



Department
for Environment
Food & Rural Affairs

Surface water management

A government update

29 July 2021

We are the Department for Environment, Food and Rural Affairs. We're responsible for improving and protecting the environment, growing the green economy, sustaining thriving rural communities and supporting our world-class food, farming and fishing industries.

We work closely with our 33 agencies and arm's length bodies on our ambition to make our air purer, our water cleaner, our land greener and our food more sustainable. Our mission is to restore and enhance the environment for the next generation, and to leave the environment in a better state than we found it.

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Flood and Coastal Erosion Risk Management

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1. Ministerial foreword

Today we are restating our commitment to tackling surface water flood risk. We know that surface water flooding is the most widespread form of flooding in England, with around 3.2 million properties at risk. We also know that this risk is increasing because of climate change and population growth.

Surface water flood risk is often localised and complex. It means ensuring culverts, drains, small watercourses and ditches are able to deal with often heavy rainfall which could overwhelm them. Local councils, highways authorities, water companies, landowners and regulatory bodies have a role to play and must work together. Government's role is to provide the tools and powers that help them take action.

That is why we set out 22 actions in our Surface water management action plan. Some good progress has been made, and we remain committed to its implementation. As this report shows, since the action plan was published, the government has taken steps including changing partnership funding rules to enable more surface water schemes in our new £5.2 billion flood defence programme, and launched a £200 million innovation fund supporting surface water flood risk actions in 11 local areas. We aim to put Drainage and wastewater plans on a statutory footing through the Environment Bill, to ensure drainage and sewerage systems are resilient to withstand the current and future pressures on them. We will now consider what guidance and reporting is necessary for these plans to ensure timely action in areas with the greatest surface water flooding problems.

This report also sets out our response to the independent Review of surface water responsibilities. As a result, we are working with stakeholders to ensure those responsible for local flood risk management work together to support local communities in understanding and mitigating the surface water flood risk. The Storm Overflows Taskforce will make recommendations for action to improve the drainage network and actively encourage the use of sustainable drainage systems to manage surface water.

We will also expand our forthcoming review of maintenance responsibilities to examine whether existing local powers are efficient in ensuring local assets are maintained, expertise is shared across local authorities and complaints processes are sufficient given the frustration sometimes felt by residents and customers. I am grateful to everyone for what has been achieved so far and look forward to what will be achieved in the coming years to mitigate this risk as everyone plays their part in taking the necessary steps to increase the nation's resilience.

Rebecca Pow MP

**Parliamentary Under Secretary of State
Department for Environment, Food and Rural Affairs**

2. Introduction

Surface water flooding is the most widespread flood risk in England, affecting 3.2 million properties at risk of flooding (62% of properties at risk of flooding). It is caused by a combination of factors including intense rainfall, soil permeability, topography, drainage system capacity and maintenance, and physical barriers such as buildings. With more frequent and intense rainfall, climate change and population growth we are at risk of experiencing more surface water flooding. The 2021 [Independent assessment of UK climate risk](#) highlights the impact of surface water flooding on communities and businesses.

To help mitigate this risk the government published its [Surface water management action plan](#) in July 2018, setting out 22 actions to improve understanding and strengthen actions to reduce surface water flood risk. The actions include:

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

In August 2020 the government published the [Review into the arrangements for determining responsibility for surface water and drainage assets](#), an action from the Surface water management action plan. The government commissioned independent review explored the complexities for determining responsibility for surface water and drainage assets. It also looked at dispute resolution and how to make this more straightforward for householders. On publication the government immediately accepted 12 recommendations, which will help to make these arrangements more efficient, straightforward and effective, and here we respond to the remainder.

Our [Flood and coastal erosion risk management policy statement](#) sets out our ambition to create a nation more resilient to future flood and coastal erosion risk; accelerating progress to better protect and better prepare the country in the face of more frequent extreme weather. On surface water it commits us to promote actions which prevent and better manage the impacts of it, including enhancing local understanding of the risk and asset ownership and responsibilities, and increasing the provision of sustainable drainage systems. It also commits us to continuing to take forward the actions in the Surface water management action plan and to publishing an update on progress made to implement it and considering the recommendations from the Review of surface water responsibilities and responding to the review.

At the same time the Environment Agency published its new [Flood and coastal erosion risk management strategy for England](#), setting out a vision of a nation ready for, and resilient to, flooding and coastal change – today, tomorrow and to the year 2100. This was followed by a [Strategy action plan](#), a comprehensive list of actions designed to deliver the strategic objectives. These include actions by the Environment Agency and partners to deliver the Surface water management action plan and tackling wider surface water flood risk.

Alongside this report we have also published our [Review of policy for development in areas at flood risk](#). This review sets out actions to further strengthen current planning policy, guidance and its implementation to better protect and better prepare the country

against flooding and coastal erosion. This includes a commitment to consider how referring to ministers planning decisions in areas at risk from surface water flooding could be subject to equivalent rules in future as already exist for river and sea flood risk. The government has also committed to significantly update and revise planning guidance on flood risk and coastal change later this year.

This report formally responds to the 28 recommendations in the Review of surface water responsibilities and provides an update, highlighting the good progress that has already been, and will continue to be made, on the actions from the Surface water management action plan. These include:

- in April 2020 the government updated its partnership funding arrangements, enabling more surface water schemes to be delivered between now and 2027 as part of the £5.2 billion flood and coastal risk management programme
- we have worked across government to maintain and enhance planning policies that direct new development away from areas at risk of flooding and ensure that new properties and infrastructure are resilient to flooding and coastal erosion
- government funding of £2 million will secure better surface water flood risk maps in 28 lead local flood authority areas by summer 2022, providing 3.3 million people with more detailed information on local surface water flood risk
- the Environment Agency, Local Government Association and lead local flood authorities will, by summer 2022, have updated the local flood risk management strategies framework leading to strengthened and up to date local strategies and more enhanced local flood reporting
- developing new ways to communicate existing forecast information on surface water flooding faster with Environment Agency teams, the Flood Forecasting Centre and category 1 and 2 responders by autumn 2021

We want communities that have suffered from frequent flooding in the past, from all sources of flooding, to benefit from the government's investment programme. We will be launching a consultation this autumn to gather feedback on this.

Work to manage surface water flood risk will continue at pace, contributing to our policy statement commitments, ensuring we will have a more resilient country. We will continue to monitor progress, encouraging more from everyone.

Improving risk assessment and communication

This section covers progress that has been made towards better surface water mapping and data sharing, future water scenarios and better communications of storm forecasts.

3. Better surface water flood risk mapping and data sharing

Surface water mapping and improving local data validation

Flood risk maps, covering rivers, the sea, surface water, reservoirs and groundwater, provide vital information for the public sector, households and businesses and enable informed decisions to be made. The maps are based on data published by the Environment Agency, incorporating third party data such as from lead local flood authorities who are responsible for managing the flood risk from surface water.

These maps provide information on long-term flood risk for an area, the possible cause of flooding and how to manage the risk, with greater accuracy at an area level rather than individual properties. Whilst mapping has improved over time, the science of surface water flood mapping is not as mature as that for rivers and the sea, and they are heavily dependent on local factors.

Action plan 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.

Action plan 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.

Action plan 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.

Action plan 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.

Progress has been made with these actions. Action 1 will complete by summer 2022, with additional improvements due in 2024, action 2 is complete, and action 3 is underway. Following their completion, the government will review action 4 and any further action required.

The Environment Agency has improved the way it provides information on risks to the public through the [Check the long term flood risk for an area in England](#) information service.

In 2017, detailed local information in published surface water maps covered just 990 square kilometres. In 2018 the government provided £2 million of grant funding to improve mapping data in 28 lead local flood authorities. The Environment Agency used this funding to provide grants and support to the lead local flood authorities, working with water and sewerage companies, to improve mapping data across 2,400 square kilometres. This also secured the sharing of additional data by a further 7 lead local flood authorities.

In 2020 the Environment Agency also made it easier for other organisations to supply additional surface water flood risk data for incorporation into the Check the long term flood risk for an area in England information service. This has increased the functionality of the service by enabling lead local flood authorities to indicate where they have additional local knowledge (for example, local study, records, historic flooding, local modelling).

Together, these initiatives mean that from summer 2022, the proportion of England covered by local detailed mapping for surface water will increase to some 3,500 square kilometres. This will provide more detailed information on surface water flood risk to an additional 3.3 million people and 1.4 million properties. After the update a total of 7.1 million people in 3 million residential properties will be able to access detailed information on their local surface water flood risk.

Ongoing work to further build on this success includes additional guidance, such as case studies, that will encourage further sharing of open data (mapping and modelling) from lead local flood authorities and water and sewerage companies. There is also ongoing positive dialogue between the Environment Agency and the Association of British Insurers to help promote collaborative working with the insurance sector. This includes sharing information where it is not commercially sensitive.

The improved mapping and functionality of the Check the long term flood risk for an area in England information service will improve awareness and increase resilience. It will also contribute towards the Environment Agency's project to replace its [National Flood Risk Assessment tool](#) by 2024 as set out in the strategy action plan. The new tool will provide a new national assessment of flood risk that will help places plan and adapt to future risks of flooding from rivers, the sea and surface water. It will enable the provision of more accessible, trusted data and information for current and future flood risks, whilst existing and improved local and national data will ensure it has the flexibility to evolve with changing climate data. Once complete, the Environment Agency will develop ongoing updates to ensure it remains up to date and continuously improves. For example, extending to flooding from groundwater and sewers once they are better understood.

Following the completion of this work, the government will review open data sharing and will consider what further action is required to deliver better mapping and modelling to improve awareness of, and resilience to, surface water flood risk. This may include

implementing powers within the Flood and Water Management Act 2010 and wider powers that may be needed to ensure relevant open data is shared.

Better information about surface water drainage

In July 2018 [Water UK and Defra commissioned research](#) identified a new method for understanding the capacity of sewerage networks which can support understanding of surface water capacity.

Action plan 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.

This action is complete.

In June 2019 Water UK and Defra shared the findings of the research with representatives from the Environment Agency, local government and water and sewerage companies. This helped to take forward the research recommendations, including greater sharing of data, good practice and skills. The development of Drainage and wastewater management plans by water and sewerage companies will include sewerage network capacity and the long-term challenges and risks they face.

The new national strategy highlights the importance of water companies and other risk management authorities working together to inform drainage and sewerage management plans to improve resilience to surface water and drainage flood risks.

4. Future surface water scenarios and surface water in the national risk

The Surface water management action plan identifies actions to explore how surface water scenario planning can take account of longer-term scenarios associated with climate change and population growth. This could potentially better align with the extended analysis within the National risk assessment for plausible extreme rainfall scenarios for river and coastal flooding. The National risk assessment analysis already looked at large scale heavy rainfall events but did not include more localised intense rainfall events which lead to surface water flooding.

Action plan 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.

Action plan 7 - The Environment Agency will assess whether there are any implications for the extreme flood outlines on its surface water flood maps.

Action plan 8 - Government will take the extreme surface water event modelling into account in the next review of the National risk assessment.

Action plan 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.

Progress has been made with action 6 and it will complete by winter 2021, after which work will commence with actions 7, 8 and 11.

The Environment Agency, Met Office and Newcastle University are developing plausible extreme scenarios for surface water flooding. This is being done by analysing modelled and observed extreme rainfall and surface water flooding, then extrapolating England-wide to understand impacts. An expert panel has been created to peer review and agree testing, which will conclude by winter 2021. This better understanding of extreme rainfall scenarios will inform future work on surface water flood risks and their management.

The government remains committed to this important work and once the plausible extreme rainfall data is available it will take forward the further actions, including to review flood risk maps and the current and future risk to essential infrastructure networks. This work will improve our national preparedness and readiness across the whole risk lifecycle, from anticipation to recovery, identify where further action is required and will support the development of a comprehensive National resilience strategy, as set out in the [2021 Integrated Review of Security, Defence, Development and Foreign Policy](#).

5. Better communications of storm forecasts

Lead local flood authorities, local resilience forums and their partners need the best available forecast information to enable them to prepare and respond to any flooding incident. Surface water flooding is more difficult to forecast accurately than other flood risks as current meteorological methods are not able to pinpoint where or when potential intense rain will arrive, nor can they know or predict the capacity of local systems to manage the level of rainfall.

Action plan 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 flooding.

Progress has been made with this action and it will complete by autumn 2021.

As the Surface water management action plan recognises first responders and other organisations need reliable data and warnings about imminent surface water flooding and real time updates on what is often a rapidly changing situation. This is a challenge for all involved. The government, lead local flood authorities and other organisations are reliant on the Flood Forecasting Centre to forecast all natural forms of flooding at a national scale. Whilst the flood guidance statement provided by the Flood Forecasting Centre does include surface water flood risk, it is more difficult to predict where the impacts will be felt compared to river and coastal flooding. This is due to uncertainties in the severity of the rainfall and its fast-paced movement. The Environment Agency, Met Office and Flood

Forecasting Centre will start to explore the opportunities for improving the capability for surface water flood forecasting.

The Environment Agency's Boosting action on surface water project will test faster communication of existing forecast information related to surface water flooding. This will demonstrate how critical forecast information can be shared rapidly with Environment Agency teams, the Flood Forecasting Centre and category 1 and 2 responders. It will also evaluate how useful the material was for influencing response action and explore additional delivery options.

This will better support incident planning and response in fast moving situations and provide local responders with real time information so they can take urgent action to initiate response plans. This will help to reduce damage and save lives. It will complement and support the existing warning and guidance services already provided by the Met Office, Environment Agency and the Flood Forecasting Centre.

6. Reporting flooding events

The Surface water management action plan and Review of surface water responsibilities note that effective surface water management requires coordinated action by all of those with responsibilities but that it can become challenging, and confusing, especially when the source of flooding is unclear.

Action plan 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.

Review recommendation 1 - That each lead local flood authority should ensure a clear and appropriate point of contact for residents in their area with reports or queries about surface water flooding.

Review recommendation 2 - That if the appropriate officer considers that the capacity to address the report or query better lies with another body, then they should help the resident refer it appropriately.

This action is complete and the government accepts these recommendations.

In July 2020 the Environment Agency published its new national strategy. It includes a description of the Environment Agency's strategic overview role and an outline ([Annex A](#)) of risk management authorities' existing roles and responsibilities in relation to flood and coastal erosion risk management activities. In relation to surface water flood risk the annex identifies county and unitary councils as lead local flood authorities, who are responsible for all local flood risk, and water companies, who are responsible for the public sewers. Alongside this the government has [published information on who to contact about the different flood risks](#).

The strategy action plan commits to a number of actions for supporting local communities with preparing and responding to flood incidents, including:

- by December 2021 the Environment Agency and National Flood Forum will have developed a network of community-led flood groups and volunteers to facilitate peer-to-peer learning
- by April 2022 local Environment Agency teams will have identified opportunities to involve voluntary organisations more in local flood incident response

Lead local flood authorities will communicate all flood risks to their local communities and businesses to raise awareness of the risk and ensure they know what to do in the event of a flood. A comprehensive example includes the [Northamptonshire councils' flood tool kit](#).

The government believes lead local flood authorities will want to provide crucial information and advice, in a clear manner that is easily accessible, and that this will include local flood risk. This will benefit them and their communities, contributing towards making the nation more resilient. The government encourages more action here but recognises that it is for local flood authorities to determine how best to achieve it.

7. Property flood resilience

The Review of surface water responsibilities notes the potential for households and businesses to use improved surface water flood risk information to take mitigating action to build their resilience. This provides an opportunity for lead local flood authorities to provide advice and support.

Review recommendation 3 - That lead local flood authorities be encouraged to offer advice and support to owners of homes and businesses at risk of surface water flooding so as to help them achieve greater protection and resilience for their properties.

The government accepts this recommendation.

Our policy statement recognises that continued action is needed to make sure homes, communities and businesses are better prepared to be able to respond and recover more quickly from flooding. Enabling an effective property flood resilient market and encouraging uptake is a shared challenge. There are a range of organisations, including central government, local government, the buildings industry, insurance industry and experts in building materials, who can play a role in offering support and advice about property flood resilience. The strategy action plan includes working with the National Flood Forum on property flood resilience to ensure people have the most effective support.

As noted above, lead local flood authorities are responsible for managing local flood risk, which can include educating and providing guidance to their local communities and businesses.

The government collaborates with the wider business and technical sector through an independently chaired, property flood resilience roundtable. This was set up in 2016 and members have taken forward several initiatives to support better uptake and delivery of property flood resilience. In 2020 they published [a code of practice](#) to structure delivery of property flood resilience services by industry. Further supporting documents including a fact sheet for householders, a guide for local authority planners and a technical guide, were added in 2021.

The government, with lead local flood authorities, has [funded 3 property flood resilience pathfinders](#) in Devon and Cornwall, the Oxford-Cambridge Arc and Yorkshire. They have explored how to increase understanding of property flood resilience by communities and businesses. They have developed a range of digital tools, training schemes and demonstration centres to assist uptake, which others could use and learn from to develop local initiatives. The government will build on this learning to further boost uptake of property flood resilience in homes and businesses across the country.

Earlier this year the government published a call for evidence seeking evidence about the property flood resilience enablers to help inform policy development and the action required to drive uptake. The enablers include financing and other incentives, planning policy, building regulations and standards, training and technical expertise, evidence and data sharing, and communication and understanding. The government has published a [Summary of responses received to the call for evidence](#) and plans to publish a roadmap to accelerate take-up of property flood resilience measures by the end of 2022.

The Environment Agency is working with local communities, the construction sector and insurers to encourage greater use of property flood resilience. The strategy action plan includes an action for the Environment Agency and the Chartered Institution of Water and Environmental Management to provide a system of independent training and accreditation for property flood resilience by December 2021.

Strengthening delivery

This section covers progress which has been made towards making sure infrastructure is resilient, clarifying responsibilities, surface water planning, partnership arrangements and local authority capacity.

8. Making sure infrastructure is resilient

Water industry (water supply and wastewater)

The Surface water management action plan notes that it is essential for owners of utilities and transport infrastructure to ensure their networks are resilient to surface water risks and that there is guidance on national expectations. This includes water and sewerage companies who are responsible for public sewers.

Action plan 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.

Progress has been made with this action and it will complete by summer 2022.

The government's Strategic policy statement to Ofwat sets out the government's priorities and objectives for Ofwat's regulation of the water sector in England, including resilience to flooding. Following the [2017 Strategic policy statement](#) and [2019 Price Review](#) the water industry has committed to doing more to tackle natural hazards, such as flooding. This includes investing £1 billion to reduce the impact of flooding on communities across England and Wales. The government is currently [consulting on a new Strategic policy statement](#), which includes a focus on a resilient water sector and greater resilience to flooding.

Water companies and other risk management authorities should work together to manage water in a more integrated way to improve flood resilience, enhance the natural environment and deliver value for customers. The Environment Agency and Ofwat will help enable this through their respective roles and strategies – specifically the new national strategy and [Ofwat strategy](#). In the lead up to the 2024 Price Review, the Environment Agency and Ofwat will develop a joint approach for how water companies should consider flood and coastal resilience in the context of their statutory roles and duties (by April 2022). All risk management authorities should actively participate in Local flood risk management strategies and Drainage and wastewater management plans, to share their expertise and engage with communities in the collective endeavour to manage flooding in communities.

Next steps on building infrastructure resilience

The Surface water management action plan notes the range of actions that have been undertaken towards building resilience of essential utilities and transport infrastructure to surface water risks and the need to go further.

Action plan 12 - The government will consider the surface water related findings of the National Infrastructure assessment, to identify whether further actions are required.

This action is complete.

In November 2020 the [government responded](#) to the National Infrastructure Commission's [2018 National Infrastructure Assessment](#). The assessment covered reducing the risks of drought and flooding, including a recommendation around surface water flood risk.

It recommended that water companies and local authorities should work together to publish joint plans to manage surface water flood risk by 2022. The government fully endorsed the recommendation setting out its commitments in its policy statement, Surface water management action plan and the effectiveness of partnership working.

To address this recommendation water and sewerage companies are developing Drainage and wastewater management plans to assess risks to their sewerage networks and network capacity over a minimum 25-year planning horizon. This will help improve long-term planning for drainage and wastewater services. Companies will be consulting on draft plans in 2022 and finalising them for spring 2023. The government's Environment Bill is legislating to make these plans statutory.

9. Clarifying responsibilities

Identifying who is responsible for managing particular assets and risks

The Surface water management action plan notes the challenge of identifying who is responsible for managing and maintaining local assets that can mitigate surface water flood risk. It also notes the existing legal provisions and guidance to help determine who is responsible for the management of particular assets and local risks but also that more could be done to improve the general level of awareness.

Action plan 14 - The Environment Agency, 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).

Progress has been made with this action and it will complete by the end of 2021.

In January 2021 the Environment Agency established an assets forum which includes the Association of Directors of Environment, Economy, Planning and Transport, the Local Government Association and other risk management authorities. This forum, supported by technical specialists from the surface water community, will convey important messages about local flood assets, responsibilities, raising awareness and data sharing to their stakeholders.

Improving the quality of asset registers

The Surface water management action plan notes the statutory responsibilities of lead local flood authorities to maintain an asset register of structures and features, which are likely to have a significant effect on flood risk, and that there is significant variation in the approach taken. The Review of surface water responsibilities concluded the same, as well as identifying some other barriers. Its survey of lead local flood authorities supported this and found that whilst the vast majority who responded maintain an asset register, there is variation in how often it is kept up to date, what type of assets are recorded and in how much detail.

Action plan 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

(for example what information sources to use, what types of assets to include, suggestions for collaboration between asset managers, expectations on asset maintenance).

Review recommendation 4 - That the Environment Agency develop and issue national guidance to lead local flood authorities, and also to all other risk management authorities, on the keeping of registers of structures and features which are likely to have a significant effect on flood risk, including from surface water, with a view to seeking a comprehensive set of records for each area, and to securing a common and comprehensive approach for their recording, inspection, monitoring and maintenance.

Progress has been made with this action and it will complete by December 2023, which will deliver the review's recommendation, underlining its importance. The government accepted this recommendation when the review was published.

The strategy action plan includes action underway, as follows:

- by December 2021, the Environment Agency will work with the assets forum to develop guidance and best practice for local flood defence management. This will include information on effective record keeping. In addition, the aim is to agree and publish the first 5 asset types across coastal, river and surface water flood risk and update any additional requirements not already covered by the existing standards published on the Environment Agency's [Data Requirements Library Asset Categories](#)
- by December 2023, this will be expanded to capture all asset types, their inspection and monitoring, increasing transparency and raising awareness. This will better align surface water asset approaches to those applied to river assets

As set out in our policy statement, Defra will undertake a Review of the statutory powers and responsibilities to map, monitor, inspect and maintain all assets. This will aim to clarify where these responsibilities lie and that there are effective powers in place to allow inspection and maintenance to be undertaken. The review will commence by the end of 2021 and the government will share the outcomes with the Environment Agency and the assets forum.

Designation of assets

The Review of surface water responsibilities notes that the recording of structures and features in asset registers does not create a duty to maintain the assets. This is also true on designations under section 30 and Schedule 1 of the Flood Water Management Act 2010.

Review recommendation 5 - That Defra note that designation of a structure or feature under Schedule 1 of the Flood and Water Management Act of 2010, while securing some public benefit, does not in itself create or secure a duty of maintenance, and so other means must be pursued if maintenance of privately owned assets affecting flood or coastal erosion risk is to be secured.

The government accepted this recommendation when the review was published.

The government will consider the outcome of its Review of the statutory powers and responsibilities related to assets before determining if any further legislative reform is required. Alongside this the government has committed to ensuring there is a long-term approach to maintain our network of flood defences across the country. This will be through a combination of investment and action by risk management authorities, government, riparian owners and wider beneficiaries.

Riparian and landowners' responsibilities

The Review of surface water responsibilities notes the important role of riparian owners and that there is a lack of understanding of their roles and responsibilities and awareness of the assets they are responsible for, especially those under the ground. The review considered how these matters could be addressed, especially maintenance.

Review recommendation 6 - That in accordance with the commitment set out in the Surface Water Action Plan, the Environment Agency, in consultation with others as appropriate, review their guidance to landowners on owning a watercourse, in particular to ensure that this is as clear and comprehensive as possible on riparian owners' responsibilities for maintenance of watercourses and related features, and that this guidance be promoted widely to those affected by it.

Review recommendation 7 - That Defra consider what further steps the public interest requires to be taken, to ensure the maintenance of privately owned watercourses and related features, including culverted watercourses.

The government accepted these recommendations when the review was published.

By October 2021 the Environment Agency will have:

- reviewed its [Owning a watercourse guidance](#), which sets out owners' responsibilities, rules and the permissions they need before undertaking work, to determine if it is an effective product to engage with riparian owners
- created a new product which can be used by all risk management authorities to better explain, in an engaging and accessible way, the roles and responsibilities associated with riparian ownership

This new product will be locally tailored to direct people to relevant local risk management authorities. It will be available in printed form for face-to-face conversations and will be shared with and can be used by all risk management authorities.

When scoping the Review of the statutory powers and responsibilities for all assets, Defra will consider expanding it to include riparian owners' roles and responsibilities for watercourses and assets. The review will commence by the end of 2021 and the government will share the outcomes with the Environment Agency.

Dispute resolutions

The Surface water management action plan notes that difficulties and disputes around the responsibilities for surface water asset management still happen, and those affected feel frustrated at the time and effort to resolve them.

Action plan 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) to identify recommendations for how to make this more straightforward for property owners and others.

Review recommendation 8 - That Defra make arrangements with the Agricultural Land and Drainage Tribunal for the publication of summaries of the Tribunal's judgments, so that the principles of their decisions may be readily available to those seeking guidance on good and expected practice.

This action is complete and the government accepts this recommendation.

In October 2019 Defra commissioned a Review of the arrangements for determining responsibility for surface water and drainage assets. The review explored the complexities for determining responsibility for surface water and drainage assets and how these could be more efficient, straightforward and effective. The review was published in August 2020 and made 28 recommendations, 12 of which the government immediately accepted. This update provides the government's response to the review and the remaining 16 recommendations.

Following the review Defra has discussed recommendation 8 with the Agricultural Land and Drainage Tribunal and by the end of 2021 the tribunal's decisions will be available online.

10. Joined-up planning for surface water management

High quality Local flood risk management strategies

The Surface water management action plan notes the importance and influence of Local flood risk management strategies. This includes the government's expectation that they make a difference in reducing surface water flood risk, that they should be updated and follow national guidance.

Action plan 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 on content and use, and explains how they fit with other plans and strategies.

Progress has been made with this action and it will complete by summer 2022.

In 2021, following the publication of the new national strategy, the Environment Agency began work with the Local Government Association and lead local flood authorities (through the Association of Directors of Environment, Economy, Planning and Transport's Flood and Water Management Group) to review and, where necessary, update the Local Government Association's [Framework to assist the development of the local strategy for flood risk management](#). The updated framework will help to ensure that local strategies take account of the new national strategy and continue to be effective in supporting local action to manage flood risk. The framework will also inform the government's longer-term work to reform local flood risk management plans.

Section 19 investigations

The Review of surface water responsibilities notes the statutory role of lead local flood authorities to lead on investigations, under section 19 of the Flood and Water Management Act 2010, when flooding occurs and the benefits this can bring. Especially where there are overlapping and interrelated responsibilities and influencing local strategies and plans.

Review recommendation 9 - That Defra ensure the ready availability of national guidance in relation to section 19 investigations and reports.

Review recommendation 10 - That the proposed national guidance include the importance of engaging with local residents and businesses affected by the flood, and of relevant risk management authorities collaborating in the investigation and in the implementation of its recommendations.

Review recommendation 11 - That lead local flood authorities provide a copy of each completed section 19 report to the Environment Agency, who should be entrusted with periodically reporting on any national or regional trends and general lessons to be learned from them.

Review recommendation 12 - That section 19 reports, or summaries of them, be reported as a matter of course to the appropriate Regional Flood and Coastal Committee, who should have the opportunity of monitoring implementation of their recommendations.

The government accepted recommendations 9 and 10 when the review was published and at this point in time, rejects recommendations 11 and 12.

There is currently a wide variety of approach in section 19 investigation reports, including when they are conducted and their format, and recommendations 8 and 9 will help address this. The Local Government Association's Framework to assist the development of the local strategy for flood risk management already includes advice on section 19 investigations. The work to update this element of the framework will include collaborative working between risk management authorities, consistency including recommended

trigger thresholds and format, best practice, transparency and best use of modern technology.

Given the wide variety, and the time needed to update the framework and for it to become established, the government is unable to accept recommendations 10 and 11 at this time. However, the government recognises the merit of these recommendations and the benefits, locally and nationally, they would provide. Our policy statement includes commitments to consider how existing reporting arrangements can be improved without creating unnecessary burdens and to consider opportunities to strengthen national oversight of bodies which hold formal responsibilities for managing flood and coastal erosion risk. We will include recommendations 10 and 11 in this work.

Ensuring that water and sewerage companies play their part

The Surface water management action plan notes the important role water and sewerage companies play and their statutory duty to ensure effective drainage and sewerage networks, which mitigates flood risk, but that they are not explicitly required to put in place long-term plans for managing wastewater.

Action plan 18 - The water industry must ensure that drainage and wastewater management plans are fit for purpose and deliver significant improvements to drainage of wastewater.

Action plan 19 - Defra will work with Environment Agency and Ofwat to review water and sewerage companies' progress on development of drainage and wastewater management plans and consider putting them on a stronger regulatory footing if sufficient progress has not been made.

Progress has been made with these actions. Action 19 is being taken forward in the Environment Bill, and action 18 will complete by spring 2023.

Drainage and wastewater management plans and Local flood risk management strategies have a vital role in tackling surface water and sewer flood risks. The first set of draft Drainage and wastewater management plans for consultation will be published in 2022 – proposing the new way to plan for the future of drainage, wastewater and environmental water quality. They will inform the water companies next 5-year business plans for investment and set out longer-term aspirations for drainage and wastewater. Drainage and sewerage systems do need to be more robust to withstand the pressures on them and these plans will ensure water companies play their part, with others, in identifying investment and implementing the solutions needed. The government intends to make these plans a statutory requirement through the Environment Bill. Further secondary legislation will include these plans as part of a [flood risk management function](#). Defra will consider what guidance and reporting is necessary to ensure timely action in areas with the greatest surface water flooding problems.

Whilst the production of Drainage and wastewater management plans is being led by water companies, all organisations that have interests and / or responsibilities relating to

drainage, flooding and protection of the environment have a part to play in their creation. The Environment Agency, Ofwat and Water UK are currently assessing how other organisations are contributing to the production of Drainage and wastewater management plans, a commitment they have made in the strategy action plan. This is important work to ensure Drainage and wastewater management plans identify actions to better manage local flood risk and improve water quality. Working better together is a fundamental principle of the new national strategy and will help risk management authorities to identify local priorities for reducing the risks from surface water flooding. By planning together, organisations are also more likely to identify and deliver solutions for communities.

Surface water in the planning system

Respondents to the Review of surface water responsibilities indicated that the existing planning system could place more emphasis on the sustainable management of surface water in new developments and looked at some of the barriers to achieving this.

Review recommendation 13 - That the Ministry of Housing, Communities and Local Government, in their forthcoming review of the National Planning Policy Framework, ensure that advice on the vital importance of achieving sustainable drainage in all new development is prominent, clear and unequivocal.

Review recommendation 14 - That local planning authorities ensure that appropriate professional expertise is brought to bear in decision making on all planning applications where there are surface water drainage implications.

Review recommendation 15 - That local planning authorities ensure the submission of drainage plans at an early stage in the planning approval process, and that the whole development is carried out in accordance with the approved plans.

The government accepted recommendation 14 when the review was published and rejects recommendations 13 and 15.

The government's planning policy is clear that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk. Where it is necessary to build in a flood risk area, and there are no suitable and reasonably available sites in areas with a lower probability of flooding, developments should be made safe and resilient, without increasing flood risk elsewhere.

Planning policy is also clear that sustainable drainage is important and should be provided in all major, new developments, unless there is clear evidence that this would be inappropriate, and that they should be given priority in new developments in flood risk areas. The Review of surface water responsibilities notes a [2018 government review](#) on the application and effectiveness of planning policy for sustainable drainage systems found that 87% of the sample of approved planning applications explicitly stated that sustainable drainage systems would feature in the proposed development. It would not be appropriate or practical to apply this to all new development.

The government has reviewed planning policy for building in areas at flood risk. Informed by emerging findings, the government published a consultation in January 2021 which set out proposals to strengthen environmental protections and some aspects of planning policy concerning flood risk. This included encouraging greater use of blue-green infrastructure. The [response](#) to this consultation was published on 20 July 2021.

The government will set out further measures that may be required to ensure the approach to flood risk is appropriate, including updating planning practice guidance to assist stakeholders in the process. In the longer-term, through the wider planning reforms, first set out by the government in the [Planning for the future white paper](#), we will carefully consider what the appropriate approach to flood risk is in a reformed system.

Defra has reviewed the case for implementing section 42 of the Flood and Water Management Act 2010 which would enable a mandatory build standard for new sewerage assets in new developments. As a result, Defra is starting work to consider possible policy options for implementation, on which we would consult in due course. The implementation of section 42 would mean new sewerage assets constructed from the implementation date would be automatically adopted by sewerage companies. Sewerage companies would of course wish to ensure during the construction of the development that those sewerage assets were built to the mandatory standard.

All local planning authorities and risk management authorities should ensure they can deliver their statutory functions. The government wants to ensure local planning authorities are equipped to create great communities through world-class civic engagement and proactive plan-making.

Many lead local flood authorities have set up local partnerships which bring together local stakeholders, including other risk management authorities, to contribute a wide range of expertise towards developing, maintaining, applying and monitoring the local strategy.

Our policy statement includes a commitment to work with the Environment Agency to support all local planning authorities in receiving and understanding the appropriate expert advice on all sources of flood risk so that they can make the right decisions.

The new national strategy recognises the importance of the Environment Agency and other risk management authorities supporting the development of planning skills and capabilities we need to ensure new development and spatial plans are resilient to flooding and coastal change. As part of the strategy action plan, the Environment Agency is working with the Town and Country Planning Association to develop online tools for risk management authorities by autumn 2021 to ensure flood risk and future climate impacts are considered appropriately within planning decisions.

Strategic surface water management and sustainable drainage systems

The Review of surface water responsibilities notes the benefit of managing rainwater, for example via sustainable drainage systems, so it does not enter the sewer network and

how further action to achieve this could be encouraged via the government. The review also looked at some of the barriers raised in relation to sustainable drainage systems.

Review recommendation 16 - That the appropriate government departments and the Environment Agency pursue opportunities to promote better understanding of best practice in surface water management through relevant professional and trade bodies, including through the promotion and celebration of innovation and good practice in the design and implementation of sustainable drainage schemes.

Review recommendation 17 - That Defra take note of the strong views of respondents outlined in this report on the weaknesses of the present arrangements for ensuring appropriate standards of design and construction, and effective continuing maintenance, of sustainable drainage systems for new development.

Review recommendation 18 - That the case be re-examined for bringing into effect Schedule 3 of the Flood and Water Management Act of 2010, or some equivalent mandatory arrangements.

Review recommendation 19 - That, in particular, Defra re-examine the working of section 106 of the Water Industry Act of 1991, so as to ensure that the sewerage system is not subjected to unnecessary flood risk through the connection of surface water drainage.

The government accepts these recommendations.

The government supports and promotes the use of sustainable drainage systems, and other blue-green infrastructure, especially where it can reduce surface water flood risk, and has made commitments in its policy statement and [25 Year Environment Plan](#). Over the past year Defra and the Environment Agency have been working with a range of stakeholders including professional and trade bodies to gather research evidence on best practice on surface water management and sustainable drainage systems. One of these research projects specifically focused on how we could better use strategic surface water management to inform the spatial delivery of sustainable drainage systems in the planning system (Project code WT15125 – in press, [Defra science search](#)).

In March 2020 Defra [commissioned research](#) to determine whether updating the current non-statutory technical standards for sustainable drainage systems could lead to multi-functional benefits and support developers and local planning authorities to meet the requirements of the National Planning Policy Framework in full, and to provide recommendations to Defra. Defra will consider the evidence and how it could inform future change to boost uptake. Alongside this, the government's new [6-year £200 million place-based resilience innovation programme](#), managed by the Environment Agency, includes funding for [25 areas to explore local solutions](#). Several of these areas will implement sustainable drainage systems and contribute towards the evidence base.

By September 2022 government will publish a statutory plan to reduce sewage discharges and the harms they cause. This plan will be informed by the work of the government led

Storm Overflows Taskforce, which will report this year with options to significantly reduce the frequency and impact of these sewage discharges. The taskforce's recommendations will also extend to existing legislation, such as section 106 of the Water Industry Act 1991. Defra will consider the points raised in the Review of surface water responsibilities alongside the taskforce's report.

Partnership arrangements

The Review of surface water responsibilities notes the wide range of bodies involved in surface water flood risk and that there is a case for reorganising the structures and functions. It also notes an alternative and more pragmatic approach through greater partnership and collaborative working across boundaries.

Review recommendation 20 - That the Environment Agency ensure that there is at least one representative of a local water company on each Regional Flood and Coastal Committee.

Review recommendation 21 - That officer level partnership arrangements be put in place in each Regional Flood and Coastal Committee area to ensure close and collaborative working on surface water flood risk management.

Review recommendation 22 - That the Environment Agency, in pursuance of their power under section 7(6) of the Flood and Water Management Act, should issue guidance on establishing and maintaining partnerships for these purposes, drawing on existing best practice.

Review recommendation 23 - That each of these partnerships should report periodically on objectives and progress in delivering them to the appropriate Regional Flood and Coastal Committee.

The government accepts recommendations 20 and 21 and already accepted recommendations 22 and 23 when the review was published.

In England there are 12 Regional Flood and Coastal Committees and 8 already have representation from at least one of their local water companies. Defra will encourage the remaining 4 to invite representation from at least one of their water companies and will consider if legislative changes to board membership is required.

The government expects all risk management authorities to collaborate when managing flood risk and will encourage and promote the use of officer level partnerships, for example through forthcoming updates to the framework for Local flood risk management strategies. In the longer-term, the government has committed to reform local flood and coastal erosion risk planning by 2026, so that every area of England will have a more strategic and comprehensive plan that drives long-term local action and investment. This will include how best to encourage effective flood risk management activities across boundaries, supporting partnerships, collaborative working, and reporting arrangements.

Alongside this the Environment Agency's [Understanding effective flood and coastal erosion risk management governance in England and Wales](#) research project will report by

October 2021. Its recommendations will highlight best practice and case studies, which the Environment Agency will promote across risk management authorities.

11. Building local authority capacity

Strengthening skills

The Surface water management action plan notes the centrally led measures to develop local authority capacity when they first took on their lead local flood authority responsibilities and that there remained gaps to be addressed. Similarly, the Review of surface water responsibilities notes the variation in approach lead local flood authorities took and that it went beyond just resource issues.

Action plan 20 - The Environment Agency will advise and support the local government sector to identify Local Authorities in need of priority support (for example due to staff turnover) and support them to understand the risk and develop a capability-building plan.

Action plan 21 - The local government organisation the Association of Directors of Environment, Economy, Planning and Transport to develop systems to enable skills sharing and mutual support between local authorities to be hosted on an existing platform such as FlowNet.

Review recommendation 24 - That lead local flood authorities, and other risk management authorities involved in local flood partnerships, recognise the importance of developing, resourcing, and having in place appropriate professional capacity and expertise to enable them properly to discharge their functions.

Progress has been made with these actions. Action 20 will complete by spring 2022, action 21 is underway and the government accepts this recommendation.

The Environment Agency is working with risk management authorities to encourage the development of the engagement skills and capabilities they need to better support communities to manage and adapt to future surface water flooding. In particular:

- by December 2021, the Environment Agency will work with partners to develop a 5-year plan to create new training materials to support risk management authorities. The plan will support the development of engagement skills and capabilities
- by March 2022, the Environment Agency in partnership with the Association of Directors of Environment, Economy, Planning and Transport will complete a survey of risk management authorities' engagement skills and capabilities

This activity, reflected in the strategy action plan, will provide good evidence to inform and prioritise the support needed to strengthen skills and capabilities. Other action underway includes:

- working with risk management authorities to deliver the new 6-year investment programme, building on existing interventions and focussing on continuous improvement

- deployment of Regional Flood and Coastal Committee Local Levy funded flood advisors to provide support to lead local flood authorities to build their capabilities, help them to develop strategic plans and schemes, and support communities with their flood resilience
- reviewing the engagement skills and associated training resources required to work with communities and in partnership with others, to develop a 5-year plan for lead local flood authorities to train staff as appropriate
- bringing together risk management authorities and education providers to encourage greater collaboration in providing learning and career development opportunities in flood risk engineering and environmental sciences
- skills development and shared learning arising from the Innovative Resilience Programme and Adaptation Pathway Pilots
- working with the Town and Country Planning Association to develop online tools for risk management authorities to ensure flood risk and future climate impacts are considered appropriately within planning decisions
- continuing with the successful Flood and coastal erosion higher education programme, which is available to all risk management authorities
- continuing support of the Association of Sustainable Drainage Systems Authorities and Susdrain who provide support and guidance to build skills and capacity among lead local flood authorities and other sustainable drainage system practitioners

The Association of Directors of Environment, Economy, Planning and Transport has established the Flood and Water Management Group to provide a national forum for lead local flood authorities, giving advice and support on a range of flood and water management matters, including surface water. This group works with a wide range of stakeholders to discuss flood and water issues, develop policies and innovative ways to tackle them, sharing best practice and raising the profile of surface water management.

Reviewing surface water funding sources

The Surface water management action plan and the Review of surface water responsibilities explored the various bodies and funding arrangements in flood risk management. The review took forward the action from the Surface water management action plan and its recommendations offer opportunities to consider improvements to secure a funding framework that is fit for the future.

Action plan 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.

Review recommendation 25 - That Defra and the Environment Agency, when reviewing their criteria for the award of grant for flood risk management schemes, ensure that funding is available to support schemes for surface water flood risk management, and that the availability of such funding is communicated effectively to practitioners.

Review recommendation 26 - That in view of overlapping responsibilities for surface water management, referred to throughout this report, appropriate funding and grant giving bodies review their funding criteria so as to ensure incentives are provided to encourage collaborative cross sector working.

Review recommendation 27 - That bodies concerned with the allocation of funding for flood risk management should accord proportionate recognition and priority to the financial demands of maintaining existing assets and systems, as well as to providing new ones.

Review recommendation 28 - That Defra consider the extent to which public funding for agriculture may be used to incentivise good practice in the routine management of soil, watercourses and ditches for the benefit of the environment, including the reduction of flood risk.

This action is complete and the government accepted recommendations 25, 27 and 28 when the review was published and accepts recommendation 26.

The Review of surface water responsibilities looked at a range of funding sources in relation to surface water flood risk management and made recommendations, which the government has accepted. Given flood risks are increasing, from climate change and population growth, the government and risk management authorities will continue to review and update funding sources and criteria. This will help ensure we are able to adapt and respond to the changing risks and continue to mitigate the impacts. Actions already taken includes:

Partnership funding: In April 2020 the [government announced](#) changes to its partnership funding policy, including creating a new risk category. This will enable more schemes that prevent surface water flooding to qualify for funding, directing it to those areas where the likelihood of flooding is greatest. The changes apply to the government's record £5.2 billion investment programme, which commenced in April 2021. To ensure awareness, the Environment Agency led an extensive programme with risk management authorities including online workshops.

Surface water flood risk mapping grants: At the 2018 Autumn Statement the government provided an extra £13.1 million to tackle the risks from flooding and climate change This included a £2 million grant project to enable lead local flood authorities to improve surface water flood risk mapping.

2019 Price Review: Following the 2019 Price Review the water companies will be investing over £1 billion to reduce the impact of flooding on communities across England and Wales, and an additional £469 million to address long-term drought resilience and to accelerate the development of new water infrastructure.

Innovative resilience programme: At the 2020 Budget the government announced a new 6-year £200 million place-based resilience innovation programme. 25 local authority areas will each receive a share of £150 million to develop practical and innovative resilience measures to tackle flood and coastal erosion. Many will be tackling surface water flood risk through different collaborative approaches. The final outcomes will help all communities at risk of flooding and

coastal change to respond, recover and adapt better in a changing climate. In addition, in 4 areas, Thames Estuary, the River Severn Partnership, the Humber Strategy and Yorkshire, the Environment Agency and other local partners are working together to develop adaptation pathways that will identify investment strategies for managing flooding and coastal risks in a changing climate to 2100 and beyond.

Green recovery programme: In July 2020 the English water companies were invited by Defra and the water regulators to play their part in the green economic recovery from the pandemic. The ambition is to meet the economic and social needs while delivering lasting environmental improvements for current and future generations. The water companies proposed an additional £2.7 billion of environmental investment on top of existing 2019 Price Review commitments. This includes flood risk mitigation measures such as blue-green infrastructure rather than traditional infrastructure, natural flood management and partnership working at a catchment scale. £1.9 billion of planned projects will be brought forward and Ofwat has approved £793 million of additional funding for 5 water companies to carry out new proposals.

Environmental land management: The government is introducing [3 new schemes](#) that reward environmental land management: the Sustainable Farming Incentive, the Local Nature Recovery scheme and the Landscape Recovery scheme. These schemes will enable farmers and other land managers to enter into agreements to be paid for delivering actions which includes protection from environmental hazards and reduction of and adaptation to climate change, these include flood risk.

Catchment sensitive farming scheme: The government's [Agricultural Transition Plan 2021 to 2024](#) outlines changes to broaden the advice that is provided as part of the scheme to include flood risk advice. This will support the delivery of land management actions that reduce flood risk to local communities.

Long-term maintenance commitment: Our policy statement includes a commitment to ensuring there is a long-term approach to maintaining our network of flood defences across the country, through a combination of investment and action by risk management authorities, government, riparian owners and wider beneficiaries.