Local Flood Risk Management Strategy

2024 to 2030

THE ROYAL BOROUGH OF
KENSINGTON
AND CHELSEA

Foreword

I am delighted to introduce the Local Flood Risk Management Strategy for our Borough, a comprehensive plan that addresses the critical issue of flood risk and promotes resilience in our communities. I understand the importance of this strategy and the far-reaching benefits it will bring to those who are at risk of or have been affected by flooding.

Our strategy focusses on developing flood resilient neighbourhoods and places that are adaptive to the impacts of a changing climate, emphasising the importance of being prepared for the unexpected.

London can no longer rely on the Victorian infrastructure beneath our feet, a wholesale improvement in our rain and flood water handling is now needed. This will require large scale investment by Government, Thames Water, The Mayor of London, and London Boroughs.

The Council simply cannot manage the risk of flooding alone. By working together, we can strengthen our collective ability to withstand the challenges posed by flooding. Thames Water, as a key partner responsible for the sewer infrastructure, has a vital role to play in this endeavour. It is therefore imperative that we encourage increased investment from Thames Water in infrastructure in the Borough over the next six years and into the future.

Efficiency in the delivery of sustainable drainage solutions is another crucial component of this strategy. The inclusion of sustainable practices is a testament to our commitment to not only manage flood risk but to do so in a manner that is environmentally and economically responsible. By making our infrastructure more resilient, we are also contributing to a greener, cleaner, and more sustainable future for our Borough. It is our hope that these actions will inspire residents to take similar steps in their own lives, thereby creating a ripple effect of positive change.

This strategy also aligns perfectly with our broader Council Plan, which seeks to create a greener, safer, and fairer borough. By addressing flood risk and enhancing our infrastructure, we are actively working towards these goals. A greener borough will emerge from the delivery of sustainable drainage solutions and environmentally conscious projects, while a safer community is fostered through flood resilience measures. Furthermore, we will work to ensure that our strategy is fair by targeting interventions for those in greatest need.

In closing, I want to emphasise that this strategy is a testament to our shared vision for a resilient, safe, and prosperous Borough not hindered by the impacts of flooding. I believe that working in partnership with other authorities we can build upon Bazalgette's great works and bring London's infrastructure into the 21st Century.

Cllr Cem Kemahli

Lead Member for Planning, Place and Environment

Image on front cover: Rainwater being managed through sustainable drainage scheme integrated within Holland Park Adventure Playground.

Report Revision 2: Final - January 2024

CONTENTS

1 Executive Summary

Flooding has a devastating impact on the lives of affected residents and businesses, as well as whole communities. The recent flash flooding that affected the Borough in July 2021 reemphasised the importance of managing the risk of flooding in a way that not only reduces the impact of flooding but that also empowers residents to take informed steps to increase their resilience to flooding.

In its Council Plan, Kensington and Chelsea Council has set out our ambition to become the best Council for our communities, working towards a borough that is greener, safer and fairer.

Greener, so that we lower the risk of flooding in the first place, safer so that the consequences of flooding do not endanger our homes and properties, and fairer so that people who have experienced flooding have the opportunity to get their home insured.

The Council's Green Plan, developed in response to the declaration of a Climate Emergency, and the accompanying Climate Emergency Action Plan highlight the importance of adapting to the local impacts of climate change.

The risk of flooding across the Borough is not evenly distributed and therefore an emphasis is placed on the communities in areas at greatest risk. Cumulative impacts of flooding, overheating and the cost-of-living crisis on top of the trauma within the Borough from the Grenfell Tower tragedy adds urgency to increasing the resilience of the community.

This Local Flood Risk Management Strategy (LFRMS) sets out the Borough's vision for managing the risk of all sources of flooding, which will be achieved by the delivery of actions to meet 12 objectives, grouped into the following four themes.

Flood Resilient Communities

Adaptive Places

Working Together

Monitoring and Review

Each theme has three objectives that are supported by an action plan to facilitate delivery. The focus of the action plan is on the practical steps that can be taken to reduce the risk of flooding and the impact on residents and communities.

The Council cannot manage the risk of flooding alone and the action plans therefore not only include actions for the Council, but also for partner organisations, community organisations and residents themselves.

This strategy has been developed by the Planning Policy Team. If you have any suggestions or comments at any stage of the delivery of the Strategy, please contact us at:

planningpolicy@rbkc.gov.uk

2 Introduction

2.1 Our Borough

The Royal Borough of Kensington and Chelsea is a densely populated inner London borough. The urban built environment has a rich heritage with over 70% of its land designated as Conservation Areas. It has important transport, healthcare and cultural infrastructure as well as over 30 parks and green spaces. There is a mosaic of town centres and employment zones dispersed throughout the residential areas of the Borough. There are areas of the Borough that have significantly higher levels of deprivation, most notably in parts of North Kensington.

While the Borough's topography is generally low-lying, there are steep areas in the central and northern parts of the Borough. The elevation ranges from around sea level close to the River Thames, to a high point 40m above sea level near to Holland Park.

The River Thames and Chelsea Creek form the southern boundary of the Borough and are the only exposed watercourses. The Westbourne River and Counters Creek are two historic watercourses that are known as 'lost rivers' that have been culverted over time to become part of the local sewerage system. The remnants of the Counters Creek can be observed close to West Brompton Overground Station, and the Westbourne River historically flowed through the Serpentine in Hyde Park.

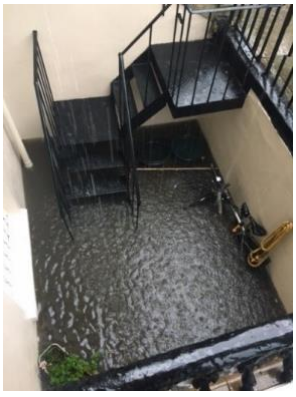
There is a network of trunk sewers and storm relief sewers crossing the Borough as part of the combined sewer network that serve the wider area of west London in adjacent boroughs. The closest reservoirs are the Serpentine in Hyde Park and the Round Pond in Kensington Gardens. The Paddington Arm of the Grand Union Canal runs along the north boundary of the Borough.

2.2 History of Flooding

Kensington and Chelsea has unfortunately seen some significant flooding both in the past and also in recent years. The abundance of properties with historic lower ground floors below street level in the Borough particularly increases the vulnerability of properties to flooding. Rapid urbanisation towards the turn of the 20th Century and ageing infrastructure that remains vastly unchanged for the past 200 years has exacerbated the issues.

27 November 1894	The bank of the Grand Union Canal burst and flood water overflowed into the fields of St Quintin and nearby Kensal Gas Works. Properties were flooded along St Quintin Avenue.
June 1917	Heavy rainfall on 16 June 1917 and 27 June 1917 led to the sewers surcharging and reports suggest that "*the basements of houses and premises were badly flooded by storm water in Kensington*". Reports state that flooding had occurred "*on several occasions during the past 10 years*", with the cause being the surcharging of the trunk sewers and the storm relief sewers.

January 1928	On 7 January 1928, several properties in the south of the Borough were impacted by flooding along the River Thames as a result of a storm surge coinciding with snow melting in the upper Thames catchment. Without the protection of consistent flood defence walls along the River Thames in the Borough, basement properties were inundated. Thirteen people in London are reported to have lost their lives during the flooding.
August 1956	Serious flooding affected over 40 properties in North Kensington, including Holland Road, Russell Road, Lancaster Road.
May/June 1958	"Whit rain brings more flooding in basements. Storm relief sewer overflows again". Basement properties were affected in Holland Road. In June 1958 there was a day of continuous rain in London, with Tube and road flooding. Between 5.30 and 6am 1/2" of rain fell. 1ft of water reportedly entered the Royal College of Music in Prince Consort Road, Kensington, and a transformer suffered rain damage in Chelsea.
August and September 1960	Significant flash flooding affected hundreds of properties in 1960, with heavy rainfall on the 7 August and 1 September 1960. There were 578 flood distress calls to the fire service on the 7 August 1960 in the Kensington area alone, with a further 147 calls on the 1 September 1960. Properties on 51 streets in the Borough were flooded, with the focus on North Kensington and west of Holland Park.  *Image: Pumping flood water in August 1960 (courtesy of RBKC Local Studies)*
24 May 1971	Reports of flooding in east and west London. Chelsea flower show flooded and reports that the embankment entrance to the Royal Hospital was flooded and shut.
10 August 1994	Widespread flooding throughout London. Lots of central London theatres flooded. 1000 calls to the London Fire Brigade. Rain started on the 10 August, then hit again at 6am on the 11 August. Reports suggest that more than 50mm of rain fell in London in less than 12 hours. Both storms developed in the same area, approaching in a line from the south of the capital.
1 August 2004	Over 70 properties were impacted by flooding following heavy rainfall in August 2004, particularly in Holland and Norland wards.
9 September 2005	Properties were affected in Kensington and Chelsea following 25mm of heavy rain. The London Fire Brigade attended 98 calls associated with flooding; 72 of these calls were in four boroughs - Kensington & Chelsea, Hammersmith & Fulham, Wandsworth and Hounslow. Records show that 167 properties were affected by flooding in the Borough, particularly in Holland Ward.

20 July 2007	Significant flooding impacted hundreds of properties in Kensington & Chelsea, particularly basement properties in Norland, Holland, Notting Dale and Colville wards. Records show that over 630 properties were affected by flooding.
23 June 2016	Heavy rainfall affected northwest London on 23 June 2016 and led to the flooding of some properties in the Borough, particularly along Holland Road.
12 July 2021	Heavy rainfall on the afternoon of 12 July 2021 resulted in significant sewer flooding of over 500 properties in the Borough. The flooding had a devastating impact on individuals, communities and businesses for the following weeks and months. The Council undertook a detailed investigation into this flood event, as required by Section 19 of the Flood and Water Management Act 2010 and published a report on the Council's website[1].  *Image: Lightwell flooding in July 2021 (Courtesy of local resident)*

What is 'Significant Flooding'?

The Council has a duty to investigate 'significant flooding' in the Borough in the Flood and Water Management Act (2010). There is no national threshold at which a Flood Investigation will be triggered in the event of property flooding. Due to the limits of resources, it is not possible to investigate every rainfall event that results in flooding of individual properties.

The Council will carry out a Flood Investigation where one or more of the following criteria are met:

- Danger to life, or loss of life, associated with a flood incident.
- Five of more residential properties internally flooded within a single flood incident.
- Five or more commercial properties internally flooded within a single flood incident.
- Critical infrastructure is affected resulting in a loss of or disruption to a service for more than 10 hours.
- Internal flooding of a habitable area of a single property (residential or commercial) on two or more separate occasions within an 18-month period.

Light-touch desktop investigations may be carried out for flood incidents that do not meet these criteria where the source of flooding is unclear or where there are issues with the response of Risk Management Authorities. The decision to investigate will be taken on a case-by-case basis.

Flooding may be reported in different ways to different organisations (e.g. Thames Water, though the Council's Streetline service or directly to the Flood and Water Management Officer). The Council expects that all organisations and services receiving reports of property or infrastructure flooding will share this with the Lead Local Flood Authority. A form is available on the Council's website to report flooding to the Lead Local Flood Authority[2].

[1] July 2021 flooding event | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)
[2] RBKC Flood and Water Management – Report Flooding Form

2.3 Past flood risk management works

The management of water within the Borough has a long history as the fabric of the urban landscape emerged from the farmland and historic parkland. As the risk of flooding is inextricably linked to the management of sewage within the Borough, modifications and changes to the sewer network over time is an important component to understanding the current risk of flooding.

1400s	Early references are made to the *Contessesbregge* in Fulham, including reported calls for its rebuilding as it had fallen into disrepair. This is believed to be an early reference to the bridge over the Counters Creek.
1741-1745	Counter's Bridge is shown on the Rocque Map of London, with a watercourse downstream of the bridge to the River Thames referred to as "Bridge Creek".
1827-28	The lower part of the Counters Creek in Chelsea was widened to form the Kensington Canal.
1845	The West London Line was constructed, filling in some of the Kensington Canal.
1860s	Larger sewers were constructed to intercept flows within the local sewer network and take sewage to larger treatment works in east London. The Middle Level Sewer Number 1 (Basing Street Colville Road, Pembridge Crescent, Notting Hill Gate), Low Level Sewer Number 1 (along Chelsea Embankment) and Low Level Sewer Number 2 (Abingdon Villas, St Alban's Grove, Cromwell Road, Beauchamp Place) cross the Borough. The construction of the Low Level Sewer Number 1 also included flood defence walls along the River Thames.
1904	North Kensington Storm Relief Sewer was constructed to take flows during heavy rainfall from the Middle Level Sewer Number 1 to the Counters Creek Sewer.
1921	Kensington Canal still extends from current Chelsea Creek through to King's Road in 1921.
1924	The North West Storm Relief Sewer (NWSRS) was constructed following flooding in 1917 to provide additional capacity during heavy rainfall events and protect properties. The NWSRS brings flow from Camden and Westminster through Notting Hill and North Kensington before continuing to Hammersmith.
1961	Investigation in to the 1960 flooding by Kensington Borough Council and London County Council identifies 372 basement properties that should have protective measures installed to reduce the risk of sewer flooding, but recommends that 60 basement properties be closed and the drains sealed off to limit the impact of future flooding. It is unclear from the records what measures were taken.
2009	Norland Square Holland Road Foul Water Flood Alleviation Scheme constructed.
2011-2020	Counter's Creek Flood Alleviation Scheme[3] implemented by Thames Water following significant flooding in 2004, 2005 and July 2007. Primarily individual property protection through the construction of Flooding Local Improvement Process (FLIP) devices that are pumps that prevent flood water entering the property through the sewer connection. Other interventions included the delivery of Sustainable

[3] Counters Creek Project | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)

	Drainage Systems (SuDS) including permeable paving in Arundel Gardens.
2019	In January 2019, Thames Water wrote to the Council to state their intention to reconsider continuing with the proposed Counters Creek Storm Relief Sewer[4]. The sewer would have intercepted flows in the existing storm relief sewer network, particularly at Upper Addison Gardens and Holland Villas Road, and added capacity during heavy rainfall. Thames Water state that the works undertaken to protect individual properties reduced the benefits of the proposed tunnel.
2017-2023	Kensington and Chelsea Council has delivered numerous SuDS projects to reduce the flow of rainwater into the combined sewer network, including Holland Park Adventure Playground, Dalgarno Gardens and Barlby Road junction, Bevington Road Open Space, Chelsea Green, St Helens Gardens,

What are Sustainable Drainage Systems or SuDS?

SuDS are an alternative approach from the traditional ways of managing rainwater. They can reduce the total amount and speed of water that gets into the sewers: thereby contributing to reducing the risk of flooding. When designed correctly, SuDS also provide many more benefits - including biodiversity enhancements, water quality improvements and improving wellbeing of residents. A SuDS scheme can include one or more of the following elements.

- **Green roofs** bring planting up to roof level and have been implemented in a number of locations across the Borough.
- **Blue roofs** are designed to store more water within the roof structure.
- **Water butts** can be implemented in almost every property and can reduce water demand as well as providing vital storage.
- **Rainwater Planters** can release the water through evapotranspiration.
- **Rain gardens** are a way of draining impermeable surfaces and are often implemented in the public realm. Water can be stored and connected back into the sewer network.
- **Ponds** can provide additional biodiversity as part of a SuDS scheme. Ponds are designed to have permanent water whereas a basin can be wet intermittently.
- **Permeable or porous surfaces** can be used to mimic the runoff from natural ground as opposed to hard paved surfaces. Water can be allowed to infiltrate where there is capacity, or collected and discharged at a low rate into the sewer network.
- Below ground **attenuation tanks** can be used as a last resort to provide additional storage as part of a wider SuDS scheme.

The ongoing maintenance of SuDS features is an important consideration as it is essential that the planting and infrastructure continues to function into the future.

Left to right: rainwater planter, permeable paving, water butt and pond at Holland Park Ecology Centre

[4] Counters Creek Project | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)

2.4 Climate change and resilience

The Council is committed to delivering wider climate action. The Council declared a climate emergency in 2019 and published a Green Plan[5]. A supplementary Climate Emergency Action Plan[6] was published in 2022 to set out the actions required to deliver on the objectives of the Green Plan. This includes the development and publication of a Climate Adaptation Strategy to bring together all climate impacts, including all sources of flooding as well as overheating and drought. This Strategy forms part of the Council's wider work on delivering climate adaptation. Kensington and Chelsea Council is also currently co-leading the Resilient and Green theme of the London Councils Climate Programme[7].

Links to wider Climate Adaptation

Our climate is already changing, with average temperatures in London over the last 30 years greater than 1°C warmer than the average temperature for the previous 30 years between 1961 and 1999. Although flash flooding will have the greatest local impact, there are other impacts that we will need to adapt to.

The heatwaves in 2022 highlighted the local impacts of overheating to our residents and infrastructure. Proactive measures to manage flash flooding such as green infrastructure can also help to cool our streets and neighbourhoods from excessive heat.

Droughts are also predicted to get more acute in the future because of climate change. The requirement for any SuDS scheme to consider rainwater harvesting for reuse will help to provide local sources of water for irrigation during summer months.

Sea level rise will lead to an increase in the risk of flooding to some properties in the south of the Borough, as well as increasing the potential for outfalls from the sewer network to be blocked by high tides.

The Council also has strong policies in its existing Local Plan[8] as well as reinforced planning policies related to climate change and resilience in its New Local Plan Review[9] that is currently undergoing examination by the Planning Inspectorate. The Green-Blue chapter in the New Local Plan Review includes policies relating to flood risk and sustainable water management, as well as other local climate impacts such as overheating in new developments. The Greening Supplementary Planning Document (SPD)[10] also includes more information about climate adaptation within the context of new development.

The Council also has statutory duties under the Civil Contingencies Act (2004) to plan for and respond to emergencies in a coordinated way with other organisations. This Strategy does not include all emergency response duties, nor replace any ongoing work undertaken by the Council's Resilience Team[11]. Some important cross-cutting measures are included in the Action Plan.

[5] Green Plan | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)
[6] RBKC Climate Emergency Action Plan 2022-2027 In Summary
[7] Resilient and Green | London Councils
[8] Local Plan | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)
[9] New Local Plan Review - Examination | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)
[10] Greening SPD | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)
[11] Resilience and Emergencies | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)

2.5 What is a Local Flood Risk Management Strategy?

Kensington and Chelsea Council is the Lead Local Flood Authority (LLFA) for the Borough, as defined in the Flood and Water Management Act (2010). In this role, there are several statutory duties that the Council must undertake, including developing, maintaining, applying and monitoring a strategy for managing local flood risk in its area.

A Local Flood Risk Management Strategy sets out the flood sources in the Borough, the responsible Risk Management Authorities for each of the flood sources as well as the objectives and measures for managing the risk of flooding.

The specific requirements are set out in Appendix B, including the cross reference to the corresponding section in this Strategy.

2.6 Successes in delivering 2015 Strategy

The 2015 Local Flood Risk Management Strategy has an action plan and five objectives:

1. Coordinate the management of flooding from different sources (working in partnership with other flood risk authorities to ensure we are prepared for a flooding event and we can recover promptly);
2. Communicate flood risk effectively amongst Council departments, other flood risk authorities and the public;
3. Reduce flood risk and its consequences;
4. Gather information and undertake research about flood risk (which could aid a future policy review);
5. Undertake a review of planning policies to ensure flood risk is fully addressed.

In delivering the 2015 Strategy, there have been a number of successes that have improved our understanding of flood risk across the Borough.

- ✓ Substantial planning policy changes in 2019 Local Plan and subsequently for the 2023 New Local Plan Review.
- ✓ Required sustainable drainage with reduced surface water runoff rates for all major planning applications.
- ✓ First Local Planning Authority to adopt a SuDS policy for minor applications.
- ✓ First Local Planning Authority to limit the number of basement levels and to provide specific requirements to protect basements from flooding.
- ✓ Website updated in 2022 (https://www.rbkc.gov.uk/flooding) and reviewed in July 2023.
- ✓ Published Flood Investigation Report into July 2021 Flooding.
- ✓ Provided evidence to the London-wide roundtable on the July 2021 flooding
- ✓ Published asset register on website.
- ✓ Responded to multiple consultations on schemes, strategies, and flood risk plans and evidence documents being developed by others, including Counters Creek Storm Relief Sewer, Thames Tideway Tunnel, Thames Estuary 2100 Plan, Thames Water Drainage and Wastewater Management Plan, London Surface Water Flood Risk Management Plan, City of London Riverside Strategy and neighbouring Boroughs' Strategic Flood Risk Assessments.
- ✓ Carried out feasibility study of SuDS delivery in North Kensington and Holland Park Critical Drainage Areas and secured over £500k external funding to deliver SuDS.

- ✓ Delivered multiple SuDS schemes including Arundel Gardens, Holland Park Adventure Playground, Bevington Road Open Space and Barlby Road/Dalgarno Gardens junction, Chelsea Green, St Helen's Gardens.
- ✓ Held engagement events and consultations with residents on flood risk management specifically, as well as wider climate adaptation and community resilience.

Left to right: rain garden in St Helen's Gardens streetscape improvement scheme, rain garden in Verity Close Green Space improvement scheme, educational downpipe waterwheel on Ecology Centre in Holland Park, green roof on Avondale Park kiosk.

2.7 Why do we need a new Local Flood Risk Management Strategy?

The intention is for these to be reviewed every 6 years to ensure that the actions are current and relevant.

Local Flood Risk Management Strategies are also required to reflect the National Flood and Coastal Erosion Risk Management Strategy, which was updated in 2020.

The Flood and Water Management Act (2010) states that Lead Local Flood Authorities should review the actions in their strategies should they experience significant flooding. The flooding in July 2021 that affected many properties was classed as significant flooding and resulted in a formal flood investigation. The strategy is being reviewed now to ensure that it reflects the learning and recommendations of the Council's Flood Investigation Report, as well as subsequent Council scrutiny activities.

This Strategy is a culmination of the extensive engagement that the Council has undertaken with residents and stakeholder organisations since July 2021.

3 Our Vision for Managing Flood Risk in Kensington and Chelsea

3.1 Strategy Vision

A resilient Borough that is ready to adapt to the impacts of flooding from all sources both now and in the future.

3.2 Strategy Aims

We must:

- Empower and support communities at highest risk of flooding to increase their resilience to flooding.
- Create adaptive places that can respond to the impacts of extreme weather and contribute to the overall reduction in flood risk.
- Work in collaboration across the Council, with other responsible authorities and with community groups and residents to collectively manage the risk of flooding.
- Monitor the evidence associated with flooding in a transparent way and review progress against the actions over the lifetime of the strategy.

Water flowing through Holland Park Adventure Playground SuDS scheme

4 Flood Risk in Kensington and Chelsea

Flood risk is a combination of the probability and potential consequences of flooding from all sources. Flooding could affect properties from rivers and the sea, directly from rainfall on the ground surface, rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals, lakes and other artificial sources such as water mains. The Council's Strategic Flood Risk Assessment (SFRA)[12] sets out the overall risk of flooding from all sources.

4.1 Sources of Flooding

4.1.1 Fluvial and Tidal

There is no direct risk of fluvial or tidal flooding in Kensington and Chelsea as the Borough benefits from the protection of the Thames Barrier and the flood defence walls along the River Thames. There is a residual risk of flooding, however, should the flood defences be overwhelmed or breached during a storm surge. Modelled flood outlines in the event of a flood defence breach have been provided by the Environment Agency. These flood outlines include allowances for climate change up to 2100.

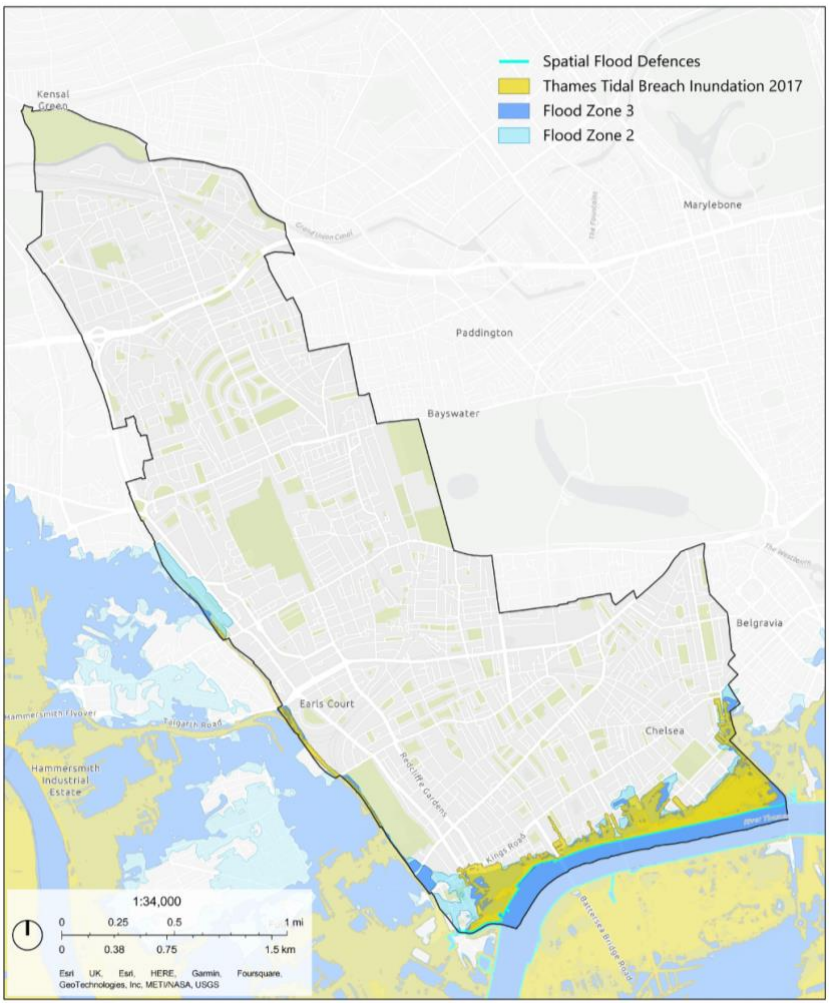


Figure 4-1: Map showing the areas at risk of flooding from the River Thames

[12] Strategic Flood Risk Assessment | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)

4.1.2 Flash Flooding (Surface Water and Sewer)

Due to the interconnected nature of the combined sewer network in the Borough, there is a direct link between surface water and sewer flooding. During heavy rainfall, one of the primary sources of flash flooding is surface water flooding before it can enter the highway drainage or sewer network, as well as the flooding of properties through their connection to the sewer network. The primary historic mechanism for property flooding in the Borough has been sewer flooding through individual connections to the main sewer network. Sewer flooding is the responsibility of Thames Water.

There are areas across the whole Borough that are at risk of flash flooding, however there are parts where significant issues associated with the capacity of the drainage network have been identified. There are four Critical Drainage Areas (CDAs) defined in the Council's Surface Water Management Plan (SWMP): North Kensington, Holland Park, Kensington and Sloane Square.

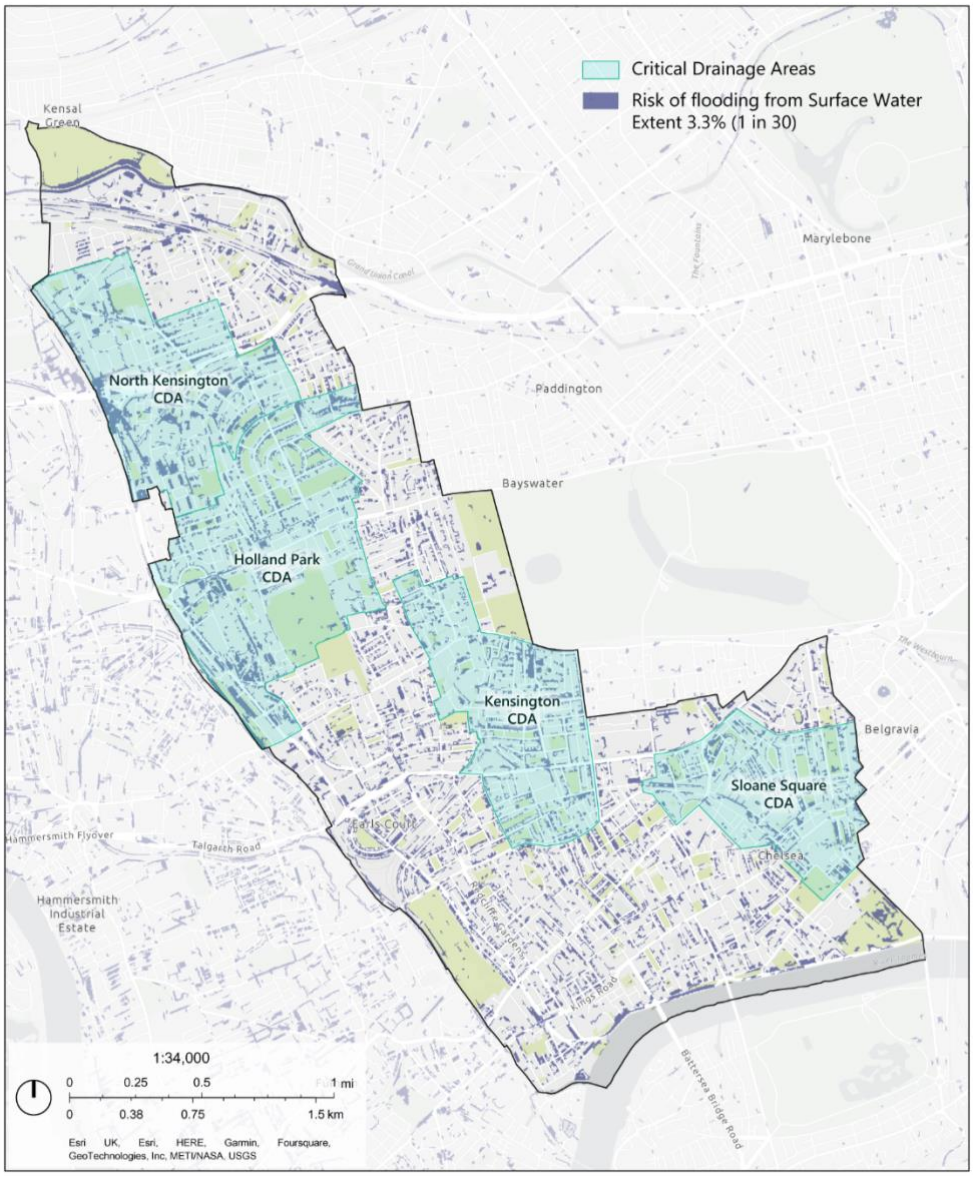


Figure 4-2: Map showing Critical Drainage Areas and areas at risk of flash flooding

4.1.3 Groundwater

Flooding can occur where water held in the soil rises to above the ground surface or to a level that can enter parts of a property such as lower ground floors, basements, vaults or cellars. The bedrock geology of the Borough is formed of London Clay above deep chalk. Superficial deposits of sands and gravels are also present on top of the London Clay in a significant proportion of the Borough, including much of Chelsea, along most of the western boundary and parts of Notting Hill.

Shallow groundwater may be present across much of the Borough, but there is a greater potential for shallow groundwater to be present in the water bearing river terrace deposits in Chelsea, defined as a Secondary A aquifer by the Environment Agency.

Historic land uses may result in contaminants being present in the ground, and potentially in the underlying groundwater.

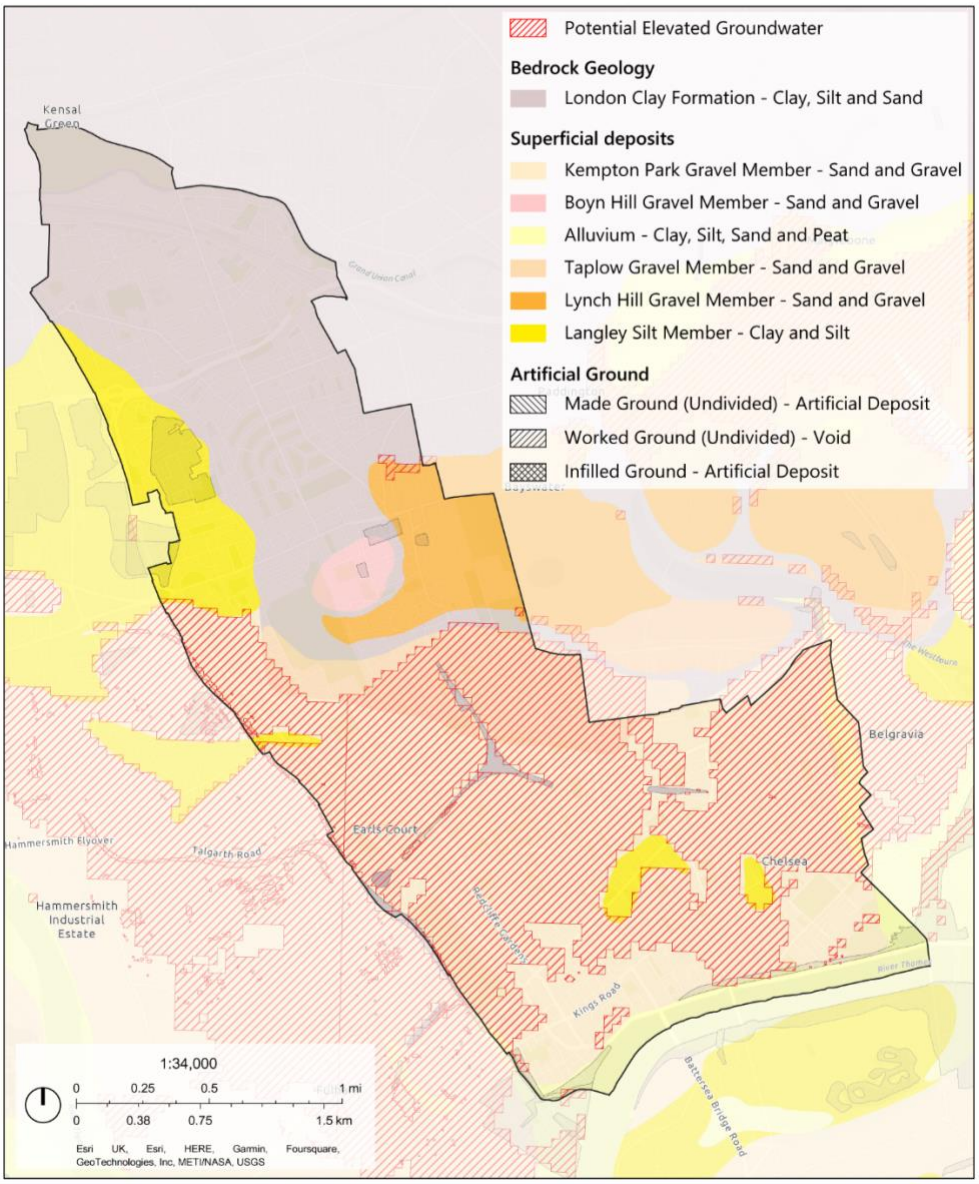


Figure 4-3: Map showing geology of the Borough and areas susceptible to elevated groundwater

4.1.4 Reservoirs

There are areas at risk of flooding in the Borough in the unlikely event of the failure of infrastructure impounding water in nearby reservoirs. The main area outside the extent that is already at risk of flooding in the event of a breach of the tidal flood defences is a large part of Knightsbridge in the west of the Borough. This is associated with a failure of the Serpentine.

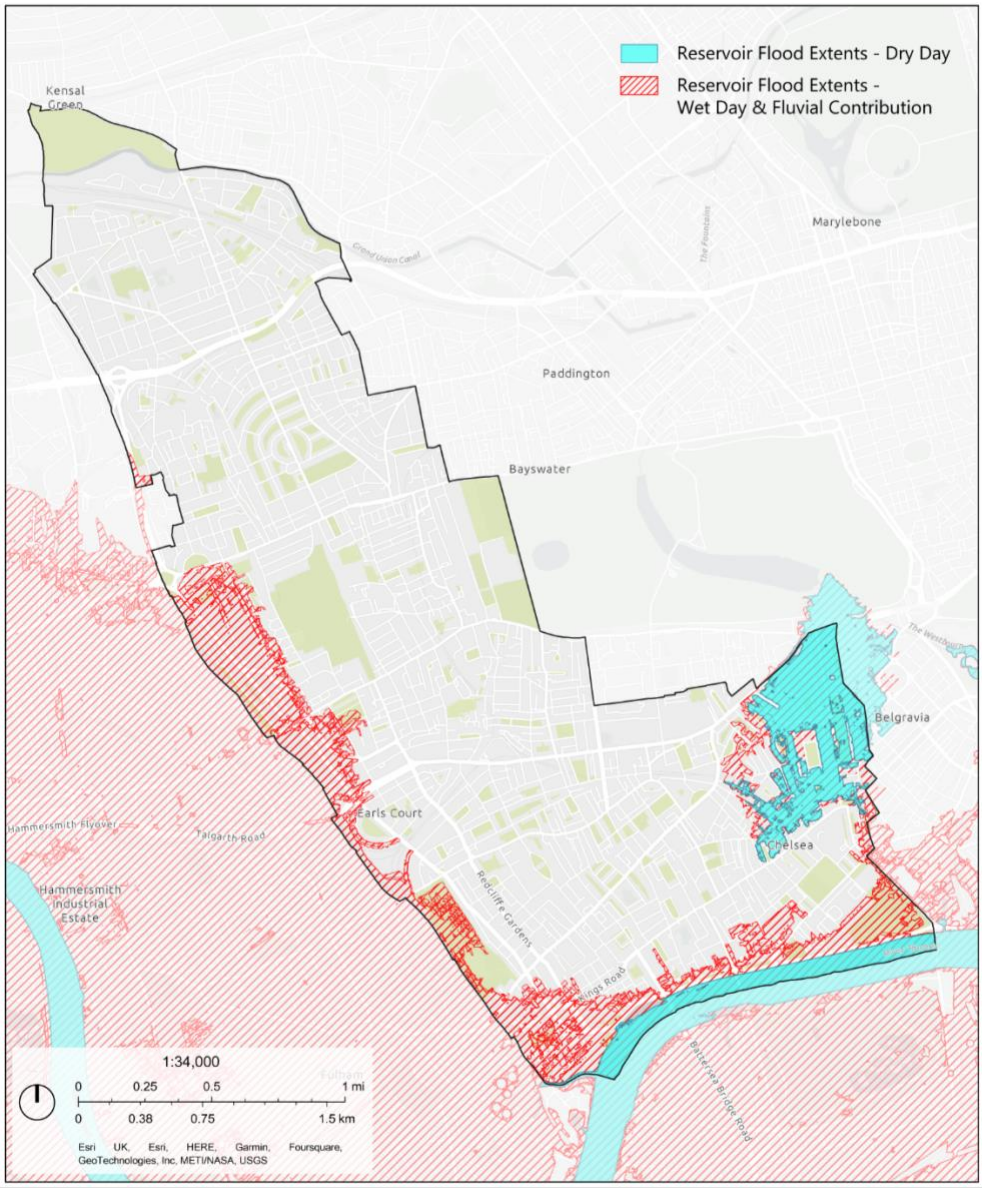


Figure 4-4: Map showing areas with a residual risk of reservoir flooding

4.1.5 Canals

The Paddington Arm of the Grand Union Canal passes through the north of the Borough from west to east. The whole of the canal from Camden to the River Thames has no locks and is therefore a considerable amount of water should there be a breach of the retaining walls or embankments for elevated sections. The majority of the section of Grand Union Canal within the Borough boundary is at-grade with the surrounding ground and therefore does not pose a risk of flooding. To the west of the Borough, close to the Old Oak Common HS2 worksite,

there is a long section that is elevated above the railway tracks and supported by a retaining wall.

4.1.6 Water Mains

Burst water mains have caused considerable damage across London. There is a risk of flooding as a result of burst water mains across much of the Borough but it is incredibly difficult to predict where a water main may burst or where may become flooded. Basement properties that are at risk of flash flooding may also be at risk of flooding due to burst water mains.

Thames Water is undertaking a programme of upgrading cast iron water mains, which are more prone to bursting, with plastic pipes that are more able to withstand ground movements and changes in temperature.

Flooding from water mains is not defined as a local flood risk in the Flood and Water Management Act. As the risk of flooding is difficult to predict and manage, flooding due to burst water mains is not considered further within this Strategy.

4.2 Climate Change Effects

Although the Council is dedicated to playing its part in reducing carbon emissions in line with commitments, the climate in London is already changing, with temperatures in recent years already more than 1 degree warmer than the average for the second half of the 20th century[13]. The projected impacts on local weather patterns are for drier summers and warmer, wetter winters overall. Although the trend is for drier summers, when rain falls in the summer months it is predicted to be in more intense showers with more rain falling over a shorter period.

Wetter winters, as a result of stronger Atlantic storms, could lead to issues with saturated ground and elevated shallow groundwater. Rising sea levels not only result in an increased risk of flooding from the River Thames but also impact on the ability of the combined sewer network to discharge into the River Thames.

4.3 Impacts of Flooding

4.3.1 Residents

The greatest impact of flooding in the Borough is to individual residential properties. As well as modelling predictions to identify where may flood from various sources, it is acknowledged that the vulnerability of residents to flooding and the ability of individuals and communities to respond to flooding is not consistent over the Borough. Areas with higher levels of deprivation, an older population, or where the properties are more susceptible to being impacted by flooding, are likely to be impacted to a greater extent than other areas. This concept is referred to as Social Flood Risk.

The Greater London Authority (GLA) has published Climate Risk Maps[14] to show the inconsistent distribution of flood risk when vulnerability and exposure are taken into account. There are maps available for both flood risk as well as heat risk.

[13] London Climate Pack - August 2022 (metoffice.gov.uk)
[14] Climate Risk Map | London City Hall

The Flood Risk Map shows that the areas at highest risk when exposure and vulnerability are considered include parts of Notting Dale, Golborne and Dalgarno wards. There are pockets of high risk in the Lots Road area, as well as in Abingdon Ward and Holland Ward.

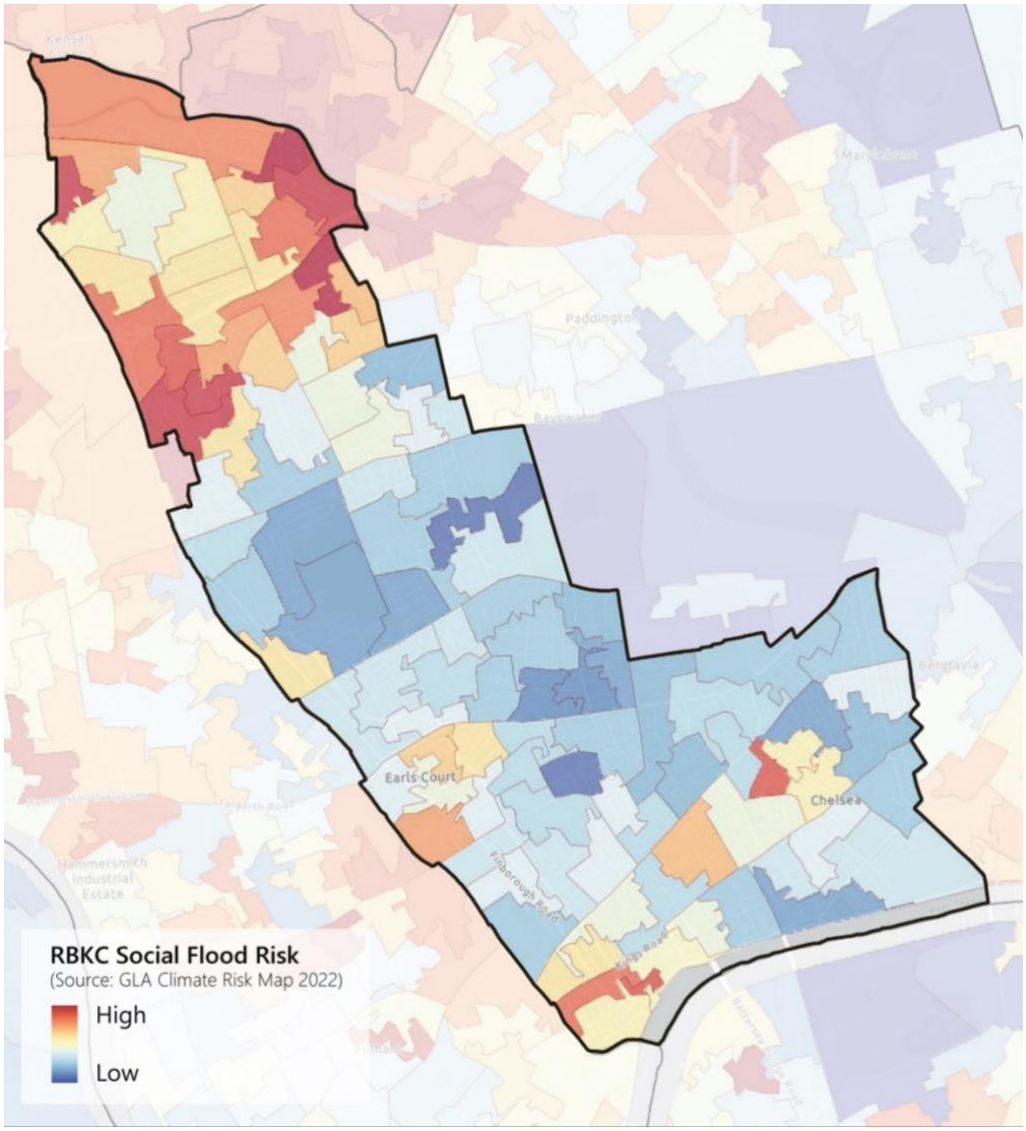


Figure 4-5: Map showing social flood risk (from GLA Climate Risk Maps)

Other factors including physical, sensory and hidden impairments can affect the ability of residents to be able to respond to and recover from flooding when it occurs. For instance, some protective measures to properties to prevent flooding may not be compatible with physical modifications for disabled people. Residents who consider themselves to be vulnerable are recommended to sign up to priority services registers with utility companies[15].

4.3.2 Businesses

It is not just residential properties that have been and are predicted to be affected by flooding in the Borough, commercial properties including shops, restaurants, cafes, offices and nurseries have been impacted by flooding in the past.

[15] Disruption to services | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)

Focus on Flood Insurance

Having adequate buildings and contents insurance is essential to ensure that residents and businesses are able to recover in the event that they are affected by flooding. The government has a flood reinsurance scheme, Flood Re, where eligible policies are ceded to Flood Re by insurers that are signed up to the scheme. Many residential properties in Kensington and Chelsea do not meet the Flood Re eligibility criteria[16] due to the subdivision of buildings, particularly self-contained basement flats.

The Association of British Insurers, British Insurers Brokers' Association and Flood Re have developed a Flood Insurance Directory[17] of specialist insurers and brokers that have undergone a vetting process and can help residents and businesses obtain flood insurance policies.

4.3.3 Community Infrastructure

As well as residential property and business flooding, there is a risk of flooding at key community infrastructure in the Borough. This includes London Underground stations such as Notting Hill Gate and Holland Park stations; NHS hospitals such as the Royal Brompton Hospital and the Chelsea and Westminster Hospital; schools such as Thomas Jones Primary School, Colville Primary School and Avondale Park Primary School. Some libraries, community centres and places of worship are also at risk of flooding across the Borough and have been affected in the past.

4.3.4 Heritage and Biodiversity Impacts

A considerable proportion of the Borough lies in a Conservation Area and is therefore awarded greater protection for the historical character of the streetscape. In addition, there are numerous listed buildings in the Borough, including Grade I listed buildings such as the Natural History Museum and Kensington Palace.

Unfortunately, many of the properties that were affected by the flooding in July 2021 were in a Conservation Area and some listed buildings were also impacted. Alongside other religious buildings, the crypt at Grade I listed St Cuthbert's Church in Earls Court was flooded through its connection to the sewer network in Philbeach Gardens.

Repeated flooding and changes to the intensity of extreme rainfall can also impact on wildlife and habitats in the Borough. Rain falling in more intense showers in the summer onto drier ground will reduce the volume that can be absorbed by our trees and plants.

There are numerous garden squares in the Borough, some of which are in areas that are at risk of flooding. It Is therefore important to consider the impact of a changing climate on the plants and trees in the garden squares, as well as the potential contribution that sustainable water management in garden squares could have on the wider risk of flooding.

4.4 Working with Others

The Council cannot manage the risk of flooding alone and is dependent on the work and support of other organisations, groups and individuals to collectively pursue a reduction in the

[16] Eligibility criteria - Flood Re
[17] Flood Insurance Directory - BIBA

risk of flooding to residents. There are Local, Regional and National collaborators that have both statutory and non-statutory obligations regarding the management of flood risk.

Fluvial/Tidal	Flash Flooding		Groundwater	Highways	Reservoir
	Surface Water	Sewer			
Environment Agency	The Royal Borough of Kensington and Chelsea	Thames Water	The Royal Borough of Kensington and Chelsea	The Royal Borough of Kensington and Chelsea Transport for London	Environment Agency

Figure 4-6: Risk Management Authorities in the Borough

4.4.1 Local

Many aspects of different Council services contribute to managing the risk of flooding in the Borough, as set out in Table 4-1.

Table 4-1: Summary of the role of Council services in flood risk management

Council Department	Contributing Role
Planning and Place	LLFA lead officer (statutory roles) • Approvals of SuDS in major development • Investigating significant flooding • Developing and coordinating the implementation of Local Flood Risk Management Strategy • Developing and maintaining Flood Asset Register • Coordination with other Risk Management Authorities on flood risk and drainage matters Champion for promotion of SuDS within the Council and wider Planning Policy reviews for flood risk and SuDS Flood Risk Assessment reviews Promotion of SuDS and green infrastructure in place making.
Resilience	Develop, review and maintain the Multi-Agency Flood Plan, Increase community resilience Support the development of community flood plans Major incident response Coordinate Borough Resilience Forum.
Transportation and Highways	Risk Management Authority for highways flooding Responsibilities for highways drainage Provision of SuDS in the highway
Housing Management	Development of SuDS schemes in the Council's Housing Estates Flood resilience reviews of housing estates
Property	Maintenance of Council-owned flood risk management assets (e.g. River Thames flood walls) Flood risk issues for Council corporate property
Cleaner, Greener and Cultural Services (including Parks, Waste Management, Climate	Climate Change lead for delivery of Green Plan Routine gully cleaning Waste collection / cleansing issues after flooding events Management of parks and delivery of SuDS schemes in parks

Change and Ecology teams)	Delivery of Biodiversity Action Plan Links to market traders
Customer Services	Capturing reports of flooding following an incident
Finance	Custodian of the funds available for flood risk management

Highlight on the work of the Council's Resilience Team

The Resilience Team helps the Council prepare for, prevent, mitigate and respond to emergencies in the borough. The team does this by:

- Supporting a network of trained officers who are able to respond to emergencies.
- Assessing the risk of different types of emergencies occurring in the Borough.
- Maintaining and exercising the Council's emergency plans for various types of incidents.
- Managing the Council's business continuity programme to make our services resilient against disruption.
- Engaging with residents, communities and partner organisations to share knowledge of common risks and best practices.
- Building relationships with partner organisations to enable multi-agency emergency planning and response.

In an emergency, the team to support residents, taking the lead in the provision of humanitarian assistance and working with emergency services to save lives and reduce harm. The Resilience Team then takes the lead alongside communities to implement a recovery strategy.

In 2023, there were two simulated flood events where the Council's processes in responding to a surface water flooding incident were tested. The continued programme of exercises ensures that the systems are appropriate and officers are prepared when real-life incidents occur.

In addition, the Council cannot manage the risk of flooding locally without the support and commitment of a range of local organisations and groups, as set out in Table 4-2.

Table 4-2: Summary of the role of local organisations and groups in managing the risk of flooding

Local Organisation/Group	Contributing Role
Housing Associations	Supporting housing association residents affected by flooding
Residents Associations	Strong community leadership for local issues
Faith Groups	Dissemination of information and coordination of response within communities.
Volunteer Centre Kensington and Chelsea	Supporting the delivery of training to volunteers within the Borough.
Kensington and Chelsea Citizens Advice Bureau	Providing advice to residents on a range of matters, including flood recovery and insurance.
Garden Square Committees	Coordinating the management of private garden squares across the Borough
Business Improvement District (BID) organisations	Coordinate collective initiatives to promote flood resilience and sustainable water management across the business communities.
Local businesses	Awareness of risk of flooding at property Take steps to increase flood resilience at premises

Local Organisation/Group	Contributing Role
	Developed contingency plan for business continuity
Individual residents	Awareness of personal risk of flooding at property Take steps to increase property resilience Installation of drainage measures where possible to slow the flow of rainwater into the sewer network Report flooding to relevant organisation Secure adequate flood insurance

4.4.2 Regional/National

As well as local groups and organisations, there are key regional and national stakeholders that can influence the local risk of flooding in Kensington and Chelsea.

Table 4-3: Summary of the role of regional and national organisations and groups in managing the risk of flooding

Organisation/Group	Role
Risk Management Authorities	
Environment Agency	Responsible for taking a strategic overview of the management of all sources of flooding and coastal erosion. The Environment Agency also has operational responsibility for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea, as well as being a coastal erosion risk management authority
Thames Water	Is the local water and sewerage provider and is responsible for sewer water flooding in the Borough
Neighbouring boroughs: Brent, Camden, Islington, Westminster, Hammersmith and Fulham and City of London.	LLFA duties
Transport for London (TfL) – Highways	Highways authority for the majority of trunk roads in London. Risk Management Authority duties for highways flooding.
Other Relevant Organisations/Groups	
Department for Environment, Food and Rural Affairs (DEFRA)	Develops national guidance and is in charge of capacity-building amongst LLFA officers
The Greater London Authority (GLA)	Lead on Climate Adaptation across London with a non-statutory role in coordinating surface water flood risk management.
Port of London Authority (PLA)	Works to keep commercial and leisure users safe, protect and enhance the environment, and promote the use of the river for trade and travel.
London Strategic Surface Water Group	Group of representatives from Risk Management Authorities in London to develop a strategy for managing surface water and coordinate surface water management.
The Thames Regional Flood and Coastal Committee (RFCC)	Brings together members appointed by Lead Local Flood Authorities and independent members to agree

Organisation/Group	Role
	funding for flooding alleviation projects across the Thames region
London Councils	Cross-party organisation that represents the interests of the 32 London boroughs and the City of London Corporation and acts a collective voice for the boroughs.
London Drainage Engineers Group (LoDEG)	Forum for LLFA across London to share knowledge and coordinate on a range of matters.
Utility providers, transport providers (TfL and Network Rail), Canal and River trust, technical bodies and associations, emergency services	Asset management to ensure their assets are resilient to flood risk and service can be maintained during a flooding event
London Climate Change Partnership (LCCP)	Coordinates climate change matters across London.

5 The Policy Context

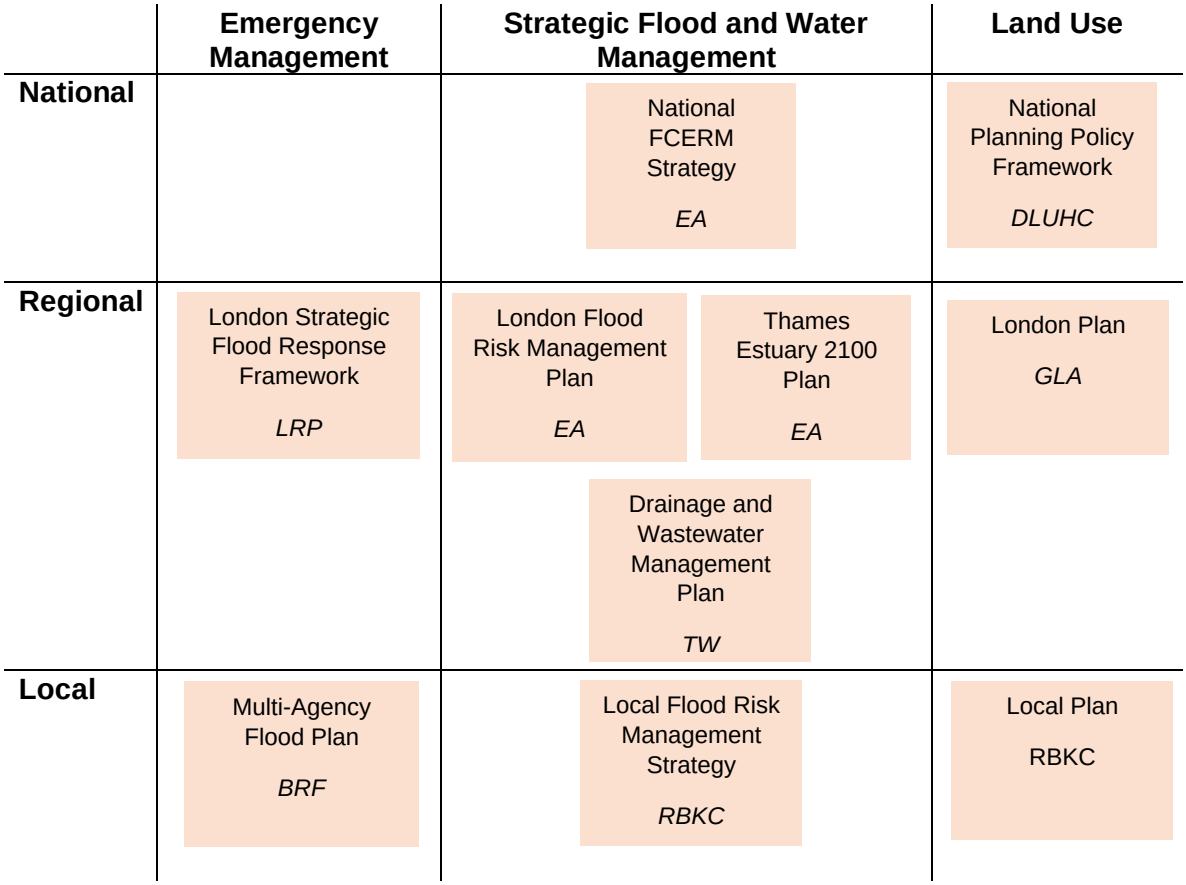


Figure 5-1: Key policy documents

National	Flood and Water Management Act (2010) sets out the legislative framework for the management of flood risk in England, including the definition of the Lead Local Flood Authority and the requirements of a Local Flood Risk Management Strategy. It is noted that Schedule 3 of the Flood and Water Management Act was not enacted in 2010 but a recommendation to enact Schedule 3 has recently been passed from Defra to government. A decision is still awaited.
	Flood Risk Regulations 2009 transposes the requirements of the EU Flood Directive 2007 but will be removed on 31 December 2023 as a result of the EU Law (Revocation and Reform) Bill.
	Civil Contingencies Act 2004 deals with civil protection matters and sets out the roles of responders to emergencies, including flooding.
	National Flood and Coastal Erosion Risk Management Strategy (2020) produced by the Environment Agency sets out the national strategy for the management of flood risk and coastal change across England, including the strategic objectives and measures that Local Flood Risk Management Strategies are expected to reflect. 1. Climate resilient places: Working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the face of climate change

	2. Today's growth and infrastructure resilient in tomorrow's climate: Making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as infrastructure resilience to flooding and coastal change 3. A nation ready to respond and adapt to flooding and coastal change: Ensuring local people understand the risks posed by flooding and coastal change, are responsible for managing the impacts and know how to take action
	National Planning Policy Framework (current version September 2023) produced by the Government Department for Levelling Up, Housing and Communities sets out the national planning policies in England that development is expected to meet.
	Flood Risk and Coastal Change Planning Practice Guidance (current version August 2022) produced by the Government Department for Levelling Up, Housing and Communities sets out the detailed expectations for managing the risk of flooding through development applications.
	Flood Risk Management Plan (2022) includes national measures for Risk Management authorities
Regional	Thames River Basin Flood Risk Management Plan (2022) produced by the Environment Agency in collaboration with Lead Local Flood Authorities in Greater London and includes measures for RBKC, as set out in detail in Appendix B.
	Thames Estuary 2100 (TE2100) Plan (2023) produced by the Environment Agency sets out the plan for managing the risk of tidal flooding in the River Thames estuary to 2100, including local actions for individual councils to take.
	London Strategic Flood Response Framework (2022) sets out the framework for a coordinate response across London for flooding incidents.
	Thames River Basin Management Plan (2022) produced by the Environment Agency sets out the pressures facing the water environment in the river basin district and the actions that will address them.
	Drainage and Wastewater Management Plan (2023) produced by Thames Water Utilities Limited sets out the priorities for investment in drainage and wastewater infrastructure between 2025 and 2050.
	Climate Change Adaptation Plan (2023) produced by Trasport for London sets out the actions to be taken by Transport for London in response to climate change impacts.
	London Plan (2021) produced by the Greater London Authority sets out regional planning policies for Greater London.
	London Regional Flood Risk Appraisal (2018) produced by the Greater London Authority to inform the London Plan reviewed the risk of flooding from all sources across Greater London.
	Thames Strategy: Kew to Chelsea (2002) produced by Atkins through a consortium of organisations to set the strategic direction for the River Thames between Kew and Chelsea. The strategy is currently being revised as part of the Joint Thames Strategies.
Local	Multi-agency Flood Plan produced by the Borough Resilience Forum (BRF) sets out the management of flood risk incidents by all relevant parties.
	Local Plan (2019) produced by the Royal Borough of Kensington and Chelsea sets out local planning policies. New Local Plan Review currently being considered by the Planning Inspectorate.

	Greening Supplementary Planning Document (SPD) produced by the Royal Borough of Kensington and Chelsea
	Council Plan 2023-2027 produced by the Royal Borough of Kensington and Chelsea sets out the steps to becoming the best Council by being Greener, Safer and Fairer. Managing the risk of flooding is one of the priorities in the Council Plan.
	Green Plan produced by the Royal Borough of Kensington and Chelsea sets out the overall plan for addressing climate change in the Borough.
	Climate Emergency Action Plan (2022) sets out the actions the Council will take to manage climate change and includes the action in the Places and Greener Borough section to "*Support the delivery of sustainable drainage systems (SUDS) both in new developments and through retrofitting.*"
	Biodiversity Action Plan (2022) sets out the Councils action plan for managing biodiversity across the Borough and includes an action to "*Review the resilience of estate drainage systems and investigate opportunities to install green infrastructure for drainage in planned works to hard landscapes on estates*."
	Housing Sustainability Strategy (2021) Sets out the strategy for all sustainability matters on Housing land and includes *review the resilience of estate drainage systems to extreme weather events and investigate opportunities to install sustainable urban drainage systems and rain gardens as part of any planned works to hard landscapes on estates* mirrored in the Biodiversity Action Plan.
	Strategic Flood Risk Assessment (2022) produced by the Royal Borough of Kensington and Chelsea assesses the risk of flooding from all sources both now and in the future as a result of the impacts of climate change.
	Sequential Test Assessment (2022) produced by the Royal Borough of Kensington and Chelsea assesses the risk of flooding to sites allocated in the Local Plan to ensure that development is placed in areas at lower risk of flooding.
	Preliminary Flood Risk Assessment (2011) produced by the Royal Borough of Kensington and Chelsea and reviewed in 2017 screens the risk of flooding and historic significant incidents of flooding.

Thames Water Drainage and Wastewater Management Plan 2023

Thames Water's DWMP sets out the investment strategy for the next 25 years. The Royal Borough of Kensington and Chelsea lies within the catchment of the Beckton Sewage Treatment Works and is defined in the Beckton Catchment Strategic Plan as a priority Risk Zone. The DWMP indicates that over £500m of investment is required to meet sewer flooding and storm overflow targets in the local Risk Zone that includes Kensington & Chelsea, Hammersmith & Fulham and parts of Westminster.

Over the period of this Strategy to 2030, Thames Water have identified the following investment needed within the Borough.

"Between 2025 and 2030 we will:

• Increase the confidence in our plans for long-term investment to reduce the risk of internal and external hydraulic sewer flooding and enable catchment-level planning of surface water management solutions

• *Provide sewer network improvements by installing larger sewers to increase network capacity*

• *Implement property level protection measures to prevent individual buildings from hydraulic sewer flooding"*

Business plans are developed every five years by Thames Water and submitted for review by the regulator, Ofwat. The draft business plan for the period between 2025 and 2030, referred to as AMP8, includes the aim to "*prevent sewer flooding and take waste away safely*" with the objective of reducing internal sewer flooding over the period by 17%. Specific projects and initiatives in Kensington and Chelsea are not set out in detail in the draft business plan. Final determinations by Ofwat on water company business plans are expected later in 2024.

6 Delivering the Strategy

6.1 Objectives and Actions

Section 7 includes the objectives that we need to take to manage the risk of flooding from all sources in the Borough. This Strategy is accompanied by an Action Plan that sets out the measures required to deliver the objectives. The actions map directly onto our priority themes, which have been gathered from various strategic Council documents, including the Local Plan, Green Plan, Council Plan and Greening Supplementary Planning Document (SPD). This Local Flood Risk Management Strategy has been designed to be a working document, able to respond to changing priorities, concerns and developments in policy and legislation. The actions within the strategy cover the following themes:

- Flood Resilient Communities
- Adaptive Places
- Working Together
- Monitoring and Review

Some actions will include ongoing work that the Council will continue to deliver over the lifetime of the Strategy. Some actions will be specific and targeted actions in a set location or to deliver a set outcome. The broad timeline for when specific actions will be delivered is indicated in the Action Plan. It is likely that supplementary specific actions will be identified during the first years of the Strategy to be delivered in the latter years. Annual review of the objectives and actions will aid in refreshing these specific actions.

There are several statutory duties as required by the Flood and Water Management Act (2010) that will form part of the ongoing actions in this Strategy. These include investigating significant flooding when it occurs in the Borough, publishing a register of flood assets and responding to sustainable drainage matters on all major planning applications.

Rain gardens at the junction of St Helen's Gardens and St Quintin Avenue

Constrained resources mean that not all actions can be taken forward and delivered in parallel. The Action Plan identifies the priority of each action as either High, Medium, Low or identifies it as a Statutory Duty. The nominated priority shows the actions that will be the focus of work immediately after the adoption of the Strategy. Annual reviews of the actions may change the priority, and there may be the need to accelerate lower priority actions due to external funding opportunities.

6.2 Funding the Strategy

6.2.1 Internal Funding

There are several existing sources of internal funding within the Council that can be used to implement some of the actions within this Strategy. There is efficiency in ensuring that flood risk management is embedded within existing planned works.

- **LLFA grant** - The Council receives a grant from central government to implement the statutory duties of the Lead Local Flood Authority role.
- **RBKC Green Fund**[18] - The Council has committed to invest £10m over 10 years to implement the Council's Green Plan for addressing the climate emergency. This includes climate adaptation.
- **Neighbourhood Community Infrastructure Levy (CIL)**[19] – Funding secured through new development is allocated for local communities to identify schemes to improve their local infrastructure.
- **Borough CIL**[20] - Funding secured through development can be used to invest in infrastructure across the Borough.
- **Section 106 planning contributions**[21] - New development may be required to contribute towards specific projects due to specific obligations based on planning policies.
- **Service area capital budgets**[22] - The Council invests in a programme of major works, including retrofitting and refurbishing council managed properties.
- **Service area revenue budgets** – There are some actions that purely require officer time to implement. Revenue budgets for ongoing maintenance activities are already constrained and care needs to be taken not to create additional burdens.
- **Estates Improvement Budget (EIB)**[23] – This gives residents with Council managed homes a budget to decide on improvement projects for their property or estate.

6.2.2 External Funding

There are several external funding sources that can be accessed to develop and deliver flood risk management project in the Borough. Some are only available to the Council or other Risk Management Authorities, whereas others may be available to community groups and organisations.

[18] Ten million pound Green Fund opens for environmental projects | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)
[19] Neighbourhood Community Infrastructure Levy (NCIL) | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)
[20] Community Infrastructure Levy (CIL) | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)
[21] Section 106 | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)
[22] Major Works | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)
[23] Estate Improvement Budget (EIB) | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)

- **Flood Defence Grant in Aid (FDGiA)** is available for the Council to request from central government through the Thames Regional Flood and Coastal Committee to directly reduce flood risk to properties from flooding.
- **Local Levy** is available for the Council to request through the Thames Regional Flood and Coastal Committee for the development and implementation of flood risk management projects.
- **Thames Water** has in the past made grant funding available to deliver projects that remove or control rainwater before entering the sewer network.
- The **Greater London Authority (GLA)** has in previous years released funding for green infrastructure and climate adaptation projects across London, including the Future Neighbourhoods 2030 project for which the Borough is a beneficiary in Notting Dale ward.
- The **Department for Education (DfE)** has in recent years released funding for schools to deliver SuDS to mitigate the impacts of flash flooding.
- Other organisations may have funding available over the lifetime of the strategy to deliver projects that will help to manage the risk of flooding, such as SuDS delivered in estates managed by other Housing Associations.
- Other funding may also be available to community groups for climate mitigation over the lifetime of the strategy, including the National Lottery.

Future Neighbourhood 2030 – Notting Dale

Notting Dale has been selected as part of the Mayor of London's Future Neighbourhoods 2030 programme and will transform the ward into an exemplar sustainable eco-neighbourhood that is greener, fairer, and more climate resilient for all, by 2030.

Our aim is for Notting Dale to become the UK's largest eco-neighbourhood and ensure sustainability is at the heart of the community's Grenfell and COVID-19 recovery.

Climate resilience and adaptation is one of the key objectives of the projects and a number of actions have already been delivered as part of the programme, with more actions to follow.

6.3 Implementing the Strategy

The lead officer for implementing the strategy is the Principal Flood and Water Management Officer in the Council's Planning Policy team. The delivery of the actions within the strategy will include the cooperation and partnership of other services in the Council.

One important aspect of implementing the strategy will be ensuring that the actions are embedded in the Council's capital programme and within other Council strategies and action plans. More efficient cross-discipline working will help to ensure that actions can be delivered in the most cost-effective way.

The strategy also considers the role of others in delivering the actions, this includes Thames Water, community groups and housing associations.

6.4 Monitoring the Strategy

The implementation of the specific actions will be monitored as follows:

- All actions will be added to a monitoring spreadsheet and a performance dashboard will be developed to track progress.

- An annual report on progress against the Action Plan targets will be produced and presented to the Environment Select Committee. This report will also set out priorities for the forthcoming year.
- The Residents' Flooding Steering group will monitor progress of the plan as part of their role stewarding its implementation. They will also discuss and agree priorities for annual programmes and any changes that are required.
- Quarterly updates on progress will be provided to elected members of the Council.
- Statutory indicators such as Lead Local Flood Authority responses to planning applications will be reported in the Planning Annual Monitoring Report (AMR).

6.5 Communicating the Strategy

This Strategy was developed following significant engagement with communities and residents impacted by flooding in July 2021. Numerous public meetings were held in the aftermath of the flooding relating to the initial response, the subsequent formal flood investigation and the separate review by the Council's Environment Select Committee[24]. In addition, managing flooding has been referenced in recent requests from the Council's Citizens Panel, summarised below.

Previous Citizens Panel Responses

Biggest issues and challenges

Noise and pollution from traffic and construction – Concerns were raised about noise and pollution caused by traffic and construction sites within the borough. Basement conversions were seen as particularly disruptive and a concern due to potential flooding.

Being the best Council, in light of Grenfell

Emergency response planning - The Council needs to ensure it has proper emergency response planning and training in place. The Council should be proactive in preparing/managing for the next possible crisis (e.g. flooding) and be creating a strong partnership emergency response

Supporting residents, businesses and partners

Flooding – Some participants felt that there needed to be improved infrastructure and more work done with Thames Water to develop solutions to prevent flooding. There needs to be a warning system and messaging relating to flooding.

The development and implementation of the Strategy involves the continued engagement of not only other Risk Management Authorities but residents and community organisations. A range of communication routes have been used during the development of the Strategy.

- Direct engagement with the Residents' Flooding Steering Group.
- Public consultation (November-December 2023).
- Social media during public consultation.
- Focus Group sessions.
- Stakeholder responses from Risk Management Authorities.
- Internal workshop across Council services.
- Presentation to Kensington and Chelsea Faith Communities Partnership.

[24] Environment Select Committee | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)

- Presentation to Action Disability Kensington and Chelsea.

This consultation does not override the need for targeted consultation related to individual projects listed in this Strategy where the detailed views of local residents will be required.

You said, we did

The wealth of information collected through the various consultation activities has been used to inform the final Local Flood Risk Management Strategy. The main changes to the strategy following consultation are:

- More information has been included in the Strategy on flood insurance, the impact of flooding on vulnerable residents in the Borough and the work of the Council's Resilience Team in planning for flood incidents.
- The Action Plan has been updated to identify the priority of each action.
- An action has been included in the Action Plan to require Thames Water to provide an annual summary of planned and completed investment in the Borough so that sewer flood risk can be effectively monitored.
- There is a greater emphasis on the potential for Garden Squares to hold water and reduce surface water flood risk to the wider community.
- More information has been included in the Strategy to set out the potential implications of the Government implementing Schedule 3 of the Flood and Water Management Act, which would place additional burdens on the Council.
- Some of the unnecessary jargon in the Strategy has been removed or clarified further in the glossary.

6.6 Challenges in delivering the Strategy

There are several challenges in being able to deliver a strategy that meets the needs of all stakeholders, particularly those at risk of and impacted by flooding.

- **More frequent intense rainfall showers** are coming in the summer months. This means that every year, more properties are at risk of flooding for a given rainfall event.
- The management of flash flood risk is inherently dependent on the capacity of the combined sewer network. There is consequently a **reliance on others to deliver measures** that result in a reduction in flood risk, most notably Thames Water.
- Future significant flooding that requires investigation may hinder the implementation of proactive flood alleviation work as **resources will need to be diverted** to the investigation.
- **Local priorities** may change over time as a result of external pressures and it can become challenging to deliver continued flood mitigation, particularly when there hasn't been recent significant flooding.
- **Funding** the delivery of projects is not straightforward as projects will likely require funding from different sources with different requirements that can make implementation challenging.
- Alternative drainage methods can have more expensive and more onerous **maintenance requirements** with little scope for increased Council revenue budgets, as well as limited to no grant funding available for ongoing maintenance.

Clouds forming over rooftops in Kensington.

7 Objectives and Actions

The objectives in the Strategy are grouped into the following four themes.

Flood Resilient Communities

Adaptive Places

Working Together

Monitoring and Review

7.1 Flood Resilient Communities

Flood Resilient Communities

Objectives

1. To increase community awareness of flood risk and the potential impacts both now and in the future, we will lead on providing clear and relevant flood risk information.
2. To empower communities to be better prepared for the impacts of flooding in their area we will encourage and support individual and community resilience to flooding.
3. To support communities in being more able to recover from future flooding events we will work with other organisations to maintain a coordinated response when flooding occurs.

Communities

more aware
better prepared
more able to recover

Reasons

Flooding from any source has a devastating impact on the individual residents affected by flooding to their properties, as well as on wider communities. There are incalculable mental health impacts on residents when their lives are turned upside down when flood water enters their homes. Many residents won't be aware that they are in an area prone to flooding or where flooding has happened in the past. Many residents don't know the steps that they should take to increase their resilience to flooding. Whilst some residents may have the means and insurance cover to deal with flooding once it has happened, a considerable proportion may not have the ability to respond to the impacts of flooding.

Resilience in this context not only refers to personal adaptation leading to a reduction in the impact of extreme weather on properties and communities, but also the preparedness of individuals and those within at-risk communities to respond to future incidents.

What can I do to increase my property's resilience to flooding?

Flood water could enter your property through:

- Your connection to the sewer such as toilets, sinks, showers or internal drains.
- Openings in your external walls such as doors, windows, air bricks or unfilled holes.
- Through walls at or below the ground surface or up through floors.

Many buildings in the Borough include lower ground floors or basements that are either subdivided into self-contained properties or are integral to the overall property. This can increase the vulnerability of residents to the impacts of flooding.

There are steps that can be taken to reduce the impact of flooding on your property, either by preventing water from entering the property or by ensuring that you can recover quicker following flooding.

More information can be found on the Council's website[25].

Education surrounding the risks of flooding in the Borough is therefore incredibly important to ensure that residents, businesses and communities have the knowledge required to make informed decisions. A focus has been taken on increasing the resilience of communities to take steps to protect themselves from flooding and understand what they should do if they are affected by flooding.

Actions

The **Action Plan** contains several actions that are required to deliver the objectives and create flood resilience within the communities of Kensington and Chelsea. Some selected action highlights are summarised below.

Highlighted Actions

FRC.2 Publish a householder guide on Property Flood Resilience.

FRC.10 Maintain a flash flood warning system and explore options to incrementally expand the distribution of warnings.

FRC.14 Provide initial and recurring training for Community Flood Wardens.

7.2 Adaptive Places

Adaptive Places

Objectives

1. To help alleviate capacity issues in the combined sewer network we will develop schemes that slow the flow of rainwater falling on our roads, roofs and infrastructure by installing Sustainable Drainage System (SuDS) as well as champion the delivery of projects by others that include SuDS.

[25] Flooding advice – plan and prepare before a flood | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)

2. To ensure that new development provides a positive contribution to flood risk management we will maintain and reinforce planning policies on the management of flood risk and surface water runoff through new development.
3. To ensure that the built environment can respond to the impacts of climate change we will embed climate adaptation into construction projects delivered by the Council.

Reasons

The combined sewer network that drains rainwater in the Borough has insufficient capacity to cope with heavy rainfall events and is the primary source of flood risk in the Borough. Existing roofs, roads and paved areas drain into the combined sewer network with very little to no attenuation.

Slowing the flow of rainwater from existing impermeable surfaces by retrofitting SuDS is an essential tool to reducing the risk of flooding. Opportunities for introducing permeable surfaces and other SuDS measures should be explored and delivered wherever possible. No matter how small the area, the delivery of SuDS and permeable surfacing should be considered so that there is a cumulative benefit over time to the risk of flooding. The Council has produced a StoryMap to set out the completed SuDS projects and identify the current and future opportunities[26].

New developments within the Borough, including most extensions, already must conform to strict planning policies regarding the management of surface water runoff. As a result, most new development has a positive impact on the risk of flooding in the Borough. This includes the risk of groundwater flooding, where developments must demonstrate that there will be no impact on the risk of groundwater flooding to neighbouring properties as a result of basement excavations.

Planning Policies

The Council has specific policies in its Local Plan (2019) that places limits on the types of development that can be implemented in areas at risk of flooding or Critical Drainage Areas, as well as setting out the expectations for new development.

The two main policies relating to flood risk management are:

- Policy CE2 Flooding in Chapter 24.
- Policy CL7 Basements in Chapter 22.

The Council's Greening SPD includes additional information about flood risk management and the role of green infrastructure.

The Council's Basements SPD includes additional expectations regarding the information required to demonstrate that the construction of a basement will not impact shallow groundwater, as well as requiring adequate soil depth above a basement and the inclusion of Sustainable Drainage Systems (SuDS).

Planning policies are being revised at the time of writing this strategy, with the New Local Plan Review (NLPR) having been submitted to the Planning Inspectorate in February 2023 and examined in June/July 2023. A decision from the Planning Inspector on the soundness of the submitted Local Plan is still awaited[27].

[26] Slowing the flow of rainwater in Kensington and Chelsea (arcgis.com)
[27] New Local Plan Review - Examination | Royal Borough of Kensington and Chelsea (rbkc.gov.uk)

Furthermore, there are opportunities to ensure that flood water whenever it is present on the ground surface, is directed and stored in areas that limit the impact on properties and infrastructure. For example, water that comes onto the road surface from the sewer network during flash flooding can be kept within the highway through modifications to kerbs and speed tables where appropriate.

While flash flooding is the most common source of flooding, there is the need to ensure that the flood defences along the River Thames are able to adapt and sustain the protection they currently provide. We need to be aware of what level of protection they already provide and also how high they need to be raised to keep up with predicted sea level rise. Integrating the need for flood defence raising with other environmental objectives for the wider River Thames will be particularly important and will require collaboration with other organisations.

Action on climate adaption is likely to expand rapidly in numerous areas as the impacts are experienced by residents and communities. Ensuring the link between flood risk management and other climate impacts is maintained will deliver shared efficiencies across the Council and partner organisations.

Actions

The **Action Plan** contains several actions to meet the objectives with a particular emphasis on securing funding and delivering projects that significantly reduce the risk of flooding.

Highlighted Actions

AP.2 Continue to deliver SuDS retrofit schemes on Council land to reduce the amount of impermeable surface currently directly connected to the sewer network.

AP.14 Ensure that surface water drainage and flood risk are incorporated into any future updates to planning policies.

AP.20 Complete a Riverside Strategy to identify the work required to raise the flood defences along the southern borough boundary to manage the risk of fluvial/tidal flooding to 2100.

Flush thresholds to planting beds at Chelsea Green streetscape improvement scheme.

7.3 Working Together

Working Together

Objectives

1. To collectively manage the risk of flooding to residents we will work closely in partnership with other Risk Management Authorities, organisations and residents.
2. To ensure that Thames Water delivers sewer flood protection to high-risk residents and invests in infrastructure in the Borough, we will scrutinise investment plans and promote coordinated projects with Thames Water.
3. To deliver coordinated action to manage the risk of flooding in the Borough, all our relevant services will collaborate and communicate on projects that can help manage the risk of flooding and promote wider climate adaptation.

Reasons

Partnership working is essential due to the interconnectivity of the drainage network in the Borough and the way in which flooding affects whole communities. From the various owners of land and infrastructure in the Borough, to the breadth of organisations with specific duties that affect the risk of flooding, we need to ensure that we are all moving in the right direction.

There are some statutory duties that compel organisations to work together on flood risk management. Section 13 of the Flood and Water Management Act (2010) states that "*A relevant authority must co-operate with other relevant authorities in the exercise of their flood and coastal erosion risk management functions*". This applies to the Council, neighbouring Councils, Thames Water, Transport for London in its role as Highway Authority and the Environment Agency.

Furthermore, Section 4.4 of this Strategy highlights the incredible work of groups and organisations that the Council works with in the communities of the Borough to reach residents and collaborate on projects. The Council will continue to look to those groups and organisations to work together to deliver benefits to residents.

As previously set out, the dependency of flood risk in the Borough on the actions and investment of Thames Water justifies the need for a greater level of scrutiny and coordination. The Council commits to working with Thames Water to identify opportunities to manage the risk of sewer flooding as part of the investment that Thames Water makes in the Borough.

Influencing Climate Adaptation across London

Following the significant flooding in London in July 2021, a number of reviews were carried out to identify recommendations to improve the management of flash flooding across London. One of the main recommendations was the lack of coordination for the management of flash flooding between organisations with overlapping responsibilities. The London Strategic Surface Water Group [28] was formally convened in December 2022 and includes representatives from London Councils, the Environment Agency, Thames Water, Transport for London and the London Resilience Group. Kensington and Chelsea Council currently has

[28] London's Surface Water Strategy

representation on the Group through the Lead Member for Environment and Planning who is Vice Chair of London Councils Transport and Environment Committee.

Kensington and Chelsea Council is also co-leading on the Green and Resilient priority for London Council's climate change programme[29]. An Action Plan has recently been published to set out the coordinated action required to create a resilient and green London by 2030.

Actions

The **Action Plan** contains several actions within the Working Together theme of the Strategy, particularly focussing on the actions that are required to deliver collaboration and ensure that all partner organisations are working towards the same goal.

Highlighted Actions

WT.4 Develop joint projects with other Risk Management Authorities in the wider Counters Creek drainage catchment to implement SuDS.

WT.12 Review and respond to infrastructure planning submissions from Thames Water to Ofwat to ensure that the required investment in the Borough is secured.

WT.16 Ensure climate adaptation and flood risk management is included in future Council plans and strategies.

7.4 Monitoring and Review

Monitoring and Review

Objectives

1. To increase our understanding of the whole water cycle in the Borough we will invest in monitoring key aspects of water management.
2. To increase the understanding of flood mechanisms from all sources and to keep pace with emerging methods, we will conduct targeted evidence-gathering work.
3. To ensure that the objectives and actions in this Strategy remain current and relevant we will review this Strategy and update when required.

Reasons

There is a wealth of information already available that helps us to understand how water is managed within the Borough, including flood reports, computer simulations and photographic records. There are, however, parts of the hydrological cycle where there is limited information and evidence about how the infrastructure functions. For example, there is anecdotal evidence that constraints in the capacity of the sewer network in the Borough leads to flooding on the highway as the road drainage network cannot discharge. Monitoring the water levels at highway gullies and sewer network over time would provide evidence to demonstrate whether this is the case.

[29] Climate change | London Councils

In addition, there is very limited evidence to show the distribution of shallow groundwater in the upper aquifer where it is present in the Borough, as well as its response to individual rainfall events as well as seasonal variations.

Monitoring progress in installing SuDS to slow the flow of rainwater is also an important metric in demonstrating the success of this Strategy. With a considerable amount of impermeable surface already covering the Borough, quantifying the change in delivering even small-scale interventions will be particularly useful.

Climate change projections are likely to change as time goes on as the computer models are updated and the impacts better understood. As such, it is likely that supplementary modelling and information will be required in the future to increase the understanding of flooding in the Borough. Better information can also lead to more certainty in the distribution of risk and an improved understanding of measures that can reduce that risk. Technological advances may also help facilitate enhanced flood warning and risk assessment capabilities.

Actions

The **Action Plan** contains several actions within the monitoring and review theme, including setting out where additional evidence may be required in the future and ensuring that this Strategy remains relevant and up to date.

Highlighted Actions

MR.1 Install groundwater monitoring equipment to track the response of shallow groundwater to rainfall events in the Borough.

MR.4 Monitor the area of impermeable surface made permeable or draining to SuDS from development schemes.

MR.10 Undertake a groundwater flood risk evidence review to determine the likely risk of groundwater flooding and the influence of current planning policies.

8 Review and Next Steps

The Strategy and accompanying actions will be monitored through an Annual Monitoring Report (AMR). Changes in legislation governing the function of the Lead Local Flood Authority and the management of flood risk in Kensington and Chelsea will be reviewed as part of the AMR. Examples of such changes that may trigger a review include.

- The implementation of Schedule 3 of the Flood and Water Management Act 2010 (for more information, see below).
- Publication of a revised National Flood and Coastal Erosion Strategy by the Environment Agency.
- Publication of other relevant non-statutory strategies such as the London Surface Water Strategy.

Each AMR will identify any changes and set out the justification for amending or not amending the Strategy and accompanying Action Plan.

A further trigger that may require changes to the Strategy is a significant flooding event that triggers the need for a Flood Investigation under Section 19 of the Flood and Water Management Act. Should there be any recommended changes to the focus of flood risk management in the Borough, then this will be identified in the next AMR and actioned accordingly.

The AMR will also document progress against the actions within the Strategy, a summary of any additional actions, a summary of any flood incidents in the Borough as well as a summary of key performance indicators such as the total area now draining through SuDS as a result of interventions that year.

What is Schedule 3 of the Flood and Water Management Act?

The Flood and Water Management Act came into force in 2010 but certain schedules were not enacted, including Schedule 3. In January 2023, Defra published a review of the implementation of Schedule 3 that proposed a way forward[30]. According to the document, *"Schedule 3 provides a framework for the approval and adoption of drainage systems, an approving body (SAB), and national standards on the design, construction, operation, and maintenance of SuDS. Also, it makes the right to connect surface water runoff to public sewers conditional upon the drainage system being approved before any construction work can start."*

The review recommended that the SuDS Approval Body sit with unitary authorities or County Councils where one does not exist. As Kensington and Chelsea is a unitary authority, the proposals put the additional burdens of the SAB on the Council.

A public consultation is still awaited, which will include the draft national standards, thresholds, financial considerations such as fees or added burden grant funding.

[30] The review for implementation of Schedule 3 to The Flood and Water Management Act 2010 (publishing.service.gov.uk)

Appendix A: Glossary

AMP: Asset Management Programme - five-year funding programme undertaken by Thames Water with the next AMP period (AMP7) starting in April 2025

AMR: Annual Monitoring Report

BRF: Borough Resilience Forum

CDA: Critical Drainage Area

CIL: Community Infrastructure Levy

DEFRA: Department for the Environment, Food & Rural Affairs

DLUHC: Department for Levelling Up, Housing and Communities

DWMP: Drainage and Wastewater Management Plan

EA: Environment Agency

EqIA: Equalities Impact Assessment

EIB: Estates Improvement Budget

ESC: Environment Select Committee

FDGiA: Flood Defence Grant-in-Aid – capital funding to delivery flood alleviation

FLAG: Flood Action Group

FLIP: Flooding Local Improvements Project (which consists of a non-return valve and a pump to ensure foul water from a property is pumped into the sewer system even when the sewer is surcharging). FLIPS are different to SuDS.

FRA: Flood Risk Assessment

FRMP: Flood Risk Management Plan

FWMA: Flood and Water Management Act

GLA: Greater London Authority

HA: Highways Authority

HRA: Habitats Regulation Assessment

LFRMS: Local Flood Risk Management Strategy

LGA: Local Government Association

LLFA: Lead Local Flood Authority

LPA: Local Planning Authority

LRP: London Resilience Partnership

NLPR: New Local Plan Review

NPPF: National Planning Policy Framework

NRV: Non-Return Valve

OPDC: Old Oak and Park Royal Development Corporation

PFRA: Preliminary Flood Risk Assessment

RBKC: The Royal Borough of Kensington and Chelsea

SEA: Strategic Environmental Assessment

SFRA: Strategic Flood Risk Assessment

SPD: Supplementary Planning Document

SuDS: Sustainable Drainage Systems. They are water management measures designed to drain surface water run-off in a manner that will slow, reduce and treat it providing a more sustainable approach than piping it directly to the sewer system.

SWMP: Surface Water Management Plan

S106: Section 106 Agreements

TfL: Transport for London

TWUL: Thames Water Utilities Limited

UKCIP: UK Climate Impacts Programme

Appendix B: Alignment with other plans

FWMA 2010 Statutory Requirement	Location in LFRMS
(a) the risk management authorities in the authority's area,	The Risk Management Authorities in the Borough are set out in Section 4.3
(b) the flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area,	The flood risk management functions exercised by the Risk Management Authorities in the Borough are set out in Section 4.3
(c) 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),	The objectives for managing local flood risk are set out in Section 7.
(d) the measures proposed to achieve those objectives,	The Action Plan setting out the measures to deliver the objectives is included in Section 7.
(e) how and when the measures are expected to be implemented,	The Action Plan includes timescales for delivery.
(f) the costs and benefits of those measures, and how they are to be paid for,	The funding mechanisms to deliver the strategy are set out in Section 6.2.
(g) the assessment of local flood risk for the purpose of the strategy,	A summary of the assessment of flood risk for the purpose of the strategy is provided in Section 4.
(h) how and when the strategy is to be reviewed, and	Review and monitoring of the strategy is included in Theme 4 of the Action Plan in Section 7, as well as in Section 8.
(i) how the strategy contributes to the achievement of wider environmental objectives."	Links to other Council and partner organisation documents and strategies have been included throughout to align with wider environmental objectives. A separate Strategic Environment Assessment has been completed and is included in Appendix D.

Action/Measure/Objective	Corresponding LFRMS Theme
National FCERM Strategy	
By 2027, and in line with national planning policy, new development in areas at risk will take into account the risk of flooding and coastal change now and in the future.	Adaptive Places
By 2027, actions by risk management authorities to address current and future risk of flooding and coastal change will have helped achieve the environmental objectives set out in the river basin district's river basin management plan.	Adaptive Places
By 2027, risk management authorities will have worked with communities and landowners to identify and carry out schemes which work with natural processes to reduce the risk of flooding and coastal change.	Adaptive Places

Action/Measure/Objective	Corresponding LFRMS Theme
By 2027, risk management authorities will have developed and/or delivered a programme of flood risk management capital schemes and/or maintenance to reduce risk of flooding and coastal change and its adverse consequences for human health and wellbeing.	Flood Resilient Communities
Flood Risk Management Plan (FRMP) 2– National Measures	
Act as a consultee for major planning applications in their area	Adaptive Places
Implement relevant government guidance on taking climate change into account where necessary for flood risk decision making in their area	Adaptive Places
Designate third party flood risk assets and maintain a register of designated flood risk assets in their area	Monitoring and Review
Investigate local flood events where appropriate and necessary in their area	Flood Resilient Communities
Maintain, keep under review, apply and monitor a local flood risk management strategy in their area	Monitoring and Review
Plan flood risk management projects to achieve wider environmental benefits where appropriate in their area	Adaptive Places
Provide information to inform spatial and infrastructure planning, development and regeneration in their area	Monitoring and Review - Evidence
Regulate the condition of and third party activity on ordinary watercourses and review new works on ordinary watercourses in their area	N/A
Start implementing steps to work towards net zero carbon in their area	Adaptive Places
Support communities to increase their resilience to flooding in their area	Flood Resilience Communities
Support emergency response partners and communities to plan, prepare and exercise for future flood scenarios in their area	Flood Resilience Communities
Take a risk based approach to develop and maintain a register of flood risk assets/features in their area	Monitoring and Review
Work in partnership with other risk management authorities to reduce the risk of flooding from all sources in their area	Working Together
Work with other flood asset owners and riparian landowners to raise awareness of, and where necessary enforce, maintenance responsibilities in their area	Working Together
Work with other risk management authorities to identify a programme of nature based approaches in their area	Adaptive Places
Work with other risk management authorities to provide information where necessary to update flood maps in their area	Evidence and Review
Work with other risk management authorities to support the delivery of flood projects in their area	Working Together
Work with others to support communities through the recovery phase of a significant flood event in their area	Flood Resilient Communities

Action/Measure/Objective	Corresponding LFRMS Theme
FRMP2 - Thames River Basin FRMP	
By 2024, Kensington and Chelsea will review and update the flood risk policy in Royal Borough of Kensington and Chelsea's Local Plan to ensure policies relating to flood risk and climate resilience are implemented, updated and monitored in the Greater London, Thames Flood Risk Area.	Adaptive Places
By 2027, Kensington and Chelsea will continue to monitor and liaise with key partners in and for Counters Creek to ensure surface water is monitored and key flood risk is reduced in the Greater London, Thames Flood Risk Area.	Working Together
By 2024, Kensington and Chelsea will progress an integrated Sustainable urban Drainage System project in Portobello Road to reduce surface water runoff in the Greater London, Thames Flood Risk Area.	Adaptive Places
By 2026, Kensington and Chelsea and other key partners will identify Sustainable urban Drainage System projects in key locations in the Borough to reduce surface water runoff in the Greater London, Thames Flood Risk Area.	Adaptive Places
By 2024, Kensington and Chelsea will review and update the Flood Risk Management Strategy and action plan in the Borough to update and incorporate any new learning, flood risk and steer the councils climate action group in the Greater London, Thames Flood Risk Area.	Monitoring and Review
By 2027, Kensington and Chelsea will continue to explore innovative ways of communication with the public in the Borough to communicate flood risk and resilience in the Greater London, Thames Flood Risk Area.	Flood Resilient Communities
Thames Estuary 2100 Plan	
Councils should ensure that riverside development incorporates future flood defence requirements. Developers can adapt defences so that they can be raised in future or raise them early if it is more efficient. They should also deliver wider benefits in line with riverside strategy visions.	Adaptive Places
By 2030, councils will work with communities to develop visions for future riversides. These should show how riverside development can incorporate flood defence upgrades. This is the riverside strategy approach.	Adaptive Places
By 2030, the Environment Agency, councils and defence owners will produce a plan for raising flood defences.	Adaptive Places
By 2050, defence owners upstream of the Thames Barrier have adapted, raised, realigned or replaced defences in line with the flood risk management policies, whilst maximising benefits and efficiencies.	Adaptive Places
By 2030, councils, the Greater London Authority and the Port of London Authority will have worked with	Adaptive Places

Action/Measure/Objective	Corresponding LFRMS Theme
communities to co-develop visions for adapting riversides to sea level rise. These should incorporate the minimum requirements of the riverside strategy approach, deliver social, environmental and economic benefits, and promote continuation of the Thames Path.	
By 2030, the Joint Thames Strategies (Thames Landscape Strategy, Thames Strategy – Kew to Chelsea, and Thames Strategy East) will have been updated to reflect the riverside strategy approach and extended to cover all reaches of the Thames Estuary.	Working Together
By 2030, local planning authorities will have embedded these visions into the statutory spatial planning framework. This will increase opportunities to realise multiple benefits through upgrading defences as part of riverside development.	Adaptive Places
The Environment Agency, lead local flood authorities and water companies will work together to improve understanding of how outfalls, sewer networks and other flood defences impact flood risk. This will include joint probability analysis of high tides and rainfall.	Working Together
Local planning authorities, lead local flood authorities, water companies, transport and other infrastructure providers will embed Thames Estuary 2100 outcomes within: local plans, local flood risk management strategies, flood risk management plans, drainage and wastewater management plans, surface water management plans, infrastructure investment cycles and other relevant plans	Adaptive Places
The Environment Agency will work with councils and communities to equip affected communities with the knowledge and tools to be resilient to flooding.	Flood Resilient Communities
Regional and local planning authorities will embed Thames Estuary 2100 requirements into local planning policy.	Adaptive Places
Local planning authorities will ensure there is no inappropriate development in tidal flood risk areas.	Adaptive Places
Flood defence owners will create connected habitats as flood defences are upgraded. This should align with local nature recovery strategies.	Adaptive Places
The Environment Agency will collaborate with Thames Estuary 2100 partners to agree responsibilities and timescales for achieving carbon net zero targets. These should be adaptable to policy changes and climate indicators.	Adaptive Places
RBKC ESC Flood Risk Management Working Group	
Recommendation 7 - The Council's Leadership Team to increase the availability of groundwater monitoring information, and request an appropriate evidence review as part of the revised Local Flood Risk Management Strategy, and on the basis of that evidence to: a) consider a review of the effects of	Monitoring and Review

Action/Measure/Objective	Corresponding LFRMS Theme
recently constructed basements on flood risk. b) consider a review of the resilience of historic basements to flooding risks.	
Recommendation 8 - The Council's Leadership Team to work with the relevant Risk Management Authorities, and across its own departments, to increase the scale and number of Sustainable Drainage Systems (SuDS) to mitigate flooding risk and enhance biodiversity particularly across the operational areas of housing and transportation, parks, playgrounds and other green spaces, and to consider increasing the availability of resources to deliver SuDS.	Adaptive Places
Recommendation 9 - The Council's Leadership Team to: a) work with organisations such as Groundwork London to promote Sustainable Drainage Systems (SuDS) to residents by publishing information on SuDS on the Council's website and printing leaflets in order to share information on the effectiveness of SuDS to mitigate flood risk and bring benefits such as biodiversity in the Borough. b) review the effectiveness and durability of existing SuDS in the Borough and where they are installed. c) press central government and Risk Management Authorities to make funding for SuDS more accessible and timely to avoid long delays between the planning of a scheme to its implementation. d) consider how Council funds such as Neighbourhood Community Infrastructure Levy (NCIL) could contribute to the development of new SuDS schemes across the Borough.	Adaptive Places
Recommendation 10 - The Council's Leadership Team to consider: a) how planning policy can be used to encourage the highest possible permeability in private gardens and open spaces. b) how residents can be incentivised to convert or remove existing hard-surfacing and implement any new initiatives as part of the Local Flood Risk Management Strategy. c) what flood mitigation measures can be delivered on public highways, enabling surface water to be guided to drainage more effectively and diverted away from nearby ground-floor and basement properties	Adaptive Places

Action/Measure/Objective	Corresponding LFRMS Theme
d) reviewing existing public highway measures in recently flood affected areas to ensure that they do not contribute to surface water flood risk.	
Recommendation 11 - Thames Water and the Council's Leadership Team to ensure there is greater data sharing to enable residents to report flooding more easily and in one place.	Working Together
Recommendation 13 - a) The Council's Leadership Team to ensure the Council engages with the industry regulator Ofwat to promote its role to residents and to enable them to make their voices heard when dealing with flood risk management issues. b) The Council's Leadership Team to lobby the industry regulator Ofwat to ensure the Borough's flood risk management priorities are taken into account in any regulatory review of water companies' performance and investment targets.	Working Together
Recommendation 14 - The Council's Leadership Team, in partnership with other local authority leaders where appropriate, to raise with Defra and the Association of British Insurers: a) the need for changes in the Flood Re eligibility criteria to increase the coverage of Flood Re to categories such as blocks with more than three flats and commercial premises or whether a local solution can be found within the existing scheme that will allow better coverage in the Borough. b) the specific problems faced by freeholders and leaseholders of flats in the Borough who are struggling to obtain affordable insurance in the aftermath of a flood. c) the need for better communication by insurers about how flood risk is assessed at individual property level and what flood risk mitigation measures would help reduce insurance premiums for residents in high flood risk areas. d) the possibility of establishing a hardship fund to assist residents in need in the event of a flooding emergency.	Flood Resilient Communities
Recommendation 15 - Thames Water and the Council's Leadership Team to: a) co-ordinate an annual communications and engagement campaign on flooding risks, prioritising the most high-risk properties and residents, and	Flood Resilient Communities

Action/Measure/Objective	Corresponding LFRMS Theme
b) ensure there is co-ordinated information for residents on flooding risks ahead of a flood, on the day of a flood and after a flooding event.	
Recommendation 16 - The Council's Leadership Team to ensure a flood risk mitigation page is maintained on the Council's website setting out steps to prepare ahead of a flood, during a flood and post-flooding and providing contact points, guidance and links to other flood-related agencies, and to also produce the information as a printed booklet.	Flood Resilient Communities
Recommendation 17 - The Council's Leadership Team to support communities to build local resilience preparedness and share information on Property Flood Resilience, and create channels of communication to the Risk Management Authorities.	Flood Resilient Communities
Recommendation 18 - The Council's Leadership Team to ensure a page is maintained on the Council's website setting out support in the aftermath of flooding, including signposting to wellbeing and mental health support for flood-affected residents.	Flood Resilient Communities
Recommendation 19 - The Council's Leadership Team to help improve awareness in the business community of flooding risks and mitigation steps businesses should consider installing to improve Property Flood Resilience, and to encourage representation from businesses in local community initiatives on flooding resilience.	Flood Resilient Communities
RBKC Flood Investigation Report – July 2021 Flooding	
Opportunities to retrofit SuDS should be prioritised wherever possible whether that be through specific schemes with Thames Water or government funding or through routine incorporation into urban regeneration and highways projects	Adaptive Places
SuDS opportunity mapping	Adaptive Places
Joint campaign of community engagement and information to residents on how to prepare for a flood, who to contact during a flood, what to do after a flood. Repeat annually. Clear and consistent signposting on websites.	Flood Resilient Communities
Investigate the feasibility of a government funded PFR scheme in RBKC, or in partnership across a wider London area using the Environment Agency Flood Resilience Framework	Flood Resilient Communities
Develop and implement an independent forecasting system for surface water flooding	Flood Resilient Communities

Action/Measure/Objective	Corresponding LFRMS Theme
Thames Water to share sewer forecasts with other RMAs	Working Together
Work together to streamline and triage the flood reporting process	Working Together
Consider increasing frequency of highway gully cleaning in flooding hotspots	Working Together
Regular review of Critical Drainage Areas	Monitoring and Review
Review and update Multi-Agency Flood Plan and implement a process of review annually and after any flood event	Flood Resilient Communities
Implement a training and exercising framework for the Multi-Agency Flood Plan	Flood Resilient Communities
Formation of community Flood Action Groups	Flood Resilient Communities
Production of community Flood Plans	Flood Resilient Communities
Personal or building-level Flood Plans	Flood Resilient Communities
Use of Flood Re insurance scheme	Working Together
Disconnecting roof water drainage / property level SuDS	Adaptive Places

Appendix C: Action Plan

Appendix D: Equalities Impact Assessment

Appendix E: Strategic Environmental Assessment

Appendix F: Habitats Regulation Assessment