authority	Severn Trent	Environment Agency
Strategic co-ordinating function in relation to Flood and Water Management Act	Yes	No	Yes
Duty to act consistently with the National Flood and Coastal Erosion Risk Management Strategy	Yes	Yes	Yes
Duty to act consistently with Local Flood Risk Management Strategies	Yes	No	Support the development of LFRMS
Duty to have regard to Local Flood Risk Management Strategies	Yes	Yes, where relevant	No
Duty to investigate a flood from any source where it meets the criteria for a S19 investigation	Yes	No	No
Duty to maintain an asset register of structures or features which affect flood risk from all sources	Yes	No	Yes
Power to designate 3 rd party assets which affect flood risk from all sources	Yes	No	Yes
Duty to co-operate and provide information in connection with flood risk management functions	Yes	Yes	Yes
Power to request information in connection with flood risk management functions	Yes	Yes	Yes
Power to enter into arrangements/delegations of responsibilities under the act	Yes	Yes	Yes
Powers to improve existing flood risk management works and to undertake and build new assets	Yes, for Surface water, ordinary watercourses and groundwater	Yes	Yes, for main rivers
Environmental works powers to manage flooding and water levels in the interest of nature conservation, the preservation of cultural heritage or people's enjoyment of the environment or cultural heritage.	Yes	Yes	Yes
Enforcement powers for S23, LDA 1991 – Unconsented works or S25, LDA 1991 when a Riparian owner fails to maintain	Yes	No	Yes, on Main Rivers only

Powers to consent to works which may impede the proper flow of water in ordinary watercourses	Yes	No	Yes, Main River only
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Appendix F – Image references

Figure 1 – Ditch Ownership and Maintenance Responsibilities –

<https://www.floodtoolkit.com/pdf-library/> : ‘Ditch Clearance Guidelines’ download

Figure 2 – Watercourses and National Flood Zones within Coventry’s administrative area:

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Figure 3 – Urban Drainage Ownership and Maintenance Responsibilities:

Northamptonshire County Council, Local Flood Risk Management Strategy

Figure 4 – Sewer responsibility following transfer:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69356/private-sewers-transfer-guidance110928.pdf

Figure 5 – Collaborative working at multiple levels benefits local flood risk management in Coventry: Coventry City Council, Flood Risk Management and Drainage team

Figure 6 - Flood Risk Management Group Structure: Coventry City Council, Flood Risk Management and Drainage team

Figure 7 - Hierarchy of Documents: Coventry City Council, Flood Risk Management and Drainage team

Figure 8 - Map of Coventry highlighting the Areas of Critical Drainage Problems: Coventry City Council, Flood Risk Management and Drainage team

Figure 9 – Step by step guide of the process for Formal Investigations: Coventry City Council, Flood Risk Management and Drainage team

Figure 10 – A hierarchy of catchment and associated plans and targets: Coventry City Council, Flood Risk Management and Drainage team

Appendix G - Supporting Documents

This report has been prepared with support from the following documents:

Flood and Water Management Act:

<https://www.legislation.gov.uk/ukpga/2010/29/contents/enacted>

The Pitt Review:

https://webarchive.nationalarchives.gov.uk/ukgwa/20100807034701/http://archive.cabinetoffice.gov.uk/pittreview/_/media/assets/www.cabinetoffice.gov.uk/flooding_review/pitt_review_full%20pdf.pdf

Local Plan:

<https://www.coventry.gov.uk/planning-policy/coventry-local-plan-2011-2031>

Surface Water Management Plan:

<https://www.coventry.gov.uk/water-management-flooding/surface-water-management-plan#:~:text=The%20Surface%20Water%20Management%20Plan%20is%20a%20document%20that%20sets,implementation%20of%20risk%20reduction%20methods.>

Environment Agency Preliminary Flood Risk Assessment:

<https://www.gov.uk/government/publications/preliminary-flood-risk-assessment-for-england>

Strategic Flood Risk Assessment Guidance:

<https://www.solihull.gov.uk/sites/default/files/2020-12/Level-2-Strategic-Flood-Risk-Assessment-Report-October-2020.pdf>

Supplementary Planning Documents e.g. Open Spaces SPD

SuDS Design Guide

SUE Development Guide