Appendix A

HILLINGDON
LONDON

Local Flood Risk Management Strategy

June 2024

FOREWORD

Our climate is changing, and we are already experiencing more frequent and progressively critical rainfall events. With these events comes an increased probability of flooding. Floods bring huge levels of immediate disruption and pose severe risk to people and property. A flood is not just a short term problem though, for those who have experienced flooding the harmful consequences remain long after water levels return to normal.

The London Borough of Hillingdon has already declared a climate emergency with bold ambitions to reduce its own carbon emissions by 2030. However, many impacts of climate change are now inescapable with more extreme weather events becoming increasingly the norm.

As the Lead Local Flood Authority, the Council is committed to being at the forefront of the action to protect our residents and businesses. This Local Flood Risk Management Strategy is a requirement of the Flood and Water Management Act 2010 and sets out our approach to managing flood risk. We have already taken measures to reduce flood risk across the borough and these are set out in the Strategy, but we also commit to further actions and objectives to respond more aggressively to the increasing risk of flooding.

The Strategy has been finalised following an extensive consultation period with input from our communities alongside those of other statutory authorities. The Strategy provides the broad approach and there is much more work to be developed through specific actions and with further collaboration with all interested partners. The Strategy and detailed actions will be kept under review so that we are able to adapt to the growing challenges of flood risk management.

We are also keen to exploit other opportunities through the implementation of this Strategy. Creative approaches to flood risk management can bring additional benefits in managing drought as well as enhancing opportunities for wildlife and biodiversity.

Councillor Lavery
Cabinet Member for Residents' Services

CONTENTS

ACRONYMS AND ABBREVIATIONS

Abbreviation	Definition
BNG	Biodiversity Net Gain
CDA	Critical Drainage Area
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
FAS	Flood Alleviation Scheme
FCERM	Flood and Coastal Erosion Risk Management
FLAG	Flood Action Group
FRMP	Flood Risk Management Plan
FWMA	Flood and Water Management Act 2010
GI	Green infrastructure
GiA	Grant in Aid
Hillingdon	The geographical area of the London Borough of Hillingdon
Hillingdon Council	The Local Authority governing the London Borough of Hillingdon
HRA	Habitats Regulations Assessment
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
MAFP	Multi-Agency Flood Plan
NFM	Natural Flood Management
PFR/PLP	Property Flood Resilience/Property Level Protection
RFCC	Regional Flood and Coastal Committee
RMA	Risk Management Authority
RoFSW	Risk of Flooding from Surface Water
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
TfL	Transport for London
Thames Water	Thames Water Utilities Limited
UGF	Urban Greening Factor

1 A Local Flood Risk Management Strategy

1.1 Overview

The Local Flood Risk Management Strategy (LFRMS, 'the Strategy') defines how the Council intends to manage flood risk across the borough. It provides clarity on the sources of flooding and the roles and responsibilities of those involved in managing it.

Ultimately, the strategy sets out how the Council will take a leadership role in coordinating action that will ensure the borough is prepared for, and resilient to, flooding.

What is the Lead Local Flood Authority?

A LFRMS is a requirement of the Flood and Water Management Act 2010 ('the Act'). The Act also established the roles and responsibilities for different flood risk management authorities which includes the Council as the Lead Local Flood Authority (LLFA) for the borough.

This is an important leadership role in organising and progressing proactive management of flood risk as well as ensuring resilience to, and preparedness for flooding.

Why do we need a LFRMS?

As a LLFA, the Council needs to establish the strategy on how it will ensure the effective management of flood risk. The Act sets out a requirement for this role to be developed through a LFRMS.

The Strategy needs to set out information on 'local flood risks' relating to surface water runoff, groundwater and ordinary watercourses. It then requires the responsible authority to be clear about how it will manage the flood risk associated with these sources of flooding.

The Strategy goes beyond just these local risks and sets out a collaborative approach with other responsible authorities to ensure that the approach to flood and water management within borough is captured in one place.

The Strategy needs to be kept up to date to reflect changes to legislation and to ensure consistencies with other national and regional plans. The table below sets out what needs to be included within the Strategy.

1	the risk management authorities in the authority's area
2	the flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area
3	the objectives for managing local flood risk (including any objectives included in the authority's flood risk management plan prepared in accordance with the Flood Risk Regulations 2009)
4	the measures proposed to achieve those objectives

5	how and when the measures are expected to be implemented
6	the costs and benefits of those measures, and how they are to be paid for
7	the assessment of local flood risk for the purpose of the strategy
8	how and when the strategy is to be reviewed
9	how the strategy contributes to the achievement of wider environmental objectives

1.2 Strategic objectives

The Strategy contains a number of strategic objectives from which detailed actions will follow. The objectives have been set around key themes that reflect the various leadership roles of the Council.

Theme	Objective	Plan Reference
The Local Flood Risk Management Strategy	Ensure that the purpose and scope of Local Flood Risk Management Strategy is understood	Introduction
Sources of Flooding	Improve knowledge of the sources of flooding and their associated risk within the London Borough of Hillingdon	Action Plan A
Working with Statutory Partners	Improve the collaboration with statutory partners ensuring clarity about the roles and responsibilities and to improve the management and coordination of flood risk	Action Plan B
Our Communities	Engage with communities to develop the awareness of flood risk in local areas and improve their resilience	Action Plan C
Opportunities and Projects	Identify and implement opportunities and projects for flood risk management	Action Plan D
New Development and Planning	Ensure that development within the London Borough of Hillingdon accounts for and mitigates flood risk	Action Plan E
What You Can Do	Ensure residents are aware of their own responsibilities and what they can do to reduce flood risk	Action Plan F

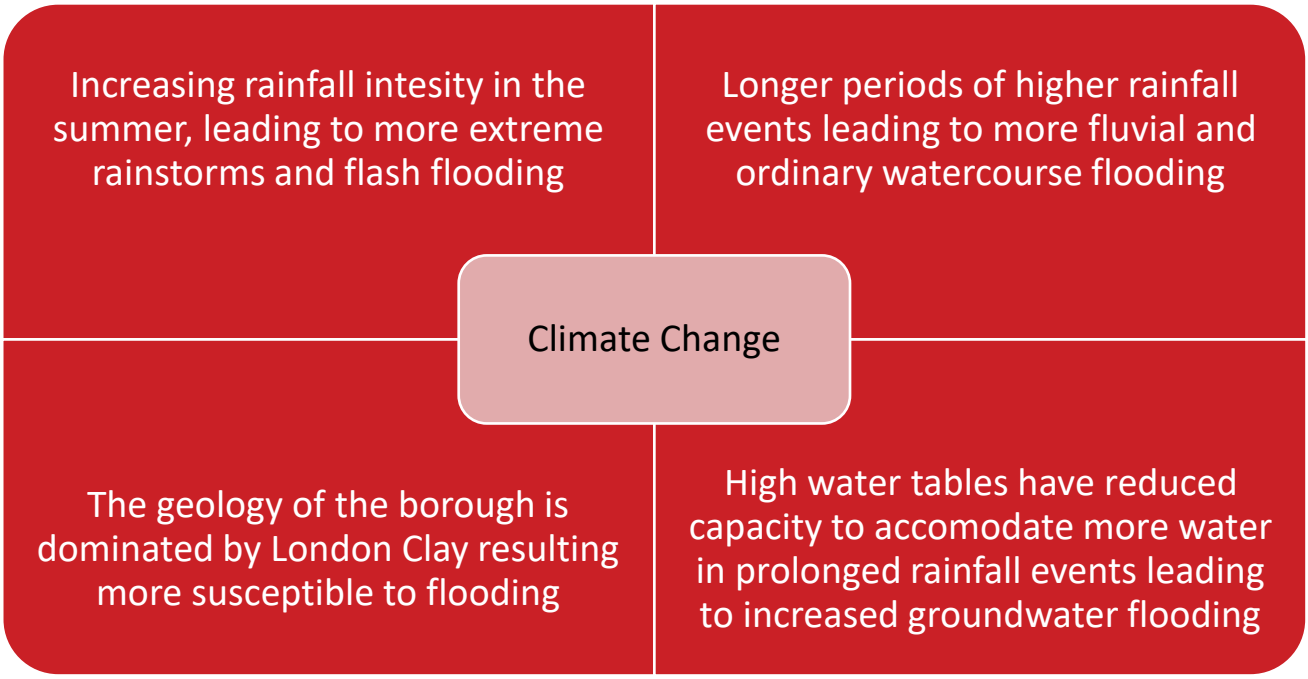
1.3 Action Plan

The objectives set out the strategic intentions of the Council, but they require more specific actions to facilitate delivery. Consequently, an Action Plan has been prepared which sets out how the Council will turn strategic aspirations into outcomes that better manage flood risk. The Action Plan will be subject to further development and an annual status review to ensure it is kept up to date and reflective of a changing climate and current demands.

The actions for each objective are included at the end of the relevant chapter; the full Action Plan can be found in Appendix A.

1.4 Climate Change

As a result of climate change, the UK can expect to see more extreme weather events which are likely to include more frequent and intense rainfall events. These events will increase the risks of flooding making it progressively important that Hillingdon adapts to, and mitigates, future flood risk.



Conversely, it is likely there will be longer periods of drought and extreme heat where the lack of water can have severe implications, particularly for the natural environment. Climate Change will therefore increase the periods of having to manage too much water or not enough water.

The Council adopted its Strategic Climate Action Plan in 2021 which establishes how it will respond to the issue of climate change at a local level. In relation to flood risk, this sets out how the Council is seeking to adapt to the changing climate. This Strategy sits alongside the Strategic Climate Action Plan in delivering measures which will protect the borough from current flood risk but also against future risk. The delivery of the Strategy plays an important role in adapting and mitigating this risk and seeks to deliver flood risk management in alignment with the Council's climate change aspirations. The Strategy achieves this by incorporating consideration of climate change and the environmental benefits to be found in flood risk management into the actions.

There is also a requirement to produce a Climate Adaptation and Mitigation Action Plan which will overlap significantly with the Strategy. This will be developed in due course once the Strategy has been adopted.

1.5 Monitoring

This Strategy will be a 'living document'. Although available as a single document, the component sections will form individual parts that will be hosted on the Council's webpages. This allows for the various sections to be kept more readily up to date without a full and resource intensive review of the whole Strategy. It also allows the Council to add or amend the Strategy over time so that it is entirely consistent with parent legislation and policies as well as being able to reflect aspirations of our communities. The online presentation will be set around the themes outlined in 1.2 and will be accompanied by a suite of other flood risk related information including the important mapping.

The Action Plan will be subject to an annual status report to be undertaken by the Lead Local Flood Authority.

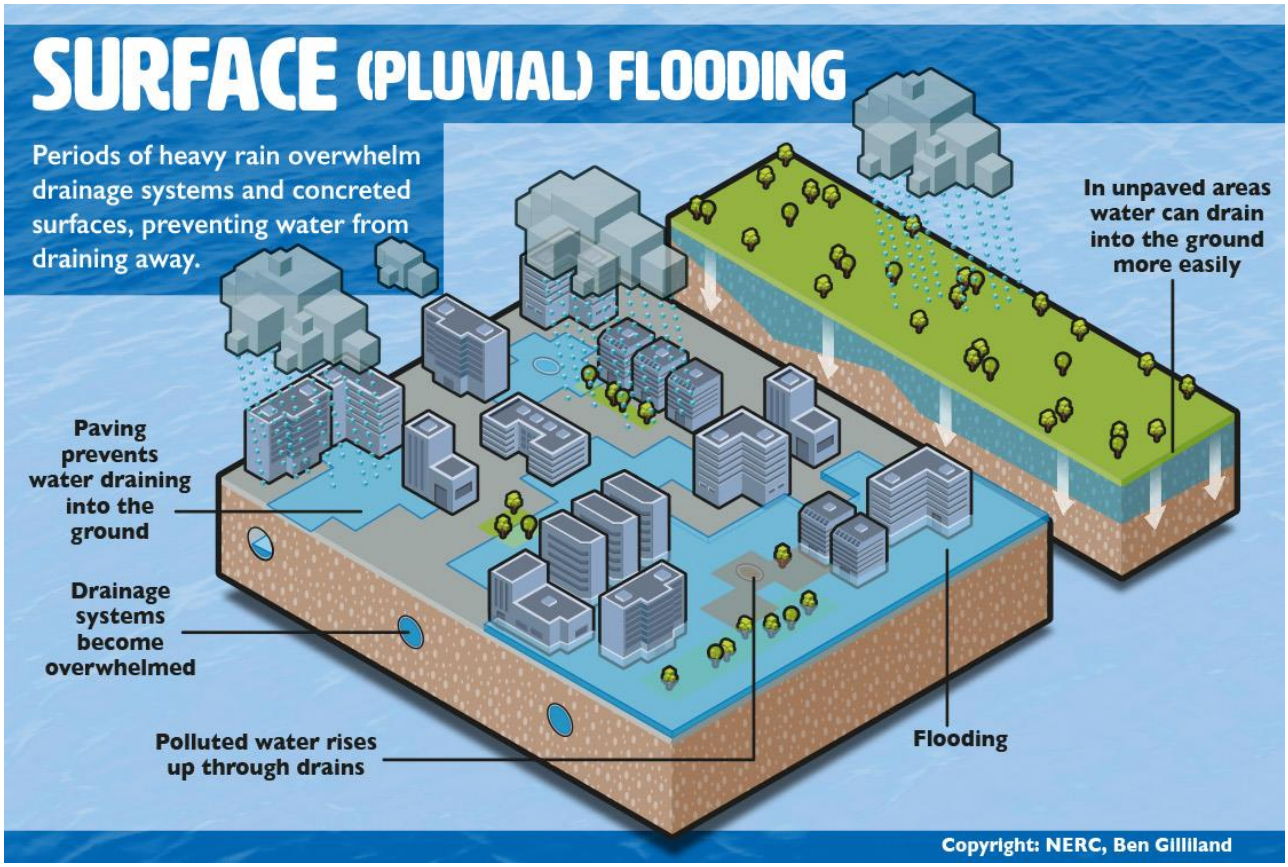
2 SOURCES OF FLOODING

2.1 Flood risks in the London Borough of Hillingdon

Flooding is generally a result of rainfall although other causes do exist such as groundwater flooding that can occur from natural springs reaching the surface. However, whilst the root cause of flooding may be obvious, how it reaches people and property is far more complicated. The pathway from rainfall to flooding are collectively known as the 'sources of flooding'; to complicate matters further, different authorities are responsible for different sources of flooding.

2.1.1 Surface water

Flooding from surface water, also known as pluvial flooding, occurs when the volume of rainwater exceeds the capacity of drainage systems and is unable to drain quickly enough into the ground through infiltration. This type of flooding typically occurs during periods of intense rainfall and is a particular issue in urban areas due to the extensive areas of impermeable surfaces. Short but intense periods of rainfall can often overwhelm existing but dated drainage infrastructure causing a significant degree of disruption. These events, sometimes known as flash flooding, are harder to predict and come with less locally specific warnings.



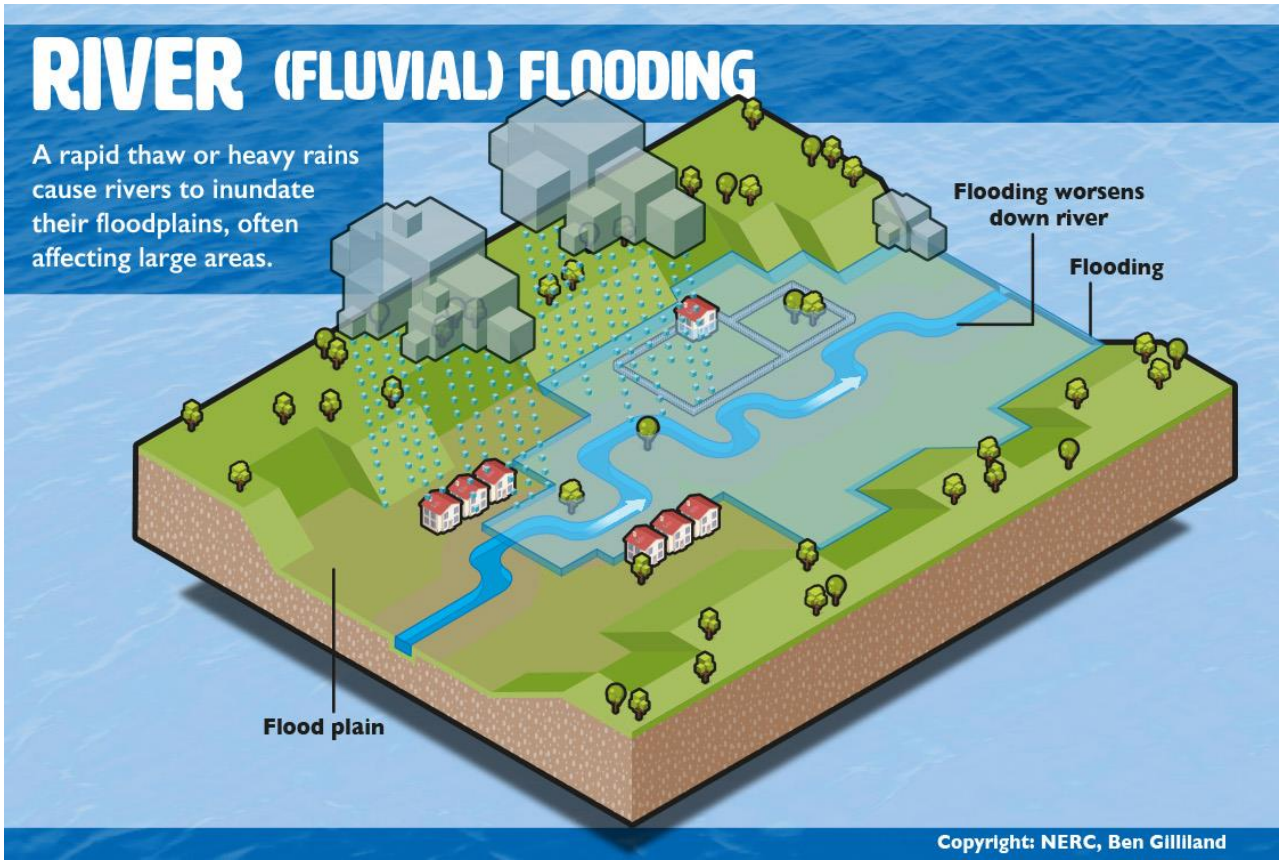
Source: floodhub.co.uk

2.1.2 Rivers

Flooding from rivers, also known as fluvial flooding, happens when the volume of flow in a river exceeds its capacity and the excess water spills out, or breaches the containment area. In the borough the principal rivers are the River Colne, the River Crane and the River Pinn. There are a number of other watercourses that are classed as main rivers throughout the borough. Main rivers are managed by the Environment Agency. A map of main rivers can be seen here.

Watercourses other than these are categorised as ordinary watercourses and are within the remit of the LLFA although their management, i.e. ensuring unrestricted flow, is dependent on whoever the landowner is.

River flooding is generally more predictable. Environment Agency telemetry has been strategically placed on the river network to allow automatic monitoring of levels. When levels reach a certain height, warnings are triggered which would then prompt individual flood action plans to be implemented. Current levels can be checked here: river and sea levels.



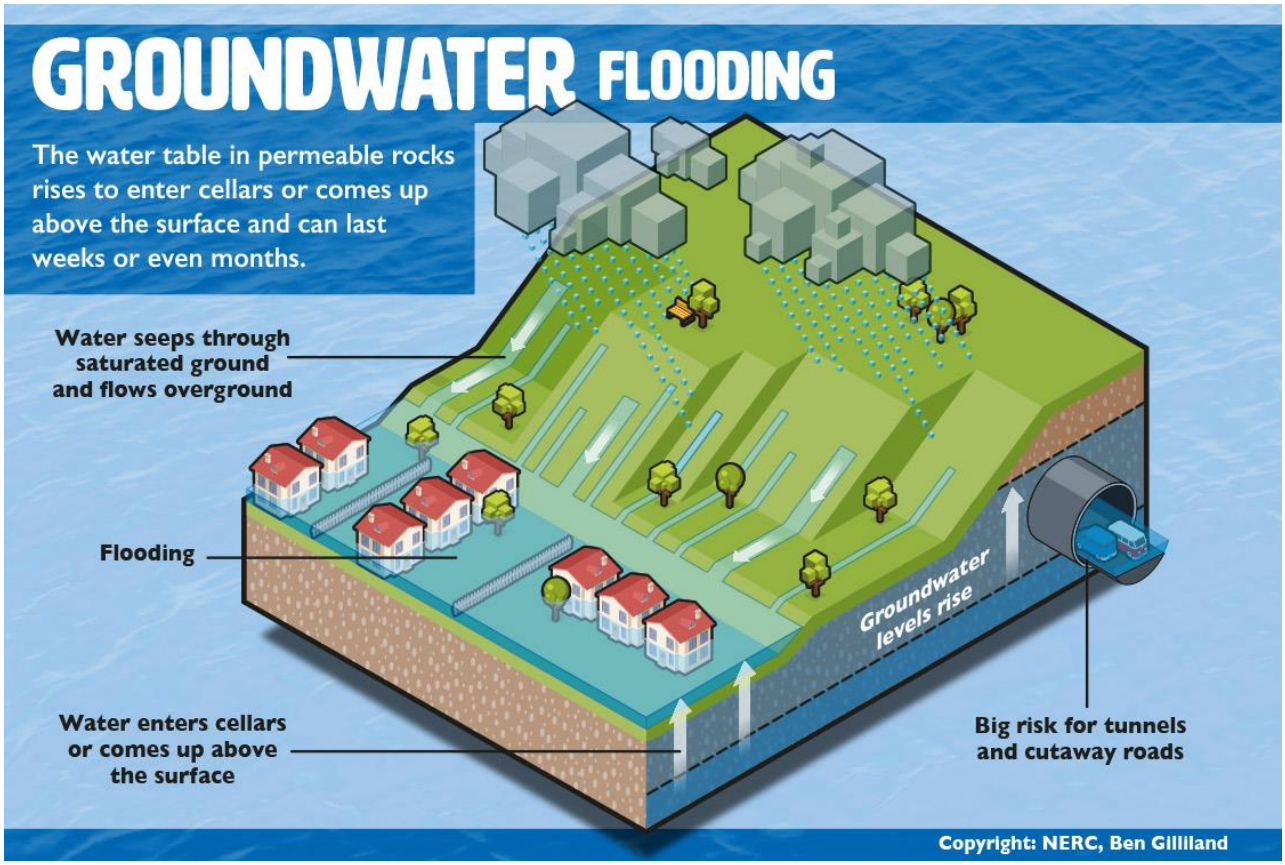
Source: floodhub.co.uk

All land has a flood zone delineation and is either Flood Zone 1, Flood Zone 2, or Flood Zone 3. The definitions are outlined in the table below. Flood Zones 2 and 3 are those closest to the rivers and are often generically described as 'floodplain'. Flood Zone 3 is then divided into Flood Zone 3a and Flood Zone 3b by the Local Planning Authority, in discussion with the Environment Agency and the LLFA. The West London SFRA outlines the methodology used to do this for the boroughs that it covers, including Hillingdon.

Flood Zone	Criteria
1	Land with less than 0.1% chance of flooding each year.
2	Land with between 0.1% and 1% chance of flooding each year.
3a	Land with greater than 1% chance of flooding each year.
3b	Functional Floodplain. This is outlined in the West London SFRA as land with a 5% or greater chance of flooding each year **and** where water **has** to flow or be stored in a time of flood. *Functional floodplain is to be determined by the Local Planning Authority in consultation with the Lead Local Flood Authority and the Environment Agency. This is unlike the other flood zones in that there is a degree of subjectivity as to how to define it. In general flood zone 3b will be the areas that are designed to flood or where water is conveyed or stored to minimise harm to people and property.*

2.1.3 Groundwater

Flooding from groundwater happens when the water table, beneath the ground, rises to the surface of the ground. Groundwater levels are generally highest in early spring and lowest in early autumn. Groundwater flooding is not necessarily directly linked to a specific rainfall event and flood events are usually longer lasting than other causes as they are dependent on the water table reducing which is affected by the permeability of the ground.



Source: floodhub.co.uk

2.1.4 Sewers

Flooding from surface water sewers happens when the volume of receiving rainwater exceeds the capacity of the network. Flooding can also result from a failure of the sewer to convey water, for example due to a blockage somewhere in the system. Either of these issues can result in sewers backing up, surcharging, and causing overland flow. The sewer network in the borough is primarily separate surface water and foul water systems, managed by Thames Water Utilities Limited (Thames Water). The sewer network (foul and surface) is ageing in parts and blockages are not easy to identify. Tree roots penetrating into sewers are notable cause of blockages along with other vegetation and detritus.

Sewer flooding can be highly complicated to understand as the network of sewers is extensive with some parts of the system not mapped. Further, there are areas of combined sewers where foul and surface water discharge to the same network; these carry a greater risk as excess rainfall that overloads this type of sewer can result in surcharging of foul sewage.

Flooding from Windsor Avenue 2016.

2.1.5 Artificial water bodies

Flooding from water bodies that are purposively controlled to hold water can occur because of a failure of the operational infrastructure. Purpose built reservoirs and canals are non-natural structures that are a potential source of flooding. Similarly, Charville Lane FSA (Flood Storage Area), Spout Lane Lagoon, and Ruislip Lido are designed to hold water and could cause flooding to areas of land within the borough as a result of failures in infrastructure.

These areas of risk can be seen on the Environment Agency's map of flood risk from reservoirs. Further information is available on the Reservoir Flood Map Search Facility from the

Department for Environment, Food & Rural Affairs (DEFRA) Data Services Platform. The Grand Union Canal, another potential source of flooding, also runs through the borough. It should be noted that the probability of these water bodies flooding is significantly reduced compared with other water bodies (i.e. natural watercourses) that are intrinsically linked with rainfall events.

2.2 Recent flooding history

The borough experienced heavy rainfall over winter 2013-2014 which led to a number of flooding incidents across various locations. There was not one single cause with flooding identified from rivers, including the River Colne, surface water and groundwater. In some instances, the floodwaters were persistent and remained for a long period of time due to the difficulty of areas draining back to watercourses once levels had receded.

In July 2014 and again in June 2016, large volumes of rainfall in a short period of time caused primarily surface water flooding. In both instances there was internal flooding of properties, flooding of roads and key infrastructure, including London Underground stations.

Through the course of 2020 and 2021, areas surrounding Bessingby Park in Ruislip, were impacted by flooding on several occasions. A flood investigation was carried out, following the Act Section 19 guidelines, which concluded that the primary cause of flooding was sewer flooding from surface and foul water sewers in Bessingby Park. This investigation led to a collaboration of authorities that resulted in a new flood alleviation measure being completed by the Council in 2022 within the park.

As a LLFA the Council is required to undertake and publish an investigation into flood events where it is 'necessary or appropriate' to do so (Section 19 of the Act). It is important to understand that not every incident of flooding will be investigated via Section 19. In general terms, it will be the more significant scale events that will warrant investigations of the magnitude set out in the Act. For example, where large areas are flooded and/or multiple properties.

Further information on previous flooding in the borough and details of flood investigations undertaken can be found here. Guidance on when investigations will be carried out will be developed further through this Strategy.

2.3 Theme Actions: Sources of Flooding

Objective	**Improve knowledge of the sources of flooding and associated risk within the London Borough of Hillingdon**
Action A1	Maintain an up to date record of flood risk data ensuring this is available for others to use.

Action A2	Develop and maintain a method for sharing and recording flood reports with internal departments and external partners, including statutory authorities and local communities.
Action A3	Work with external partners, including statutory authorities and local communities, to ensure their records of flooding events, including investigations, are available to the Council.
Action A4	Review the threshold criteria for flood investigations and continue to carry out flood risk investigations when flooding reaches the Section 19 threshold.
Action A5	Use modelling updates, new information from feasibility studies, and reports of flooding to ensure flood risk information is kept relevant.
Action A6	Continue to use and develop innovative methods for capturing data on flood risk within the borough.

3 WORKING WITH STATUTORY PARTNERS

3.1 Flood risks in the London Borough of Hillingdon

When flooding occurs, it is important to understand the source as that will dictate which of the relevant authorities needs to take a lead on finding a solution. The debate about the source of flooding can often be highly technical and sometimes disputed.

For example, extensive rain can overload drainage systems (surface water and combined sewers) resulting in discharges to rivers being uncontrolled; the source of flooding can therefore be seen as either river flooding, i.e. the responsibility of the Environment Agency; or surface water flooding, i.e. the responsibility of the LLFA; or the lack of capacity in a surface water drain i.e. the responsibility of Thames Water if it is their asset.

In 2007 there was extensive flooding in the UK leading to the comprehensive 'Pitt Review'. One of the findings in the report highlighted the disparate nature of flood risk management reflected in the examples above:

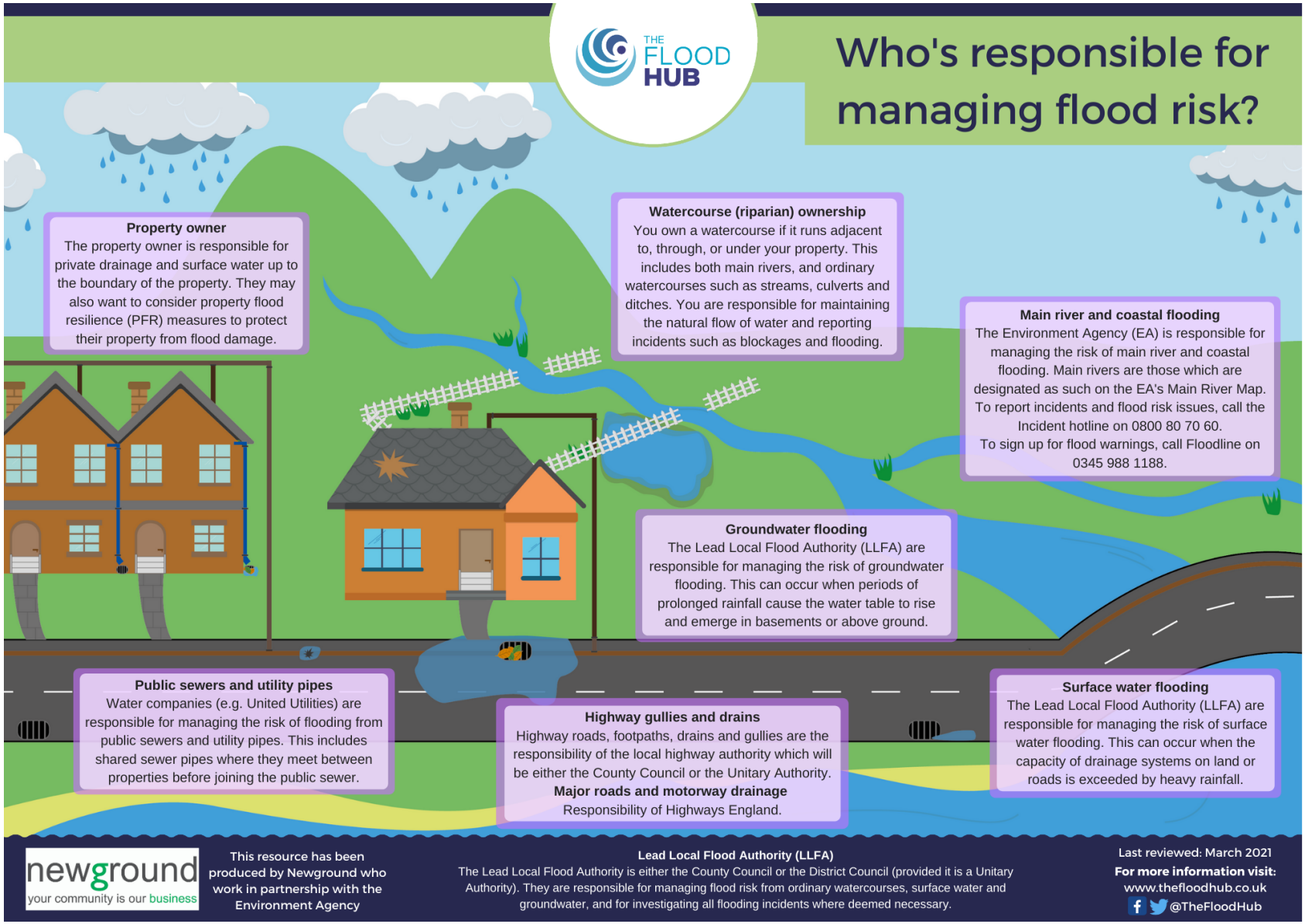
> *"Many of the people affected by the events of summer 2007 did not know who to turn to and their problems were passed from one organisation to another."*

Although it can be frustrating for those who flood, it is important to determine the source of flooding to ensure that solutions can be achieved. The key is to make this process as streamlined and efficient as possible.

The Pitt Review ultimately led to the Act in 2010 and the defining of LLFAs to take a greater leadership role in organising the risk management authorities into achieving a common purpose. Considerable progress has been made on the collaborative working between each of the authorities to make the process more efficient, but more can be done.

"The Review believes that the role of local authorities should be enhanced so that they take on responsibility for leading the coordination of flood risk management in their areas. Local authorities already have a substantial role because of their responsibilities for ordinary watercourses, drainage, highways and planning. Their place-shaping role and local democratic accountability will help to ensure that the right local action is taken."

Pitt Review: Lessons from 2007 Floods


THE FLOOD HUB
Who's responsible for managing flood risk?
Property owner
The property owner is responsible for private drainage and surface water up to the boundary of the property. They may also want to consider property flood resilience (PFR) measures to protect their property from flood damage.
Watercourse (riparian) ownership
You own a watercourse if it runs adjacent to, through, or under your property. This includes both main rivers, and ordinary watercourses such as streams, culverts and ditches. You are responsible for maintaining the natural flow of water and reporting incidents such as blockages and flooding.
Main river and coastal flooding
The Environment Agency (EA) is responsible for managing the risk of main river and coastal flooding. Main rivers are those which are designated as such on the EA's Main River Map. To report incidents and flood risk issues, call the Incident hotline on 0800 80 70 60.
To sign up for flood warnings, call Floodline on 0345 988 1188.
Groundwater flooding
The Lead Local Flood Authority (LLFA) are responsible for managing the risk of groundwater flooding. This can occur when periods of prolonged rainfall cause the water table to rise and emerge in basements or above ground.
Public sewers and utility pipes
Water companies (e.g. United Utilities) are responsible for managing the risk of flooding from public sewers and utility pipes. This includes shared sewer pipes where they meet between properties before joining the public sewer.
Highway gullies and drains
Highway roads, footpaths, drains and gullies are the responsibility of the local highway authority which will be either the County Council or the Unitary Authority.
Major roads and motorway drainage
Responsibility of Highways England.
Surface water flooding
The Lead Local Flood Authority (LLFA) are responsible for managing the risk of surface water flooding. This can occur when the capacity of drainage systems on land or roads is exceeded by heavy rainfall.
newground
your community is our business
This resource has been produced by Newground who work in partnership with the Environment Agency
Lead Local Flood Authority (LLFA)
The Lead Local Flood Authority is either the County Council or the District Council (provided it is a Unitary Authority). They are responsible for managing flood risk from ordinary watercourses, surface water and groundwater, and for investigating all flooding incidents where deemed necessary.
Last reviewed: March 2021
For more information visit:
www.thefloodhub.co.uk
@TheFloodHub

3.2 The London Borough of Hillingdon: The Lead Local Flood Authority

The Council plays a key role in managing local flood risk in the borough, with responsibilities shared across different internal departments, for example the Council's Highways Team are responsible for highway drainage on public roads not managed by TfL.

Importantly the Council, as the Lead Local Flood Authority (LLFA), have the following responsibilities, as required by the Act (Flood and Water Management Act)

- Prepare and maintain a Local Flood Risk Management Strategy (LFRMS).
- Perform works to manage local flood risk, within the authority area, for example, through the use of flood alleviation schemes (FASs).
- Maintain an asset register, which records features in the borough with a significant effect on flooding.
- Undertake flood investigations when a flooding event occurs which meets the flood investigation criteria.
- Maintain the flow of ordinary watercourses, which includes regulating developments and structures which could affect an ordinary watercourse.
- Provide advice as a statutory consultee on surface water drainage proposals of new development for the London Borough of Hillingdon as the Local Planning Authority (LPA).

In the context described above, the LLFA is a statutory function of the Council. It satisfies the legislative requirements but also sits as an independent function of the Council in a similar manner to the work of the Local Planning Authority. It therefore independently analyses the work of other functions of the Council as well as those responsible for flood and water management.

3.2.1 Catchment Plan

The Catchment Plan is a recent project by the Council to help the implementation of flood mitigation measures across the borough. It was produced in response to various flood events, with a combination of sources of flooding across disparate locations making it clear that no single flood defence would protect against all risks.

It was identified that a holistic approach was required. Funding from the Environment Agency through the Thames Regional Flood and Coastal Committee was secured, and the Catchment Plan was created. It provides an evidence base of locations where action is required to manage flood risk, a review of how these areas are prioritised, and potential opportunities for work. The technical work of the Catchment Plan will inform the Actions of the Strategy as they are developed further.

3.2.2 Partnership working

The Council, as part of its flood risk management work, is involved in a number of partnerships. Different partnerships serve different purposes but contribute to the overall collaboration and efficient information sharing required for effective flood risk management.

The **Northwest London Strategic Partnership** is formed of six London Boroughs (Barnet, Brent, Ealing, Harrow, Hillingdon and Hounslow) along with the Environment Agency and Thames Water. The Partnership meets quarterly to discuss flood risk matters, including project opportunities and updates, funding opportunities, and changes to legislation. An elected council member also represents the partnership on the Thames (Th) Regional Flood and Coastal Committee (RFCC).

RFCCs were established by the Environment Agency under the Act to bring together independent members and those appointed by Local Authorities for three purposes:

- To ensure coherent plans are in place for identifying, communicating, and managing flood risk across catchments.
- To encourage efficient, targeted, and risk-based in flood risk management that represents value for money and benefits local communities.
- To provide a link between the Environment Agency, LLFAs, and other relevant risk authorities to share and widen the knowledge base.

The borough is within the Thames region and is represented on the **ThRFCC**. Main committee and sub-committee meetings are held quarterly where partners can discuss and update on flood schemes. Importantly, the ThRFCC also decides on the Environment Agency funding allocations for projects (including local levies).

More information on the ThRFCC can be found here.

The **London Drainage Engineers Group (LoDEG)** is an organisation representing the interests of those within London Councils with highway drainage and flood risk responsibilities. Meetings are held quarterly and attended by LLFAs, the Environment Agency, Thames Water, TfL and Thames Flood Advisors among others. The meetings provide an opportunity for sharing flood risk management practice and enable collaboration and potential resolution of issues between relevant RMAs.

3.3 Environment Agency

The Environment Agency is the national flood risk authority for the UK. Main rivers, as designated by the Environment Agency, are a statutory type of watercourse and are under their regulatory control. They have permissive powers to carry out maintenance on main rivers and is responsible for ensuring that the riparian owner carries out their duties on a main river. Importantly, there are statutory enforcement powers allowing the Environment Agency to ensure main rivers are unobstructed and free flowing. They also have overview of all sources of flooding and coastal erosion as defined under the Act. The map of the designated main rivers can be viewed here.

Further general Environment Agency responsibilities on flood risk management are:

- Delivering flood risk warnings.
- Producing maps for flood risk and providing data.
- Providing consent for, and enforcement of, works near or within main rivers.
- Producing guidance on Flood Risk Management Plans (FRMPs).
- Supporting other RMAs in delivering projects by providing resources and allocating government funding.

3.4 Water Companies

Thames Water (*Thames Water Utilities Limited*) is the sewerage provider for the borough. Thames Water has responsibility for the management of flood risk in relation to the drainage network. This includes managing any potential failures of their infrastructure that may cause flooding and ensuring sufficient maintenance of public sewers is carried out to reduce the risk of flooding from sewers. Thames Water is also a supplier of clean water in the borough, along with **Affinity Water**. Clean water supply has the potential to be a source of flood risk from burst water mains as has been experienced in various parts of the borough.

Leaks can be reported to the appropriate water supplier. The Water UK website can be used to find the water supplier at specific locations. The Council will work with Thames Water and Affinity Water to ensure that mechanisms are in place to respond quickly to incidents of failed or burst water mains, and to identify areas of risk.

3.4.1 Combined Sewers

Some areas of the borough are drained by combined sewers. These carry both foul water (from toilets, bathrooms, sinks etc) and rainwater (from roads, gutters, areas of hardstanding etc) to sewage treatment works.

Combined sewers might reduce the infrastructure requirements through less pipework, but they unfortunately have significant capacity constraints. In intense rainfall events in particular, combined sewers must work harder to accommodate the rainfall whilst still functioning as a main sewer. A surcharging combined sewer therefore has the added harmful impacts of releasing sewage along with flood water.

Replacing combined sewers with individual systems is not likely to be economically feasible but with the pressure of climate change they become more of a priority area to manage. Combined sewers are the responsibility of the sewage undertaker (Thames Water in the borough) and therefore action through this Strategy is limited. However, the Council will work with Thames Water to ensure information on the combined sewers is properly mapped, concerns understood, and action plans drawn up to tackle priority areas.

3.4.2 Cross Connections

Another area of concern relates to cross connections of sewage systems. Cross connections happen where surface water systems are connected to foul water networks and vice versa. These can be extremely harmful with (a) surface water cross connections reducing capacity in

foul drainage systems, particularly in heavy rainfall; and (b) foul cross connections introducing pollutants into the surface water network.

The Council will work with Thames Water to gain a better understanding of the problem for the borough and to identify strategies to better inform of the harm of cross connections and develop approaches to resolving those that have been identified.

3.5 Category One Responders

Category One responders have responsibilities under the Civil Contingencies Act (2004) when a major flooding incident is declared. They are directly involved in the management and delivery of the response. Category One responders in the borough include:

- The London Borough of Hillingdon
- Emergency Services
- Environment Agency

Depending on the circumstances of the incident, other organisations may be involved in the response to the incident. The Council is required to produce a Multi-Agency Flood Plan (MAFP) which will be developed in collaboration with the Emergency Planning Team. The MAFP outlines the delivery of the emergency response and co-ordinates the actions of responding agencies.

3.6 Highways

The responsibility for the drainage on highways depends on their ownership and management, which is outlined below:

Highway drainage and asset management	Risk Management Authority		
	Transport for London	National Highways	London Borough of Hillingdon
Red routes	✓		
Motorways		✓	
Other adopted highways			✓

National Highways is the national organisation charged with operating, maintaining, and improving England's motorways and major A roads. The M4 and M40 runs through parts of the borough, and form sections of the strategic road network that National Highways manages.

Transport for London (TfL) manages a network of major roads in the capital, referred to as red routes, which carry up to 30% of London's traffic. A map of red routes can be found on the TfL

website. The roads in the borough that TfL are responsible for are the A4, A30, A40, A312, A437, and West End Road (A4180).

The London Borough of Hillingdon manages the majority of local roads that are known as adopted highways which incorporate a large drainage network some of which is within the remit of Thames Water.

There are some local roads that are not adopted highway and outside the control of the Council. Responsibility for these roads varies and depends on covenants and legal agreements.

3.7 Infrastructure Providers

Essential infrastructure is vital to ensure that the borough can continue to function. Flooding of such infrastructure can have a major effect on communities even if they are not directly impacted by flood water. Electricity outages, contamination of water supplies or the inability to use vital services including railway stations or hospitals can all have much wider implications.

Understanding the location of essential infrastructure and the associated flood risk will allow for the identification of priority areas. Establishing partnerships with the infrastructure providers will then be vital to ensuring risk management activities are put in place.

3.8 Theme Actions: Roles and Responsibilities

Objective	Improve the collaboration with statutory partners ensuring clarity about the roles and responsibilities and to improve the management and coordination of flood risk
Action B1	Host quarterly meetings of a flood group for internal Council departments to share relevant updates for flood risk, discuss projects and potential opportunities for collaboration.
Action B2	Host quarterly meetings with Thames Water and Environment Agency to discuss ongoing work, changing flood risk, investigations, and opportunities for collaborative working.
Action B3	Provide support to communities through flood action groups (FLAGs) to ensure flood risk at a local level is understood and preparedness is in place.
Action B4	To work with the Council's emergency response unit to ensure that access to forecasting and warning is up to date and fit for purpose.

Action B5	To work with Thames Water and the Environment Agency to secure a list of borough specific actions to be hosted on the Council website alongside the Strategy.
Action B6	To ensure flood risk assets are maintained appropriately, effectively, and routinely.
Action B7	To identify essential infrastructure and associated flood risk to enable the mapping of assets that need management plans in place.

4 OUR COMMUNITIES

4.1 Community Resilience

Communities are at the forefront of flood risk and are the ones that most experience the impacts from flood events. Communities have an important role to play in local flood risk management. Local knowledge and understanding of flood risk and past flooding events is an important resource for the Council and can make flood risk management decisions and flood alleviation schemes more informed and effective.

Working as a group enables communities to collaborate with agencies and authorities that manage flood risk to address any concerns and tackle the issues affecting their local area.

One example of this can be through Flood Action Groups, made up of a core of local people acting as representatives for their wider community. Flood Action Groups are community-led and can be set up by any group of volunteers who wish to work together to raise and manage issues around flood risk. Working with Communities, the Council intends to:

- Improve access to flood risk information about communities.
- Improve flood risk data quality.
- Support the establishment of flood action groups.
- Provide guidance for flood action groups to promote resilience within a community.

The National Flood Forum website has further information and guidance for how to set up a Flood Action Group.

For those wanting to set up a Flood Action Group, please contact flooding@hillingdon.gov.uk

The Role of a Flood Action Group
Spread awareness of flood risk within the community.
Monitoring local conditions e.g. community volunteers keeping an eye out for blocked drains.
Develop and review a community flood plan.
Looking out for vulnerable members of the community.
Preparing for and taking action during a flood event.
Identifying key flooding issues within the community and establishing who is responsible.
Build relationships and lines of communication with key agencies.
Lobbying of decision makers and commenting on Government consultations.
Influencing the development of future flood scheme opportunities to better manage flood risk.
https://thefloodhub.co.uk/community/

4.2 Volunteer Groups

Volunteer groups also play an essential role in the management of communities and their resources. Volunteer groups undertake activities that can have direct benefits for communities, and they can improve mental and physical wellbeing and help protect the natural environment.

Case Study	**Friends of Pinn Meadows, Ruislip**
The Friends of Pinn Meadows is a volunteer group that works closely with the Council's Green Spaces team to help maintain a valuable asset for multiple communities.	
"The Friends of Pinn Meadows has become increasingly involved in protecting and maintaining the whole length of Pinn Meadows. Regular working parties are organised to	

clear the area of litter, help keep the riverbank and drainage channels from becoming overgrown, plant new trees and sow wildflowers."
As a well establish Volunteer group, the Friends of Pinn Meadows has worked closely with the Council to realise improvement to a vast expanse of Green Space and has been instrumental in help manage the River to provide flood protection.

Case Study	**Park Wood SSSI Natural Flood Management (NFM) Steering Group**
The Park Wood SSSI NFM Steering Group has been instrumental in realising the opportunities for creative flood management techniques within a National Nature Reserve. Working first with Thames 21 and alongside the Council as well as undertaking work through their own actions, the Group has been at the forefront of the development of Natural Flood Management for the borough and beyond. The work developed by the group also resulted in a close collaboration with Brunel University with students involved in research projects to advance their education.	
"the local knowledge and dedication of local volunteers to recording behaviour of the dams, mending structures and reporting vandalism was invaluable. Volunteer contribution to ongoing dam maintenance beyond this project through adoption by the existing woodland habitat maintenance volunteer group was also invaluable." *Park Wood SSSI NFM Project Review*	
The Steering Group remains an enthusiastic and engaged volunteer group and have an invaluable level of local knowledge and expertise. Further work to increase the NFM opportunities first developed by the Group is now ongoing with the aim of realising wider aspirations.	

There are many other examples of Volunteer Groups being active in the borough. For those wanting to get involved in volunteering please use this link Green Volunteer

4.3 Landowners

Landowners are responsible for the drainage on, and from, their land and property and should implement measures to prevent them from flooding. Any measures that are put in place should not increase the flood risk to surrounding land and property.

Private landowners with land or property next to a river, stream or ditch have responsibilities as 'riparian landowners'. Water must be able to flow without obstruction, pollution or diversion that may affect the rights of others. Private landowners have a duty to keep any structures, such as culverts or trash screens, free of debris. If private landowners have flood defences on their land, communication with the relevant risk authority about maintenance is important as they may play a significant role in flood protection. There is a need to improve knowledge and understanding about the flood management responsibilities of private landowners. Through this Strategy, the Council will develop and disseminate appropriate guidance to ensure landowners are aware of their responsibilities.

There is also a small number of landowners within the borough who have control over vast expanses of land who require special mention and collaboration:

Heathrow Airport is in the south of the borough and covers over 1000 hectares. This makes Heathrow Airport Holdings Limited, which owns and runs the airport, a major landowner. As a major landowner, the airport operators are responsible for drainage of a significant area and consequently they own and operate a range of drainage assets that are integral to the effective management of surface water.

Similar to Heathrow Airport, **RAF Northolt** also contains large expanses of hardstanding making the owner, the Ministry of Defence, another important landowner.

HS2 is large scale new railway that cuts across the borough through Ruislip, Ickenham and the Colne Valley. **HS2 Ltd** is responsible for a large scale alteration of the landscape along with the creation of new infrastructure that has altered the way surface water is managed. The project has also required the diversion of main rivers and watercourses making it a significant stakeholder in the effective management of surface water.

4.4 Theme Actions: Local Communities and Flooding

Objective	Engage with communities to develop the awareness of flood risk in local areas and improve their resilience
Action C1	Maintain a register of community groups that may be relevant to flood risk management, with the associated flood risk information, schemes, and level of engagement. Provide information and support for community groups undertaking actions related to flood risk management.
Action C2	Undertake an engagement campaign alongside the annual review of the LFRMS to raise awareness of flood risk management and the roles that communities and residents can play.
Action C3	Attend appropriate community meetings along with other Risk Management Authorities to maintain regular contact with communities and support actions to address issues raised.

Action C4	Improve awareness and adoption of property level resilience measures for residents.
Action C5	Ensure lines of communication from Risk Management Authorities to residents during flooding events are clear and efficient.
Action C6	Keep information on flood alleviation schemes up to date and accurate for residents. Use appropriate communication and engagement channels to inform residents about project completion and successes.
Action C7	Produce engagement strategy for community groups and stakeholders

5 Opportunities and Projects

5.1 Managing flood risk sustainably

With future changes to the climate, there will be a greater risk of flooding as a result of more frequent and more intense periods of rainfall. Combined with this is a range of problems that are already present. For example, large scale loss of gardens and an increase in hardstanding results in a reduction of space for water to be stored in a time of flood. The drainage network, as throughout London, is ageing and has constrained capacity that struggles to cope with the frequency of the intense rainfalls.

Carefully located and planned flood risk projects can provide considerable flood attenuation benefits. In addition, there are opportunities to reconsider where flood water can be stored in a time of flood, for example through the use of open space land. Identifying opportunities and projects are essential to facilitating a positive response to the growing risk of flooding.

Flood risk management in the borough should aim to:

- Reduce risk in areas at greatest risk of flooding to ensure investment is used effectively
- Use sustainable drainage systems (SuDS) and natural flood management (NFM) where possible
- Share knowledge on flood risk and what work is being undertaken with the public, as to how they can be involved and protect themselves, property and business
- Work with partners to provide a collective response to flood risk management

Flood alleviation schemes should have multiple benefits: social and economic benefits of preventing property and businesses from flooding is generally accepted, but clever approaches can secure significant environmental benefits too such as opportunities for greater biodiversity.

Sustainable drainage systems (SuDS) are a method of water management that can be deployed to reduce flood risk. The purpose of a SuDS is to manage runoff as close to its source as possible to mimic natural drainage. This promotes infiltration and the attenuation of water to reduce the subsequent load on sewer systems.

The susdrain website provides further information and explanations of the different types of SuDS, along with diagrams and images.

Further information on SuDS, including their benefits, can be found on the Local Government website.

Natural flood management (NFM) is the use of natural processes to manage the risks from flooding; both NFM and SuDS seek to reduce flood risk by achieving drainage rates closer to the natural state, but NFM takes a wider approach with fewer civil engineering interventions than SuDS and is more commonly associated with managing fluvial flooding than surface water flood

risk. Getting away from civil engineering, towards more natural methods of flood risk management, also allows for more interventions in a catchment.

5.2 Funding

The Department for Environment, Food and Rural Affairs (DEFRA) is a major source of funding for LLFAs to carry out projects through its Flood and Coastal Erosion Risk Management (FCERM) Grant in Aid (GiA) fund. The LLFA can also apply for Local Levy funding. This is managed by the ThRFCC and raised through a levy on Local Authorities and overseen by the Environment Agency.

Funding can be one of the primary barriers to the development and delivery of flood management projects which means that funding from third parties, or partnership funding, can be an important additional source. This could be from community groups, charity organisations or from land or property owners involved in a scheme, or partners such as Thames Water.

5.3 How are projects identified?

Identifying projects is predominantly based on risk. Risk is generally defined using the 'calculation' below:

Probability x Consequence = Risk

The scale attributed to either factor in the equation is based on a highly complex range of technical variables. Historic flooding is also a predominant factor identifying the location of new projects. The Catchment Management Plan contains more information on project identification which assists the Council in prioritising new opportunities.

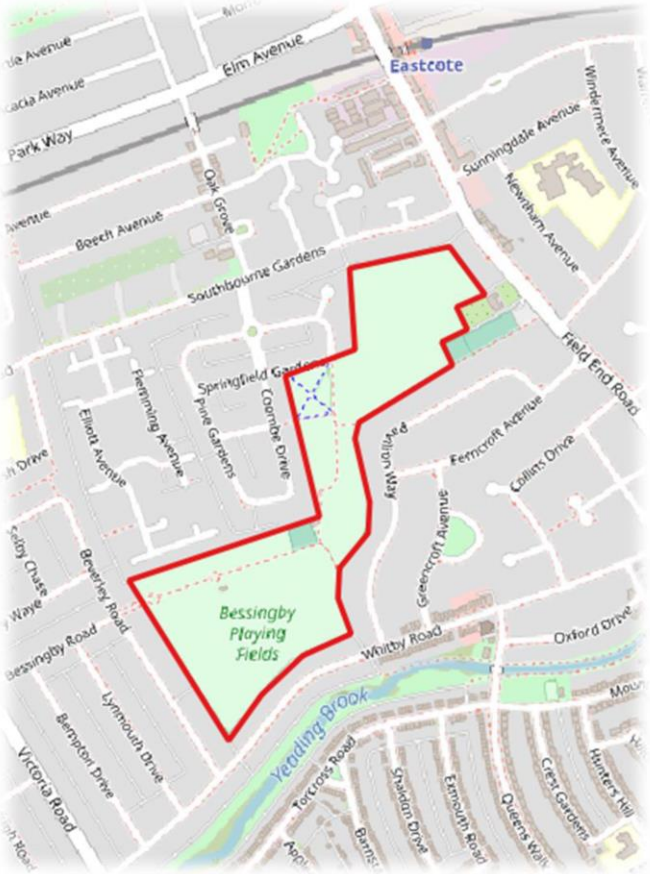
5.4 What has been done

The Council has undertaken a variety of projects, working with an array of partners, to alleviate flood risk.

The following 'project sheets' provide more detail on those most recently completed and relate to:

- Bessingby Park, Ruislip
- Cannon Brook and Mad Bess Brook, Ickenham
- Eastcote Town Centre, Eastcote
- Elephant and Court Park, Hillingdon
- 'Green Blue You', Hayes
- Park Wood Site of Special Scientific Interest Natural Flood Management, Ruislip

Other risk authorities have also undertaken extensive work in the borough. The Council is working with these partners to provide similar detail to those provided subsequently to allow all the information to be stored in one place.



Bessingby Park Basins

Photos taken prior to planting but showing the newly created basis

Bessingby Park

Flood Alleviation Scheme

Bessingby Park, Ruislip, HA4 9BU

Autumn 2022

Bessingby Park and adjacent properties have flooded on multiple occasions in the past few years. This flooding was attributed to the impacts of climate change and lack of capacity in the sewers. Several issues were identified within the Thames Water network, including a blockage and partial collapse of the surface water sewer in the southeast of Bessingby Park.

The project used principles of Natural Flood Management (NFM) and Sustainable Drainage Systems (SuDS).

The scheme provided approximately 500 m^3 of capacity for retaining water during flood events in two basins. The basins were fringed with wildflowers and other planting to create a biodiverse habitat.

The project was delivered with funding from the Mayor of London's Grow Back Greener Fund and Thames Water.

Increasing capacity on Cannon Brook

Source: Thames 21.

Cannon Brook and Mad Bess Brook Flood Alleviation Scheme

Cannon Brook Catchment

2021 – 2024

Residents living near the River Pinn in Ruislip have suffered many flood events in recent years, notably in 2016.

The River Pinn is prone to fast, flash flooding and numerous surface water outfalls drain directly into it, causing it to burst its banks in times of high rainfall. Invasive species which damage the ecological health of the riverbanks are also an issue.

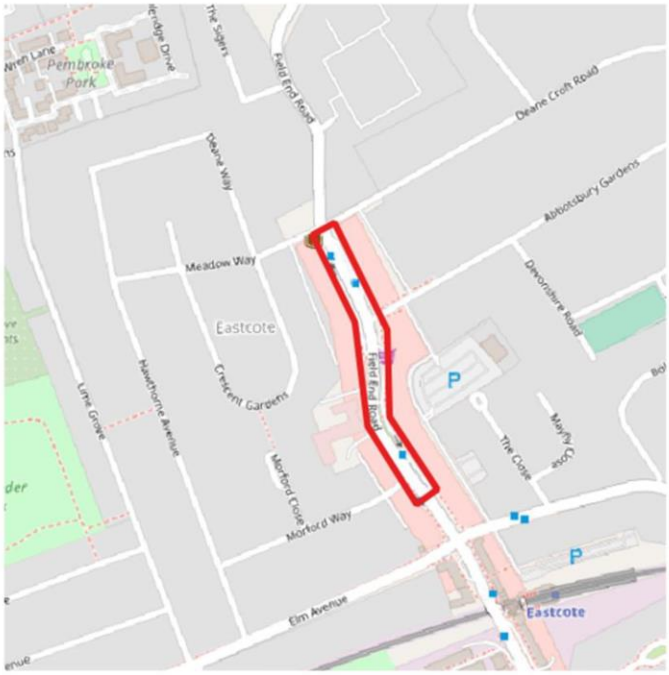
The London Borough of Hillingdon partnered with Thames 21 on a two-year project which aimed to engage the community, reduce flood risk, and increase biodiversity.

Sections of the Cannon Brook, a Pinn tributary, was restored to increase water storage on the floodplain and slow the flow.

This project is part of a wider package of works around the Cannon Brook and Mas Bess Brook catchment.

Alongside the interventions on the watercourses, property flood resilience (PFR) measures have also been provided to the most at risk homes and further interventions are planned in 2024.

Eastcote Town Centre Raingardens



Eastcote Raingardens *Source: Landscape Institute*

Eastcote Town Centre, Pinner, UB3 4EW

Summer 2019

Several raingardens were designed and implemented as part of the Eastcote Town Centre improvement and the London Strategic Sustainable Drainage Systems (SuDS) Pilot.

The aim of the scheme was to provide flood alleviation and improve amenity in an urban area. Residents and business in Eastcote Town Centre have suffered from frequent surface water flooding in the past when the sewer systems become overwhelmed in high intensity rainfall events.

Approximately 50 m^3 of surface water storage was provided through the raingardens which were planted with shrubs, perennials, bulbs, and ornamental grasses.

The raingardens have also provided an opportunity for education, with school trips organised to view the raingardens in action.

The raingardens represent how above ground drainage solutions can be established in an urban area. They have secondary functions as a benefit to wildlife and as an attractive feature within an urban centre.

Elephant Park and Court Park Flood Alleviation Scheme

(above) A swale on a naturalised path that will become a significant biodiverse feature when planting matures

(below) a holding pond to store excess water at a low part of the park

Elephant Park, Uxbridge, UB10 9AT

Court Park, Uxbridge, UB10 9JX

Summer 2022

A suite of measures was proposed to reduce the risk of surface water flooding to residential properties in Hillingdon with the secondary benefit of creating a more biodiverse space.

Modelling indicates that 54 houses were better protected from flooding due to these two schemes, which was supported with funding from the Environment Agency.

In Elephant Park, a meandering swale of approximately 200 m in length was constructed. To do this, 1,000 m^3 had to be excavated but all of it was repurposed on site to create mounds. Seeding and wildflower planting was undertaken on these mounds. A successful community planting day for the swales was organised by the Green Spaces Team.

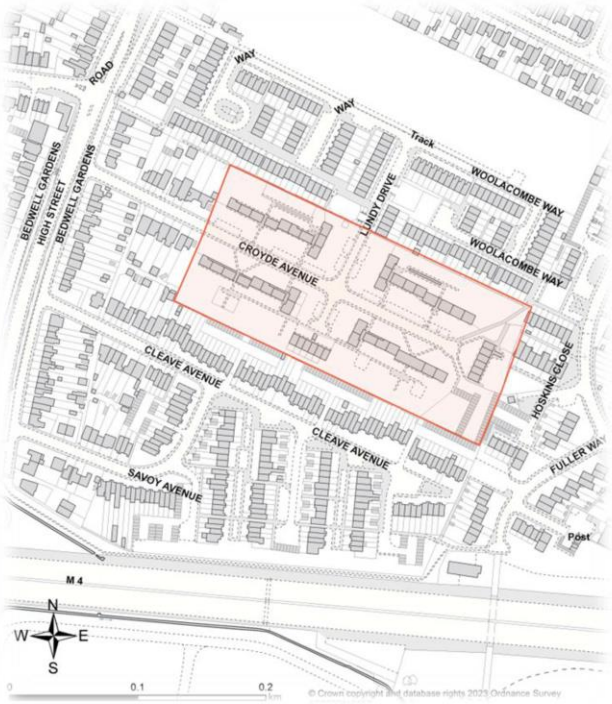
In Court Park, a range of features were built. These included a new swale, two bunds and two ponds. Similarly, to Elephant Park, this scheme was designed to increase capacity of water outside of the sewer systems.

These are examples of a more creative use of open space to achieve flood risk and biodiversity benefits whilst retaining the recreational purposes of the parks.

Importantly, they show that flood risk projects don't need to be hard engineered costly schemes.

Green Blue You

Hayes



Croyde Avenue Estate, Hayes, UB3 4EW

2021 - 2024

Groundwork London is implementing this GLA-funded project in partnership with the London Borough of Hillingdon, which is due to complete in March 2024. The project is focused on 6 blocks of the Croyde Avenue Estate.

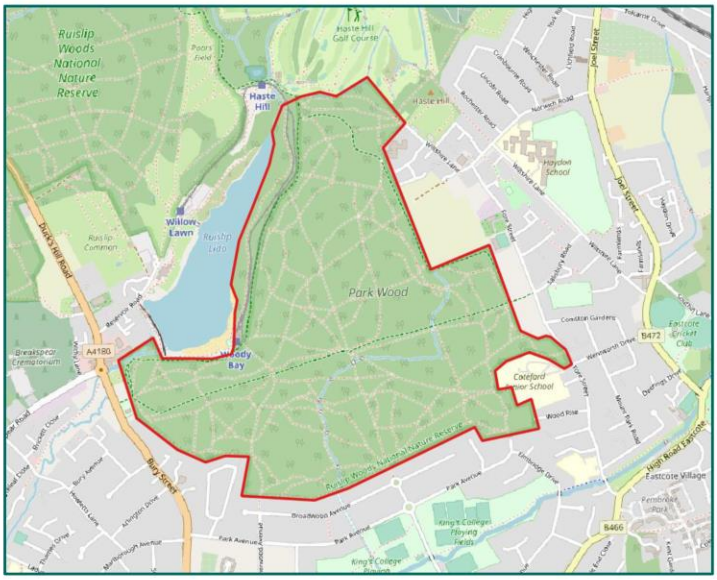
Green Blue You aims to reduce flood risk, alleviate pollution to water courses, improve and create green (and blue) habitats. The project has worked with residents to create a more biodiverse estate. It has also provided opportunities to volunteer and learn in the green skills space. The neighbourhood will benefit from new sustainable drainage, new informal play features and improved green spaces through wildlife enhancements.

The London Borough of Hillingdon are currently developing Sustainable Urban Drainage Systems (SuDS) around the catchment with funding from the Environment Agency. These will be delivered over coming years.

Green Blue You Visualisation *Source: Groundwork London*

Park Wood

Natural Flood Management Phase 1



Park Wood (SSSI), Ruislip, HA4 7XT

2018 – ongoing

This project was one of four woodland NFM pilots using funding from Department for Environment, Food and Rural Affairs (DEFRA). It was delivered in partnership by Thames21, the London Borough of Hillingdon and the local volunteers including the Ruislip Woods Management Advisory Group (RWMAG) and the North Ruislip Flood Action Group (NRFLAG). The project aim was to reduce the risk of flooding to downstream properties, such as those along Park Avenue and Broadwood Avenue and expand understanding of the efficacy of NFM.

The works, led by the volunteers, involved the installation of at least 40 leaky dams in the wood, which is a designated Site of Special Scientific Interest (SSSI) and a National Nature Reserve. Leaky dams mimic the natural obstruction caused by trees or branches falling into rivers. They work to slow the flow of water during periods of heavy rainfall. They also reduce soil erosion which helps to improve water quality downstream.

The volunteer group also included the Earthworks Conservation, Brunel University Students and the Harrow and Hillingdon Geological Society.

Leaky dams in Park Wood (SSSI)

Source: NRFLAG (above) and London Borough of Hillingdon (right).

5.5 What is being done

In addition to work already completed by the Council, there are a number of projects currently being actively investigated. These projects are in different stages and will be reported on annually and added to as more projects come forward.

5.5.1 Northwood: Joel Street Ditch Flood Alleviation Scheme

Flood modelling and options evaluation have been undertaken for the Joel Street Ditch catchment with the aim of identifying opportunities for SuDS to address flooding from the Joel Street Ditch. The results of this modelling are now being explored by the Council to inform further work with the Environment Agency on possible solutions.

5.5.2 South Ruislip: Spider Park

The Rewilding Spider Park project has involved a number of stages providing multiple and various benefits. 8000 tree whips have been planted, areas of grass are left uncut and managed as hay meadow, pond restoration has taken place and a new swale created all as part of biodiversity enhancement completed in March 2023. A feasibility study looking at flood management opportunities in the park was completed in September 2023. This has informed the next stages of the project which would involve the progression of river restoration works on the Yeading Brook.

5.5.3 Ruislip: Brook Drive SuDS

An investigation and assessment of the opportunities for flood risk measures on Brook Drive were carried out in 2020. Following this, the Council submitted a successful bid for funding from the Thames Water Surface Water Management Programme. Workshops were held with the community to establish priorities for the project. A concept design has been produced for the first phase of the project, which is to implement raingardens on Kings College Road, upstream of Brook Drive. The raingardens would store surface water and reduce the volume of water entering the sewer system. Construction of this project is planned for 2024.

5.5.4 Hayes End: Kingshill Avenue flood alleviation project investigation

Outputs from the Hillingdon Catchment Plan have identified the Hayes End and Kingshill Avenue catchment as having a high number of properties at risk of surface water flooding. The catchment is served by a Thames Water surface water sewer network that discharges into a tributary of the Yeading Brook. There have been historic issues with surface water flooding, however it is unclear how the surface water sewer network plays a role in this.

In addition, it is unclear what the role of downstream restrictions in the ordinary watercourse and main river network has on the risk of flooding. To better understand the flood risk, the Council will be undertaking a feasibility study to identify opportunities for flood alleviation.

This study is funded by the Environment Agency.

5.5.5 Pinkwell: Frogs Ditch Catchment

The Frogs Ditch is a main river in the south of the borough. It is a mix of open channel and culverted sections that ultimately discharge into the River Crane that forms the eastern border of the borough.

Modelling undertaken indicates up to 278 properties within the catchment are affected by flooding, 74 of which from an upstream flow route at Pinkwell Park to the Frogs Ditch. Parts of the M4 Motorway and Cranford Park are also at risk of flooding.

Climate change projections indicate an increase in rainfall intensity over the coming years which is expected to increase the frequency at which properties in the catchment flood.

The Council has commenced work on a proposal to be put to the Environment Agency to secure further funding for a flood alleviation scheme within Pinkwell Park. If approved, a detailed scheme would then be drawn up with a project to follow, potentially in 2025.

5.5.6 West Drayton

Much of the land near the Thorney Mill Weir is in Flood Zone 2 or 3, with vulnerable properties such as the Riverside Caravan Park at significant risk of fluvial flooding. The Environment Agency has a 'Fish Passage Project' at the same location that has resulted in some initial flood risk modelling being carried out. The Council is currently investigating funding routes to undertake further studies and identify opportunities to implement flood risk alleviation measures in this area.

5.5.7 Colham Green Catchment

Many properties in the Colham Green Catchment are at high risk of surface water flooding, including vulnerable infrastructure such as Hillingdon Hospital, Colham Manor Primary School, and Meadow High School. This is thought to be due to the long stretches of culverted watercourse running through the catchment towards the River Pinn. During periods of heavy rainfall, the River Pinn water level rises rapidly, which may reduce the culvert outfall and limit the volume of surface water that can drain from the catchment. An initial feasibility study needs to be undertaken to increase the understanding of the integrated flood sources and determine viable options for the mitigation of flood risk. The Council is working to secure funds to develop a greater understanding of the risks.

5.5.8 Park Wood SSSI NFM Phase 2

The ThRFCC NFM Fund was identified as a new opportunity to implement further measures in Park Wood SSSI and apply the lessons learned from the DEFRA pilot. The funding bid was approved subject to the project gaining consent from Natural England. The Council is currently working with Natural England, as well as the local community, to progress the project. A bid for a grant from the HS2 Community and Environment has also been submitted to increase the scope of activity and works.

5.5.9 Pinn Meadows NFM

The LLFA submitted a successful bid for the DEFRA Natural Flood Management (NFM) Programme funding. This is one of just 40 projects across the Country. The project has been allocated £250,000 which will be used to design, deliver, and monitor NFM features in Pinn Meadows. Currently, the existing NFM in the nearby Park Wood slows the flow of some of the surface water upstream but does not address flooding downstream which is occurring due to a combination of surface water and fluvial flooding from the River Pinn.

5.6 Theme Actions: Opportunities and Projects

Objective	Identify and implement opportunities for flood risk management
Action D1	In collaboration with other internal council departments and Risk Management Authorities, maintain a list of funding opportunities. Use this to identify and secure appropriate funding for flood risk management schemes within the borough.
Action D2	Maintain mapping showing where flood risk management projects are being undertaken, opportunities have been identified, and include priority areas based on historic flood events and risk analysis.
Action D3	Support other internal council departments in their delivery of flood management schemes.
Action D4	Use flood incident information along with identified priority areas to inform the location and delivery of targeted schemes. Secure funding for delivery of the necessary flood management measures.
Action D5	Ensure that flood risk opportunities and projects are reflected in the Council's Climate Change Adaptation plans.

6 New Development and Planning

6.1 Planning policy

Planning policy has an important role to play in flood risk management in terms of ensuring development is not at risk of flooding, that it does not increase flood risk elsewhere and also contributes to managing flood risk.

6.1.1 Strategic Flood Risk Assessment

The Flood Risk and Coastal Change Planning Practice Guidance (PPG) requires Local Planning Authorities (LPAs) to apply a risk-based approach to understand and manage flood risk from all sources. As part of this, LPAs are required to produce Strategic Flood Risk Assessments (SFRAs). The purpose of an SFRA is to assess the current and future risk to an area from flooding from all sources, taking account of climate change and the impact of land use and development changes. The SFRA provides the evidence base for planning decisions related to flood risk.

6.2 Development and SuDS

Planning applications (where appropriate) are required to demonstrate the use of SuDS in accordance with a number of policies:

- National Planning Policy Framework (Paragraphs 159-169)
- Flood Risk and Coastal Change Planning Practice Guidance
- London Plan Policies SI 12 and 13
- Non-statutory Technical Standards for Sustainable Drainage Systems
- Hillingdon Local Plan Policies EM 1, EM 6, DMEI 9 and DMEI 10

The LLFA has a statutory duty to review the proposed drainage elements of major planning applications under the Act. Major planning applications are defined as:

- Developments of 10 or more dwellings
- A site area of 0.5 ha or greater
- Buildings with a floor space of 1,000m^2 or greater

The LLFA will provide comments on the proposed surface water drainage strategy of the development along with proposed measures for the management of flood risk to the site. The Environment Agency will also be consulted with respect to any development within 8m of a main river or in Flood Zone 3.

The LLFA, as part of the planning application process, will review:

- If the drainage hierarchy set out in the London Plan (2021) is being adhered to and that the most sustainable drainage features possible have been proposed.
- If the proposed runoff rates are equal to or lower than greenfield runoff rates, or as close as reasonably practical with sufficient justification.

- If sufficient calculations supporting greenfield, existing and proposed runoff rates for 1 in 1 year (100% chance of occurrence each year), 1 in 30 year (3.3% chance of occurrence each year) and 1 in 100 year (1% chance of occurrence each year) rainfall events are provided, with an appropriate climate change allowance.
- If the proposed attenuation storage volume meets or exceeds the required attenuation storage volume for the site.
- If maintenance tasks of proposed SuDS (including actions and frequencies) and a maintenance provider have been stated.

All of this information, along with sufficient supporting evidence, should be submitted in a formal planning application made to the local planning authority.

The applicant is also required to complete and submit the Hillingdon Sustainable Drainage Proforma and, dependent on the size of the development and Flood Zone it is in, a flood risk assessment. More information on the requirements for flood risk assessments can be found here.

6.2.1 Schedule 3 and SuDS Approval Body

In January 2023 the government announced the implementation of Schedule 3 of the FWMA, expected to come into effect in England during 2024. Schedule 3 will require the use of SuDS within new developments over 100m^2 to be formally approved by the SuDS Approval Body (SAB). This is a separate consenting regime outside of the planning permission.

The SAB will have a similar role to the local planning authority, but solely for the drainage arrangements of a new development. Drainage will therefore be a consideration for both the local planning authority and the SAB. There is limited guidance at present as to the exact implications for the SAB but it will invariably be a significant change in how SuDS are considered within new development.

The Strategy will be updated in due course once there is clarity over the SAB role.

6.2.2 Biodiversity Net Gain

Biodiversity Net Gain (BNG) is an approach for developing land whilst contributing to the recovery of nature. BNG refers to ensuring the natural environment is in better condition than prior to the development by creating or enhancing habitats in association with development. BNG can be achieved on-site, off-site or through a combination of both. Under the Environment Act 2021, all planning permissions granted in England, with some exemptions, will have to deliver at least 10% BNG from January 2024. BNG will be measured by DEFRA's metric and further information on this can be found on the government website. Hillingdon Local Plan Policy EM7 sets out how the borough's biodiversity will be preserved and enhanced.

Further information on BNG can be found on the Local Government Association website.

The National Planning Policy Framework requires Local Planning Authorities to consider green infrastructure (GI) in local plans and in new development. GI refers to a network of multi-functional green space, which deliver environmental and amenity benefits for communities. It

can refer to a wide range of features, for example parks, playing fields, street trees and green roofs. The Green Infrastructure Standards have been developed by Natural England to help LPAs and developers meet the requirement to consider GI. The **Urban Greening Factor** is a tool to improve the provision of GI and increase the level of greening in urban environments. It is applied to major developments and sets a target score for the proportion of GI within a development site.

6.3 Theme Actions: New Development and Planning

Objective	**Ensure that development within the London Borough of Hillingdon accounts for and mitigates flood risk with the aspiration to see a net reduction.**
Action E1	Produce and maintain guidance for the Planning department on flood risk management, requirements for drainage strategies and all council policy associated with flood risk.
Action E2	Develop and maintain up to date guidance on the SuDS Approving Body for relevant internal Council departments. Ensure the relevant departments have awareness and understanding of the implications of implementation of Schedule 3.
Action E3	Ensure plans and planning decisions are informed by up to date flood risk information and developments are designed and located to minimise the risk of flooding.
Action E4	Ensure developments with an impact on flood risk assets are appropriately assessed with long term maintenance and management appropriately secured.
Action E5	Require developments to demonstrate that sustainable drainage systems have been implemented, where possible, for managing runoff.
Action E6	Ensure all guidance and standing advice on flood risk and planning is kept up to date and accessible.
Action E7	Undertake annual training for the Local Planning Authority on development and flood risk.

7 WHAT YOU CAN DO

7.1 How to reduce local flood risk

Managing flood risk is not the sole responsibility of the statutory authorities. Large scale interventions or improvements can only generally be carried out by the statutory authorities, but local action forms a vital part in the collective goal of managing flood risk effectively.

Along with actions for reducing overall runoff, there are measures that can be put in place specifically to protect properties from flooding. These are often termed **Property Flood Resilience (PFR) measures**. Examples include non-return valves on pipes to stop water flowing back into the property, the fitting of anti-flood airbricks or flood gates and barriers that can be erected prior to a possible flood event.

The National Flood Forum website sets out methods for protecting property along with the typical costs involved. The Blue Pages website provides further information on property-level protection measures along with the standards and accreditation available for such measures. The Council strongly recommends residents check the PFR certifications before employing any flood protection devices.

7.2 How not to increase flood risk

What residents do within their own properties can combine to make a significant difference. For example, in recent years, the large scale replacement of green spaces within gardens for impermeable or hard surfacing has resulted in quicker runoff to the local drainage networks. The consequence is that more water is reaching the drainage network quicker than it can be conveyed away resulting in increased levels of flooding.

7.3 How to report flooding

Reporting of flooding incidents is important so that a record can be kept, and appropriate action(s) are taken. Reporting flooding also makes it easier to establish locations where there may be a recurrent issue and helps with the prioritisation of solutions. Different types of flooding are the responsibility of different authorities. *Section 2.1* provides further information on this. The Council has committed to providing a more efficient way of reporting flooding and this will be developed in 2024.

How to report a flood	
For surface water flooding, groundwater and ordinary watercourses	**Hillingdon Council** **01895 556000** **01895 250111 (after 5pm)** **Flood reporting tool**
For sewer flooding and blocked sewers	**Thames Water** **0800 316 9800** **Thames Water online reporting tool**
For flooding of main rivers or from the sea	**Environment Agency** **0800 80 70 60 (24/7)**
For blocked drains or gullies on highways managed by Hillingdon Council	**Hillingdon Highways** **Blocked gully reporting tool**
For blocked drains or gullies on highways managed by Transport for London	**Transport for London** **Street care reporting tool**
For blocked private drains or flooding from private drains	**Landowner / property owner**
IF YOU ARE UNSURE, PLEASE CONTACT HILLINGDON COUNCIL	

7.4 Actions before, during, and after a flood

Improved community and individual knowledge of their risk of flooding improves awareness and enables preparedness. Residents and property owners can check the long-term risk of their area here. In the event of a possible flood, residents can check the immediate risk to their property here.

The Environment Agency can also be contacted for this information at **0345 988 1188** or by textphone **0345 602 6340**. The advice given by the Environment Agency on what actions should be taken before, during and after a flood are summarised below along with when actions should be triggered, i.e. linked to the types of flood warnings.

BEFORE A FLOOD	
1	Prepare an emergency plan using the UK's flood plan template and share with anyone living in your property. Link: Flood Plan Checklist
2	Have an emergency kit ready to take with you.
3	Find out how to turn off your gas, electricity, and water supplies.
4	Ensure insurance is in place
5	Take detailed photos of valuables and property before flooding occurs for insurance purposes.

DURING A FLOOD	
1	Turn off gas, electric and water supplies.
2	Avoid entering flood water, particularly if fast flowing or deep water.
3	Do not drive through flood waters.
4	Move valuables and furniture, if possible, out of reach of floodwaters. Vehicles should also be moved to higher places.
5	Report the flooding incident to the appropriate authority so that any necessary action can be taken during the event. Call the emergency services if there is immediate danger

AFTER A FLOOD	
1	Don’t return to flooded property until it has been declared safe to do so.
2	Don’t turn on utilities until these have also been checked.
3	Take photos of damage and anything to be disposed of and contact the insurance provider.
4	Report the flooding incident to the appropriate authority.

Would you know what to do in a flood?

Environment Agency

FLOOD ALERT

PREPARE

- Prepare a bag that includes medicines and insurance documents
- Visit **www.gov.uk/check-flooding**

FLOOD WARNING

ACT

- Turn off gas, water and electricity
- Move things upstairs or to safety
- Move family, pets and car to safety

SEVERE FLOOD WARNING

SURVIVE

- Call 999 if in immediate danger
- Follow advice from emergency services
- Keep yourself and your family safe

Visit **check-for-flooding.service.gov.uk/plan-ahead-for-flooding** **#PrepareActSurvive**

7.5 Theme Actions: What you can do

Objective	Ensure residents are aware of their own responsibilities and what they can do to reduce flood risk
Action F1	Produce guidance on the responsibilities for riparian owners of watercourses to improve understanding of legal requirements.
Action F2	Produce information pack for homeowners on what works to properties will increase flood risk and also the measures that can be put in place to provide property level protection and better manage water.
Action F3	Ensure information on how to prepare a personal flood action plan is clearly available.
Action F4	Use the Council's website as a conduit to a wide range of personal flood risk management information

APPENDIX A – ACTION PLAN

Sources of Flooding		**Improve knowledge of the sources of flooding and their associated risk within the London Borough of Hillingdon**			
Ref	Action	Role	Partner	Timeframe	Process
A1	Maintain an up to date record of flood risk data ensuring this is available for others to use.	LLFA	Environment Agency	Ongoing	Check for changes in flood risk data, for example following national updates to modelling, and keep a timeline of the dates for updates (where known) to the datasets being used.
A2	Develop and maintain a method for sharing and recording flood reports with internal departments and external partners.	LLFA	Environment Agency Thames Water LBH Highways LBH Green Spaces National Rail TFL National Highways	Ongoing	Quarterly meetings with external partners. Quarterly internal meetings with other key departments.
A3	Work with external partners to ensure their records of flooding events, including investigations, are available to the Council.	LLFA	Environment Agency Thames Water LBH Highways LBH Green Spaces National Rail TFL National Highways	Post flood event	Undertake post flood incident investigations in liaison with external partners.

A4	(a) Review the threshold criteria for flood investigations and (b) continue to carry out flood risk investigations when flooding reaches the Section 19 threshold.	LLFA		(a) Within one year (b) Post flood event	Review criteria for flood investigations. Undertake investigations in accordance with approved criteria.
A5	Use updates to modelling, new information from feasibility studies, and reports to ensure flood risk information is kept relevant.	LLFA		Quarterly	Monitor the progress of feasibility studies and reports of flooding and, where appropriate, make changes to predicted flood risk maps
A6	Continue to use and develop innovative methods for capturing data on flood risk within the borough.	LLFA	Environment Agency Thames Water Community Groups	Ongoing	Review what data is currently being collected and monitored for flood risk, such as community reporting tools and sewer level monitors. Keep track of any new methods for monitoring identified by the Environment Agency, Met Office or that other Risk Management Authorities may be using or from research opportunities.
Working with Statutory Partners		**Improve the collaboration with statutory partners ensuring clarity about the roles and responsibilities and to improve the management and coordination of flood risk**			
Ref	Action	Role	Partner	Timeframe	Process
B1	Host quarterly meetings of a flood group for Council departments to share relevant updates for flood risk, discuss projects and potential opportunities for collaboration.	LLFA	LBH Highways LBH Green Spaces LBH Housing (when appropriate)	Ongoing	Review attendance to flood group meetings. Identify any barriers to attendance. Review any feedback on meetings and any topics to be covered going forward.

B2	Host quarterly meetings with Thames Water and Environment Agency to discuss ongoing work, changing flood risk, investigations, and opportunities for collaborative working.	LLFA	Thames Water Environment Agency	Ongoing	Review attendance to quarterly meetings from external agencies. Review actions and identify opportunities for collaborative working to progress
B3	Provide support to communities through flood action groups (FLAGs) to ensure flood risk at a local level is understood and preparedness is in place.	LLFA	Community Groups	Ongoing	Provide guidance for FLAGs and engage quarterly to determine resource required and the assistance to be provided by the LLFA.
B4	To work with the Council's emergency response unit to ensure that access to forecasting and warning is up to date and fit for purpose.	LLFA	LBH Emergency Response Team	Annual	Review the information provided historically. Check the messaging of different Council teams and other Risk Management Authorities who might be putting information out to residents on flood risk management responsibilities.
B5	To work with Thames Water and the Environment Agency to secure a list of borough specific actions to be hosted on the Council website alongside the Strategy.	LLFA	Thames Water Environment Agency	Annual	Liaise with external partners to secure information on Council specific actions are hosted on the Council website alongside the LLFA actions i.e. within in this action plan.
B6	To ensure flood risk assets are maintained appropriately, effectively, and routinely.	LLFA	Environment Agency Thames Water Affinity Water LBH Highways LBH Green Spaces National Rail TFL National Highways	Ongoing	Secure information on maintenance and inspections from asset management bodies. Provide public guidance on the flood risk asset management regime and the roles and responsibility for the various authorities. Provide information on flood risk asset management regime where appropriate.

B7	To identify essential infrastructure and associated flood risk to enable the mapping of assets that need management plans in place.	LLFA	Environment Agency Affinity Water TFL Network Rail Energy Supply Companies Thames Water Highways England RAF Northolt Heathrow Airport	Ongoing	Secure information on the location of essential infrastructure. Understand the associated flood risk. Work with the relevant organisation to ensure management plans are in place.
Our Communities		**Engage with communities to develop the awareness of flood risk in local areas and improve their resilience**			
Ref	Action	Role	Partner	Timeframe	Process
C1	Maintain a register of community groups that may be relevant to flood risk management, with the associated flood risk information, schemes and level of engagement. Provide information and support for community groups undertaking actions related to flood risk management.	LLFA	Community Groups	Ongoing	Liaise with the community engagement team to assess whether an up to date register of community groups is being used. Use this to compile a list of relevant groups. Provide commensurate levels of support and assistance to groups that are associated with priority flood risk areas.
C2	Undertake an engagement campaign alongside the annual status report of the LFRMS to raise awareness of flood	LLFA	Engagement Team	Annual	Use the production of the annual status report of the LFRMS to raise awareness of flood risk, provide an update on the work of the LLFA and external partners, and publish

	risk management and the roles that communities and residents can play.				information on what residents can do 'before, during and after flooding'.
C3	Attend appropriate community meetings along with other Risk Management Authorities to maintain regular contact with communities and support actions to address issues raised.	LLFA	Community Groups	Ongoing	Support and attend community meetings as necessary. Use influence with external authorities to secure their assistance with community groups where appropriate.
C4	Improve awareness and adoption of property level resilience measures for residents.	LLFA	Community Groups	Ongoing	Assess what information is currently provided to residents and in what format. Evaluate the effectiveness of these practices and where necessary change and improve how that information is delivered.
C5	Ensure lines of communication from Risk Management Authorities to residents during flooding events are clear and efficient.	LLFA	Environment Agency Thames Water	Ongoing	Review how information on live flood events is delivered to residents and assess whether efficiencies or improvements could be made to this.
C6	Keep information on flood alleviation schemes up to date and accurate for residents. Use appropriate communication and engagement channels to inform residents about project completion and successes.	LLFA	Engagement Teams	Ongoing	Keep track of where information on flood management schemes is published and, when appropriate, update this.
C7	Produce engagement strategy for community groups and stakeholders	LLFA	Community Groups	Ongoing	Engagement strategy that identifies roles and responsibilities, timings of meetings and key contacts. Engagement will be bespoke and depending on the objectives, aims and aspirations of the relevant group.

Opportunities and Projects		**Identify and implement opportunities for flood risk management**			
Ref	Action	Role	Partner	Timeframe	Process
D1	In collaboration with other internal council departments and Risk Management Authorities, maintain a list of funding opportunities. Use this to identify and secure appropriate funding for flood risk management schemes within the borough.	LLFA	Environment Agency Thames Water LBH Highways LBH Green Spaces National Rail TFL National Highways	Ongoing	Review what funding opportunities are known and used currently and update accordingly. Identify cross funding opportunities where appropriate, for example biodiversity net gain.
D2	Maintain mapping showing where flood risk management projects are being undertaken, opportunities have been identified, and include priority areas based on flooding history.	LLFA	LBH GIS Team LBH Web Team	Ongoing	Review flood risk data and flood history to determine priority areas for identifying new projects.
D3	Support other internal council departments in their delivery of flood management schemes.	LLFA	LBH Green Spaces LBH Property Team LBH Housing LBH Highways	Ongoing	Establish current and future schemes being delivered by other departments. Update the mapping recording projects accordingly. Review what support is currently being provided and identify support that may be useful.
D4	Use flood incident information along with identified priority areas to inform the location and delivery of targeted schemes. Secure additional funding for delivery of flood alleviation schemes.	LLFA	Environment Agency Thames Water Funding streams	Ongoing	Continue to secure project funds to identify and deliver new projects in collaboration with communities and external partners.

D5	Ensure that flood risk opportunities and projects are reflected in the Council's Climate Change Adaptation plans.	LLFA		Ongoing	Check that flood alleviation schemes have been assessed against climate change targets and where improvements can be made.
New Development and Planning		**Ensure that development within the London Borough of Hillingdon accounts for and mitigates flood risk**			
Ref	Action	Role	Partner	Timeframe	Process
E1	Produce and maintain guidance for the Planning department on flood risk management, requirements for drainage strategies and all council policy associated with flood risk.	LLFA	LBH Planning	Ongoing	Review what information is already available and use this to produce updated guidance. Undertake annual refresher training or when changes to flood risk policy are implemented.
E2	Develop and maintain up to date guidance on the SuDS Approving Body for relevant internal council departments. Ensure the relevant departments have awareness and understanding of the implications of implementation of Schedule 3.	LLFA	LBH Planning	When Schedule 3 is to be implemented	Monitor the progress of implementing Schedule 3 of the Flood and Water Management Act 2010. Develop guidance and undertake internal training on the processes involved. Update the LFRMS to reflect the legislative requirements of Schedule 3 implementation when appropriate.
E3	Ensure plans and planning decisions are informed by up to date flood risk information and developments are designed and located to minimise the risk of flooding.	LLFA	Environment Agency	Ongoing	Check that the Planning Team are using the most current SFRA and applying current policy related to flood risk (such as the London Plan Policy SI 13 or Local Plan policy).

E4	Ensure developments with an impact on flood risk assets are appropriately assessed with long term maintenance and management appropriately secured.	LLFA	LBH Planning	Ongoing	Review planning applications and provide appropriate commentary and guidance to the Local Planning Authority.
E5	Require developments to demonstrate that sustainable drainage systems have been implemented, where possible, for managing runoff.	LLFA	LBH Planning	Ongoing	Review planning applications and provide appropriate commentary and guidance to the Local Planning Authority.
E6	Ensure all guidance and standing advice on flood risk and planning is kept up to date and accessible.	LLFA	Environment Agency	Ongoing	Review the standing advice in liaison with the Environment Agency and develop internal guidance to facilitate efficiencies within the planning function.
E7	Undertake annual training for Local Planning Authority on development and flood risk.	LLFA	Environment Agency	Annual	Ensure training is given to planning department to ensure officers understand the latest position on planning and flood risk. Work with partners to secure training for flood risk sources not within the remit of the LLFA, i.e. the Environment Agency.
What you can do		**Ensure residents are aware of their own responsibilities and what they can do to reduce flood risk**			
F1	Produce guidance on the responsibilities for riparian owners of watercourses to improve understanding of legal requirements	LLFA	Communities	Annual	Produce guidance and keep up to date with the latest information

F2	Produce information pack for homeowners on what works to properties will increase flood risk and also the measures that can be put in place to provide property level protection and better manage water.	LLFA	Communities	Annual	Produce information pack and keep up to date with the latest information.
F3	Ensure information on how to prepare a personal flood action plan is clearly available.	LLFA	Communities	Annual	Ensure the information contained in the strategy is clearly available online and through other sources if requested. Use annual reviews and communication strategy to disseminate information routinely.
F4	Use the Council's website as a conduit to a wide range of personal flood risk management information	LLFA	Communities	Annual	Ensure the Council's Website is a 'one stop shop' for flood risk information with regular updates as necessary.

APPENDIX B – LEGISLATION

The Local Flood Risk Management Strategy (LFRMS) sits within a wider legislative context at an international, national, regional and local level. The framework of legislation and policy provides organisations operating at different levels (international to local) with the applicable aims and targets for flood risk management.

International	
EU Water Framework Directive (2000)	The EU Water Framework Directive (WFD), published in 2000, makes it a requirement for Member States of the EU to improve and maintain the state of all waters, including surface waters and groundwater. All waters are to achieve a "good" ecological status by 2015 or, at the latest, by 2027. The WFD request that water management plans are developed using a river basin approach. The WFD was adopted into UK law in 2003 and will become part of new UK law following the UK's departure from the European Union.
EU Floods Directive (2007)	The EU Floods Directive dictates how Member States should approach the flood risk management of all types of floods. A three-stage process was to be followed. For the initial cycle, by 2011 Member States had to produce Preliminary Flood Risk Assessments (PFRAs) to identify areas where water courses and coast lines are potentially at risk of flooding. By 2015, mapping of flood risk areas showing the extent, assets and number or inhabitants at risk were created. By 2015, Flood Risk Management Plans (FRMPs) for areas at high risk of flooding were produced, including measures to reduce flood risk. Updated FRMPs were produced for 2021-2027. The EU Flood Directive was implemented in UK law through the Flood Risk Regulations (FRR) (2009) and will be a continuing law following the UK's departure from the EU. The cycle restarted in 2016 and the Council has been involved in updates since.
IPCC Climate Change Report (2021)	The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report aims to assess the physical science basis of climate change. The headlines from the 2021 report include predictions of +1.5^{O}C temperature change in the next two decades and that climate change is presently affecting every populated region of the globe.
National	
Civil Contingencies Act (2004)	The Civil Contingencies Act is a legislative framework for civil protection in the UK that establishes the roles and responsibilities on organisations that play a role in preparing for and responding to

	emergencies. Under the Act, Local Authorities and the Environment Agency are Category 1 responders. Some of the Local Authority's duties include putting in place emergency plans, sharing and co-operating with other local responders to enhance efficiency.
The Pitt Review (2007)	Following the extreme flooding that took place in the summer of 2007 a comprehensive review led by Sir Michael Pitt, known as the Pitt Review, was commissioned by the UK Government. The Pitt Review provided 92 recommendations to improve flood risk management in England, notably that County Councils, large metropolitan boroughs, and Unitary Authorities should take the lead on the management of flood risk. The Pitt Review recommendations were accepted by the Government and initiated the creation of the FWMA.
Flood and Water Management Act (2010)	The FWMA aims to provide better, more sustainable management of flood risk and coastal erosion along with improving the sustainability of water resources. The FWMA defines structures and responsibilities for managing flood risk, notably with the introduction of LLFAs which impart the role of managing local flood risk to County Councils, large metropolitan boroughs, and Unitary Authorities. The Environment Agency is appointed to hold the strategic overview role of all sources of flooding, in addition to managing the flood risk from main rivers and the sea. The FWMA also places a statutory duty on the Environment Agency to develop a NFCERMS for England, which all LFRMSs must align with.
Flood and Coastal Erosion Risk Management Policy (2020)	The FCERM Policy Statement reflects the government's long-term ambition to increase the resilience to flood and coastal erosion risk nationwide.
National Flood and Coastal Erosion Risk Management Strategy (2020) Flood and Coastal Erosion Risk Management Strategy Roadmap to 2026	The NFCERMS sets out a framework for RMAs involved in managing flood risk in order to increase the nation's flood resilience. The publication of the NFCERMS was followed by an initial 1-year action plan showing actions needed. In 2022 a roadmap was published containing longer-term, practical actions to 2026.
National Planning Policy Framework (2021, revised)	The National Planning Policy Framework (NPPF) sets out the planning policies to provide sustainable development and is published by the Department for Levelling Up, Housing and Communities (DLUHC). The NPPF provides guidance on developing Local Plans in line with national planning policies. These policies include avoiding and managing risks from flooding, in line with the role of LPAs to prepare local plans and to decide on planning

	application permissions. The NPPF is supported by Planning Practice Guidance (PPG), including the Flood Risk and Coastal Change PPG, which is revised as necessary.
Environment Act (2021)	The Environment Act is the UK's new framework of environmental protection since departing from the EU. It is intended to provide legal regulations on nature protection, water quality, clean air and other environmental protections. The Environment Act provides the Government with powers to set new binding targets, including for air quality, water, biodiversity, and waste reduction, and also establishes a new environmental watchdog – the Office for Environmental Protection.
Flood risk management plans (part a) 2021-2027	The flood risk management plans (FRMPs) (2021-2027) were published by the Environment Agency and split into two parts. Part A is the national overview and provides the context of FRMPs in strategic flood risk management planning, information on flood risk management at a national level and national measures lead by the Environment Agency and Lead Local Flood Authorities (LLFAs).
Environmental Improvement Plan (2023)	The Environmental Improvement Plan (EIP) is the first revision of the 25 Year Environment Plan (25YEP). The 25YEP was published by the UK government in 2018 and set out 10 goals to help the natural world: (1) clean air, (2) clean and plentiful water, (3) thriving plants and wildlife, (4) reducing the risks of harm from environmental hazards, (5) using resources from nature more sustainably and efficiently, (6) enhancing beauty, heritage and engagement with the natural environment, (7) mitigating and adapting to climate change, (8) minimising waste, (9) managing exposure to chemicals and (10) enhancing biosecurity. The EIP reinforces the 25YEP and sets out the plan to deliver the framework and vision previously set out.
Regional	
Mayor of London's Climate Change Adaptation Strategy (2011)	This Mayor of London's Climate Change Adaption Strategy sets out the framework for improving the quality of life in London and for protecting the natural environment. It provides an action plan for making London more sustainable by using three 'pillars': retrofitting London, greening London and cleaner air for London. The strategy presents the understanding of main climate change effects on London as well as analysing the effects on cross-sector issues including health, economy, and infrastructure. The strategy also provides a 'roadmap to resilience' outlining actions, with lead and partner organisations. Since then, the Greater London Authority (GLA) have also produced a London Environment Strategy (2018).

London Regional Flood Risk Appraisal (2018)	The London Regional Flood Risk Appraisal (RFRA) provides an overview of all sources of flooding in London and addresses both its probability and consequences. The evidence of the London RFRA subsequently informs the London Plan and should inform local-level flood risk assessments and local plans.
London Sustainable Drainage Action Plan (2021)	The London Sustainable Drainage Action Plan addresses a specific need to promote the awareness, and the retrofitting, of sustainable drainage systems right across London. It contains a series of actions to make London's drainage system work in a more natural way with the main focus on the retrofitting of sustainable drainage to existing buildings, land and infrastructure. Sector-specific sustainable drainage (SuDS) guidance has been developed as part of the London Sustainable Drainage Action Plan.
The London Plan (2021)	The London Plan is a general Strategic Development Strategy for London. Producing a Strategic Development Strategy is a requirement of the London Mayor established under GLA legislation. The London Plan establishes an integrated economic, environmental, transport and social framework for the development of London for the next 20-25 years.
Thames River Basin District Flood Risk Management Plan (2021-2027)	The Thames River Basin District Flood Risk Management Plan (FRMP) is Part B of the FRMPs published by the Environment Agency in 2022. It provides information on flood risk for the Thames river basin district and a summary of the aims and actions required to manage the risk.
Thames river basin district River Basin Management Plan (2022)	The aim of river basin management plans is to enhance nature and the natural water assets. The Thames river basin district River Basin Management Plan (RBMP) describes the framework used to protect and improve the quality of waters in the Thames river basin and is used by RMAs for making water management decisions within the Thames river basin. It also includes the local environmental objectives that RMAs use to make planning decisions and an assessment of the current condition of each water body, including the reasons why, if not, it is not in good condition.
Thames Estuary 2100 (2023)	The Thames Estuary 2100 (TE2100) Plan was first published in 2012. It was developed by the Environment Agency and provides strategic direction for managing flood risk in the Thames Estuary to the end of the century. The TE2100 plan is an adaptive strategy and is reviewed on an interim basis every five years and on a full basis every ten years. The new and updated version of the plan was published in 2023. The plan considers different long-term options for managing tidal flood risk depending on changes in

	factors which determine the level of flood risk, including sea level rise.
Local	
Surface Water Management Plan (2014)	A SWMP is a plan produced by LLFAs that presents the surface water flood risk for an area and forms a strategy on how to manage this with local partners. A SWMP considers flooding from sewers, drains, groundwater, and surface runoff from land, small watercourses and ditches that occur as a result of heavy and / or prolonged rainfall. The SWMP also includes a long-term action plan to manage surface water flood risk which will influence land-use planning, emergency planning and future developments. SWMPs also aim to identify SuDS opportunities to manage surface water flood risk which contributes towards the WFD requirements.
Strategic Flood Risk Assessment (2015)	A SFRA is required by the NPPF and provides a strategic overview of all forms of flood risk within a designated area. A SFRA assesses the risk from all sources of flooding, the cumulative effect that development or changing land use could have, and the effect of climate change on the risk of flooding. A SFRA should also identify opportunities to reduce the causes and effects of flooding, including potential areas of land for flood risk management infrastructure. The SFRA provides guidance for the Local Plan, individual planning applications, future flood management, emergency planning and how to adapt to climate change.
Local Plan (Part 1 (2012) and Part 2 (2020))	The Council's Local Plan sets out policy and guidance to manage growth and guide development within the borough. It is split into two parts. The Local Plan Part 1 sets out the overall level and broad locations of growth up to 2026. Part 1 was adopted in 2012. The Local Plan Part 2 comprises Development Management Policies, Site Allocations and Designations and the Policies Map. Part 2 was adopted in 2020 and delivers the detail of the strategic policies set out in the Local Plan Part 1. It addresses needs and opportunities in relation to housing, the economy, community facilities and infrastructure, as well as conserving and enhancing the natural and historic environment, mitigating, and adapting to climate change and achieving well designed places.