LOCAL FLOOD RISK MANAGEMENT STRATEGY

PREPARED FOR THE ROYAL BOROUGH OF KINGSTON UPON THAMES

THE ROYAL BOROUGH OF KINGSTON UPON THAMES

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EXECUTIVE SUMMARY

The Royal Borough of Kingston upon Thames (Kingston) Local Flood Risk Management Strategy (LFRMS) sets out a plan of action for how the Lead Local Flood Authority (LLFA) and Risk Management Authorities (RMAs) will manage local flood risk over the next six years. The current flood risks in Kingston Borough are summarised along with past flooding and predicted future flood risk. This local information and current legal requirements and policies are used to propose a list of strategic objectives. The LFRMS is accompanied by an action plan which establishes tasks to achieve the strategic objectives.

Strategic Objective A:

Improve our knowledge and understanding of the different risks of flooding in Kingston.

Strategic Objective B:

Proactively encourage sustainable solutions for the management of local flood risk which take account of climate change.

Strategic Objective C:

Use planning powers to appropriately mitigate flood risk to or caused by developments across Kingston.

Strategic Objective D:

Educate, encourage, and empower local residents, businesses and landowners to take action on reducing flood risk.

Strategic Objective E:

Nurture collaborative partnerships with key organisations and Risk Management Authorities, including for funding and resources.

Kingston Borough is at risk of flooding from multiple sources including fluvial, surface water, sewer, groundwater and artificial sources. The LLFA is responsible for managing the flood risk from ordinary watercourses, surface water and groundwater. The Environment Agency (EA), Thames Water Utilities Limited (TWUL) and Transport for London (TfL) all manage the remaining flood risks. Due to the split responsibility of flood risk management, collaboration between RMAs is essential.

As the LFRMS and its action plan have been developed to be in use for the next six years, it is crucial that climate change and its associated uncertainties are appropriately taken into account. The LFRMS proposes measures that ensure that Kingston becomes more resilient and sustainable, by adopting an adaptive approach. It is key that Kingston continues to acknowledge and understand the latest findings on climate change predictions in order to best manage flood risk in the local area. The LFRMS proposes to use sustainable flood risk management practices such as Sustainable Drainage Systems (SuDS), Natural Flood Management (NFM) and Property Flood Resilience (PFR), and to look for opportunities to implement such practices.

All the stakeholders involved in this LFRMS were invited to contribute to a public consultation process. RMAs were consulted during March 2022 and public consultation took place between December 2022 and January 2023. This was to ensure that the LFRMS had considered a broad range of interests within the local community. Primary stakeholders, local community groups and individuals were consulted before the publication of the LFRMS. To ensure that the LFRMS stays relevant and that the actions progress as they should, a monitoring and reviewing plan has been produced to keep track of the progress made to meet the strategic objectives.

CONTENTS

FIGURES AND TABLES

Acronyms and Abbreviations

Abbreviation	Definition
DEFRA	Department for Environment, Food and Rural Affairs
DLUHC	Department for Levelling Up, Housing and Communities
DWMP	Drainage and Wastewater Management Plan
EA	Environment Agency
FAS	Flood Alleviation Scheme
FCERM	Flood and Coastal Erosion Risk Management
FRMP	Flood Risk Management Plan
FRR	Flood Risk Regulations
FWMA	Flood and Water Management Act 2010
GiA	Grant in Aid
GLA	Greater London Authority
HRA	Habitat Regulations Assessment
IPCC	Intergovernmental Panel on Climate Change
Kingston	Royal Borough of Kingston upon Thames Council
Kingston Borough	Royal Borough of Kingston upon Thames
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
MHCLG	Ministry for Housing, Communities and Local Government
NFCERMS	National Flood and Coastal Erosion Risk Management Strategy
NFM	Natural Flood Management
PFR	Property Flood Resilience
PFRA	Preliminary Flood Risk Assessment
RMA	Risk Management Authorities
RoFSW	Risk of Flooding from Surface Water
SEA	Strategic Environmental Assessment
SERT	South East Rivers Trust
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems
TfL	Transport for London
TRFCC	Thames Regional Flood and Coastal Committee
TWUL	Thames Water Utilities Limited

1 INTRODUCTION

1.1 What is flooding

Flooding is defined in the Flood and Water Management Act 2010 (FWMA) as any instance where an ordinarily dry area is covered by water. The National Flood and Coastal Erosion Risk Management Strategy (NFCERMS) reports that there are more than 5.2 million properties at risk from flooding and coastal erosion in England. Flooding can be caused by a variety of factors such as heavy rainfall, a river overflowing or groundwater. Instances of sewerage system overflow or burst water mains are not included in the FWMA definition of flooding.

The six main types of flood risk are:

1. Fluvial
2. Surface water
3. Tidal
4. Sewer
5. Groundwater
6. Reservoir or artificial sources

These flood risks do not affect all areas equally, and the specific types of flood risk which affect the Royal Borough of Kingston upon Thames (Kingston Borough) are identified in section *3.2*.

Flood risk is a growing issue because of climate change and sea level rise, and it cannot be prevented. There are however many methods which can help achieve effective flood risk management. This Local Flood Risk Management Strategy (LFRMS) is one of these methods as it plays an important role in managing local flood risk for people, businesses, and the environment within Kingston Borough.

1.2 Background

Kingston Council (Kingston) is a Lead Local Flood Authority (LLFA) as defined in the FWMA. By law, an LLFA has statutory duties relating to the management of surface water, groundwater and ordinary watercourses. Under Section 9 of the FWMA, LLFAs must develop and maintain a LFRMS. This document is a replacement for the current LFRMS which was published in 2015 and updated in 2019. The LFRMS and the action plan developed from the strategy objectives (see section *1.6*) must align with the NFCERMS for England and should align to all current local flood risk planning documents.

This LFRMS is used primarily by the LLFA as the authority responsible for managing local flood risk from surface water, groundwater, and ordinary watercourses within Kingston. However, other departments within Kingston are involved in managing flood risk and should be familiar with this LFRMS. These departments include Highways, Planning, Emergency Planning and Parks. The Environment Agency (EA) also has an interest in this LFRMS as the authority with a strategic role on all types of flooding, as well as being responsible for flood and coastal erosion risk management activities on main rivers and the coast. Finally, the LFRMS is targeted at Kingston residents and businesses as the first impacted by flooding and therefore the first to benefit from any improvement to the local flood risk management. Residents, businesses and local landowners are encouraged to take action and contribute to the management and reduction of local flood risks.

1.3 Purpose

The purpose of a LFRMS is to describe how the LLFA and relevant stakeholders will manage flood risk in the borough. The LFRMS includes local flood risk sources such as ordinary watercourses (small rivers,

brooks and drainage ditches), surface water, and groundwater. The LFRMS revolves around Kingston's flood risk management objectives and the actions needed to achieve them. All the actions are detailed in the action plan (*Appendix 1* – Action Plan) and progress to date on the actions is recorded in this document.

The objective of the LFRMS is to manage flood risk to maximise the benefits and minimise the risks for residents, businesses and environment of Kingston. This strategy is made as a guide to local flood risk management for the Kingston service departments, Risk Management Authorities (RMAs) and the local public (residents and businesses). With this document, all the above should be aware of local flood risks as well as their respective responsibilities in managing them.

This LFRMS must be both resilient and flexible as there is some uncertainty about future flood risk because of climate change. By taking these uncertainties into account, the LFRMS can help lower the impact of flooding and better prepare Kingston for a future climate.

1.4 Strategy structure

The LFRMS document has the following structure:

- ***Introduction*** – Summarises topics covered in the LFRMS and explains the context behind this LFRMS, its background and purpose, and states the new LFRMS strategic objectives.
- ***Roles and responsibilities*** – Focuses on the roles and responsibilities of the LLFA and other RMAs, alongside local and regional partnership groups relevant to local flood risk management. Details of any emergency response plans are also included.
- ***Local flood risk*** – Provides a background to local flood risk for Kingston by exploring historic, present and future flood risk. Local flooding characteristics are described alongside the specific types of flood risk the borough is vulnerable to.
- ***Adaptation and resilience to flooding*** – Aims to state flood risk management links with climate change and summarise differences between resilient and adaptive strategies in response. Guidance and the actions the LLFA need to be undertaking to support resilient local communities are introduced.
- ***Sustainable management*** – Covers sustainable flood risk management by looking at different strategies such as Sustainable Drainage Systems (SuDS), Natural Flood Management (NFM), and Property Flood Resilience (PFR). Outlines future plans for sustainable development.
- ***Community and stakeholder engagement plans*** – Includes lessons learned from engagements since the previous LFRMS and detailed plans for taking community and stakeholder engagement further in this LFRMS update.
- ***Action plan for delivering flood risk management between 2022-2027*** – States the results and benefits of actions taken since the last LFRMS which will inform steps to move forward with the updated action plan.
- ***Conclusion and next steps*** – Summarises the LFRMS document and action plan providing recommendations whilst also establishing the monitoring and reviewing strategy.

1.5 Legislative context

UK flood risk management legislation can be linked back to the EU Floods Directive (2007) which defines a framework for approaching flood risk management. This directive was adopted into UK law in 2009.

Following the severe flooding that took place over the summer of 2007, the Government commissioned Sir Michael Pitt to carry out a comprehensive review of the state of flood risk management in England. The recommendations formulated in the Pitt Review were used to develop the FWMA which defines the roles and responsibilities of the RMAs involved in flood risk management. Large metropolitan boroughs, such as Kingston, were attributed the role of LLFA and the responsibility to coordinate local flood risk management.

Table 1-1: Summary table of relevant FRM legislation and policies

International	
EU Floods Directive (2007)	The EU Floods Directive dictated how Member States should approach the flood risk management of all types of floods. A three stage process was introduced, with the cycle continuing every six years. The original requirements are as follows. By 2011, Member States had to have produced Preliminary Flood Risk Assessments (PFRAs) to identify areas where watercourses and coast lines are potentially at risk of flooding. By 2015, mapping of flood risk areas showing the extent, assets and number or inhabitants at risk must have been carried out. By 2015, Flood Risk Management Plans (FRMPs) for areas at high risk of flooding must have been produced, including measures to reduce flood risk. The EU Floods Directive was implemented in UK law through the Flood Risk Regulations (2009) which is retained in UK law post-Brexit.
IPCC Climate Change Report (2021)	The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report assessed the physical science basis of climate change. Headlines include predictions of +1.5°C temperature change in the next two decades and that climate change is presently affecting every populated region of the globe.
National	
Civil Contingencies Act (2004)	The Civil Contingencies Act is a legislative framework for civil protection in the UK that established the roles and responsibilities on organisations that play a role in preparing for and responding to emergencies. Local authorities are a Category 1 responder with duties that include putting in place emergency plans, sharing and co-operating with other local responders to enhance efficiency.
Pitt Review (2008)	Following the extreme flooding that took place in the summer of 2007, a comprehensive review lead by Sir Michael Pitt known as the Pitt Review was commissioned by the UK Government. The Pitt Review provided 92 recommendations to improve flood risk management in England, notably that County Councils, large metropolitan boroughs, and Unitary Authorities should take lead on the management of flood risk. The Pitt Review recommendations were accepted by the Government and gave way to the FWMA.
Flood Risk Regulations (2009)	The Flood Risk Regulations implemented the EU Floods Directive in England. Flood risk management, as set out by the framework, required the production of PFRAs, identification of flood risk areas, mapping of such areas and FRMPs.
Flood and Water Management Act (2010)	The FWMA aimed to provide better, more sustainable management of flood risk and coastal erosion along with improving the sustainability of water resources. It defined structures and responsibilities for managing flood risk, notably with

	the introduction of LLFAs which impart the role of managing local flood risk to County Councils, large metropolitan boroughs and Unitary Authorities. The EA was appointed to hold the strategic overview role of all sources of flooding, in addition to managing the flood risk from main rivers and the sea. In Kingston they therefore only have responsibility over main rivers. The FWMA also placed a statutory duty on the EA to develop a NFCERMS for England.
The Town and Country Planning (General Permitted Development) (England) Order 2015	The Town and Country Planning Order 2015 refers to the LLFA role as a statutory consultee to planning. Under Schedule 4 it is stated that the LLFA should be consulted on major development with surface water drainage.
Flood and Coastal Erosion Risk Management Policy (2020)	The Flood and Coastal Erosion Risk Management Policy Statement reflected the government's long-term ambition to increase the resilience to flood and coastal erosion risk nationwide.
National Flood and Coastal Erosion Risk Management Strategy (2020)	The NFCERMS set out a framework for RMAs involved in managing flood risk to increase the nation's flood resilience. The publication of the NFCERMS was followed by an action plan aligned with the long-term objectives of the strategy.
National Planning Policy Framework (2021, revised)	The National Planning Policy Framework (NPPF), published by the Ministry of Housing, Communities & Local Government, set out the planning policies to deliver sustainable development. It provided guidance to local authorities on developing Local Plans in line with national planning policies.
Regional	
Thames Catchment Flood Management Plan (2009)	The Thames Catchment Flood Management Plan (CFMP) is a plan which helped RMAs such as the EA to plan and agree the most effective ways to manage flood risk in the future. A CFMP needs to consider all types of inland flooding from rivers, groundwater, surface water and tidal flooding but not directly from the sea (coastal flooding) which is instead covered in Shoreline Management Plans. CFMPs also consider likely impacts of climate change, land use change/ management and the need for future development.
Mayor of London's Climate Change Adaption Strategy (2011)	The Mayor of London's Climate Change Adaption Strategy set out the framework for improving the quality of life in London and for protecting the natural environment. It provided an action plan for making London more sustainable by using three 'pillars': retrofitting London, greening London, and cleaner air for London. The strategy presented the main climate change impacts on London on cross-sector issues including health, economy, and infrastructure. The strategy also provided a 'roadmap to resilience' outlining key actions, with lead and partner organisations.
Thames Estuary 2100 Flood Risk Management Plan (2012)	The Thames Estuary 2100 (TE 2100) Plan was developed by the EA and provides strategic direction for managing flood risk in the Thames Estuary to the end of the century. The TE 2100 plan is an adaptive strategy and is reviewed on an interim basis every 5 years and on a full basis every 10 years. The plan considers different long-term options for managing tidal flood risk depending on changes in factors which determine the level of flood risk, including sea level rise.
London Regional Flood Risk Appraisal (2018)	The London Regional Flood Risk Appraisal (RFRA) provided an overview of all sources of flooding in London and addressed both its probability and consequences. The London RFRA subsequently informed the London Plan and should inform local-level flood risk assessments and local plans.

The London Plan (2021)	The London Plan is an overarching Strategic Development Strategy (SDS) for London. Producing an SDS is a requirement of the London Mayor established under Greater London Authority (GLA) legislation. The London Plan established an integrated economic, environmental, transport and social framework for the development of London for the next 20-25 years. London Boroughs' local plans need to align with the London Plan, and its policies guide decisions on planning applications by Councils and the Mayor.
Local	
Core Strategy (2012) – to be replaced by a new Local Plan	The Core Strategy (referred to as the Local Plan) was developed by the Local Planning Authority (LPA) to set out a vision and a framework for the future development of the area. It set out policy and guidance to plan and manage growth and to guide development across the borough. It addressed needs and opportunities in relation to housing, the economy, community facilities and infrastructure. It also provided the basis for conserving and enhancing the natural and historic environment, mitigating and adapting to climate change and achieving well designed places. The plan proposes both strategic and non-strategic policies.
Biodiversity Action Plan	The local Biodiversity Action Plan outlines the actions that must be taken at a local level to achieve the objectives on the National Biodiversity Action Plan, published in 1994. The local Action Plan sets out the strategy for the conservation of species and habitats within the borough. This is relevant to flood risk as biodiversity benefits need to be considered on all flood risk projects that are delivered within the borough to ensure a holistic approach is taken to managing the environment. Kingston is aiming to get a Biodiversity Action Plan launched in 2022.
Strategic Flood Risk Assessment (2021)	The Strategic Flood Risk Assessment (SFRA) is an NPPF requirement to provide a strategic overview of all forms of flood risk within an area. It should assess the risk from all sources of flooding, the cumulative impact that development or changing land use would have on the risk of flooding and the effect of climate change on these risks. The SFRA should also identify opportunities to reduce the causes and impacts of flooding and any land likely to be needed for flood risk management features and structures. The SFRA provides guidance for the local plan, individual planning applications, future flood management, emergency planning and how to adapt to climate change. The latest SFRA Level 1 has been produced in 2021 and the SFRA Level 2 is currently undergoing completion at the time of publication of this LFRMS.
Surface Water Management Plan (2019)	The Surface Water Management Plan (SWMP) is a document produced by LLFAs to outline the preferred surface water management strategy of an area. Kingston's SWMP included flooding from sewers, drains, groundwater and runoff from land, small watercourses and ditches that could occur as a result of heavy rainfall. Kingston's SWMP was updated in 2019 but has not yet been made public on Kingston's webpage.
Borough's Multi-Agency Flood Plan (2022)	Kingston's Borough Resilience Forum is a multi-agency partnership made up of representatives from Category 1 Responders such as local public services, local authorities, the EA, the National Health Service (NHS) and others. Kingston's Multi Agency Flood Plan is undergoing a review at the time of publication of this LFRMS.

1.6 Strategic objectives of the LFRMS

The Kingston LFRMS must revolve around a set of strategic objectives which shape the actions of the LLFA for the next six-year period It has been decided to change the objectives of the previous LFRMS, first published in 2015, in order for them to align with the latest guidance and the targets set by the EA in the NFCERMS. The three overarching aims in the NFCERMS are '*climate resilient places*', '*today's growth and infrastructure resilient in tomorrow's climate*' and '*a nation ready to respond and adapt to flooding and coastal change*'. The detailed action plan and corresponding reviewing plan have been developed to achieve the strategic objectives below:

Strategic Objective A:

Improve our knowledge and understanding of the different risks of flooding in Kingston.

Strategic Objective B:

Proactively encourage sustainable solutions for the management of local flood risk which take account of climate change.

Strategic Objective C:

Use planning powers to appropriately mitigate flood risk to or caused by developments across Kingston.

Strategic Objective D:

Educate, encourage, and empower local residents, businesses and landowners to take action on reducing flood risk.

Strategic Objective E:

Nurture collaborative partnerships with key organisations and Risk Management Authorities, including for funding and resources.

2 ROLES AND RESPONSIBILITIES

2.1 RMAs and other stakeholders

RMAs are organisations which have a role in managing flood risk. These include government organisations such as the EA, water companies, and local authorities, each with specific responsibility to carry out actions which can be before, during and / or after a flooding event. A good understanding of the respective responsibilities is crucial when dealing with flooding and to ensure effective communication. *Table 2-1* provides an overview of the RMAs involved in Kingston, their responsibilities in relation to different types of flood risk and their drainage management functions.

Table 2-1: RMAs' responsibilities in managing types of flooding occurrences

Responsibility	Risk Management Authority			
	Kingston	Environment Agency	Thames Water	Transport for London
Highway drainage and asset management of major A-roads				✓
Highway drainage and asset management of other public roads	✓			
Management of flood risk and regulation of main rivers, estuaries and the sea		✓		
Management of the flood risk and regulation of ordinary watercourses	✓			
Management of the public sewer network			✓	
Management of the risk of groundwater flooding	✓			
Management of the risk of statutory reservoir flooding		✓		
Management of the risk of surface water flooding	✓			

2.1.1 Kingston

Kingston has multiple roles and responsibilities as it is a LLFA, a Highways Authority, a Category One Responder, and a landowner.

As the **LLFA**, Kingston is the lead RMA for managing flood risk from surface water, ordinary watercourses, and groundwater sources. The LLFA is required to carry out the following under statutory law:

- Development, implementation, and maintenance of a LFRMS, which includes consulting with the public and stakeholders under Section 9 of the FWMA (2010).
- Maintenance of a register of structures or features (asset register) which are likely to have a significant effect on flood risk in the area as per Section 21 of the FWMA (2010). These are defined in the Significant Flood Risk Management Asset Framework created for the London Drainage Engineers Group.
- Undertaking flood risk investigations as per Section 19 of the FWMA (2010) (see *Figure 2–1*).
- Reviewing and consulting on surface water drainage proposals for major planning applications as a statutory consultee under the Town and Country Planning Act 2015.
- Regulating works within the proximity of ordinary watercourses (consenting and enforcement) under the Land Drainage Act 1991 (see *Figure 2–2*).

Flood event investigation thresholds

A formal investigation will occur:

- If internal flooding of one building has been experienced on more than one occasion
- Where internal flooding of five or more properties within the borough has been experienced during a single flood incident
- Where critical infrastructure (e.g. main roads, railways, utilities, necessary buildings) has been affected by flooding more than once within a 12 month period

Investigations may also be carried out at the discretion of Kingston where the source of flooding is ambiguous.

Figure 2–1: Flood event investigation thresholds

Ordinary watercourse consent

As a Lead Local Flood Authority, Kingston is responsible for consenting and enforcing ordinary watercourses. These are defined as: a watercourse that has not been designated as a main river on the EA's statutory main river map, and 'all rivers and streams, all ditches, drains, cuts, culverts, dikes, sluices, sewers (other than public sewers within the meaning of the Water Industry Act 1991) and passages, through which water flows'.

Consent is required if work is to be undertaken that will affect the flow of water through an ordinary watercourse or culvert. If this is not obtained and the work affects an ordinary watercourse, Kingston has the power to take remedial action. This includes the power to complete the works and reclaim the associated costs.

The enforcement procedure:

- Stage 1: The enforcement team is notified of unconsented works. The record of consent applications will be checked to make sure permission has not been granted.
- Stage 2: Informal enforcement action. The case officer will write to the resident to discuss the issue. A site visit will be arranged and a solution arrived at where the actions should be carried out within an agreed timeframe.
- Stage 3: Formal enforcement action. This will be used only when it has not been possible to resolve the issue through informal dialogue. A formal enforcement letter will be sent which will include the actions needed to complete or remediate the works.
- Stage 4: Enforcement works. The council has the option to do the remedial works and recharge the resident if the suggested actions have not been completed after serving a notice.

Figure 2–2: Ordinary watercourse consent

As a **Highways Authority,** Kingston is responsible for maintaining any highway assets on adopted roads which are not on the Strategic Road Network (which is managed by Transport for London (TfL). Highway drainage such as road gullies, drains, kerbs, soakaways, and ditches, have to be maintained, and the rights of the public to use and enjoy the highway must be protected. Kingston's highway drainage responsibilities include gullies and pipework up to the point it connects to the public sewer network, where it becomes the responsibility of TWUL. This does not fall under the remit of the LLFA as they do not manage the reactive maintenance functions.

As a **landowner**, Kingston has a responsibility to safeguard their own land and property against flooding. Landowners are required by common law to not increase the risk of flooding to a neighbouring property through carrying out maintenance tasks on their assets, such as drain cleaning. As a riparian owner, Kingston has the responsibility of carrying out maintenance tasks for the main rivers and ordinary watercourses that fall within Kingston-owned land.

2.1.2 Environment Agency

The EA is the national flood risk authority in the UK. The EA's responsibilities and powers include issuing flood warnings (in collaboration with the Met Office), flood risk mapping, the construction of flood defences and issuing permits for works near or within main rivers. The EA has a strategic overview of all sources of flooding and coastal erosion as defined in the FWMA but has regulatory control over large watercourses, known as 'main rivers', and the sea. The main rivers in Kingston are the following:

- River Thames
- Hogsmill River
- Surbiton Stream
- Beverley Brook
- Bonesgate Stream
- Coombe Brook

As an RMA, the EA is required under the FWMA to produce the NFCERMS for England, to collaborate with other RMAs and exchange information. Other duties of the EA are the production of guidance on FRMPs for LLFAs and of funding tools and flood risk data. The EA is also responsible for allocating national government funding for flood and coastal erosion risk management projects.

2.1.3 Thames Water Utilities Limited

TWUL is the regional water and sewerage company responsible for managing the risk of flooding from surface water, foul and combined sewers in the borough as well as from water supply facilities. Under Section 94 of the Water Industry Act (1991), TWUL have a duty to ensure that the area they serve is 'effectively drained', which involves inspecting, maintaining, and repairing their sewers and other drainage assets. TWUL should advise the LLFA on any works being carried out and collaborate with the other RMAs. This involves inviting the LLFA to take a consultation role on their key documents such as their Drainage and Wastewater Management Plan (DWMP) which is currently being updated.

2.1.4 Transport for London

TfL is a local government body responsible for managing the transport services across London. Its responsibilities under the Highways Act (1980) include managing highway drainage and roadside ditches along the TfL red routes. The TfL red routes in Kingston are the A3, A240 and A243.

2.1.5 Category One responders

The Civil Contingencies Act (2004) details the following authority divisions as Category One responders to emergencies:

- Local authorities (County Council, District Council, London Borough Council)
- Emergency Services (Police, Fire and Rescue, Ambulance Services)
- Others (Environment Agency, Secretary of State)

Category One Responders have a duty to respond to emergencies such as a serious flooding incident. Kingston, as a Category One Responder, has the responsibility to have emergency response plans and measures in place to control or reduce the effect of an emergency. The LLFA are not expected to respond during a flood event except to assist other RMAs and Category 1 responders where possible. A summary of Kingston's Major Emergency Plan is available online.

2.1.6 Landowners

It is the private landowners' responsibility to take measures to safeguard their own land and property from flooding. Landowners are required by common law to not increase the risk of flooding to a neighbouring property, through carrying out maintenance tasks on their assets, such as drain cleaning.

As riparian owners, landowners also have the responsibility of carrying out maintenance tasks for the main rivers and ordinary watercourses that fall within their land. All riparian owners must maintain the watercourse by clearing any obstacles and maintain the banks and bed of the watercourse as well as any flood defences.

2.2 Internal flood risk governance

The LLFA and flood risk management duties and responsibilities are shared across multiple departments within Kingston (see *Figure 2–3*). The Highways and Transport Department is in charge of maintaining all highway assets that are not part of TfL's Strategic Network drainage. These assets include road gullies, drains, ditches, soakaways, and pipes. They need to be regularly inspected and maintained to ensure that highway runoff will not cause any flooding issues due to poorly maintained assets.

The Emergency Planning team in Kingston is responsible for preparing and updating emergency plans for the borough, including the response to flooding. The Development Management team is in charge of processing and evaluating planning applications against national and local policies on surface water runoff management and SuDS implementation with the statutory consultee feedback from the LLFA on major applications.

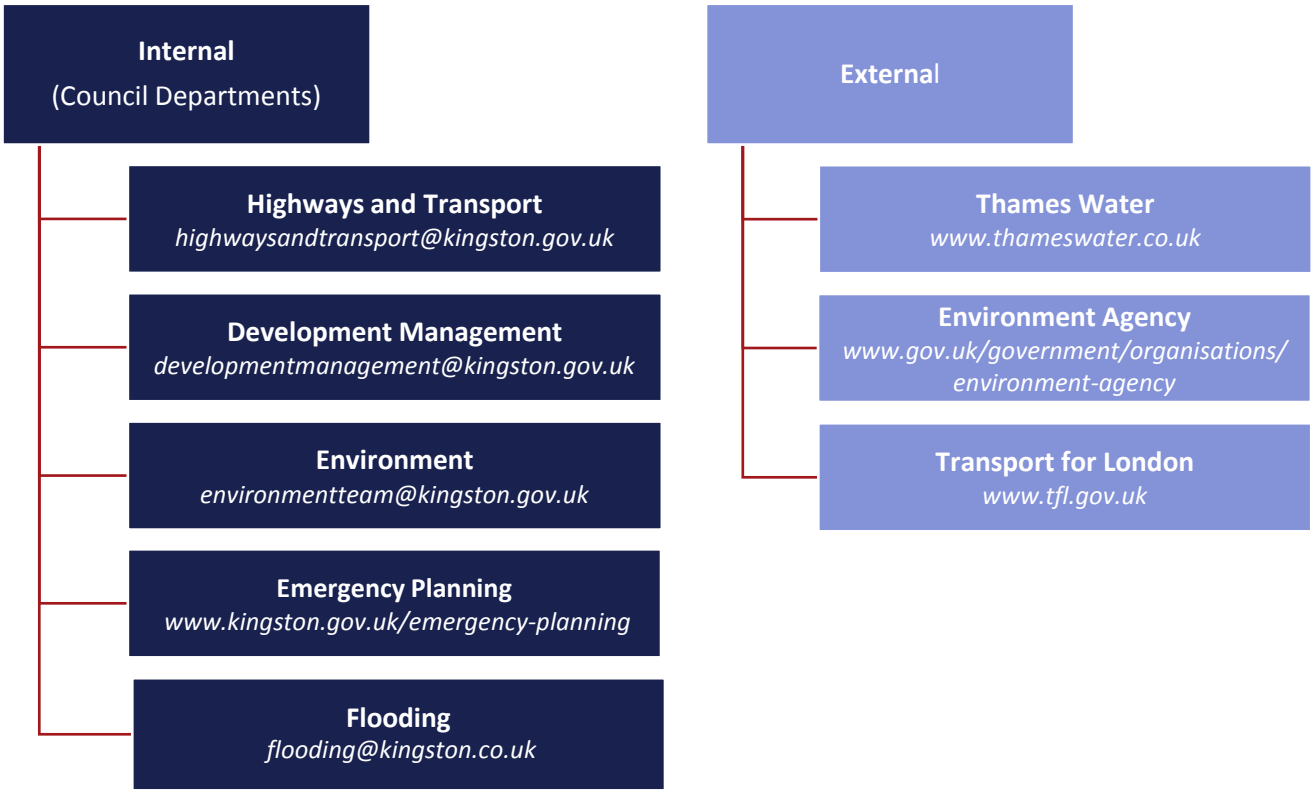


Figure 2–3: Contact information for internal and external RMAs involved with flood risk management

2.3 Local and regional partnership groups

Kingston is involved in a number of groups that relate to flood risk management in line with their duty to lead on local flood risk management. These groups cover both local and regional scales and meet at different intervals.

2.3.1 Internal flood group

Kingston's internal flood group is made up of officers from the Highways and Transport, Emergency Planning, Parks and Green Spaces, Environment, Development Management and Waste Management teams. Overall, the flood risk management work sits under the Environment and Place Directorate, in the Environment Service. The internal flood group also liaises with the Communications Team and ICT Services. The aim of the group is to deliver the LFRMS and its action plan, with quarterly meetings.

2.3.2 Local stakeholders

Kingston works with the Kingston Voluntary Action Group to raise awareness of flooding issues in the borough and the South East Rivers Trust (SERT). This work is done in collaboration with the EA.

2.3.3 South West London Strategic Flood Group

The South West London Strategic Flood Group (SWLSFG) is comprised of the six LLFAs covering south west London, namely, London Borough of Croydon, Kingston, London Borough of Merton, London Borough of Richmond upon Thames, London Borough of Sutton and London Borough of Wandsworth, plus Surrey County Council, the EA, TWUL and SERT. The group was started in 2011 and meets quarterly to share understanding and best practices in flood risk management across the area and with the aim to provide coordinated and collaborative management of flooding.

2.3.4 Thames Regional Flood and Coastal Committee

The Thames Regional Flood and Coastal Committee (TRFCC) is a committee established by the EA in accordance with the FWMA. It is composed of elected members appointed by the LLFA and independent members appointed by the EA. TRFCCs have three main purposes:

- To ensure there are coherent plans for identifying, communicating, and managing flood and coastal erosion risks across catchments and shorelines.
- To encourage efficient, targeted and risk-based investment in flood and coastal erosion risk management that represents value for money and benefits local communities.
- To provide a link between the EA, LLFAs, other RMAs, and other relevant bodies to build understanding of flood and coastal erosion risks in its area.

The SWLSFG is represented on the TRFCC by a Councillor from one of the six boroughs.

3 LOCAL FLOOD RISK

3.1 Local flooding characteristics

Kingston is a borough located in south-west London and includes the main town of Kingston upon Thames as well as Surbiton, Chessington, Malden Rushett, New Malden, Tolworth and part of Worcester Park. The north-western edge of the borough is bordered by the River Thames. Kingston is situated next to the London Borough of Richmond upon Thames (north-west), the London Borough of Wandsworth (north-east), the London Borough of Merton (east), the London Borough of Sutton (south-east) and Surrey (south).

The terrain elevation across Kingston Borough is correlated with the proximity to a river or a watercourse. The lowest points in the borough are along the River Thames, notably in the area of the town of Kingston upon Thames.

Flood risk in Kingston Borough should account for the variety of major infrastructure and amenity areas in the borough, which include:

- Town centre (Kingston upon Thames) and district centres (New Malden, Surbiton and Tolworth)
- Major roads (ten A roads)
- Rail assets (nine Southern Railway stations)
- Open spaces

3.2 Types of flood risk

3.2.1 Fluvial flood risk

Fluvial flooding occurs when the amount of water in a river channel is greater than the channel capacity as a result of intense rainfall. When this occurs, the watercourse can overflow or burst its banks, leading to flooding. The term fluvial flooding is used to refer to flooding from main rivers as defined and designated by the EA. Main rivers are typically larger rivers or streams and their locations can be seen from the statutory main river map.

In Kingston Borough, there are multiple main rivers, namely:

- **River Thames**: Borders the north-west borough boundary.
- **Hogsmill River**: Flows through the centre of the borough and discharges into the River Thames at the north-western borough boundary.
- **Surbiton Stream**: Tributary of the Hogsmill River and converges towards the centre on the borough. The Surbiton Stream is partly an ordinary watercourse in the southern half of Kingston Borough.
- **Beverley Brook**: Flows along the eastern borough boundary and discharges into the River Thames further north of Kingston Borough.
- **Bonesgate Stream**: Tributary of the Hogsmill River. The Bonesgate is partly an ordinary watercourse in the southern half of Kingston Borough.

- **Coombe Brook**: Tributary of the Beverley Brook and converges at the eastern borough boundary.

Figure A2-1 shows the main rivers in Kingston Borough.

Fluvial flood risk zones have been mapped by the EA and are categorised based on the flooding predictions. Flood Zone 2 are areas which are predicted to have between a 1 in 100 and 1 in 1000 year annual probability of fluvial flooding and Flood Zone 3 are areas which are predicted to have above a 1 in 1000 year annual probability of fluvial flooding. The Flood Zones in Kingston Borough are mapped in *Figure A2-2*. The Flood Zones also take into account the risk of flooding from the sea as it also falls under fluvial flooding.

Key areas at risk of fluvial flooding in Kingston Borough are Kingston upon Thames town centre and parts of Berrylands, Hook and New Malden.

3.2.2 Ordinary watercourses flood risk

Ordinary watercourses refer to all rivers, streams, ditches, drains, cuts, dykes, sluices, sewers (other than public sewers) and passages that convey water, above ground or culverted, that are not designated as main rivers by the EA (see Land Drainage Act (1991)). Similar to the flooding mechanism of fluvial flooding, flooding from ordinary watercourses occurs when the amount of water in the feature exceeds its capacity. It is however considered that flooding from ordinary watercourses is a combination of fluvial, surface and sewer flooding as these small channels often receive most of their flow from inside the urban area.

Ordinary watercourses in Kingston Borough include the Pachesham Stream, the Lambeth Stream, the Keswick Avenue Drain, and the southern parts of the Bonesgate Stream and Surbiton Stream (see *Figure A2-1*). The total length of these channels is approximately 12.5km. The risk of flooding from ordinary watercourses is captured in *Figure A2-3* which shows the risk of flooding from surface water.

3.2.3 Surface water flood risk

Surface water flooding occurs when significant rainfall generates runoff which flows over the surface of the ground and ponds in low lying areas, before the runoff enters a watercourse or sewer. In urban areas, impermeable surfaces have replaced the natural, permeable surfaces, preventing water from soaking into the ground or slowly flowing overland to watercourses and low-lying areas. Manmade structures, such as railway lines and roads, often form barriers to the natural flow of surface water, or create artificial low-lying areas prone to flooding. Blocked or overwhelmed surface water sewers can also increase the risk of flooding from surface water.

Areas most at risk of flooding from surface water are Kingston upon Thames town centre, New Malden and Hook as shown in *Figure A2-3*. More information about the risk of flooding from surface water in Kingston Borough can be found in the SWMP.

The number of properties at risk of flooding from surface water in Kingston Borough has been included in the latest SWMP update produced in 2018. For a property to be considered at risk, it must have a minimum flood depth of 150mm (which corresponds to the doorstep height) and a minimum wetted perimeter of 20%. *Table 3-1*: Number of properties at risk of flooding from surface water within Kingston provides a summary of the properties at risk of flooding from surface water in Kingston Borough. Refer to the Kingston SWMP (once published) for detailed information.

Table 3-1: Number of properties at risk of flooding from surface water within Kingston Borough

Predicted Flood Risk Extent	Residential properties at risk	Other properties at risk	Unclassified properties at risk
Within 30-year surface water extent	623	110	84
Within 100-year surface water extent	2,328	347	228
Within 1000-year surface water extent	9,512	1,049	843

3.2.4 Groundwater flood risk

Groundwater flooding occurs as a result of water rising up from an underlying aquifer or sub-surface permeable strata. Groundwater flooding tends to occur after prolonged periods of sustained high rainfall and can be sporadic in both location and time. This type of flooding often lasts longer than fluvial or surface water flooding as it takes longer for the groundwater table to subside, which greatly depends on the underlying geology and on the topography. High groundwater levels can exacerbate fluvial and surface water flooding by reducing rainfall infiltration capacity, and sewer flooding through sewer and groundwater interactions.

Permeable superficial deposits can enable groundwater levels to rise which can lead to flooding of subsurface structures or at ground level. In Kingston Borough, the particular areas susceptible to groundwater flooding are:

- Claygate Member outcrop in Coombe, Chessington and Malden Rushett.
- Superficial aquifers along the River Thames, Hogsmill River and Beverley Brook, and in other various locations.
- Impermeable (silt and clay) areas down slope of superficial aquifers in various locations.
- Artificial ground in various locations.

Figure A2-4 shows the risk of groundwater flooding in Kingston Borough.

3.2.5 Sewer flood risk

Sewer flooding typically occurs during heavy rainfall if:

- The rainfall entering the sewer network exceeds the capacity of the drainage system,
- The sewer system becomes blocked by debris of sediment,
- The sewer system surcharges due to high water levels in receiving watercourses, and/or
- The sewer system surcharges due to the ingress of groundwater, either through the fabric of the sewer or due to inundation above the surface.

This type of flooding is generally localised and short term. Flooding from public sewers, whether surface water, foul or combined sewers, is the responsibility of TWUL as the sewerage undertaker.

Most sewer systems in Kingston Borough are separated between surface water and foul sewers. The capacity of the sewer network is limited and it is typically only expected to accommodate for

up to the 1 in 15 year storm event on average. As was witnessed during the July 2021 floods, storms with higher return periods exceed the network capacity and lead to flooding.

The areas predicted at greater risk of flooding from sewers in the borough are Kingston upon Thames town centre, Berrylands and the Beverley Brook catchment. *Figure A2-5* shows the number of sewer flooding incidents recorded in the different 4 or 5-digit postcode areas of Kingston Borough.

3.2.6 Flood risk from other sources

Other sources of flooding include any water bodies that have not been covered under the other categories and typically include canals, lakes and reservoirs.

There are no canals or lakes in Kingston Borough and there are no formal reservoirs within the borough. However, the borough is at risk of flooding from reservoirs located outside of the borough boundaries. As shown in *Figure A2-6*, the north-west of the borough is most at risk of flooding from reservoirs.

3.3 Flooding history within Kingston Borough

Kingston keeps a register of flooding incidents as part of their LLFA role. This includes all sources of flooding, due to the potential for interaction between sources, and is not restricted to significant flood events. *Figure A2-7* shows the historic flooding incidents across Kingston. Both the previous LFRMS and the SWMP describe historic flooding incidents across Kingston. The SWMP has shown that out of the 552 flooding incidents reported up to 2018, 91% of cases were external flooding. In terms of the location of flooding incidents it was also found that 38% were in areas at in a 1 in 1000-year storm, 19% were in Flood Zone 2 and 6% were in Flood Zone 3, as summarised in *Table 3-2*.

Table 3-2: Split of historic records and 2017 public consultation responses by predicted flood risk areas

	Surface Water Flood Risk			Fluvial Flood Risk	
	1 in 30-year	1 in 100-year	1 in 1000 year	Zone 2	Zone 3
Number of records	15	36	80	30	3
Number of responses	44	70	125	72	30
% against total of recorded incidents	11%	19%	38%	19%	6%

It is possible to report a blocked drain via Kingston's webpage by filling in an online questionnaire. An equivalent questionnaire to report a flood incident is programmed to be created.

3.4 Future flood risk considerations

It is important to consider multiple factors when preparing for future flood risk. Climate change is expected to change the weather patterns in the UK (see section *4.1*) and an allowance needs to be included in flooding predictions to account for the increase in the severity of future storms. Issues such as land use change, groundwater abstraction, and ecological concerns also need to be considered when developing flood risk plans. This LFRMS and Appendices take the above factors into account and aim to mitigate their implications of flood risk in Kingston. The recommendations defined in the action plan in *Appendix 1* – Action Plan indicate what the LLFA work should involve in order to meet the objectives set out in section *1.6*. The ecological and environmental implications of the LFRMS and action plan have been assessed in the Strategic Environmental Assessment (SEA) (*Appendix 3* – SEA Screening Report) and the Habitats Regulations Assessment (HRA) (*Appendix 4* – HRA Screening Report).

The implications of climate change on flooding are calculated by the EA by including climate change allowances in flooding predictions. These allowances, which are statistical estimates of the consequences of climate change, impact the predicted peak rainfall intensities, sea level rise, peak river flows, offshore wind speeds and extreme wave heights. It is expected that the fluvial flood zones will increase in line with sea level rise. Seasonal surface water flooding is also predicted to increase, and the type of flooding experienced in July 2021 is expected to become more common. It is important for Kingston to recognise that areas within the borough will become more vulnerable as a consequence of climate change, hence the necessity of an action plan that takes this into account.

4 ADAPTATION AND RESILIENCE TO FLOODING

4.1 What is climate change?

Climate change is the long-term variation in the planet's temperature and weather patterns. Although it can be a natural process, we are currently experiencing a rapid change in global climate which is due in part to greenhouse gases emitted by human activities.

The IPCC, in their Sixth Assessment Report published in 2021, highlight the fact that climate change is already affecting weather extremes across the globe. For example, more intense heatwaves and heavy rainfall have become more frequent since the 1950s. In the UK, the Met Office produces UK Climate Change Projections (UKCP18) which are predictions on how the climate in the UK may change over the 21st century. These predictions include "*an increased chance of warmer, wetter winters and hotter, drier summers along with an increase in the frequency and intensity of extremes*", in line with international predictions.

Climate change is expected to increase the risk of flooding in the future, with areas historically at low risk of flooding becoming more vulnerable. Kingston recognise that we need fast and effective climate actions to protect properties and infrastructure from the increased flood risk due to climate change.

4.2 What is resilience and adaptation?

Climate change is predicted to increase the risk of flooding, and flood avoidance is not a viable flood risk management strategy. As it cannot be avoided, flooding must be prepared for in order to minimise any damages and to help communities and local economies recover quickly. This approach is referred to as increasing flood resilience.

The NFCERMS defines resilience as "*the capacity of people and places to plan for, better protect, respond to, and recover from flooding and coastal change. This includes making the best land use and development choices, protecting people and places, responding to, and recovering from flooding and coastal change whilst all the time adapting to climate change."* The NFCERMS proposes to follow the "*build back better*" approach, which focuses on improving the resilience of properties and infrastructure for future flood occurrences.

Flood adaptation refers to the process or action to change something to better adapt to flooding. This relies on adjusting to the unexpected effects of flooding before it is no longer possible. This adaptation is necessary as the risk of flooding is perpetually changing. The NFCERMS proposes 'adaptive pathways' to enable RMAs and local areas to better adapt to expected changes in climate that exacerbate flood risks. These pathways can help ensure that we are more resilient to future climate hazards and flood risks.

A sustainable approach to flood risk management requires a combination of resilience measures and adaptive approaches.

4.3 How the LLFA will support resilient local communities

The LLFA will support resilient local communities by bringing together all the strategies, plans and action plans as well as providing updates to these documents as required. These documents define

how Kingston envisages the future of the borough, by providing visions for town centres, development management and a corporate vision.

Kingston declared a Climate Emergency in June 2019, alongside the Mayor of London, other local authorities and the UK Government. The Climate Action Plan is currently undergoing engagement with the local community. Ensuring that communities are resilient to flooding is expected to be included in the Climate Action Plan. Kingston's Local Plan is also in the public engagement phase and, once published, will supersede the current Core Strategy.

The LLFA is currently implementing SuDS in Kingston that mitigate the local surface water flood risk as well as improving the local amenity spaces and educating the public, as shown with the examples of the Hook Flood Alleviation Scheme (FAS) and the London Strategic SuDS Pilot Study. Another current project is the New Malden North FAS.

The actions listed in the action plan are designed to best support the local communities against increasing flood risk. By working with local RMAs and neighbouring councils, Kingston is taking measurable steps in meeting the LFRMS objectives.

4.4 Guidance for local communities

4.4.1 Improving awareness of flood risk

Before any kind of flooding occurs, local communities should be looking to reduce the risk of flooding. At community level, local flood groups can have an important role. Flood Action Groups are voluntary groups of residents who play a role in monitoring and reporting flooding in their local area on behalf of the wider community. They can be involved in developing emergency plans and act as a representative of the local community to Kingston when discussing issues and ideas around flooding. This infographic provides helpful information about Flood Action Groups and has been developed by the Flood Hub and the EA.

At an individual level, residents can learn about the risk of flooding in their local area by consulting the SFRA and PFRA. EA tools such as the 'Check long term flood risk' tool can be used to see whether a property is located in a Flood Zone. If this is the case, it is encouraged that they sign up to the EA's flood warnings in order to receive free flood alerts via phone, email or text message.

Residents and businesses can follow the guidance from the National Flood Forum which outlines the six step process to protecting your property:

1) Understand the risk
2) Planning a scheme
3) Property surveying
4) Design and specification
5) Product installation
6) Maintenance and operation

More information about PFR is proposed in section *5.2.3*. Other methods for reducing flood risk in a sustainable way are described in section *5.2*.

4.4.2 What to do before, during and after a flood

Whether flooding is imminent, already happening or subsiding, following the steps outlined in *Figure 4–1: Summary of actions to take before, during and after a flood* can help mitigate the consequences of flooding. For more detailed information about what to do before, during and after a flood, refer to the National Flood Forum and EA guidance, or by using the following helpline:

- The EA Floodline: 0345 988 1188
- National Flood Forum: 01299 403 055

Flood insurance can be sought to cover flood risks in home insurance policies. FloodRe is a joint initiative between the Government and insurers and helps to make the flood cover of home insurance policies more affordable. It helps households at the highest risk of flooding.

A directory for how to report different types of flooding is displayed in *Figure 4–2: Details on how to report different types of flooding in Kingston.*

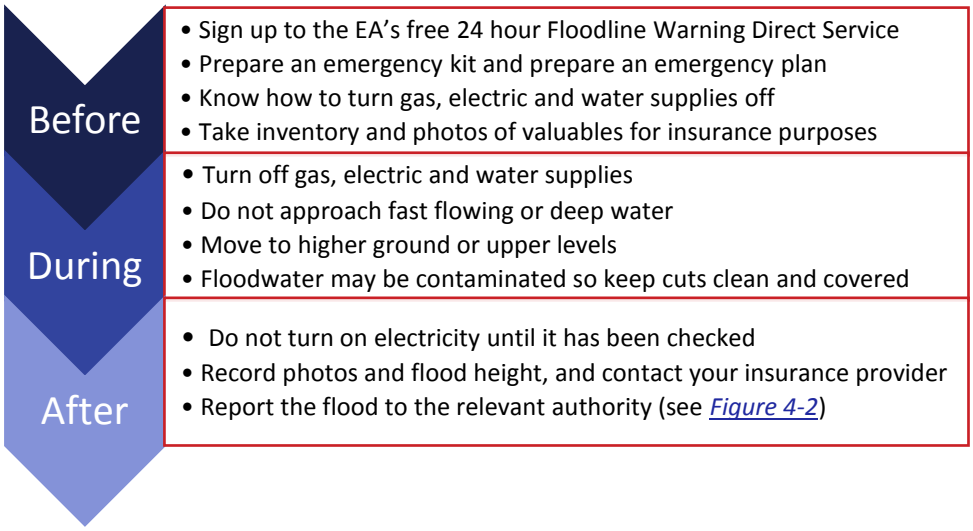


Figure 4–1: Summary of actions to take before, during and after a flood. Full EA guidance can be found here

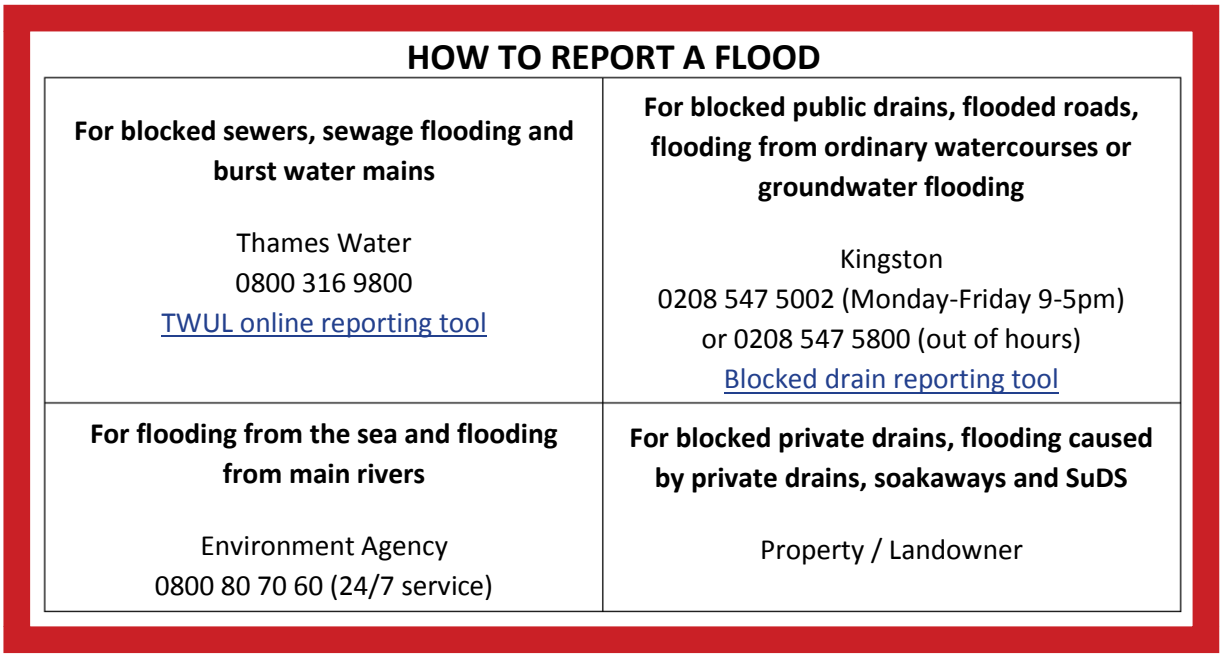


Figure 4–3: Details on how to report different types of flooding in Kingston

For blocked sewers, sewage flooding and burst water mains

Thames Water
0800 316 9800
TWUL online reporting tool

For blocked public drains, flooded roads, flooding from ordinary watercourses or groundwater flooding

Kingston
0208 547 5002 (Monday-Friday 9-5pm)
or 0208 547 5800 (out of hours)
Blocked drain reporting tool

For flooding from the sea and flooding from main rivers

Environment Agency
0800 80 70 60 (24/7 service)

For blocked private drains, flooding caused by private drains, soakaways and SuDS

Property / Landowner

5 SUSTAINABLE MANAGEMENT

5.1 Sustainability and flood risk management

The number and severity of storms and rainfall is set to increase because of climate change and it is imperative to implement sustainable flood risk management strategies. This is to ensure that existing defences and areas of potentially high levels of flooding are protected for the future. Flooding cannot always be preventable and adequately managing flooding requires building resilience and not necessarily resistance. In order to align with the NFCERMS, sustainable flood risk management strategies should aim to meet these six goals:

- Invest appropriately to protect the most vulnerable areas which are at the greatest risk of flooding to reduce the number of people, homes and property at risk of flooding
- Utilise rural and urban landscapes to store and slow the flow of water
- Reduce stresses on sewer systems to reduce flood risk and improve water and environmental quality
- Effectively manage coastlines and estuaries to reduce flooding whilst respecting the changing nature of the coast and considering impacts of associated interventions
- Continually keep the public well-informed on understanding flood risk and appropriate actions they can take to protect themselves, their property, and businesses
- Create adaptable flood-managing actions that can adapt to a changing climate

5.2 Strategies for sustainable development

The FWMA stresses that flood and coastal erosion RMAs should aim to contribute towards achieving sustainable development when exercising their flood and coastal erosion risk management functions. The definition of sustainable development centres on the theme of improving life in ways which do not restrict the ability of others, now or future generations.

Part of sustainable development is by using alternative engineering approaches in new cases or alongside existing flood risk management strategies. Increasing awareness and

HOOK FLOOD ALLEVIATION SCHEME

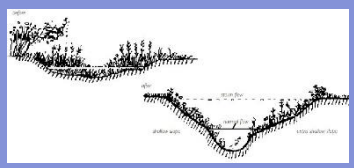
This project is focussed on alleviating flooding in the Hook Critical Drainage Area, as identified in the 2011 SWMP.

The scheme comprises of three locations: Kingston Rugby Football Club, playing fields behind Devon Way, and Sir Francis Barker Recreation Ground.

The flood mitigation features include an offline detention basin and channel widening.

The project benefits from EA Grant in Aid (GiA) funding.

The aim of the scheme is to reduce the existing flood risk to properties within the study area.



preparedness are also key factors, through supporting individuals, communities and businesses to build their resilience to flood events and speed up the recovery process. This involves incorporating greater measures into the design of new buildings and retro-fitting at-risk properties, including historic buildings, with flood resilience measures.

5.2.1 Sustainable Drainage Systems

SuDS are a range of drainage systems that are designed to mimic natural drainage processes. SuDS work by managing water runoff to reduce the quantity of surface water entering the traditional sewer networks and watercourses and to improve the quality of such runoff. Different types of SuDS exist and are often categorised based on the process they employ such as water harvesting (water butts, blue roofs), infiltration (soakaways, infiltration trenches), detention or attenuation (retention ponds, geocellular storage) and conveyance (swales, conveyance channels).

SuDS are most easily implemented in new developments, but can also be retrofitted in existing developments. In both cases, considering the potential benefits and opportunities when designing SuDS can help deliver the best results. SuDS can provide a range of benefits that are not linked to water management including improving amenity and biodiversity spaces, creating recreation areas, and contributing to education by including SuDS in schools.

Successfully designing and incorporating SuDS in developments relies on effective design. The SuDS Manual (CIRIA publication C753, 2015) is widely used for technical advice and guidance on planning, designing, building and maintaining SuDS. Kingston requires all development proposals to include SuDS and to provide a completed London Sustainable Drainage Proforma, a document capturing the proposed drainage strategy in line with policy and created by the GLA.

5.2.2 Natural Flood Management

NFM involves implementing measures that help protect, restore, and mimic natural functions of catchments, floodplains, rivers, and the coast in order to reduce the risk of flooding.

The overall aim of NFM is to reduce the maximum water volume of a flood (peak flood flow) and/or delay the arrival of

LONDON STRATEGIC SUDS PILOT STUDY

This project is a pilot study which several London Boroughs bid to be involved in. Kingston secured £150,000 of EA funding.

The focus of the project is on delivering small scale SuDS measures in the Acre Road Critical Drainage Area as defined in the 2011 SWMP.

The key findings of the pilot study are that small scale distributed SuDS can attenuate surface water flood risk, which is further enhanced by appropriate hydraulic modelling. Retrofitted highways SuDS also generate public value by improving public health and wellbeing as well as capturing carbon and improving air quality.

Find out more here

the flood peak downstream, increasing the time available to prepare for floods.

There are four key mechanisms by which this can be achieved:

1. **Increasing flood storage**: Creating temporary runoff attenuation storage which fills up during a flood event and releases water slowly. This can be achieved by reconnecting functional floodplains and creating storage ponds.
2. **Increasing catchment and channel roughness**: Increasing the roughness increases the resistance to surface and in-channel water flow which 'slows the flow'. Examples of this include planting trees and hedgerows and restoring meandering rivers.
3. **Increasing losses:** Increasing the amount of water that infiltrates into the ground or is lost to the atmosphere through evapotranspiration. This can be done by reducing the soil compaction and by implementing infiltration SuDS.
4. **De-synchronising peak flows from tributaries:** Slowing down the flow of water in one tributary compared to another can reduce downstream peak flows in the main river body and therefore reduce flooding.

The EA has developed an evidence base for different NFM techniques, with several case studies on how they can be implemented and the benefits they provide for flood risk management. Kingston promotes NFM in the schemes they consider and implement wherever possible.

5.2.3 Property Flood Resilience

PFR are measures which can be introduced to households or businesses which can help build a property's resilience to flooding. There are two main targets of PFR which are to help reduce the flood risk to a property, and/or reduce the recovery time after a flood for a building to be usable. PFR can be incorporated into new developments and also be added as retrofitted options to buildings. From this there are many choices of PFR available on the market and individuals living in areas at high risk of flooding or in hotspot areas are advised to seek PFR advice. A useful guide for property owners is the Homeowners Guide to PFR, and the Blue Pages, which are the UK's leading independent flood directory to help find PFR products or installers.

5.3 Future plans for delivering sustainable solutions

Kingston has identified meeting 'the challenge of climate change and adapt to its impacts such as increased risk of flooding' in its Core Strategy (2012) which is soon to be superseded by the Local Plan. Before declaring a Climate Emergency, Kingston was committed via its Core Strategy to a sustainable Kingston (see policy DM4). The publication of the new Local Plan and the Climate Action Plan will provide further policies and detail on the specific corporate and social objectives for Kingston in the future.

FASs and SuDS projects are currently being implemented and monitored. The LLFA ensures that Kingston carries on finding opportunities for building sustainable flood risk management schemes. With the LFRMS action plan and liaison with local RMAs, Kingston is aiming to ensure that new developments and infrastructure are resilient to flood risk and climate change.

6 COMMUNITY AND STAKEHOLDER ENGAGEMENT PLANS

6.1 Engagement with RMAs since previous LFRMS

Since the publication of the previous LFRMS in 2015, the LLFA regularly engaged with stakeholders and RMAs through meetings with the SWLSFG, TRFCC and SERT. The LLFA also liaised with TWUL and the EA regularly, including for the consultation workshops on the DWMP. Progress was made on the various FASs across the borough. The LLFA recorded all the progress on the previous action plan and the actions were formally reviewed once a year during the Scrutiny and Committee meeting.

6.2 Plans for future community engagement

Along with the publication of the LFRMS, a communication strategy has been prepared. This document defines the stakeholder engagement around the LFRMS and future engagement. The statement outlines opportunities for collaborative working and how different stakeholders can use the LFRMS to support this for the future. Different stakeholders will want different levels of involvement and commitment depending on their involvement in carrying out the actions as proposed in the action plan. Stakeholders who act as partner RMAs in the actions of the LFRMS will be consulted with at the appropriate time.

Table 6-1 provides an indicative list of the stakeholders which will be involved in the LFRMS. The success of the LFRMS depends on the delivery of its actions and it is highly encouraged that as many of the stakeholders listed are consulted and prompted to engage with the LFRMS.

Table 6-1 Stakeholder categories and examples of individual stakeholders

Stakeholder Categories	Individual Stakeholder		
Local Community Groups / Individuals	• Residents • Businesses • Schools • Local community/ volunteer groups	• Student/ youth councils • Disability groups • Flood action groups • Environmental action groups	
Public Services	• Emergency services	• Hospitals / health care services	
Charities and Funding Bodies	• Catchment partnerships • Wildlife groups • Southwest London Environment Network	• Environment Trust • Canal and River Trust • SERT	
Council Departments	• Development Management Department • Environmental Services Department • Parks and Open Spaces Department	• Highways Department • Traffic and Transport Department • Emergency Planning Department	
Government Bodies	• EA	• GLA	
External Partnerships	• SWLSFG	• South London and Surrey Technical Group	• TRFCC
Private Organisations	• TWUL	• Network Rail	• TfL

6.3 Key stakeholders

6.3.1 Primary stakeholders

The stakeholders that play a role in the production and delivery of the LFRMS are referred to as primary stakeholders. These include:

- Council departments
- EA
- TWUL
- TfL

The contribution of these primary stakeholders to the successful implementation of this LFRMS is invaluable. They will be working collaboratively with Kingston internal flood group (in the case of Council departments) in delivering the actions. In the action plan (*Appendix 1* – Action Plan), a lead RMA is designated for each action along with some partner RMAs. Some actions only involve Kingston service departments while others require Kingston to liaise with external stakeholders. The LFRMS objectives and the goal for a sustainable Kingston can only be achieved through the RMAs working together.

The external primary stakeholders are the EA and TWUL and they will be providing support and information in order to carry out the actions. They have also been formally consulted on this LFRMS. As both stakeholders are already involved in the SWLSFG and the TRFCC, the work carried out in these two instances will also support the delivery of the LFRMS action plan. These partnerships also encourage the sourcing of funding for actions and projects.

6.3.2 Secondary stakeholders

All other stakeholders in *Table 6-1* Stakeholder categories and examples of individual stakeholders are considered secondary stakeholders. These are individuals or groups that are not necessarily an RMA in the delivery of the LFRMS actions but will have an involvement in actions that impact them directly. It is important that Kingston continues to liaise and nurture strong relationships with neighbouring local authorities, local community groups, partnerships, and private organisations. This ensures that the approach to local flood risk management is holistic, sustainable and serves the local community. The secondary stakeholders were given the opportunity to comment on the LFRMS and its delivery during public consultation which took place over a period of four weeks between December 2022 and January 2023.

7 ACTION PLAN FOR DELIVERING FLOOD RISK MANAGEMENT BETWEEN 2022-2027

7.1 Actions since the previous LFRMS

Kingston's last LFRMS was published in 2015 along with an action plan that detailed tasks and responsibilities for the LLFA and stakeholders to complete or provide ongoing work for. *Figure 7–2* shows the key milestones in relation to the last LFRMS's publication. In this period, the action plan was reviewed annually, and the actions carried out were updated. The LLFA has worked with partnerships and communities to raise awareness about the potential local flood risks they were facing and what could be done to manage them.

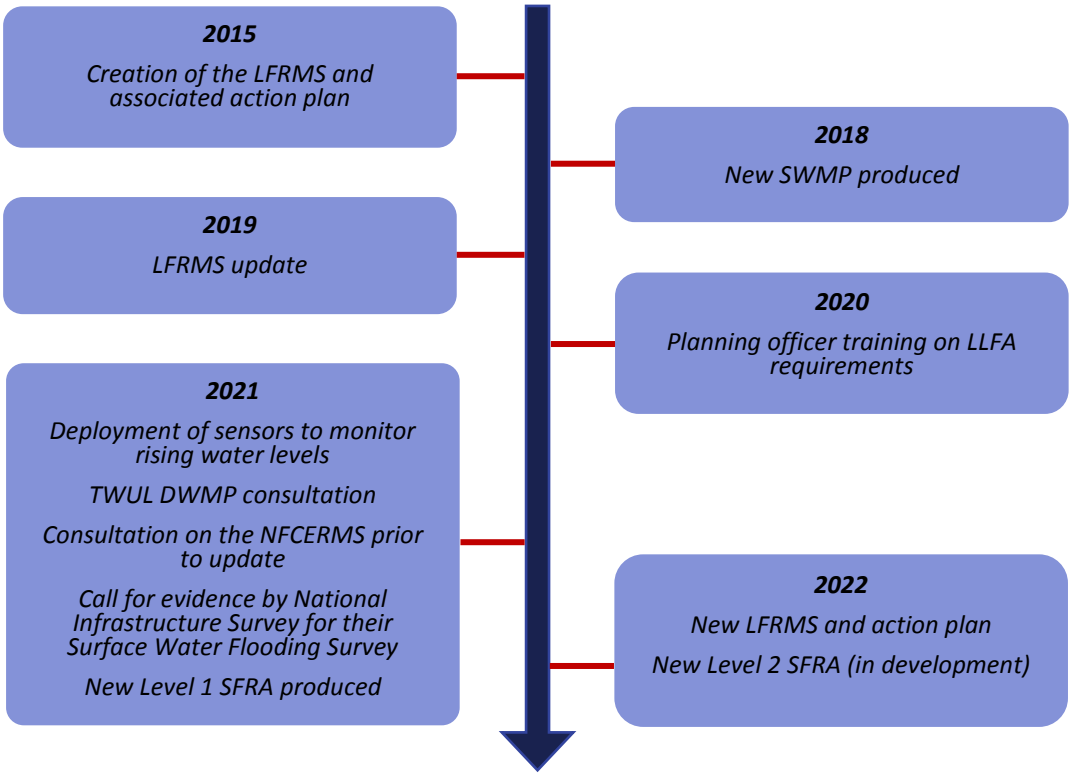


Figure 7–2: Timeline display of key actions since last LFRMS

7.2 Benefits and results

The LFRMS actions carried out by the LLFA and partner RMAs have provided a range of benefits. The partnerships between RMAs and neighbouring local authorities have been re-enforced due to the involvement in groups such as the SWLSFG and the TRFCC (which includes the EA and TWUL). This improvement in collaboration has helped in the sharing of information and in better understanding the flood risks in the area. A closer-knit relationship with the partner RMAs was successful in managing an improved response to significant flooding incidents such as in July 2021.

Another benefit of the collaboration with RMAs is the availability of funding, where schemes with a partnership-working are prioritised. This has enabled Kingston to benefit from a variety of funding sources in the past. With severe events predicted to increase in frequency, the successes of current partnership working and ongoing improvements to communications between RMAs are very important to take forward into the new LFRMS.

7.3 New action plan

A set of actions has been proposed to help achieve the LFRMS objectives and are included in the action plan (*Appendix 1* – Action Plan). The previous action plan, which was last reviewed in 2019, was assessed in line with the changes to the national guidance objectives in the NFCERMS. Existing responsibilities and ongoing actions which were considered to be relevant to the new LFRMS have been kept and their previous action ID has been included for reference. An action plan workshop was carried out with the relevant internal Kingston service departments, the EA and TWUL. The consultation period, which took place during March 2022 for primary stakeholders and between December 2022 and January 2023 for secondary stakeholders, allowed them to comment on the proposed actions based on their own priorities and objectives.

For each action, a lead RMA has been designated along with partner RMAs where relevant. A target start date, timeframe for completion and status were included for each action. The target start date reflects the priority of some actions and the timeframes for completion have been set as short, medium and long term, which corresponds to completion within 1-2 years, 3-4 years and 5-6 years respectively. The status of the actions is either 'Ongoing' or 'Not started'.

7.4 Funding options

In order to fund the actions in *Appendix 1* – Action Plan it is important to understand the different funding options available to the Kingston LLFA to carry out flood risk management work. Depending on the funding required, it is expected that funding will be sought from a variety of sources. Kingston is set to continue working with partnerships, RMAs and other stakeholders to ensure that new and innovative funding opportunities are taken advantage of when they present themselves.

The Department for Environment, Food and Rural Affairs (DEFRA) provides funding in the form of Flood and Coastal Erosion Risk Management (FCERM) GiA. This funding is available through an appraisal process during which the scheme proposal must demonstrate that they will benefit properties at risk of flooding, lessen the indirect impacts from flooding such as on people's mental health, achieve wider environmental benefits and improve amenity of an area. These projects include FASs and studies to investigate flood mitigation options. The TRFCC also provides funding opportunities for local authorities looking to carry out flood risk management schemes. Funds are raised by a levy on local authorities and committee members are appointed by the LLFA and the EA. It is common for projects to apply for both GiA and Local Levy funding.

Other sources of funding include the Revenue Support Grant from the Department for Levelling Up, Housing and Communities (DLUHC) which funds general LLFA related duties. This department has recently replaced the Ministry for Housing, Communities and Local Government (MHCLG). Local authorities can also impose a Community Infrastructure Levy on new development in their area. The levy can then be spent on infrastructure needed to support the development of the area, such as parks and green spaces. TWUL also offers funding for projects which will help to alleviate pressure on the sewer system, such as SuDS schemes. As and when flood risk management schemes are prepared

funding will be sought from the appropriate sources listed above, but also from third party funding sources as well as community groups and charities.

8 CONCLUSION AND NEXT STEPS

8.1 Conclusion

This LFRMS for Kingston aims to improve the understanding of flooding within the borough, to promote the use of sustainable flood risk management practices, to empower residents in taking action to mitigate their flood risk and to nurture collaborative partnerships with RMAs and LPAs. These aims are formulated as the five strategic objectives below:

Strategic Objective A:

Improve our knowledge and understanding of the different risks of flooding in Kingston.

Strategic Objective B:

Proactively encourage sustainable solutions for the management of local flood risk which take account of climate change.

Strategic Objective C:

Use planning powers to appropriately mitigate flood risk to or caused by developments across Kingston.

Strategic Objective D:

Educate, encourage, and empower local residents, businesses and landowners to take action on reducing flood risk.

Strategic Objective E:

Nurture collaborative partnerships with key organisations and Risk Management Authorities, including for funding and resources.

In order to achieve these strategic objectives, an action plan (*Appendix 1* – Action Plan) has been prepared which outlines a set of actions, the RMA(s) responsible for carrying them out, and target timeframes.

The previous LFRMS has led to the successful implementation of FASs in Kingston and the reinforcement of collaborative partnerships with RMAs. This LFRMS provides Kingston with guidance on the work to be done in order to achieve the strategic objectives over the next six years. A focus has been put on taking climate change into account and adopting both resilience measures and an adaptive approach. The LFRMS should enable Kingston to deliver holistic, sustainable and resilient local flood risk management measures, better protecting the residents, businesses and communities of Kingston.

The ecological and environmental implications of the LFRMS and action plan have been assessed in the SEA (*Appendix 3* – SEA Screening Report). The strategic objectives have been found to offer a varied response of neutral, minor positive and major positive effects on Kingston Borough's key environmental attributes. Overall, no detrimental consequences to the local environment in Kingston were found from carrying out the action plan.

A HRA Screening Report (*Appendix 4* – HRA Screening Report) was also carried out to consider the risk and consequences of the LFRMS and action plan on habitats and protected areas. The HRA concludes that none of the proposed LFRMS strategic objectives will impose negative effects on the Natura 2000 sites identified in proximity to Kingston Borough.

8.2 Public Consultation

The LFRMS and associated action plan, SEA and HRA went to public consultation over a four week period from December 2022 to January 2023. RMAs, statutory consultees and members of the public were able to provide feedback on Kingston's planned flood risk management duties for the next six years. Two responses were received following the public consultation, together with minor changes internally, which were incorporated into the LFRMS.

8.3 Monitoring and reviewing

This LFRMS should be updated every six years in line with FRMPs. An update should be produced earlier if there are significant changes to Kingston's understanding of flood risk or flood modelling practices, or following significant changes to government policies and legislation.

To ensure that the actions proposed meet the strategic objectives are carried out on time, a monitoring and reviewing plan has been developed. This will be a working document for the LLFA and will provide the opportunity to measure the effects of implementing the strategic objectives and assist in the identification of any adverse effect. We recommend that Kingston submit their LFRMS action plan to a formal committee to review the progress on actions annually.

External References

Civil Contingencies Act 2004 (legislation.gov.uk)

Managing flood risk: roles and responsibilities | Local Government Association

Flood and coastal resilience innovation programme - GOV.UK (www.gov.uk)

Flood risk management: information for flood risk management authorities, asset owners and local authorities - GOV.UK (www.gov.uk)

Environment Agency – National Flood and Coastal Erosion Risk Management Strategy for England (publishing.service.gov.uk)

USEFUL LINKS

Flooding in Kingston	Directory for Kingston specific flood advice, including: • Information on types of flooding • Flooding advice • Flood prevention • Reporting flooded drains • Strategic Flood Risk Assessment
What to do before, during and after a flood	Government guidance on what to do before, during and after a flood.
Property Owners Flood Guide	Information on: • Property insurance • Dealing with flood risk to properties • Installing flood defences to properties • Advice on what to do if your property is flooded
Blue Pages – UK Flood Directory	Directory for property flood products and services, also including advice on how to help reduce the risk of flooding to your home or business.
Emergency Flood Plan Template	A useful template for households to use in preparing for a flood, including a checklist and emergency contacts.

APPENDIX 1 – ACTION PLAN

APPENDIX 2 - MAPPING

APPENDIX 3 – SEA SCREENING REPORT

APPENDIX 4 – HRA SCREENING REPORT