



Department  
for Environment  
Food & Rural Affairs

# Surface Water Management

## An Action Plan

July 2018



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## Ministerial Foreword

Surface water flooding happens when rain from major storms overwhelms local drainage. It is a real and growing issue affecting the lives and livelihoods of many of us. About 3.2 million properties in England are at risk from surface water flooding. The Government is committed to ensuring that these risks are well understood and those responsible can manage them effectively.

Managing surface water is a shared problem, as it means making sure that water drains effectively from homes and gardens, roads, fields, businesses and public spaces. Surface water flooding problems can be caused by what might sometimes seem small or rather mundane issues, such as a blocked grate over a drain, as well as more major ones like inadequate drainage arrangements for a new property development. It can be about maintenance of ditches, drains or sewers, and clearing of gullies and trash screens. In some cases confusion about who owns and maintains these structures or poor co-ordination between those responsible for the work adds to the problem.

Those of us who live or work on the coast or near a river might well expect there to be some level of flood risk. Surface water risks and responsibilities tend to be less obvious. Many people do not realise the implications of having a surface water drain under their garden, nor understand which parts of the drainage network belong to a homeowner and which to the highways authority or water and sewerage company, until there is a problem.

This action plan aims to help clarify surface water risks and responsibilities and better enable those responsible to manage them more effectively.

**Dr Thérèse Coffey MP**

A handwritten signature in blue ink, appearing to read 'T. Coffey', written in a cursive style.

**Parliamentary Under Secretary of State for the Environment**

# 1. Executive Summary

- 1.1. This Government is taking action to manage all flooding and coastal erosion risks through a record investment of £2.6 billion over the six years from 2015-2021. However, managing these risks, including surface water flood risks, is a shared problem and everyone needs to play their part. This Government is on the side of households at risk of surface water flooding. We want to make sure that those responsible for managing the risks are taking the appropriate actions.
- 1.2. This Surface Water Management Action Plan fulfils a commitment in the 2016 National Flood Resilience Review to consider issues related to surface water, and follows from the inclusion of surface water flooding in a metropolitan area as a new risk in the National Risk Register.
- 1.3. Surface water flooding happens when rain from heavy storms overwhelms local drainage capacity. It is a significant risk affecting 3.2 million properties in England.
- 1.4. Like all flooding it causes significant disruption to people's lives and livelihoods, damaging homes and businesses, causing stress and anxiety and closing roads, railways, schools and hospitals. It can also cause environmental impacts.
- 1.5. Surface water flooding is a growing challenge with climate change bringing more frequent heavy storms, new developments increasing the need for drainage, and our ageing sewerage infrastructure which is costly to maintain and upgrade. The risks are greatest in large urban areas.<sup>1</sup>
- 1.6. Managing surface water risks means making sure that water drains effectively from homes and gardens, roads, fields, businesses and public spaces. As well as making sure new properties have good drainage, it requires careful maintenance of the existing networks sewers, ditches and underground culverts to ensure that water can flow smoothly.
- 1.7. Surface water management needs coordinated action by all those with responsibilities for managing land, rivers and drainage systems, including national and local government, water companies, landowners and businesses.
- 1.8. People who live or work on the coast or near a river might well expect there to be some level of flood risk. Surface water flood risks are less obvious, but the impacts of such a flood are no less devastating. Confusion about who is responsible for managing the risks and poor co-ordination between those responsible can add to the problem.

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<sup>1</sup> <https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Synthesis-Report-Committee-on-Climate-Change.pdf>

1.9. This Surface Water Management Action Plan sets out the steps the government is taking, with the Environment Agency and others, to strengthen surface water management by improving understanding of the risks and making sure those responsible can manage them effectively. The key themes are:

- improving risk assessment and communication;
- making sure infrastructure is resilient;
- clarifying responsibilities for surface water management;
- joining up planning for surface water management; and
- building local authority capacity.

### Improving risk assessment and communication

1.10. Government, households and businesses need to be properly informed about surface water risks, in order to be able take mitigating action and build resilience.

1.11. Historically, surface water risks have been poorly understood and communicated.

1.12. The government has taken action in recent years to strengthen the assessment of surface water risk, most importantly including surface water flooding in the National Risk Register of Civil Emergencies for the first time in 2017. The Environment Agency has also improved its surface water flood risk mapping, although this remains less robust than the mapping of flood risks from rivers and the sea.

1.13. It is necessary, however, to go much further. This Surface Water Management Action Plan sets out the steps that government and others will take to:

- **improve surface water flood risk mapping, so that households, businesses and local government can take fully informed decisions;**
- **develop a robust assessment of the “plausible worst case scenario” risks posed by surface water; and**
- **have better systems for sharing short term storm forecasts, so that local authorities and others have the best available information about whether a storm is likely to hit their area.**

### Making sure infrastructure is resilient

1.14. It is essential that those responsible for key infrastructure ensure their networks are resilient to surface water risks. There is guidance on national expectations for management of surface water flood risks for the energy, telecommunications, transport and water sectors. Water and sewerage

companies have a particularly important role to play as they are responsible for much of the drainage network.

1.15. This plan includes actions to:

- **review the surface water related performance commitments for water and sewerage companies;**
- **review the resilience of infrastructure networks against extreme surface water flood scenarios; and**
- **consider the surface water related findings of the National Infrastructure Assessment.**

### Clarifying responsibilities

1.16. Effective surface water management requires coordinated action by all of those with responsibilities for managing land, rivers and drainage systems. Lead Local Flood Authorities (county and unitary authorities) have the leadership role on surface water management, including maintaining a register of surface water assets with information about their ownership and state of repair. Water and sewerage companies (who have a duty to make sure the area they serve is “effectually drained”), the Environment Agency, highways authorities, district councils and Internal Drainage Boards also have important roles and are referred to as Risk Management Authorities (RMAs).

1.17. In practice, many people are not aware that Lead Local Flood Authorities (LLFAs) have the leadership role on surface water flooding and the responsibilities between the different parties can become blurred, particularly when the source of flooding is unclear. LLFA’s have taken very different approaches to developing their asset registers, and disputes between partners over the responsibility for surface water assets are quite common.

1.18. The 2011 National Flood and Coastal Erosion Risk Management Strategy includes information about roles and responsibilities, and others have developed guidance documents aimed at clarifying certain aspects of surface water responsibilities for water and sewerage companies, highways authorities and those who have a watercourse running through or under their land.

1.19. There is more that the government will do. This action plan explains the current situation on surface water management responsibilities and includes actions to:

- **clarify roles and responsibilities through the Environment Agency’s review of the National Flood and Coastal Erosion Risk Management Strategy;**
- **agree key messages about responsibilities for local flood assets and their maintenance for use in communications;**

- **develop best practice guidance on asset registers and how to use them; and**
- **review the arrangements for determining responsibility for surface water and drainage assets, including dispute resolution, and how to make this more straightforward for householders.**

## Joining up planning

- 1.20. Those responsible for surface water (local authorities, water and sewerage companies, highways authorities and others) need to work together if they are to tackle the risks effectively. Planning together enables organisations to get the full range of information, co-design effective solutions and make the best use of resources.
- 1.21. There are many different plans relating to surface water management, however there is also a lack of understanding about what each of them covers, and how they relate to each other.
- 1.22. The government's 25 Year Environment Plan<sup>2</sup> sets out the aspiration for environmental effort to be more integrated and efficient. Building on this, the action plan describes the key plans for surface water management and sets out actions to:
- **develop new guidance for Lead Local Flood Authorities on local flood risk management strategies, including how they fit with other plans and strategies; and**
  - **drive action by water and sewerage companies on drainage and wastewater planning.**

## Building local authority capacity

- 1.23. LLFAs are in the key leadership role on surface water, and it is essential that they have the right skills and resources to perform this role.
- 1.24. When county and unitary authorities were first given Lead Local Flood Authority responsibilities, there was a centrally led capacity building programme to build skills and enabling delivery. LLFAs have developed a skills matrix showing what skills they need and what they can offer. However, eight years on, it is clear that not all LLFAs have the skills or capacity to carry out their surface water management responsibilities effectively and recruitment and retention of staff is a challenge.

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<sup>2</sup> [www.gov.uk/government/publications/25-year-environment-plan](https://www.gov.uk/government/publications/25-year-environment-plan)



1.25. Local government spending on floods has increased since 2010, and there is a range of relevant funding sources for surface water management projects. Further action is needed to ensure that local authorities can access funds from suitable sources, particularly for capital projects.

1.26. The action plan sets out actions to:

- **advise and support the local government sector and identify local authorities in need of priority support;**
- **to develop systems to enable skills sharing and mutual support between authorities; and**
- **review the funding sources which are available for surface water risk management and consider whether the funding mechanisms are appropriate.**

## **Implementation**

1.27. The Inter-Ministerial Group on Flooding has overseen the work to develop this Surface Water Management Action Plan and will continue to monitor progress with implementing the actions.

## 2. Introduction

- 2.1. The Government is taking action to manage all flooding and erosion risks through a record investment of £2.6 billion over the 6 years from 2015-2021. However, managing these risks, including surface water flood risks, is a shared problem and everyone needs to play their part. This Government is focused on the households at risk of surface water flooding, making sure that the risks are understood and those responsible for managing them are taking the appropriate actions.
- 2.2. Good surface water management is about making sure that rain can drain effectively through our environment, using a combination of natural and man-made drainage networks.
- 2.3. Surface water flooding happens when intense rainfall overwhelms local drainage capacities. These intense rainfall events, usually associated with thunderstorms, tend to be localised and can develop very quickly. Forecasting the location, severity and timing of the heaviest rainfall with a useful lead in time and level of confidence is a significant challenge. This means that surface water flooding is more difficult to forecast than flooding from rivers and the sea. Surface water flooding can happen a long way from a river or stream, in places that people wouldn't expect to flood, simply because there is nowhere else for the excess rainwater to go.
- 2.4. It is a significant national risk. Current national estimates show 3.2 million properties in England are estimated to be at some risk from surface water flooding, more than are at flood risk from rivers and the sea. In 2016 surface water flooding was included in the national risk register<sup>3</sup> in its own right for the first time.
- 2.5. It is a growing challenge, with the ever changing climate bringing more frequent heavy storms, new developments also increasing the need for drainage and an ageing sewerage infrastructure which is costly to maintain and upgrade. The 2016 National Climate Change Risk Assessment<sup>4</sup> confirmed the potentially severe consequences of surface water flooding, particularly in large urban areas.
- 2.6. The September 2016 National Flood Resilience Review<sup>5</sup>, promised further work on surface water management. This action plan is based on information from a range of sources including national stakeholder events, new evidence studies<sup>6</sup>,

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<sup>3</sup> <https://www.gov.uk/government/publications/national-risk-register-of-civil-emergencies-2017-edition>

<sup>4</sup> <https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Synthesis-Report-Committee-on-Climate-Change.pdf>

<sup>5</sup> <https://www.gov.uk/government/publications/national-flood-resilience-review>

<sup>6</sup> These new evidence studies are: a review of local approaches to managing surface water flood risk, some new modelling of extreme surface water flood scenarios and testing whether Water UK's approach to sewer capacity mapping could be expanded to include surface water drainage capacity.

and ongoing work by the water industry's 21<sup>st</sup> Century Drainage Programme. It describes the current arrangements for surface water management, identifies the key issues and sets out actions for different parties to improve the pro-active management of surface water flood risks. Responding to surface water flooding when it is happening was included in the independent review of Multi-Agency Flood Plans by Major General Cross (retired)<sup>7</sup>. The government will publish a response to the review later this year.

- 2.7. The implementation of this Surface Water Management Action Plan will be overseen by the Inter-Ministerial Group on Flooding.

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<sup>7</sup> <https://www.gov.uk/government/publications/multi-agency-flood-plan-mafp-review>

# Improving Risk Assessment and Communication

This first half of the action plan covers surface water in the National Risk Assessment, better surface water risk mapping and data sharing, future surface water scenarios and better communication of storm forecasts.

## 3. Surface water in the National Risk Assessment

- 3.1. National and local government, households and businesses need to be properly informed about surface water risks, in order to be able to take mitigating action and build resilience. Historically, surface water risks have been poorly understood and communicated. This chapter sets out what the government has done so far to improve the way that surface water risks are assessed and communicated, and further actions to strengthen the system.
- 3.2. The National Risk Assessment (NRA) sets out the key risks that the UK faces across all sectors, covering threats ranging from cyberattack to natural disasters. Information from the NRA is provided to the public in the form of the National Risk Register of Civil Emergencies (NRR).<sup>8</sup> As well as describing the risks and the effects they might have, the NRR includes information and resources to help individuals, businesses and communities to manage these risks.
- 3.3. In 2016, the government added surface water flooding as a separate risk in the NRA in its own right for the first time.

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<sup>8</sup> Cabinet Office, *National Risk Registers of Civil Emergencies 2017*), available from <https://www.gov.uk/government/publications/national-risk-register-of-civil-emergencies-2017-edition>

## Box 1 Surface Water in the National Risk Assessment

The risks in the National Risk Assessment (NRA) are all “**reasonable worst case scenarios**”. Identifying a reasonable worst case involves judgement. The current assessment in the NRA is based on a scenario of heavy rainfall accumulations over 3 hour periods with a likelihood of such an event occurring at least once in the next 5 years of between 1 in 200 and 1 in 20.

Key impacts are:

- **Evacuation and shelter** - Those directly affected, including vulnerable groups, will need evacuation and short to medium term shelter;
- **Health** - People may be injured in the flood incident and there will be less obvious health impacts including anxiety and stress and worsening of underlying conditions;
- **Business** - Closure of businesses directly affected, loss of working hours by affected employees and business consequences of infrastructure impacts;
- **Property** - Damage to homes and businesses;
- **Transport** - Disruption to transport infrastructure including closure of underground and railway stations and lengths of road and railway; and
- **Water, power and communications** - Disruption to other key infrastructure including potential for impacts on drinking water supplies and sewerage systems, disruption to regional power supply and possible failure of telecommunication systems.

The Environment Agency has published further information explaining the methodology.<sup>9</sup>

## 4. Better surface water flood risk mapping and data sharing

- 4.1. The Environment Agency’s flood risk maps provide information for households, businesses and local government about local flood risks. This information is vital to ensure that communities can take informed decisions about the long term, for example about where homes and business should be located and the amount of local money that should be put into risk management and improving resilience.
- 4.2. These maps are an extremely valuable source of information for all those involved in surface water management. However the mapping of surface water risks is less robust than the mapping of risks from rivers and the sea (see box 2).

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<sup>9</sup> Environment Agency, *Spatial joint probability for flood and coastal risk management and strategic assessments – method report* (2017), available from [http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM\\_Project\\_Documents/Spatial\\_joint\\_probability\\_for\\_flood\\_and\\_coastal\\_risk\\_management\\_and\\_strategic\\_assessments\\_method\\_report.sflb.ashx](http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/Spatial_joint_probability_for_flood_and_coastal_risk_management_and_strategic_assessments_method_report.sflb.ashx)

## Box 2 The Environment Agency's Surface Water Flood Risk Maps

The maps show areas which currently have an annual chance of flooding of:

- Greater than 3.3% (1 in 30)
- Between 3.3% (1 in 30) and 1% (1 in 100)
- Between 1% (1 in 100) and 0.1% (1 in 1000)

The maps are created from the Environment Agency's national data sets combined with appropriate locally produced mapping from Lead Local Flood Authorities (LLFAs). They provide information on the likely extent of flooding, depth, velocity of water, and hazard. The Agency published information about how the updated surface water maps were produced.<sup>10</sup>

However, the maps have some limitations, which mean that surface water risk is not accurately captured at present:

- **Drainage rate** - The maps assume a single drainage rate of 12mm/hr for all urban areas, unless LLFAs are able to give better local data. In areas of known high or low drainage capacity LLFAs could substitute alternative values of 6 or 20 mm/hr.
- **Local validation** - In many places LLFAs have not yet submitted local surface water information or been able to validate the national modelling.
- **Subsurface drainage features** - It omits some large subsurface drainage elements such as flood relief culverts and flood storage.
- **Outfall** - It assumes a free outfall and does not take into account tide locking or high river levels which might prevent surface water draining away freely.
- **Ground level data** - This is based on detailed LIDAR (light detection and ranging, a form of remote sensing) information and where it is not available ground levels are much less accurate. Models tend to perform better in steeper rural areas than flat urban areas and do not take individual property threshold heights into account.

4.3. The government is taking actions to improve the national surface water flood risk maps and the data on which they are based. This will improve the information available to householders, businesses and local authorities to enable surface water management decisions to be based on strong evidence.

4.4. **The Environment Agency will improve national surface water mapping and risk assessments. This will be through improved modelling approaches, better quality data and a better representation of the combined effects of flooding from different sources.** The first improved maps will be available by the end of winter 2020/2021. The actions below will contribute to these improved maps.

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<sup>10</sup> <https://www.gov.uk/government/publications/flood-maps-for-surface-water-how-they-were-produced>

## Improving local validation

- 4.5. Surface water drainage is dependent on local factors. In order to develop more accurate surface water flood risk maps, the Environment Agency requires information from those directly involved in local surface water management. At present, however, there are a number of barriers to this.
- 4.6. First, information is often gathered locally using different models and approaches and so can be inconsistent in content and format. Second, commercial confidentiality and copyright issues can be barriers to data sharing. Third, there is a relatively low level of engagement from information holders. The Environment Agency provides detailed guidance on the type and standard of data required. The Environment Agency annually asks Lead Local Flood Authorities (LLFAs) to submit detailed local modelling/data to enhance the national map, however less than 5% have done so. Insurance companies and water and sewerage companies also have relevant information but this is not routinely shared.
- 4.7. The government will take a number of steps to address these issues. **The Environment Agency will set out a simplified set of requirements by end of autumn 2018, to make it easier for other organisations to supply data for incorporation into the national surface water maps.**
- 4.8. **The Environment Agency will work with Lead Local Flood Authorities, insurance companies and water and sewerage companies about accessing and sharing the data they hold and the modelling they have completed, with the objective of making this information more accessible to the public and using it to improve the surface water maps.**
- 4.9. **If problems with data sharing persist, Defra will consider commencing Environment Agency and Lead Local Flood Authority powers to enforce the provision of information.** The Flood and Water Management Act 2010 provides the Environment Agency and LLFAs with powers to require RMAs to provide information<sup>11</sup>. To date, the power to issue enforcement and penalty notices if other RMAs do not comply with such a request has not been commenced, on the expectation that information will be shared voluntarily. However, the government will keep this under review as part of the monitoring of implementation of this plan.

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<sup>11</sup> The Environment Agency has issued statutory guidance on co-operation and requesting information in flood and coastal erosion management, which is available from <https://www.gov.uk/government/publications/co-operation-and-requesting-information-in-flood-and-coastal-erosion-risk-management>

## Better information about surface water drainage

- 4.10. Surface water drainage assets in any particular area are typically owned by a number of risk management authorities, who may have different ways of monitoring and measuring their performance and varying degrees of information about their assets. Understanding of the risks associated with surface water drainage would be improved if there was better and more consistent information about surface water drainage across asset owners.
- 4.11. Research co-funded by Defra and Water UK <sup>12</sup>has identified that a new method for understanding the capacity of water and sewerage company foul and combined sewers has some potential for use in understanding surface water capacity. **Water UK and Defra will bring together surface water drainage asset owners to disseminate the findings of this work and explore the potential for wider usage of this method for understanding surface water capacity.**

## 5. Future surface water scenarios

- 5.1. The national surface water flood risk maps show the current situation and do not take into account longer term scenarios associated with climate change and population growth. It is important to have a good national understanding of the longer term, more extreme surface water risks and to make sure that our critical infrastructure is resilient to them.
- 5.2. To explore resilience to the most severe flooding, the National Flood Resilience Review<sup>13</sup> (NFRR) extended the analysis in the National Risk Assessment to develop new “plausible extreme rainfall scenarios”, for river and coastal flood risks. However the approach used was not appropriate for surface water. The scenarios developed were for large scale heavy rainfall events and not for the localised intense rainfall events usually associated with surface water flooding.

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<sup>12</sup> Capacity Assessment Framework – Surface Water Drainage- Initial Trial of Surface Water Sewers

<sup>13</sup> Defra and Cabinet Office, *National Flood Resilience Review* (2016), available from <https://www.gov.uk/government/publications/national-flood-resilience-review>



### Box 3 National Flood Resilience Review

The National Flood Resilience Review (NFRR) extended the NRA analysis for the river and coastal flood risks to develop new “**plausible extreme rainfall scenarios**”. These scenarios, developed by the Met Office, were based on historically extreme rainfall events, to which were added substantial but plausible uplifts of 20-30%. Six catchments were then ‘stress tested’ using the Environment Agency’s detailed models to predict the flooding which could be associated with these extreme rainfall scenarios.

The work gave confidence that the Environment Agency’s extreme flood outlines are a good representation of plausible severe river and coastal flooding.

The NFRR then used these extreme flood outlines to test the resilience of key local infrastructure assets (energy, water, health, transport and telecommunications) on which services to our communities and businesses depend.

- 5.3. Government has commissioned some initial work to model extreme surface water events and assess the possible impacts of these. Building on this, **Defra will commission the Environment Agency, in partnership with the Met Office, to: develop plausible extreme scenarios; assess their possible impacts; and then engage a panel of experts to provide quality assurance and peer review.**
- 5.4. Once there is some assurance about this modelling of extreme surface water events, **the Environment Agency will assess whether there are any implications for the extreme flood outlines on its surface water flood maps and government will take the extreme surface water event modelling into account in the next review of the National Risk Assessment.**

## 6. Better communication of storm forecasts

- 6.1. Lead Local Flood Authorities and local resilience forums play an important role in warning and responding to surface water events. It is therefore important to ensure that they and local partners have the best available information about whether a storm is likely to hit their area.
- 6.2. Surface water flooding is more difficult to forecast than flooding from rivers and the sea. It is caused by locally intense rain. Current meteorological methods are not able to determine where this heavy rain will fall with the necessary levels of precision, and useful forecast lead time.
- 6.3. This means it has not been possible to put in place warning systems for surface water flooding equivalent to the flood warnings available for main rivers and the sea. The Met Office National Severe Weather Warning Service includes regional impact-based warnings for heavy rain and, from June 2018,

thunderstorms. The Environment Agency-Met Office Flood Forecasting Centre also produces a daily Flood Guidance Statement which includes a 5-day assessment of surface water flood risk at the county level. Both Lead Local Flood Authorities and Local Resilience Fora receive these guidance statements and the resilience forums determine what action to take.

- 6.4. The Met Office and Environment Agency are carrying out a review of how improvements in surface water forecasting and communication can be made to make the best use of the information produced across the Met Office, Flood Forecasting Centre and Environment Agency. **The Met Office and Environment Agency will scope the development of a new capability for sharing with responders very short range and rapid update forecasting (“nowcasting”) for the type of rainfall that causes surface water flooding.**

## Strengthening Delivery

This second half of the action plan covers making sure infrastructure is resilient, clarifying responsibilities, surface water planning and local authority capacity.

### 7. Making sure infrastructure is resilient

- 7.1. It is essential that those responsible for key infrastructure – water, transport, energy and telecommunications – ensure their networks are resilient to surface water risks. The government is committed to working with these sectors to help them deliver their responsibilities. There is guidance on national expectations in relation to management of surface water flood risks for the energy, telecommunications, transport, and water sectors.

#### Water Industry (water supply and wastewater)

- 7.2. Water and sewerage companies have a particularly important role to play in the management of surface water risks, as they are responsible for much of the drainage network. Defra’s strategic policy statement<sup>14</sup> sets out government’s strategic priorities and objectives for Ofwat, the independent economic regulator of the water industry.
- 7.3. The 2017 strategic policy statement makes clear that securing the long-term resilience of wastewater systems and providing for resilience against flooding and wider risk is a key priority. Under the strategic policy statement, Ofwat will challenge and incentivise water and sewerage companies to improve planning and investment to meet the drainage and wastewater needs of current and

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<sup>14</sup> <https://www.gov.uk/government/publications/strategic-policy-statement-to-ofwat-incorporating-social-and-environmental-guidance>

future customers, and to develop an innovative mix of solutions. This could include promoting, adopting or maintaining sustainable drainage systems or co-investing in flood risk management, working creatively with partners “upstream” as a means of effectively draining their area and delivering multiple benefits where possible.

- 7.4. Ofwat requires all water and sewerage companies to deliver against common performance commitments, some of which relate to surface water<sup>15</sup> (see Box 4). Through Ofwat’s 2019 Price Review (PR19), individual water and sewerage companies must explain in their business plans how they will plan for and meet these priorities. Companies are also expected to propose bespoke commitments in their outcomes package for PR19.
- 7.5. **Ofwat, the Environment Agency and Water UK will review the effectiveness of the water and sewerage company performance measures underway once the 2019 Price Review has concluded. If additional outcome measures are required, these will be included in future Price Reviews.**

#### **Box 4 Performance Commitments Relating to Surface Water**

Ofwat requires water and sewerage companies to meet some performance commitments:

- **Internal sewer flooding** - The number of internal flooding incidents per year, including sewer flooding due to severe weather events per 10,000 sewer connections.
- **Pollution incidents** - Category 1 - 3 pollution incidents per 10,000km of wastewater network, as reported to the Environment Agency.
- **Sewer collapses** - Number of sewer collapses per thousand kilometres of all sewers causing an impact on service to customers or the environment.
- **Risk of sewer flooding in a storm** - Percentage of population at risk of sewer flooding in a 1 in 50 year (2%) storm. [A new commitment to help the water industry meet expectations about reducing the likelihood of service failures that lead to flooding.<sup>16</sup>]

#### **Transport, energy and telecommunications**

- 7.6. The government has undertaken a range of actions to assess and build the resilience of other key infrastructure across all sectors:

<sup>15</sup> <https://www.ofwat.gov.uk/outcomes-definitions-pr19/>

<sup>16</sup> These expectations are in the joint Ofwat and Environment Agency publication ‘Water Industry Strategic Environmental Requirements (WISER)’ <https://www.customer-panel.co.uk/media/1017/water-industry-strategic-environmental-requirements-wiser.pdf>

## Box 5 Infrastructure Resilience Guidance

- DfT's 2014 Transport Resilience Review<sup>17</sup> looked at the resilience of the transport network to extreme weather events. This identified surface water flooding as a key risk for transport networks and included a number of recommendations for improving resilience.
- The National Grid has issued guidance on the resilience of electricity substations, including on management of surface water risks, in the Engineering Technical Report 138 task group "Resilience to Flooding of Grid and Primary Substations" 2016.
- Ofcom's revised security guidance (published December 2017)<sup>18</sup> contains explicit requirements for Telecommunications Service Providers to ensure all sites are adequately protected from flooding. Revised industry guidelines on resilience will also reference flood risk.

## Next steps on building infrastructure resilience

- 7.7. The measures taken so far have gone some way towards building the resilience of key infrastructure to surface water risks, however it is likely to be necessary to go further in light of emerging analysis about the extent of the risks.
- 7.8. **Government departments will review the current and future resilience of key infrastructure networks (water, energy, transport, and telecommunications), against the extreme surface water flood risk scenarios and develop actions to improve resilience where needed.**
- 7.9. **The government will consider the surface water related findings of the National Infrastructure Assessment, to identify whether further actions are required.** This assessment covers water, sewerage infrastructure and flood risk alleviation, including surface water<sup>19</sup>.

## 8. Clarifying responsibilities

- 8.1. Effective surface water management requires coordinated action by all of those with responsibilities for managing land, rivers and drainage systems, including national and local government, water and sewerage companies, landowners and businesses.

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<sup>17</sup> <https://www.gov.uk/government/publications/transport-resilience-review-recommendations>

<sup>18</sup> <https://www.ofcom.org.uk/consultations-and-statements/category-1/review-security-guidance>

<sup>19</sup> <https://www.nic.org.uk/publications/national-infrastructure-assessment-2018/>

- 8.2. Lead Local Flood Authorities (county and unitary authorities) have the leadership role on surface water management. The law also identifies other Risk Management Authorities (RMAs) with important responsibilities (see box 6). Lead Local Flood Authorities (LLFAs) and the other Risk Management Authorities (RMAs) are accountable to the local community for the actions they take to manage surface water risk. The main way this accountability is delivered is through the overview and scrutiny arrangements put in place by the local authority. Local authorities have flexibility to decide how these local scrutiny arrangements should operate,<sup>20</sup> and are responsible for ensuring that there is effective local democratic oversight of the RMAs' work in relation to the management of surface water risk. LLFAs also report annually to Defra on their activities<sup>21</sup>.
- 8.3. In practice, however, many people are not aware that LLFAs lead on surface water flooding. The responsibilities between the different parties can become blurred, particularly when the source of flooding is unclear. LLFAs have taken very different approaches to developing their asset registers, and disputes between partners over the responsibility for surface water assets are quite common. The government is therefore taking action, to clarify local roles and responsibilities.

### **Box 6 The Risk Management Authorities and their Responsibilities**

- **Lead Local Flood Authorities (LLFAs)** have lead responsibility for ensuring that there is coordinated action to manage surface water risk in their local area. This includes developing, maintaining, applying and monitoring a strategy for local flood risk management, investigating significant flood incidents and maintaining a register of surface water assets with information about their ownership and state of repair.
- **The Environment Agency** has a national oversight role, developing, maintaining, applying and monitoring the national strategy for flood and coastal erosion risk management in England, reporting to Ministers on flood and coastal erosion risk management, allocating funding, providing data, evidence and tools (for example national surface water flood maps and flood forecasting services) and sharing good practice. It also has lead responsibility for managing flood risks from main rivers and the sea, including maintaining and operating flood assets. It carries out flood risk management works and can require others to do work to reduce flood risk.

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<sup>20</sup> See *Government Response to the Communities and Local Government Committee First Report of Session 2017-19 on the Effectiveness of Local Authority Overview and Scrutiny Committees* (March 2018), available from <https://www.gov.uk/government/publications/local-authority-overview-and-scrutiny-government-response-to-select-committee-report>

<sup>21</sup> Questions about Lead Local Flood Authority activities are included on the Single Data List which is a catalogue of all the datasets which local government is required to submit to central government.

- **Water and Sewerage Companies** manage the sewerage and water supply networks and any flood risk from them. They manage flood risk to critical water infrastructure, such as water treatment works and pumping stations and have a duty under section 94 Water Industry Act 1991 to ensure that the area they serve is “effectually drained”.
- **Highways Authorities** include county and unitary local authorities, plus Highways England. They are responsible for providing and managing highway drainage and some roadside ditches and making sure that road projects do not increase flood risks. They can carry out drainage works on highways or adjoining land.
- **Internal Drainage Boards** are local independent public bodies, with a board elected by local landowners and appointed by local authorities. They only exist in some parts of the country and exercise a general supervision over all aspects of land drainage in their district.
- **District Councils** can carry out works to manage ordinary (smaller) water courses and can carry out land drainage work where there is no Internal Drainage Board.

These RMAs are legally required to cooperate on their flood and coastal erosion risk management functions, and can be requested to provide information to LLFAs and the Environment Agency.<sup>22</sup> They are also required to act consistently with both the LLFA’s local flood risk management strategy (except for water and sewerage companies which must have regard to it) and the Environment Agency’s national strategy.<sup>23</sup>

8.4. Many other organisations and individuals also have a part to play in making sure that we understand the risks of surface water flooding and have made the right preparations for it. All landowners are responsible for the flow of water that drains off or through their property. Riparian landowners (i.e. people who own the land next to a water course) have additional responsibilities for maintaining that water course and structures on it<sup>24</sup>. Providers of telecommunications and energy infrastructure need to make sure their networks are suitability resilient; businesses, hospitals and schools need to make sure they will be able to keep running, and as individuals we all need to understand what the risks are, how we and our communities might be affected and what we can do about it.

<sup>22</sup> The Environment Agency has published statutory guidance on how these powers to request information should be used. See Environment Agency, *Co-operation and requesting information in flood and coastal erosion risk management* (2011), available from <https://www.gov.uk/government/publications/co-operation-and-requesting-information-in-flood-and-coastal-erosion-risk-management>

<sup>23</sup> Local flood risk management strategies are available from individual local authority websites. The Environment Agency’s National Flood Risk Strategy is available from [www.gov.uk/government/publications/national-flood-and-coastal-erosion-risk-management-strategy-for-england](http://www.gov.uk/government/publications/national-flood-and-coastal-erosion-risk-management-strategy-for-england)

<sup>24</sup> There is more information in the Environment Agency guidance on Owning a Watercourse <https://www.gov.uk/guidance/owning-a-watercourse>

- 8.5. There is clearly room for better understanding of surface water roles and responsibilities and for improvements in partnership working between the parties. This will be addressed in the new national strategy. **The Environment Agency will clarify the roles of Risk Management Authorities, and other key players, in delivering the revised National Flood and Coastal Erosion Risk Management Strategy, including the roles they will play in surface water management.**

### **Identifying who is responsible for managing particular local assets and risks**

- 8.6. Sometimes it can be challenging to identify who is responsible for managing particular local assets that can have an impact on surface risk. A lack of clarity or awareness about the ownership and state of repair of surface water and drainage assets, and disputes between parties over the responsibility for assets can be barriers to action on surface water management. This can become particularly contentious when surface water flooding has already occurred.
- 8.7. There are legal provisions and guidance to help determine who is responsible for the management of particular assets and local risks. The most important provisions are summarised in box 7.
- 8.8. Further work is required to strengthen the system, improving awareness and understanding of local asset management and making it clearer what the important assets are and who is responsible for managing them.
- 8.9. To improve the general level of awareness, **the Environment Agency, ADEPT (the Association of Directors of Environment, Economy, Planning and Transport) and Local Government Association will agree key messages about local flood assets and responsibilities, for use in awareness raising and ongoing communications with key target groups (for example developers, local planning authorities, highways authorities, riparian owners).**

## Box 7 Arrangements for Identifying Local Responsibilities

There are a number of formal mechanisms that can help with determining ownership and responsibility for surface water and drainage assets:

- **Asset registers** - Lead Local Flood Authorities (LLFAs) are required to maintain a record of structures and features (drains, ditches, pipes, gullies etc.), which are likely to have a significant effect on flood risk in their area, including who owns the asset and the responsibility for maintenance.
- **“Section 19” reports** - When a flood occurs, Lead Local Flood Authorities investigate which Risk Management Authorities have relevant flood risk management functions and whether they have exercised those functions.<sup>25</sup>
- **Designation** - Where surface water assets are in private ownership, the LLFA, the Environment Agency, district council or Internal Drainage Board may “designate” them so that the owners must inform the authority before altering them.<sup>26</sup>

There is a range of guidance for local parties whose activities could have an impact on flood risk. This includes:

- guidance for developers who are building new sewerage infrastructure to serve new homes and businesses;<sup>27</sup>
- a protocol to help determine whether a structure should be treated as a sewer or a “culverted watercourse”, which comes with additional legal responsibilities;<sup>28</sup>
- guidance about flood risk responsibilities for landowners who have watercourses on or under their land (“riparian landowners”);<sup>29</sup> and
- guidance for highway authorities on the most cost effective approach to managing and maintaining drainage assets.<sup>30</sup>

Finally, there are mechanisms for resolving disputes over responsibility for surface water flooding:

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<sup>25</sup> Best practice guidance for Lead Local Flood Authorities on carrying out section 19 investigations is set out in [BS 85600:2017 Post-event flood assessments. Guidance on investigating flooding incidents](#). They are called section 19 investigations because the duty is in section 19 Flood and Water Management Act 2010.

<sup>26</sup> Defra issued an information note about designation in July 2012. <https://www.gov.uk/government/publications/designation-of-structures-and-features-for-flood-and-coastal-erosion-risk-management-purposes-information-note--2>

<sup>27</sup> When a new development is built, the developer and water and sewerage company can enter into a Section 104 agreement under the Water Industry Act 1991. This ensures that if sewerage on the new development is built to an agreed standard, it can be adopted by the water and sewerage company as a public sewer. The standards that water and sewerage companies currently apply are contained in Sewers for Adoption 6th or 7th edition (obtainable from <http://www.wrcplc.co.uk/publishing>). From summer 2019, a further version of this manual will take effect. The pre implementation version of this manual is available here - [Sewers for Adoption](#). The position in Wales is different due to the implementation of Schedule 3 of the Flood and Water Management Act 2010.

<sup>28</sup> Water UK has published a “Protocol for correctly classifying culverted watercourses and sewers” which sets out the procedures that parties should follow where either a sewer or culverted watercourse may have been wrongly classified.

<sup>29</sup> <https://www.gov.uk/guidance/owning-a-watercourse>

<sup>30</sup> <http://www.highwayefficiency.org.uk/efficiency-resources/asset-management/guidance-on-the-management-of-highways.html>



- the **First-tier Tribunal (Property Chamber) Agricultural Land and Drainage** can deal with issues being caused by blocked drainage channels or inadequate drainage on all types of land, not just agricultural land;<sup>31</sup>
- the government provides a list of registered **mediation providers** who offer fixed fee services.<sup>32</sup>
- **arbitration** can also be a useful process for resolving disputes if both parties agree to appoint an independent arbitrator and to abide by the arbitrator's decision.

## Improving the quality of asset registers

8.10. Section 21 of the Flood and Water Management Act 2010 introduced a requirement for Lead Local Flood Authorities (LLFAs) to maintain a register of structures and features (drains, ditches, gullies, pipes, etc.), which are likely to have a significant effect on flood risk in their area and information about them including ownership and state of repair. This is commonly referred to as an asset register. LLFAs receive funding from central government to carry out this function.

8.11. The register is a useful mechanism for understanding the overall drainage system. It can be used for highlighting assets which are problematic or in need of repair or maintenance work, facilitating flood investigations, allowing more effective input to planning applications and pre-application planning advice and helping in the response to flooding incidents.

8.12. In practice, however, there is significant variation in the approaches taken by LLFAs. Some have mapped and investigated the full range of assets owned by different parties in their area whilst others have pulled together basic datasets held by the council, e.g. on highways assets<sup>33</sup>. LLFA asset registers must be available for inspection at all reasonable times. Some are published online, but most are available on request from the LLFA.

8.13. Defra published a short information note on asset registers in 2011<sup>34</sup>. Now that LLFAs have some experience in developing these registers there is more information which could usefully be shared about best practice on content and on how to develop and use the register. This could include information about how LLFAs and water and sewerage companies can work together to produce both between these asset registers and the sewer maps which water and sewerage companies are required to keep by section 199 Water Industry Act 1991.

<sup>31</sup> <https://www.gov.uk/guidance/agricultural-land-and-drainage-disputes-apply-to-a-tribunal>

<sup>32</sup> <http://civilmediation.justice.gov.uk/>

<sup>33</sup> Evidence from the [evaluation of the arrangements for managing local flood risk](#)

<sup>34</sup> <https://www.gov.uk/government/publications/lead-local-flood-authority-duty-to-maintain-a-register>

- 8.14. **The Environment Agency, working with Lead Local Flood Authorities and other expert bodies, will develop a guidance note setting out best practice on local asset maintenance and management, including local flood risk asset registers (e.g. what information sources to use, what types of assets to include, suggestions for collaboration between asset managers, expectations on asset maintenance).**

## **Reviewing dispute resolution arrangements**

- 8.15. Despite the legal provisions, guidance and dispute resolution options outlined in box 7, difficulties and disputes about responsibilities for surface water asset management still happen, and those affected by such problems commonly feel frustrated that these can take significant time and effort to resolve, getting in the way of action to manage the surface water risks.
- 8.16. **Defra will commission a review of the arrangements for determining responsibility for surface water and drainage assets (including the legal mechanisms, guidance and dispute resolution arrangements in box 7) to identify recommendations for how to make this more straightforward for property owners and others.**

## **9. Joined-up planning for surface water management**

- 9.1. Those responsible for managing surface water (Lead Local Flood Authorities, water and sewerage companies, highways authorities and others) need to work together if they are to tackle the risks effectively. Planning together enables organisations to get the full range of information, co-design effective solutions and make the best use of resources.
- 9.2. There are a number of important plans relating to surface water management, summarised in figure 1 and box 8. Where these work well together, they can be effective in driving well-coordinated decision-making and effective long-term planning, however there is more to do to ensure that the system is working as well as it could.

## Box 8: Most Important Plans for Surface Water Management

Figure 1 sets out the key plans for surface water management, their purpose and who is responsible for them. It includes

- Strategic flood management plans which are used for assessing and managing surface water flood risks
- Land use plans which set out the framework within which local planning authorities operate, so that the surface water and drainage needs and implications of new homes, businesses and infrastructure are properly taken into account.
- Emergency plans used by local responders for co-ordinating their response to surface water flooding when it happens.

The 3 most important plans for surface water are:

- **Local Flood Risk Management Strategy (LFRMS)** – Lead Local Flood Authorities (LLFAs) are required to publish an LFRMS assessing the local flood risk, setting out objectives for managing local flooding and describing measures to meet the objectives. The LFRMS must be consistent with the Environment Agency's national flood and coastal erosion risk management strategy, and Risk Management Authorities must act in a manner consistent with the LFRMS, except water and sewerage companies which must have regard to it.<sup>35</sup>
- **Strategic Flood Risk Assessment (SFRA)** Local planning authorities (lower tier local authorities) must carry out a strategic flood risk assessment to inform local planning decisions. They must consider flood risk from all sources including surface water, and take account of climate change, cumulative impacts from land use changes and the opportunities to reduce flood risk to existing communities and developments. The local planning authority must consult the LLFA when developing the SFRA and on surface water drainage for major developments.
- **Drainage and Wastewater Management Plan (DWMP)** Water and sewerage companies, led by Water UK, will be developing DWMPs to improve the long term planning of drainage and wastewater services.<sup>36</sup>

## High quality Local Flood Risk Management Strategies

- 9.3. The Local Flood Risk Management Strategy (LFRMS) is the key local document for surface water management and it is important that these are high quality, influential strategies. Government expects them to make a material difference to reducing surface water flood risks. Defra's evaluation of local flood risk

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<sup>35</sup>In 2011 the Local Government Association published a framework for LFRMS  
<https://www.local.gov.uk/sites/default/files/documents/lgas-framework-assist-dev-3bc.pdf>.

<sup>36</sup><https://www.water.org.uk/policy/improving-resilience/21st-century-drainage/long-term-planning>

management<sup>37</sup> found that LFRMS are driving more efficient and coordinated action in tackling local flood risk.

9.4. Changes since the requirement to produce an LFRMS was introduced include:

- LLFA experience of developing and implementing a LFRMS. There is best practice on content and on how to develop and use the strategy which could usefully be shared.
- Changes in the landscape of relevant plans. There will be new Drainage and Wastewater Management Plans, and the detailed technical guidance on voluntary Surface Water Management Plans<sup>38</sup> has become out of date in some respects, though still helpful for developing a LFRMS.
- The Environment Agency is currently reviewing the national flood and coastal erosion risk management strategy for England.

9.5. LLFAs will need to update their LFRMS to reflect these developments, especially the new national strategy. To help LLFAs develop high quality strategies **Defra and the Environment Agency will work with Lead Local Flood Authorities to develop new guidance on their local flood risk management strategies, which reflects the revised national strategy, shares best practice on content and use, and explains how they fit with other plans and strategies.**

## Ensuring that water and sewerage companies play their part

9.6. Despite having legal responsibilities for ensuring effective drainage, water and sewerage companies are not explicitly required to put in place long-term plans for managing wastewater. The water industry has started to rise to this challenge. Water UK's 21<sup>st</sup> Century Drainage Programme is driving work to improve the long term planning of drainage and wastewater services. This includes the development of a new planning framework for the production of Drainage and Wastewater Management Plans (DWMPs).

9.7. DWMPs will provide a consistent basis for planning across the water sector, enabling companies to target investment on drainage and wastewater more effectively and provide customers with better information about these services. DWMPs will help water and sewerage companies manage their assets over the long term and ensure that they are resilient to climate change. Developing DWMPs will require engagement and involvement of other Risk Management Authorities, facilitating a more joined approach and integrated solutions.

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<sup>37</sup><http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=19219>

<sup>38</sup><https://www.gov.uk/government/publications/surface-water-management-plan-technical-guidance>

- 9.8. Defra is working closely with Water UK and Ofwat, which is responsible for setting out standards for the sector through its periodic price reviews. Ofwat has set out clear expectations on drainage and wastewater for companies' business plans for the 2019 Price Review. These include taking a system-wide approach to understanding, planning and managing risks to the delivery of wastewater services, building on the principles of the 2013 Drainage Strategy Framework<sup>39</sup>, and using outputs from the 21<sup>st</sup> Century Drainage Programme, as well as partnership working with other organisations.
- 9.9. Further actions are planned to ensure that the approach is delivering the expected benefits for surface water management:
- **The water industry must ensure that Drainage and Wastewater Management Plans are fit for purpose and deliver significant improvements to drainage of wastewater.** The DWMP framework is due to be finalised in September 2018, with fully developed DWMPs by the end of 2022-23. Defra expects water and sewerage companies to set out a clear roadmap for the production of DWMPs in their business plans responding to Ofwat's 2019 Price Review. The roadmap should cover the approach to risk assessment and options appraisals (with work starting on risk analysis in 2018), plans for stakeholder engagement and consideration of the investment needed.
  - **Defra will work with Environment Agency and Ofwat to review water and sewerage companies' progress on development of DWMPs and consider putting them on a stronger regulatory footing if sufficient progress has not been made.**

## The 25 Year Environment Plan

- 9.10. The government's 25 Year Environment Plan<sup>40</sup> sets out the aspiration for environmental policy and practice to be more integrated and efficient. It identifies that there are many organisations and partnerships pursuing their own plans, and whilst sometimes there is good coordination between them, sometimes opportunities for joining up and integrating environmental work are missed.
- 9.11. Work is underway to bring about greater integration. The work goes beyond the remit of this action plan, but surface water is one part of the picture and will be part of the drive for more streamlining and integration in environmental planning.
- 9.12. The 25 Year Environment Plan also includes specific commitments to strengthen surface water provisions, including putting in place more sustainable

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<sup>39</sup> <https://www.ofwat.gov.uk/publication/drainage-strategy-framework-for-water-and-sewerage-companies-to-prepare-drainage-strategies/>

<sup>40</sup> [www.gov.uk/government/publications/25-year-environment-plan](http://www.gov.uk/government/publications/25-year-environment-plan)

drainage systems (SuDS). There are commitments to amending the National Planning Policy Framework (NPPF), the Planning Practice Guidance and in the longer term, consideration of how the building regulations could encourage the uptake and long term maintenance of multi benefit SuDS.

- 9.13. The Ministry of Housing, Communities and Local Government's consultation on draft revisions to the NPPF included a proposed requirement for all major development and all development in flood risk areas to contain SuDS unless there are clear reasons they would be unsuitable. Further proposed improvements include text on the multifunctional benefits of SuDS and set out that local planning authorities should ensure provision of maintenance arrangements of SuDS over the lifetime of the development. The final revised NPPF is due to be published in summer 2018.

## 10. Building local authority capacity

- 10.1. Lead Local Flood Authorities (LLFAs) are in the key leadership role on surface water, and it is essential that they have the right skills and resources to perform this role.

### Strengthening skills

- 10.2. When local authorities were first given LLFA responsibilities, there was a centrally led capacity building programme to build the skills needed. Eight years on there is evidence of gaps in local authority skills and capacity. The independent evaluation of local flood risk management<sup>41</sup> and case study evidence<sup>42</sup> found that not all LLFAs have the skills (or access to the skills) or capacity to carry out their surface water management responsibilities effectively. In relation to surface water, there is evidence of skill gaps in drainage engineering knowledge and data collection, interpretation and sharing. Recruitment and retention of suitable staff is a challenge. Those recruited to these roles can use them as a stepping stone to acquire skills, and then move to other roles.
- 10.3. Some work is already underway. The local government organisation ADEPT (the Association of Directors of Environment, Economy, Planning and Transport) has developed a skills matrix which many LLFAs have populated with information about what skills they need and what they can offer. The Environment Agency provides advice and support to LLFAs, and has developed flood management degree courses and an apprenticeship strategy, to ensure that there is a pipeline of suitably skilled staff.

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<sup>41</sup><http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=19219&FromSearch=Y&Publisher=1&SearchText=fd2680&SortString=ProjectCode&SortOrder=Asc&Paging=10>

<sup>42</sup><http://randd.defra.gov.uk/> (FD2707 'Review of Local Approaches to Surface Water Flood Risk Management')

10.4. However, further action is required to build on this progress. The Surface Water Management Action Plan therefore carries forward two actions from the Local Flood Risk Management Action Plan<sup>43</sup> to continue to build capacity:

- **the Environment Agency will advise and support the local government sector to identify local authorities in need of priority support (e.g. due to staff turnover) and support them to understand the risk and develop a capability-building plan; and**
- **the local government organisation the Association of Directors of Environment, Economy, Planning and Transport (ADEPT) to develop systems to enable skills sharing and mutual support between local authorities to be hosted on an existing platform such as FlowNet.**

## Reviewing surface water funding sources

10.5. Local government revenue spending on flood risk management has increased by 29% in real terms since 2010/11, supported by £31m annual additional funding provided by the government to support the work of LLFAs.<sup>44</sup> The independent evaluation published by Defra in January 2017 found that increased cooperation and collaboration between Risk Management Authorities is also driving efficiency and effectiveness in spending.<sup>45</sup>

10.6. Local government funding is one of a wide range of relevant funding sources for surface water management projects. In 2012 the Local Government Association, Environment Agency and Defra published joint guidance for LLFAs on Partnership Funding and Collaborative Delivery of Local Flood Risk Management.<sup>46</sup> This includes tables of relevant funding sources for surface water management and advice on when each is appropriate.

10.7. Regional Flood and Coastal Committees have also been working with LLFAs to help map and understand the funding landscape and share best practice on collaborative funding for surface water projects.

10.8. However, further action is needed to ensure that local authorities can access funds from suitable sources, particularly for capital projects.

10.9. One challenge reported by LLFAs relates to the justification needed when bidding for flood defence grant in aid, which was not seen as proportionate for smaller projects, like many surface water projects. The Environment Agency has simplified the arrangements when applying for Grant in Aid for smaller

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<sup>43</sup> <https://www.gov.uk/government/publications/flood-and-water-management-act-2010-post-legislative-scrutiny>

<sup>44</sup> <https://www.nao.org.uk/report/financial-sustainability-of-local-authorities-2018/>

<sup>45</sup> <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=19219&FromSearch=Y&Publisher=1&SearchText=fd2680&SortString=ProjectCode&SortOrder=Asc&Paging=10>

<sup>46</sup> <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=17085>

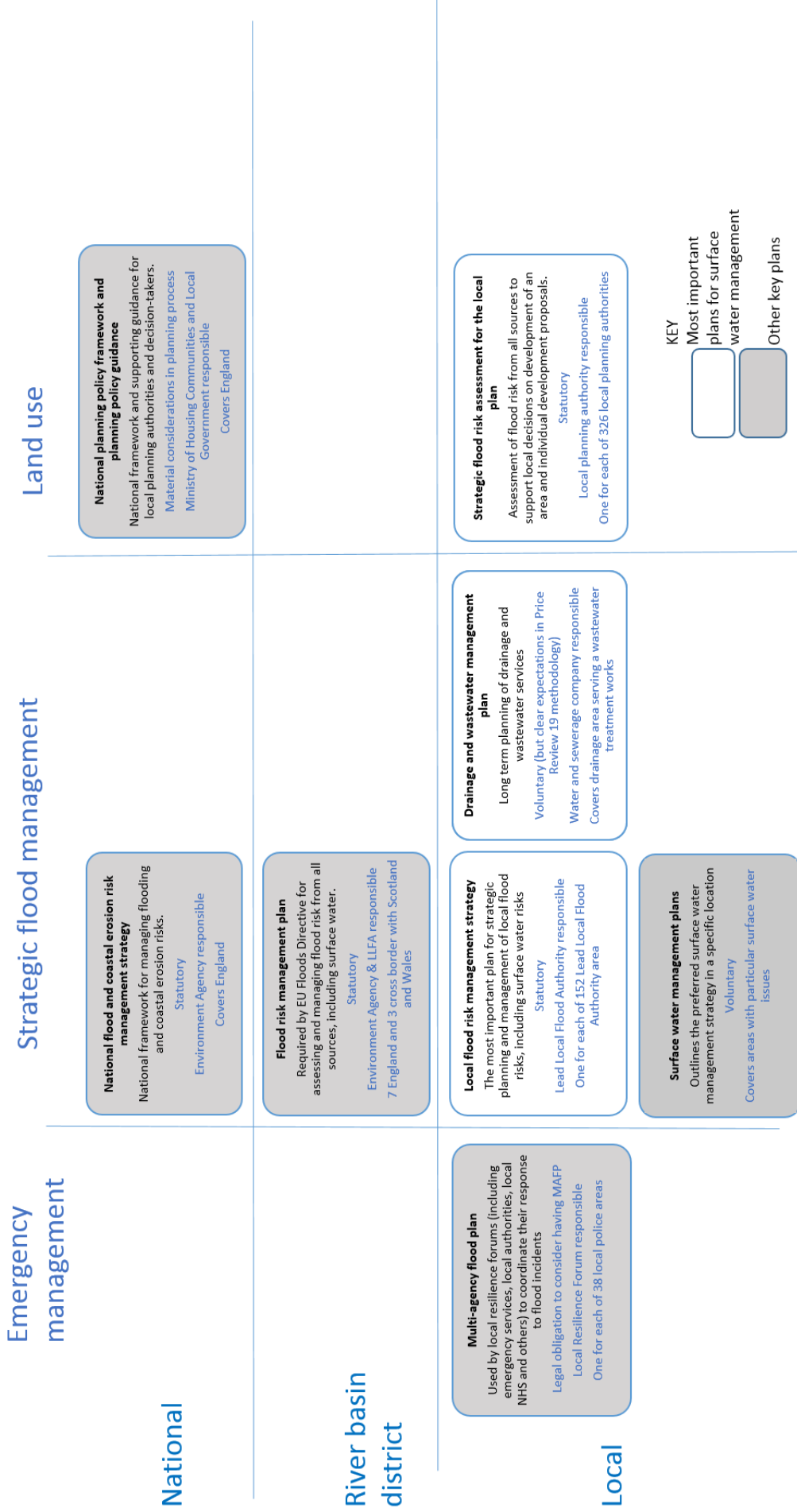
schemes by introducing a short form business case for projects up to £2 million and raising the assurance threshold. However, LLFAs are still reporting these challenges. The Environment Agency is working with LLFAs to revise the short form business case template to clarify the information and appraisal which is expected to accompany the application. The Environment Agency is also delivering training for Risk Management Authorities to support the adoption of proportionate approaches in project development.

- 10.10. As set out in the government's 25 Year Environment Plan, in 2019 Defra will look at partnership funding arrangements ahead of a review of funding needs beyond 2021, seeking to attract more non-public sector investment, and make sure all relevant agencies are able to respond quickly and effectively to support communities if and when flooding does occur. **Defra will review the funding sources which are available for surface water risk management, considering how spending by water and sewerage companies, local and central government and others can best be directed to reduce surface water flood risk and whether the mechanisms are appropriate for these types of projects.**



Figure 1

# Key plans for surface water management



## ANNEX A Summary of actions

No.	Action	Page
1	The Environment Agency will improve national surface water mapping and risk assessments. This will be through improved modelling approaches, better quality data and a better representation of the combined effects of flooding from different sources.	14
2	The Environment Agency will set out a simplified set of requirements by end of autumn 2018, to make it easier for other organisations to supply data for incorporation into the national surface water maps.	15
3	The Environment Agency will work with Lead Local Flood Authorities, insurance companies and water and sewerage companies about accessing and sharing the data they hold and the modelling they have completed, with the objective of making this information more accessible to the public and using it to improve the surface water maps.	15
4	If problems with data sharing persist, Defra will consider commencing Environment Agency and Lead Local Flood Authority powers to enforce the provision of information.	15
5	Water UK and Defra will bring together surface water drainage asset owners to disseminate the findings of this work and explore the potential for wider usage of this method for understanding surface water capacity.	16
6	Defra will commission the Environment Agency, in partnership with the Met Office, to: develop plausible extreme scenarios; assess their possible impacts; and then engage a panel of experts to provide quality assurance and peer review.	17
7	The Environment Agency will assess whether there are any implications for the extreme flood outlines on its surface water flood maps.	17
8	Government will take the extreme surface water event modelling into account in the next review of the National Risk Assessment.	17
9	The Met Office and Environment Agency will scope the development of a new capability for sharing with responders very short range and rapid update forecasting (“nowcasting”) for the type of rainfall that causes surface water	18

	flooding.	
10	Ofwat, the Environment Agency and Water UK will review the effectiveness of the water and sewerage company performance measures underway once the 2019 Price Review has concluded. If additional outcome measures are required, these will be included in future Price Reviews.	19
11	Government departments will review the current and future resilience of key infrastructure networks (water, energy, transport, and telecommunications), against the extreme surface water flood risk scenarios and develop actions to improve resilience where needed.	20
12	The government will consider the surface water related findings of the National Infrastructure Assessment, to identify whether further actions are required.	20
13	The Environment Agency will clarify the roles of Risk Management Authorities, and other key players, in delivering the revised National Flood and Coastal Erosion Risk Management Strategy, including the roles they will play in surface water management.	23
14	The Environment Agency, ADEPT (the Association of Directors of Environment, Economy, Planning and Transport) and Local Government Association will agree key messages about local flood assets and responsibilities, for use in awareness raising and ongoing communications with key target groups (for example developers, local planning authorities, highways authorities, riparian owners).	23
15	The Environment Agency, working with Lead Local Flood Authorities and other expert bodies, will develop a guidance note setting out best practice on local asset maintenance and management, including local flood risk asset registers (e.g. what information sources to use, what types of assets to include, suggestions for collaboration between asset managers, expectations on asset maintenance).	26
16	Defra will commission a review of the arrangements for determining responsibility for surface water and drainage assets (including the legal mechanisms, guidance and dispute resolution arrangements in box 7) to identify recommendations for how to make this more straightforward for property owners and others.	26
17	Defra and the Environment Agency will work with Lead Local Flood Authorities to develop new guidance on their local flood risk management strategies, which reflects the revised national strategy, shares best practice	28

	on content and use, and explains how they fit with other plans and strategies.	
18	The water industry must ensure that Drainage and Wastewater Management Plans are fit for purpose and deliver significant improvements to drainage of wastewater.	29
19	Defra will work with Environment Agency and Ofwat to review water and sewerage companies' progress on development of DWMPs and consider putting them on a stronger regulatory footing if sufficient progress has not been made.	29
20	The Environment Agency will advise and support the local government sector to identify Local Authorities in need of priority support (e.g. due to staff turnover) and support them to understand the risk and develop a capability-building plan;	31
21	The local government organisation the Association of Directors of Environment, Economy, Planning and Transport (ADEPT) to develop systems to enable skills sharing and mutual support between local authorities to be hosted on an existing platform such as FlowNet.	31
22	Defra will review the funding sources which are available for surface water risk management, considering how spending by water and sewerage companies, local and central government and others can best be directed to reduce surface water flood risk and whether the mechanisms are appropriate for these types of projects.	32

# ANNEX B Progress on Implementation of the Local Flood Risk Management Action Plan

This surface water management action plan supersedes the Local Flood Risk Management Action Plan which was published in January 2017<sup>47</sup>. This annex gives an update on progress with the Local Flood Risk Management Action Plan setting out which actions have been completed and which have been incorporated into the new surface water plan.

## 1 Improving delivery and partnership working

Action	Progress update
In order to bring all Lead Local Flood Authorities up to the standard that a number of LLFAs are working to, the Environment Agency will <b>promote stronger partnership working</b> between LLFAs and other Risk Management Authorities, and in particular facilitate the strengthening of catchment-level partnerships in line with the objectives of a more integrated approach to catchment management, for example through sharing best practice and the promotion of Public Sector Co-operation Agreements.	Superseded  An example of what the Environment Agency has done includes: <ul style="list-style-type: none"> <li>Extending the number of Public Sector Co-operation Agreements (PSCA) and made available a PSCA briefing and user guide</li> </ul> The Environment Agency's review of the National Flood and Coastal Erosion Risk Management Strategy will consider how to improve and strengthen partnership working.
As part of its Strategic Overview role, the Environment Agency and Defra to agree with DCLG a new measure to demonstrate the ongoing maintenance and development of high quality LLFA strategies for the management of local flood risk from April 2017. This would replace the current measure which records whether strategies are complete or not. The EA will report on this new measure in its annual report 'Managing flood and coastal erosion risks in England' for the 2017/18 year.	Complete  The Single Data List has been updated to include the new measure. New data will be collected by the Environment Agency from spring 2018. The new measure is a multiple choice questionnaire for Lead Local Flood Authorities to report on their responsibilities covering local flood risk management strategies, partnership working, asset registers, section 19 flood investigations and capacity.
Where LLFAs have not completed their strategies by 31 March 2017, in consultation with DCLG the Secretary of State will consider using existing powers within the Flood and Water Management Act to instruct another Risk Management Authority to complete it. This power could also be exercised in relation to the duty to complete a risk register in the highest risk areas.	Complete  There is just one outstanding strategy, which has been completed and should be published by the relevant LLFA soon.

<sup>47</sup> <https://www.gov.uk/government/publications/flood-and-water-management-act-2010-post-legislative-scrutiny>

<p>Regional Flood and Coastal Committees to support the Environment Agency by seeking regular reports from members to allow them to review progress in managing local flood risks and support future priorities.</p>	<p>Complete</p> <p>Regional Flood and Coastal Committees (RFCCs) members provide updates on priorities at RFCC meetings. The RFCC Chairs have discussed and been part of progressing elements of the Local Flood Risk Action Plan (Actions 1, 3, 5, 9 and 12).</p>
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## 2 Improving skills and capacity

Action	Progress update
<p>The Environment Agency to advise and support the local government sector to identify Local Authorities in need of priority support (e.g. due to staff turnover) and support them to understand the risk and <b>develop capability building plans</b>.</p>	<p>Superseded</p> <p>This action has been incorporated into the surface water management action plan.</p> <p>Examples of what the Environment Agency has done so far include:</p> <ul style="list-style-type: none"> <li>• Working with RFCCs on skills and capacity</li> <li>• Extending the number of Public Sector Co-operation Agreements</li> <li>• Ran training workshops on partnership funding in various parts of the country</li> <li>• Developing an apprenticeship strategy that will set out a long-term approach to apprenticeships, including how the Environment Agency and other RMAs might work together to best effect.</li> </ul>
<p>Defra and the Environment Agency to work with the local government sector to review and refresh the <b>online resources</b> available to support local flood and coastal risk management by winter 2016.</p>	<p>Due for completion in July 2018</p> <p>Defra and Environment Agency have reviewed the Local Government Association flood portal and assessed sections to be updated based on number hits and when they were last updated. A number of sections have now been updated. The remaining sections will be updated in 2018.</p>
<p>Local government organisation the Association of Directors of Environment, Economy, Planning and Transport (<b>ADEPT</b>) to develop systems to <b>enable skills sharing and mutual support</b> between Authorities, including in an emergency, to be hosted on an existing platform such as FlowNet.</p>	<p>Superseded</p> <p>This action has been incorporated into the surface water management action plan.</p> <p>Following a survey of all LLFAs Adept has developed a skills matrix for LLFAs, which is being kept regularly up-to-date. ADEPT has undertaken some analysis by Regional Flood and Coastal Committee area. Options for hosting the Skills Matrix online, which will enable quick updates to be made to it are currently being explored.</p>
<p>Environment Agency to work with local authorities to promote data sets being released through the #opendefra programme to <b>help support their knowledge and evidence base</b>.</p>	<p>Complete</p> <p>There are over 300 flood related datasets currently on data.gov <a href="#">published</a> by the Environment Agency. This can be used by local authorities across their flood risk and place making roles.</p>

### 3 Promoting investment and infrastructure

Action	Progress update
<p><b>Support for smaller projects:</b> The Environment Agency to work with Regional Flood and Coastal Committees and the local government sector to promote the simpler short form application process for grant funding small-scale infrastructure projects.</p>	<p>Complete</p> <p>As well as simplifying the arrangements when applying for Grant in Aid for smaller schemes by introducing a short form business case template (for projects up to £2m) in April 2016, the Environment Agency has also introduced more proportionate approval and assurance processes.</p>
<p>Defra and the Environment Agency to share good practice identified through the small-scheme pathfinder projects by March 2017 to support LLFAs in making grant applications.</p>	<p>Complete</p> <p>Reports from the local authority Small-Schemes Pathfinders, including lessons learned, have been produced. Pathfinder LLFAs have individually promoted the outcomes of their work. Within Defra and the Environment Agency the lessons have supported the following improvements that aid delivery of small-schemes:</p> <ul style="list-style-type: none"> <li>• Simpler business case templates and submission process.</li> <li>• More proportionate approval and assurance arrangements.</li> <li>• Development and publication of the 'Investment Journey' to better describe the steps from opportunity to project approval incorporating pathfinder lessons particularly around early engagement</li> <li>• The Environment Agency is delivering training for Risk Management Authorities on the Investment Journey</li> </ul>
<p>Defra and the Environment Agency to work with local government sector to consider whether there are possible lessons for the funding of small-scale capital works to be learned from Department for Transport and the funding of highways infrastructure.</p>	<p>Superseded</p> <p>In relation to flood defence grant in aid we are looking at current partnership arrangements ahead of a review of funding needs beyond 2021. An action on this is included in this surface water management action plan.</p>
<p>The Environment Agency to work with RFCCs to explore what support LLFAs need to develop proposals for flood risk schemes with wider environmental benefits, for example small-scale natural flood risk management.</p>	<p>Complete</p> <p>This is now incorporated as business as usual work support by local Environment Agency teams.</p> <p>Examples of what has been done includes:</p> <ul style="list-style-type: none"> <li>• Environment Agency has undertaken work with CIWEM on catchment partnerships e.g. a workshop on 13 July 2017 sponsored by Anne Wheeler Severn RFCC Chair. The aims were to share evidence on integrated catchment delivery, embed learning at catchment scale and build future relationships</li> <li>• Environment Agency 'Working with Natural Processes evidence programme' has developed practical information and tools for all RMA's published in October 17.</li> <li>• In July 2017 Defra announced £15m of funding for over</li> </ul>

	50 Natural Flood Management projects
<b>Joined-up planning</b> LLFAs that wish to apply for grant funding from the Environment Agency will have to demonstrate that the planned measures are supported by evidence in their Local Flood Risk Management Strategy or associated action plan from 2018.	Complete The 5-case business model and Investment journey encourages Risk Management Authorities (RMAs) to use existing evidence in strategic plans and plan together with other RMAs. The supporting training for RMAs will draw out and reinforced the existing FCERM Appraisal Guidance need to link grant proposals to wider plans and strategies.
Defra to work with DCLG and key stakeholders including Local Government bodies on a review of planning legislation, government planning policy and local planning policies concerning sustainable drainage in relation to the development of land in England, following the Government commitment contained in the Housing and Planning Act 2016.	Complete Review complete and Ministry of Housing, Communities and Local Government due to be published soon.

#### 4 Community Resilience

Action	Progress update
Defra and the National Flood Forum to create a community resilience 'resource hub' to make available the outputs of the <b>community resilience pathfinders</b> to support local authorities.	Complete It is available <a href="#">here</a>
EA to refresh and extend their annual 'Floods Destroy. Be Prepared' campaign to increase awareness of flood risk among priority audiences and motivate people to take action.	Complete The campaign was carried out between 1-13 November 2016.
Environment Agency to work with the business sector, including through the Business Emergency Resilience Group (BERG), to help businesses to become more resilient to flooding, and to explore the role they can play in community preparedness, response and recovery.	Complete This has now been incorporated as business as usual work. The Environment Agency has representatives on all of the Property Level Roundtable groups. The Agency has contributed to two industry led projects, the Cumbria Resilient showcase and the Code of Practice. The Agency is also a member of the leadership group of BERG that set policy for their action in this area.

#### 5 Emergency response

Action	Progress update
Defra to update its guidance to emergency planners to help clarify the roles and responsibilities of Local Authorities in an incident and to consider how it can be used to help encourage links between LLFAs and Local Resilience Forums (LRFs).	Superseded An independent review of LRF Multi-Agency Flood Plans (MAFPs) was published on 12 June 2018. A government response will be published later in the year and Defra guidance to the LRFs will be reviewed and updated in light of the outcome of the MAFP Review.



