Westminster City Council

WESTMINSTER LOCAL FLOOD RISK MANAGEMENT STRATEGY



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Westminster City Council

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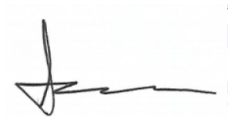
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1 INTRODUCTION

1.1 OVERVIEW

Westminster City Council (WCC) as the Lead Local Flood Authority (LLFA) has a range of risk management duties to manage local flood risk in the borough in accordance with the Flood and Water Management Act (2010). Local flooding is defined as flooding from surface water, ordinary watercourses and groundwater; the flooding from these sources is typically more localised than flooding from rivers and the sea and management of local flooding in Westminster relies on coordination of the combined sewer network.

As LLFA, WCC must produce a Local Flood Risk Management Strategy (LFRMS) to set out a Strategy for managing local flood risk. This must be developed in accordance with the Environment Agency's National Strategy for Flooding and Coastal Erosion Risk Management[1].

This LFRMS (herein referred to as 'the Strategy') provides an action plan for 2024 – 2030 with clear objectives and measures, setting out how local flood risk will be managed by WCC and other Risk Management Authorities (RMAs). This strategy also considers the impact of climate change on flooding in the future and attempts to minimise these risks. The aims of the Strategy are:

- To meet the statutory duties of an LLFA under the Flood and Water Management Act;
- To provide an understanding of local flood risk within Westminster, using knowledge from all RMAs;
- To ensure RMAs have a mechanism to work together effectively to understand and deliver appropriate flood risk management; and,
- To set objectives, measures and actions to sustainably manage flood risk in Westminster, addressing other societal or environmental objectives where possible.

The process for the development of the Strategy is provided in Figure 1-1. The process is shown as a cycle, demonstrating that the Strategy will continuously be monitored and updated to take account of updates to flood risk modelling, major flooding events, changes in legislation and availability of new data. As a minimum, the Strategy will be fully reviewed every six years.

[1] Environment Agency (2020) National Flood and Coastal Erosion Risk Management Strategy. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/920944/023_15482_Environment_agency_digitalAW_Strategy.pdf [Accessed 18 April 2023]

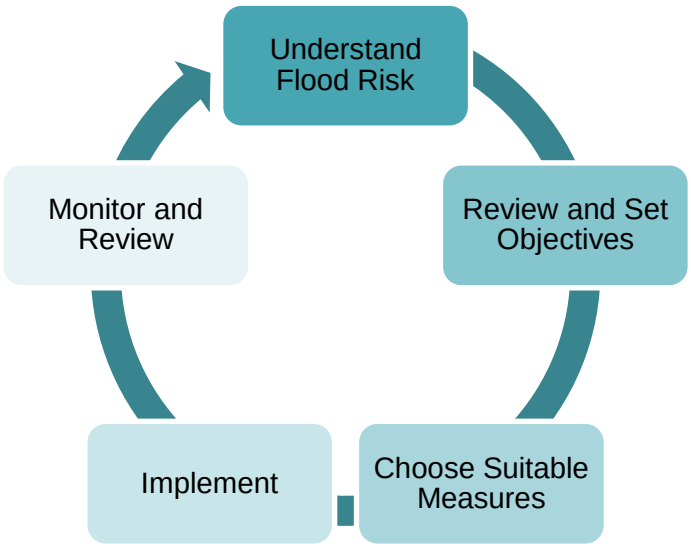


Figure 1-1 - Development process for the Strategy

The development process for the Strategy is as follows:

- **Understand flood risk** – to understand the flood risk from all sources across Westminster. The most up-to-date datasets for fluvial, surface water, groundwater and sewer flooding have been obtained and analysed as part of this process (see Section 4).
- **Review and set objectives** - the previous LFRMS was reviewed to understand what progress was made and how relevant the previous objectives were. Following this, a public engagement survey was launched and a stakeholder engagement workshop was held with key stakeholders to set new objectives that are aligned with the local community's priorities and Westminster's City Plan policies.
- **Choose suitable measures** – following the development of the objectives, suitable measures and actions were developed to meet the objectives.
- **Implement –** the objectives and measures will be planned and implemented over the Strategy period by WCC as the LLFA.
- **Monitor and review** – the Strategy will be regularly monitored and reviewed against progress with a full update every 6 years.

1.2 LOCAL CONTEXT

WCC is a unitary authority located on the north side of the River Thames in central London, covering 21.5 km^2. It is home to a long standing and diverse residential community of 204,200[2] (2021), as well as the Houses of Parliament and virtually all government and related departments, No. 10 Downing Street and New Scotland Yard. Buckingham Palace and the Royal Courts of Justice are located within 2 km of the River Thames. Westminster contains important national and local infrastructure. It has four of London's main line railway termini and 10 out of the 12 London underground lines.

As well as the River Thames, the city contains other water features, including Regent's Canal, the Grand Union Canal, Paddington Basin and Little Venice, totalling 6.4 km of canal frontage. There are also five 'hidden rivers'; the Westbourne, Tyburn, Tyburn Brooke, Kilbourne and Long Ditch. The Serpentine (in Hyde Park) and the lakes in Buckingham Palace Gardens and St James's Park are the places where the Westbourne surfaces in Westminster, although they are now disconnected from the original watercourse. Westminster sits above a regional chalk aquifer covered with gravels and clay. However, as would be expected in a dense highly urban environment much of the physical landscape is constructed of hard, non-porous materials.

Westminster is bounded by the London Borough of Brent to the north, the City of London and the London Borough of Camden to the east, the tidal Thames to the South and the Royal Borough of Kensington and Chelsea to the west (Figure 1-2).

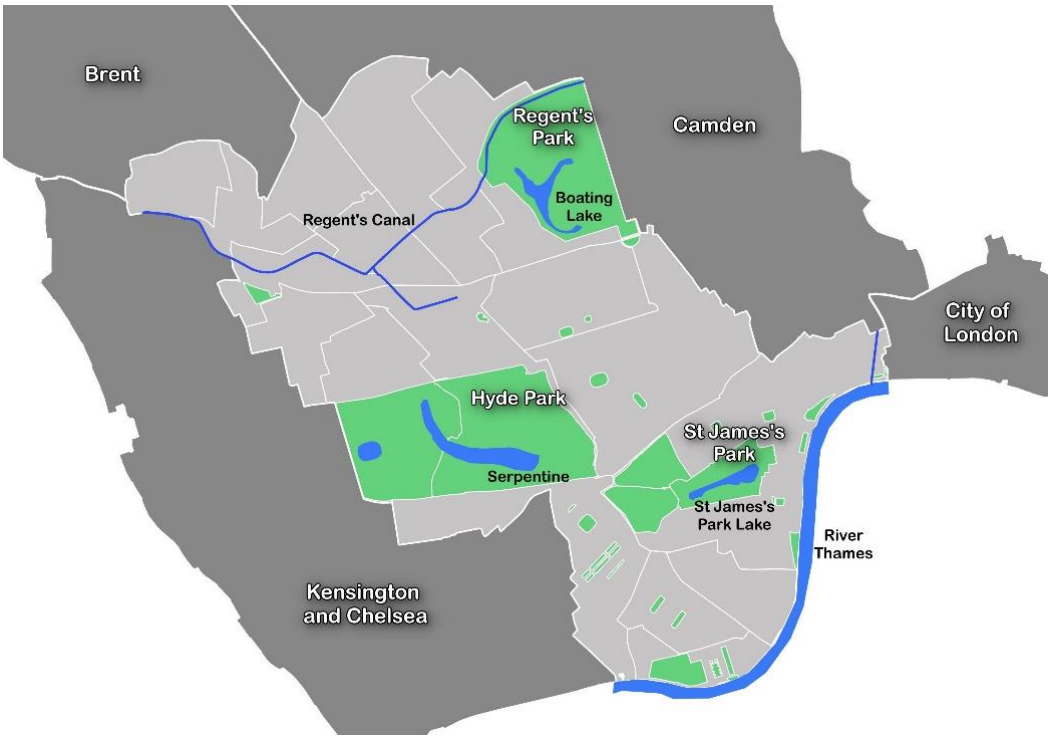


Figure 1-2 - Westminster location map

[2] As recorded by the 2021 Census

1.3 PROGRESS FROM PREVIOUS STRATEGY (2017 – 2022)

WCC previously produced a LFRMS for 2017 – 2022[3]. Some of the progress made in the previous Strategy is outlined below. The objectives, measures and actions that could have the biggest impact to flood risk in Westminster were prioritised. Actions which are still considered relevant to ongoing flood management have been incorporated into the updated Strategy. This Strategy will build upon the lessons from the previous Strategy: to continue to develop our understanding of flood risk and improve how we manage it together.

2017 Objectives

1. To better understand and explain the level of local flood risk affecting Westminster.
2. To take a sustainable, holistic approach to flood risk management in Westminster, proportionately managing the likelihood of flooding versus the risk of harm to people, the economy, and the environment.
3. To ensure that the planning process takes full account of local flood risk.
4. To promote preparedness and resilience to local flood risk.
5. To adopt a collaborative approach to manage flood risk in Westminster with partners, businesses, and residents.

- Flood risk modelling has been updated using the latest technology and modelling approaches to understand our flood risk now and in the future. The recent update to surface water flood risk mapping incorporates a model of the sewer network developed by Thames Water and considers recorded data from the 2021 flood event in Westminster.
- A flood investigation report was produced following the July 2021 flood events, which looked at the causes, consequences and responsibilities around the flooding.
- The Strategic Flood Risk Assessment has been revised and updated, with historic flood data compiled into a GIS database to inform planning decisions and direct development away from areas at risk of flooding.

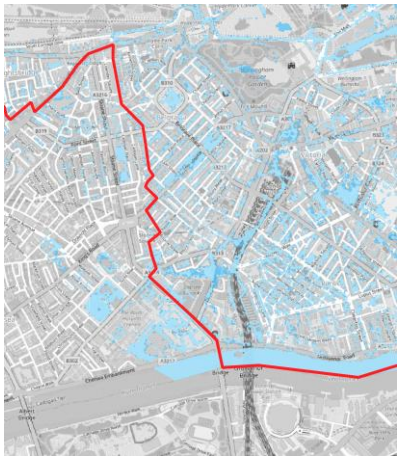


Figure 1-3 – Extract from the updated surface water flood modelling

[3] Westminster City Council (2017) Local Flood Risk Management Strategy 2017 – 2022. Available from: https://www.westminster.gov.uk/media/document/en-env-011---local-flood-risk-management-strategy-2017-2022 [Accessed 18 April 2023]

- As part of the updated Strategic Flood Risk Assessment, updated guidance has been provided to improve the planning process and ensure all sources of flooding are adequately assessed and managed. There is also enhanced guidance on basement resilience.
- Planning guidance now ensures that all developments consider the use of SuDS, with the LLFA providing a statutory response to all major development and all minor development within a Surface Water Management Zone (SWMZ).

Retrofitting Sustainable Drainage Systems (SuDS) has helped to attenuate surface water flows and reduce flooding.



St Mary Magdalene Church of England Primary School (2022)



77 Marylebone High Street (2019)

- The Gully Maintenance Strategy has been reviewed to determine if the current frequency and strategy of maintenance is still appropriate or could be further optimised. After the July 2021 floods, £600,000 of funding was made available to replace and repair gullies with optimised functions[4].
- Westminster have developed a Multi-Agency Flood Plan and are continuing to work on recovery plans after flood events.

[4] Westminster Section 19 Report – Investigating the July 2021 Surface Water Flood Events (2022). Available from: https://committees.westminster.gov.uk/documents/s50144/PS%20Committee%20Section%2019%20Flooding%20Report%20Final.pdf [Accessed 19 June 2024]

- Westminster have improved collaboration with Thames Water and the Environment Agency to work together to develop flood risk management schemes and understand the potential for SuDS across Westminster. This includes developing new methodologies to calculate the wider environmental benefits of SuDS with support from the Environment Agency and focussing projects in areas where the Thames Water sewer is at capacity.
- Westminster have continued to engage with regional networks for sharing of knowledge and best practice, including quarterly meetings with the Central London North Flood Risk Partnership Group, The London Surface Water Strategic Group and The London Drainage Engineers Group (LoDEG).



1.4 JULY 2021 FLOOD EVENTS

In addition to the lessons from the previous Strategy, this Strategy will also consider lessons learnt from the July 2021 flood events

July 2021 Floods



12th July 2021

Queen's Park, Westbourne, Maida Vale and Little Venice

Maximum rainfall intensity 150mm/hr

Estimated as 1:200-year event



254 properties flooded



25th July 2021

Pimlico

Maximum rainfall intensity 50-100mm/hr

Sewer was unable to cope with the intense rainfall and high tide



60 roads flooded



Following the July 2021 floods, the following actions were identified:

- Update the surface water model.
- Review of the Gully Maintenance Strategy.
- Update to the Strategic Flood Risk Assessment.
- Develop opportunities for strategic retrofitting of SuDS.
- Develop guidance for planning applications, to consider flood risk from all sources and include appropriate mitigation measures. This is particularly important for highly vulnerable developments (e.g. self-contained basements) at risk of surface water flooding.

2 POLICY CONTEXT

Local Flood Risk Management Strategies are one of many policy documents which influence how flood risk is managed across the country. Table 2-1 provides an overview of the various policy and guidance documents, from a national to local level, which support flood risk management in Westminster.

Table 2-1 - Flood Risk Management Legislation, Policy & Guidance

Type of Policy and Guidance	Policy
National Policies and Guidance	National Planning Policy Framework Planning Practice Guidance, as updated in December 2023 (DLUHC and MHCLG)
	National Planning Policy Framework (NPPF) 2021 (MHCLG)
	National Flood and Coastal Erosion Management (FCERM) Strategy for England 2021 (DEFRA)
	The Floods and Water (Amendment etc.) (EU Exit) Regulations 2019
	25-Year Environment Plan (2018)
	Conservation of Habitats and Species Regulations 2017
	Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
	The Environmental Permitting (England and Wales) (Amendment) Regulations 2016
	Non-statutory technical standards for sustainable drainage systems (DEFRA 2015)
	Flood and Water Management Act 2010
	Flood Risk Regulations 2009
	Environmental Assessment of Plans and Programmes Regulations 2004
Regional Policies and Guidance	London Climate Resilience Review (2024)
	Thames Estuary T2100 (2022)
	London Resilience Partnership Risk Register (2022)
	The London Plan (2021)
	London Resilience Partnership Strategic Flood Response Framework (2020)
	London City Resilience Strategy (2020)
	London Environment Strategy (2018)
	London Regional Flood Risk Appraisal (Greater London Authority 2018)
	Thames River Basin Management Plan 2018
	London Sustainable Drainage Action Plan (2015)
	Mayor of London's Sustainable Design and Construction SPG (April 2014)
	The Mayor's Water Strategy 2011
	The Mayor's Climate Change Adaptation Strategy 2011
Local Policies and Guidance	Climate Adaption and Resilience Strategy (expected publishing date – 2025)
	Greening and Biodiversity Strategy (2024)
	City of Westminster Strategic Flood Risk Assessment (2023)
	Westminster Multi Agency Flood Plan (2023)
	Fairer Westminster Strategy (2023)
	City of Westminster Environmental Supplementary Planning Document (2022)
	Westminster Climate Emergency Action Plan (2021)
	City Plan 2019 – 2040 (2021)

Type of Policy and Guidance	Policy
Local Policies and Guidance	City of Westminster Preliminary Flood Risk Assessment (2011)
	City of Westminster draft Surface Water Management Plan (2011)

3 ROLES AND RESPONSIBILITIES

Effective management of local flood risk across Westminster requires co-ordination between different organisations with clearly defined roles and responsibilities. The following groups identified have been a key part of developing the Strategy, particularly within the engagement process (see Section 6.1). A more comprehensive list can be found in Appendix A.

3.1 RISK MANAGEMENT AUTHORITIES

As a LLFA, WCC has a strategic role in overseeing the management of local flood risk in the borough – including surface water, ordinary watercourses and groundwater. This includes designating structures and features that affect flooding, producing flood investigation reports and maintaining a register and records of flood risk management assets. WCC is also a statutory consultee for major development planning applications with regards to surface water.

The following Risk Management Authorities (RMAs), as defined by the Flood and Water Management Act (2010), work with WCC to support flood risk management functions:

Thames Water

Responsible for the maintenance and operation of the public sewer system, including maintenance of all drains which serve more than one property or which extend beyond the curtilage of the property.

Environment Agency

Strategic overview of the management of all sources of flooding and coastal erosion, with an operational focus on flooding from main rivers and the sea. Publishes a National Flood Risk Management Plan which provides a clear national framework for all forms of flood risk management.

Transport for London

Responsible for the strategic road network in London as well as any gullies and culverts associated with the London Underground, ensuring that these assets do not cause flood risk.

Westminster City Council

As the Highways Authority, are responsible for the management of local flood risk including surface water and the drainage of all non-TfL roads, including gullies and drains.

3.2 KEY STAKEHOLDERS AND PARTNERS

The following key partners are not formally defined as RMAs under the Flood and Water Management Act 2010; however they play an important role in managing flood risk in Westminster:

Port of London Authority

Custodians of the tidal Thames, responsible for maintaining and supervising navigation, as well as protecting the river's environment.

Neighbouring LLFAs

All of Westminster's neighbouring boroughs are LLFAs; working together ensures a catchment-based approach to managing flood risk. These boroughs are Camden, the City of London, Kensington & Chelsea and Brent.

Greater London Authority

The Greater London Authority (GLA) developed the London Plan (2021), which sets out the development framework for London over the next 20-25 years. This includes policies regarding flood risk management that should be used to inform planning and development across Westminster.

The GLA has no statutory role in flood risk management, however it has led a number of London-wide projects to improve management of flood risk in London.

The Royal Parks

Maintain and manage eight of London's largest open spaces, including the following within Westminster: Hyde Park, The Green Park, St James's Park, Regent's Park and Kensington Gardens.

Canal and River Trust

Owns and manages the canals in Westminster.

Network Rail

Responsible for the mainline stations in Westminster (Charing Cross, Victoria, Paddington and Marylebone). They manage the entire track including, cuttings, culverts, and tunnels which can be essential for the management of flood risk.

4 FLOOD RISK IN WESTMINSTER

Although rivers and the sea are the principal causes of flood damage in England, a significant proportion of flooding results from other sources. The following section provides information on the sources of flood risk within Westminster which include fluvial (river), tidal (the sea), surface water, sewers, groundwater, canals and reservoirs. Further detail on sources of flood risk in Westminster can be found in the Strategic Flood Risk Assessment (2023)[5].

Fluvial and Tidal

Westminster sits on the north bank of the tidal River Thames and is potentially susceptible to both tidal and fluvial flooding. Operationally the River Thames Tidal Flood Defences within Westminster are sea defences and have a tidal designation in terms of the NPPF. The Thames is the only river in Westminster, as other watercourses have been subsumed into the sewerage network.

Westminster, like many historic urban centres, no longer has a functional floodplain. Flood Zone 3b has been developed over the centuries and Flood Zones 3a and b are therefore referred to as Flood Zone 3. Flood Zone 2 consists of a small number of individual areas within Westminster (see Figure 4-1).

The River Thames floodplain is defended by over 330 km of flood walls, embankments, and nine tidal barriers. There are over 400 other structures including flood gates, outfalls, and pumps which offer protection against a tidal flood event that has a 0.1% Annual Exceedance Probability (AEP) of occurring up to the year 2030. Westminster is also defended from tidal and fluvial flooding by the Embankment flood wall.



[5] https://www.westminster.gov.uk/sites/default/files/media/documents/SFRA%20Report%20%283%29.pdf

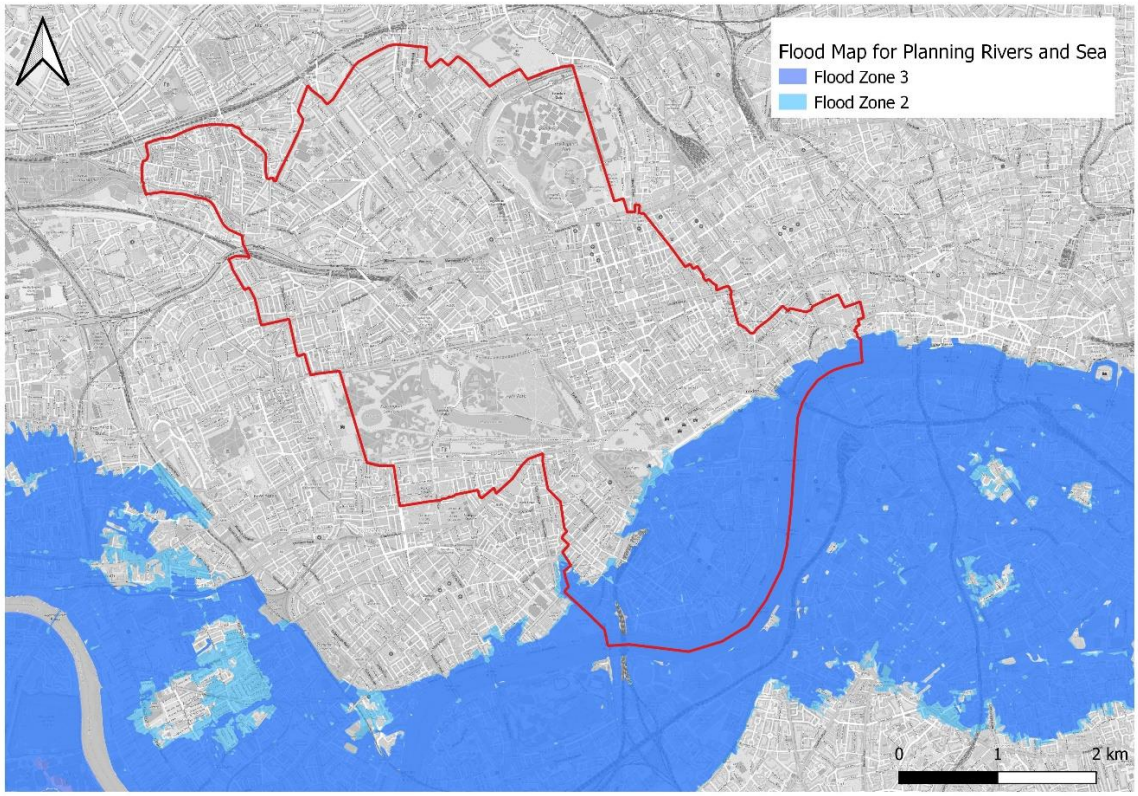


Figure 4-1 - Extents of Flood Zone 3 (dark blue) and Flood Zone 2 (light blue) in Westminster

Surface Water

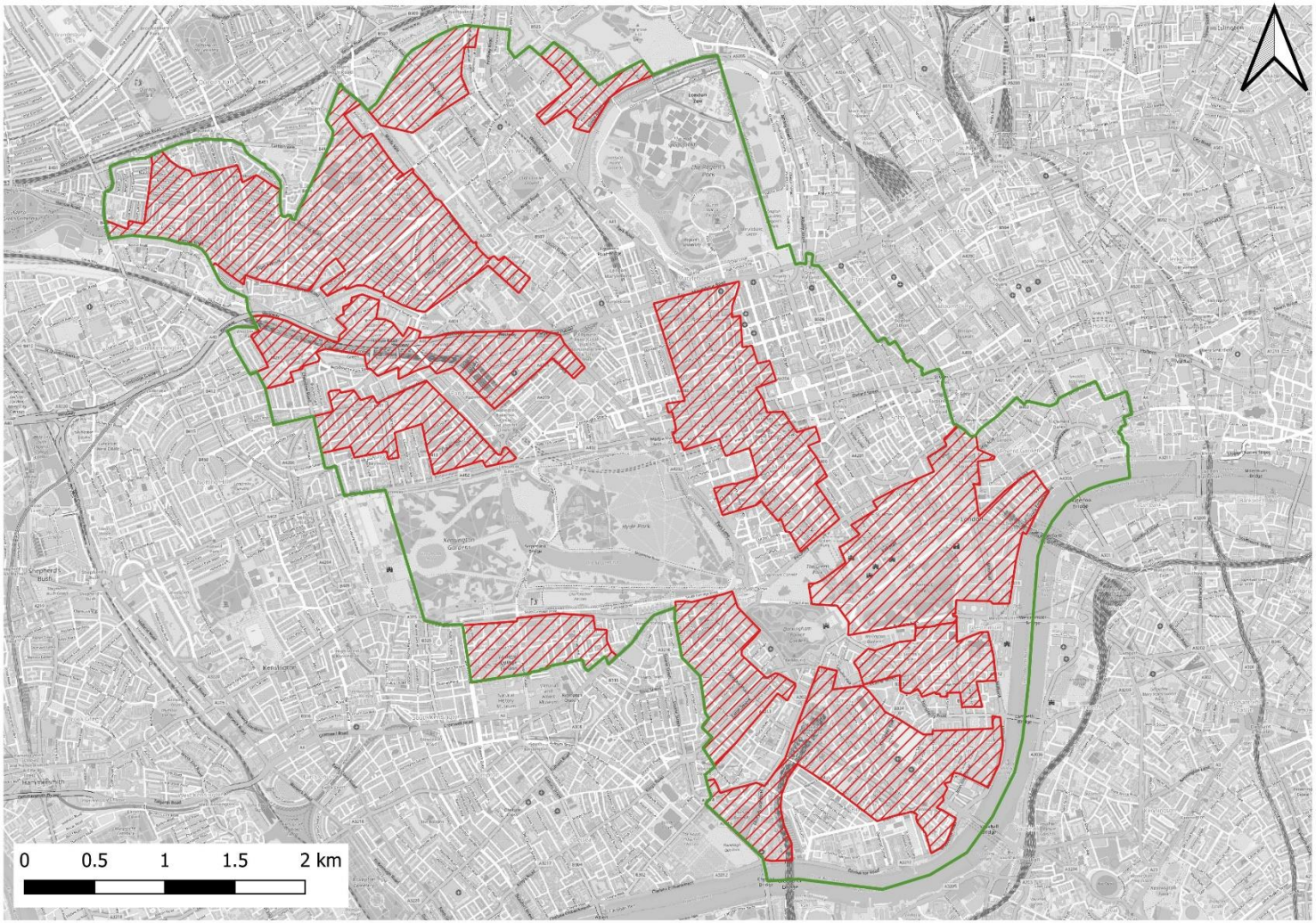
Due to the highly built-up nature of Westminster and its limited drainage capacity, surface water is the most likely cause of flooding in the area. The design of buildings can contribute to localised surface water flooding, meaning developments with large roof areas can be especially influential on local risk. Basement dwellings which are common in Westminster are particularly vulnerable to flooding from surface water runoff. Within Westminster, the key infrastructure for management of surface water is the combined sewer system that is operated by Thames Water. This captures rainfall from building roofs and ground surfaces which are then conveyed along with foul sewage to sewage treatment works east of Westminster.

Two major flood events impacted Westminster in July 2021, collectively affecting 270 properties – predominantly around Maida Vale, Harrow Road, Westbourne and Little Venice (See Appendix A, Figure A-11 of the SFRA). Findings from a Section 19 Flood Investigation Report by WCC and an Independent London Flood Review, commissioned by Thames Water, found speed and severity of rainfall to be the main cause of flooding, overwhelming the surface water and sewerage drainage systems.

Surface water flood risk modelling has been updated following the July 2021 flood events. The results of this modelling were included in the 2023 SFRA and have been used to inform the assessment of flood risk across the borough (See Appendix A, Figure A-19 of the SFRA). Surface Water Management Zones (SWMZs) have been derived from the updated modelling, taking account of recorded flood incidents in 2021 and the influence of the Thames Water sewer network (Figure 4-2). The SWMZs replace the surface water flood risk hotspots which were developed as part of the draft SFRA in 2019. Development proposed within these zones will require more detailed flood risk assessments.



Photographs of July 2021 Flood Events in Westminster



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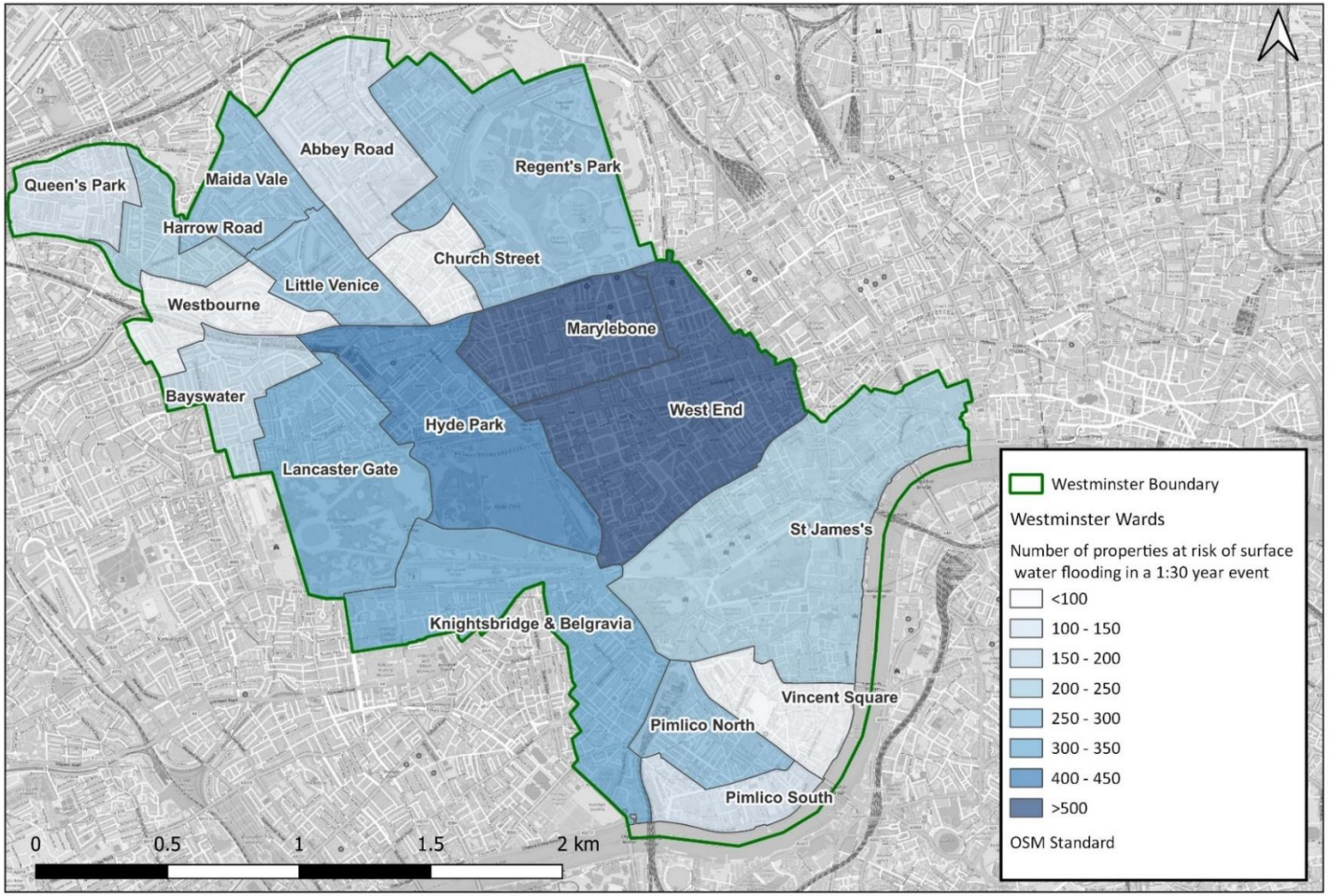
Figure 4-2 - Surface Water Management Zones in Westminster

An assessment of the surface water flood risk in three modelled return period flood events (1:30yr, 1:100yr and 1:1000yr) to properties has been undertaken using the updated surface water modelling and the Environment Agency's National Receptor Database as presented in Table 4-1. The assessment reviews the number of basement and ground floor residential and non-residential properties at risk of flooding, assuming a threshold level of 0.15m.

A breakdown by ward has also been illustrated in Table 4-1 and Figure 4-3.

Table 4-1 - Properties at risk of Surface Water Flooding in Westminster

Ward	Properties		
	1:30yr	1:100yr	1:1000yr
Abbey Road	136	236	470
Bayswater	200	409	1,158
Church Street	53	76	152
Harrow Road	203	342	697
Hyde Park	426	565	901
Knightsbridge and Belgravia	304	515	1,210
Lancaster Gate	315	531	1,295
Little Venice	256	390	797
Maida Vale	268	417	757
Marylebone	542	928	1,925
Pimlico North	274	401	958
Pimlico South	141	192	394
Queen's Park	140	172	269
Regent's Park	254	356	677
St. James's	213	317	774
Vincent Square	99	205	551
West End	644	892	1,699
Westbourne	60	99	144
Total	**4,528**	**7,043**	**14,828**



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Figure 4-3 – Properties at risk of surface water flooding in the 1 in 30 year event by ward

Groundwater

The risk of groundwater flooding in Westminster is low, however Westminster sits above a regional chalk aquifer covered with gravels and clay. Chalk shows some of the largest seasonal variations in groundwater levels, and it is the most extensive source of groundwater. The British Geological Survey (BGS) groundwater flooding dataset identified vulnerability to groundwater flooding on a 1km square grid within Westminster (Appendix A, Figure A-21 of the SFRA). Due to the level of confidence in the dataset, it has only been used to identify broad areas at risk of groundwater flooding rather than individual properties. This modelling indicates that elevated groundwater from permeable superficial soils are located around Kensington Gardens, Marylebone, Mayfair and Belgravia with sporadic pockets towards the southern end of the borough. No confirmed records of flooding caused by groundwater are held by WCC.

Sewers

During periods of heavy rain, the available capacity within the combined sewerage infrastructure can be exceeded. This can lead to surcharging from manholes or combined sewer overflows (CSOs) into the tidal River Thames and its tidal tributaries. The Thames Water database of sewer flooding incidents in Westminster shows at least 726 internal incidents in the last 10 years, and at least 1,126 internal incidents in the last 20 years. As Thames Water relies on customers contacting them when sewer flooding events occur, it is possible not all events have been recorded. In the future, the Thames Tideway Tunnel is anticipated to divert and reduce CSO spills by 95% in a typical year, which will then convey flows to the Beckton Sewage Treatment Works. The Thames Tideway Tunnel will provide part of the solution required.

Artificial Sources: Canals, Water Features and Water Mains

In Westminster, flooding from artificial sources is most likely to result from a burst main, and/or infrastructure failure in an artificial watercourse or water body. The areas affected from this type of flooding would mainly be localised to the source of the flooding. Water features within Westminster include the Serpentine (a designated Reservoir), The Grand Union and Regent's Canals, the lakes in Buckingham Palace Garden and St James's Park. However, levels in these waterbodies are closely managed using a variety of infrastructure such as weirs, pumps and overspill channels making flooding very unlikely.



St James's Park Lake



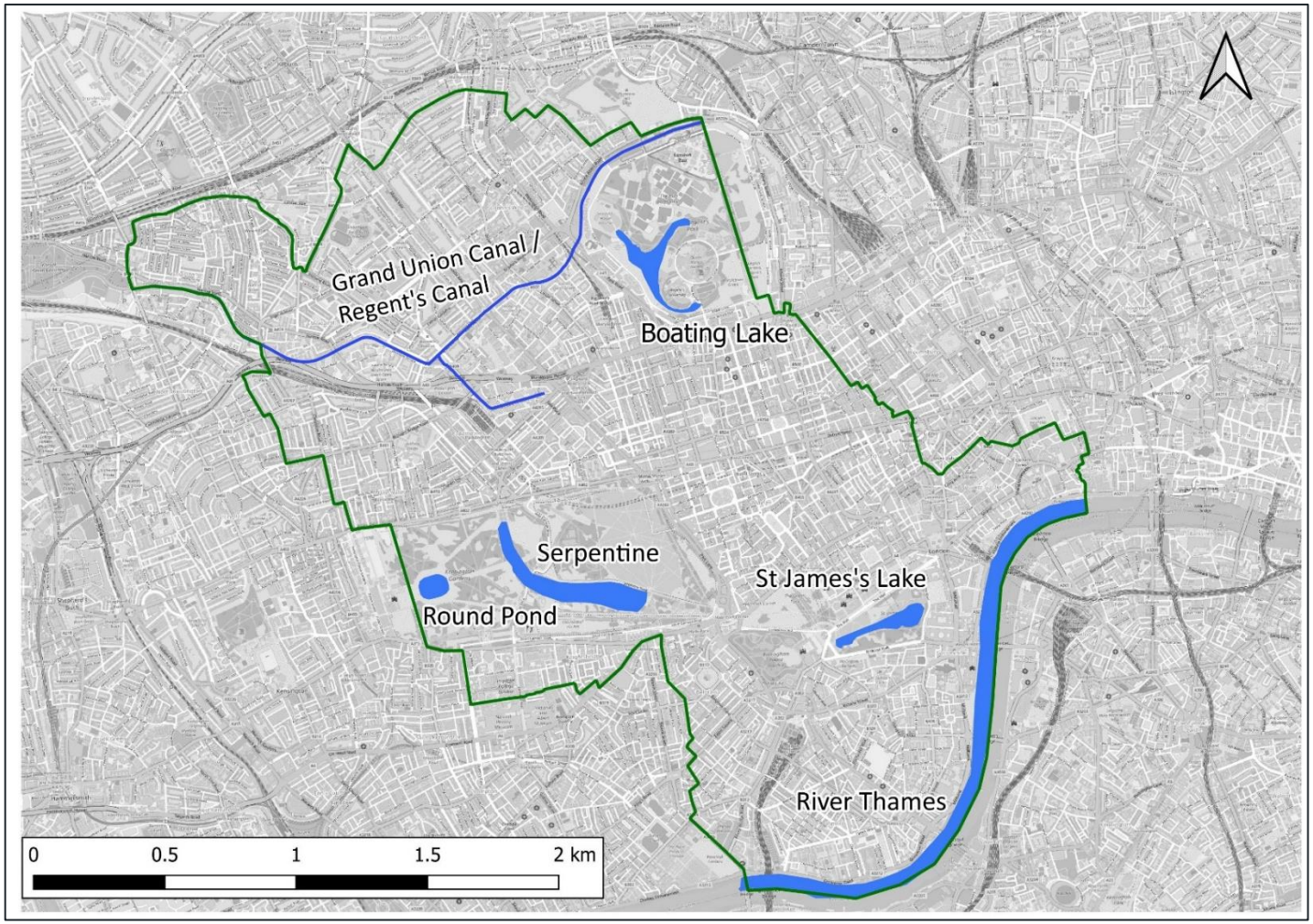
Paddington Basin – Grand Union Canal



The Serpentine



Regent's Park – Boating Lake



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Figure 4-4 - Water Features in Westminster

Climate Change

Climate change is predicted to have a major impact on future flood risk in Westminster, most significantly in relation to tidal and surface water flooding. Current guidance from the Environment Agency suggests that rainfall intensity is likely to increase by between 20% and 40% over the next 100 years. As rainfall intensity increases, the ability of the combined sewer network to deal with extreme rainfall events will decrease. Climate change is also likely to increase the frequency of severe droughts, exacerbating the risk from surface water flooding where very dry ground will be unable to absorb water resulting in increased runoff. In addition, peak river flows are expected to increase, and sea levels are expected to rise. This will have an impact on flood risk from the River Thames; however, it will be mitigated by the operation of the Thames Barrier. If levels and flows are forecast to be any higher, the Thames Barrier would shut, ensuring that the tide is blocked and the river maintained to a lower level. The Thames Estuary 2100 project (TE2100 Plan) identifies the need and potential options for upgrading or replacing the Thames Barrier over the next century.

The Thames Tidal Upriver Breach Inundation Assessment (May 2017) has considered the impact of climate change on tidal breaching of the embankment wall flood defences. These have been assessed for 2100 using the tidal water levels defined by the TE2100 Plan.





5 FUNDING

There is no one single allocated source of funding for flood risk management. Often a combination of funding sources through a partnership funding approach is required to deliver flood resilience schemes. Some potential funding opportunities have been detailed in the following section.

Flood Defence Grant

- Typically, flood risk management schemes in England will seek Flood and Coastal Erosion Risk Management Grant in Aid (FCERM GiA) from the Environment Agency. Funding is provided based on the benefits provided by the project, compared against a baseline, primarily by the number of homes that are better protected.
- To qualify for FCERM GiA, a scheme must demonstrate a minimum funding ratio (defined by the Environment Agency each year, but often above 100%), which is calculated by adding FCERM GiA to any additional funding and dividing this by the total cost of the scheme. Further application stages must then be made, with more detailed information provided at each stage to demonstrate the benefits and justify the FCERM GiA.
- The contribution provided by FCERM GiA is often not sufficient to deliver the scheme and further contributions can be required through partnership funding. This is particularly the case for surface water flooding (and other local flood risk), as it can be difficult to demonstrate the benefits of a surface water management flood scheme through flooding alone.
- Finding contributions from partners can be challenging, however this Strategy should support better collaboration between WCC and partners, resulting in better identification of joint working opportunities and what is needed for partners to contribute to local flood risk management.

Local Government Funding

- LLFAs are also able to apply for revenue funding to fulfil their statutory duties, as identified in the FWMA 2010. This includes the need to develop a Strategy, as well as other requirements such as cooperating with other relevant authorities and investigating and flooding incidents in Westminster.
- To fund these duties, the final local government finance settlement for 2024 to 2025 made over £64.7 billion available to support LLFAs in England. The majority of this local government funding is not ringfenced, recognising that local authorities are best placed to decide how to meet local priorities in their areas, including on flood risk management.

Section 106 agreements

- A section 106 agreement is an agreement between a developer and a local planning authority about measures that the developer must take to reduce their impact on the community. A section 106 agreement is designed to make a development possible that would otherwise not be possible, by obtaining concessions and contributions from the developer. It forms a section of the Town And Country Planning Act 1990.
- Where developers are exploring SuDS on site, WCC will work with them to deliver these in conjunction with existing section 106 agreements. Although the National Planning Policy Framework requires SuDS to be considered where practicable for all new development, the Government is exploring making this a mandatory requirement through the creation of the SuDS Approval Body (SAB).

Funding from other RMAs and Key Stakeholders

- Thames Water have a responsibility for managing risk of flooding via the combined sewer network in Westminster. Any surface water flood risk management schemes undertaken in Westminster will reduce the pressure on the combined sewer network and provide attenuation storage in the system which aligns with the Thames Water Surface Water Management Programme. As such, potential funding from Thames Water may be available and further discussions are planned.
- Additionally, contributions from the GLA and TfL could be sought, as the development of surface water management schemes and SuDS will support the London Sustainable Drainage Action Plan and TfL's targets for green infrastructure.

Private Beneficiary Funding

- Private companies and 'beneficiaries' of flood risk management schemes, typically major landowners whose land or property would be better protected as a result of the scheme, may be able to contribute some funding. This could include Parliamentary Estates and Royal Parks, who have significant local land holdings within Westminster. They could support through sponsorship, generally used to raise the profile of the scheme and the company, by financial contributions or through employee volunteering.

Community Involvment and Volunteering

- Local communities within Westminster can raise money through volunteer run events, sponsorship, and established local groups. It usually requires a specialist community fundraiser who can set up the mechanisms needed and provide support to the community champions leading the events. This can be a great opportunity to deliver community engagement and ownership of the project, as well as raising small amounts of money. Volunteering can be used to bring in funding by counting as match funding; by enhancing a volunteer project with structured training, funding can be obtained from back to work schemes and government initiatives to tackle the growing number of people not in education, employment or training (NEETS).

6 ENGAGEMENT

6.1 ENGAGEMENT APPROACH

A key part of developing the Strategy was undertaking engagement with stakeholders and the local community to both capture local knowledge of flooding issues and understand aspirations for flood risk management to develop the objectives and measures for the action plan.

The following stakeholders were identified as individuals, groups or organisations that could be affected by, interested in or could affect or influence the Strategy:

- WCC internal teams – Highways, Environment, Planning, Planning Policy, Resilience and Housing.
- WCC elected members and senior management – councillors and service directors.
- RMAs – Environment Agency, Thames Water and TfL.
- Other organisations – GLA, Port of London Authority, Canal and River Trust, Network Rail, London Fire Brigade and Royal Parks.
- Local community groups, residents and businesses.

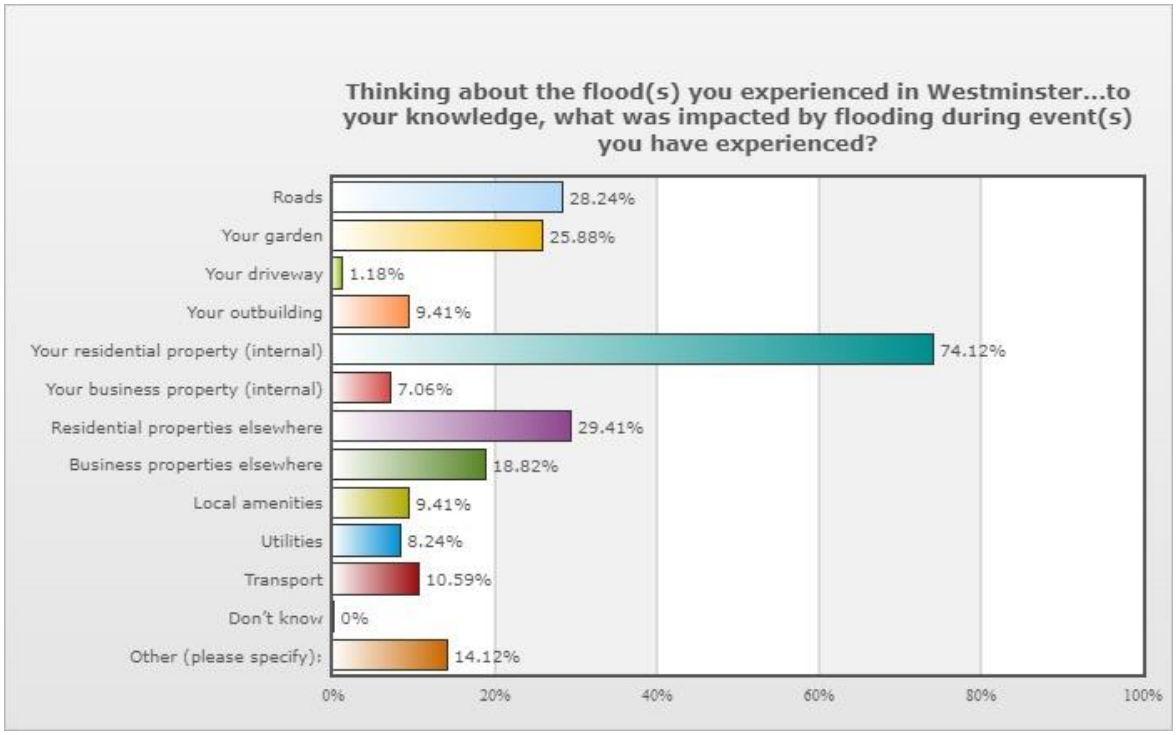
Two engagement activities were carried out to support the development of the Strategy: an online public engagement survey exercise and a stakeholder engagement workshop.

6.2 PUBLIC ENGAGEMENT SURVEY

An online public survey was hosted on WCC's engagement platform Commonplace between 7th July 2023 and 31st October 2023. The survey was promoted using social media posts on Facebook, X, LinkedIn and Nextdoor, where analytics show it reached 1.2 thousand people. WCC officers also attended several community meetings to highlight the survey.

The aim of the public engagement survey was to understand the local community's priorities for local flood management and gather any additional flood incident data. The survey received 298 total responses – 115 partial and 183 completed. Some of the key outputs of the survey are summarised

below, with further details in Appendix B:



- Figure 6-1 summarises what respondents reported to have flooded in their experience, with the majority of flooding (74%) affecting residential properties.
- 72% of respondents believed the main source of flooding in Westminster is heavy rainfall and 66% blocked or overflowing sewers (Figure 6-2), which demonstrates an accurate understanding of the main causes of flooding in Westminster.
- Respondents were also asked what their priorities are for flood risk management in Westminster (Figure 6-3); 70% of respondents think WCC should prioritise improvements to local flood management infrastructure and 41% of respondents want to see more collaborative working between residents, utility companies, WCC and other Risk Management Authorities.
- The survey also showed that 61% of respondents did not feel they were provided with sufficient information after flood events from WCC or Thames Water, with 25% stating that they only received some basic information.
- The respondents outlined that more information is needed on how to prepare and respond to flooding (44%), flood warning services (44%) and who to contact after a flood (49%).

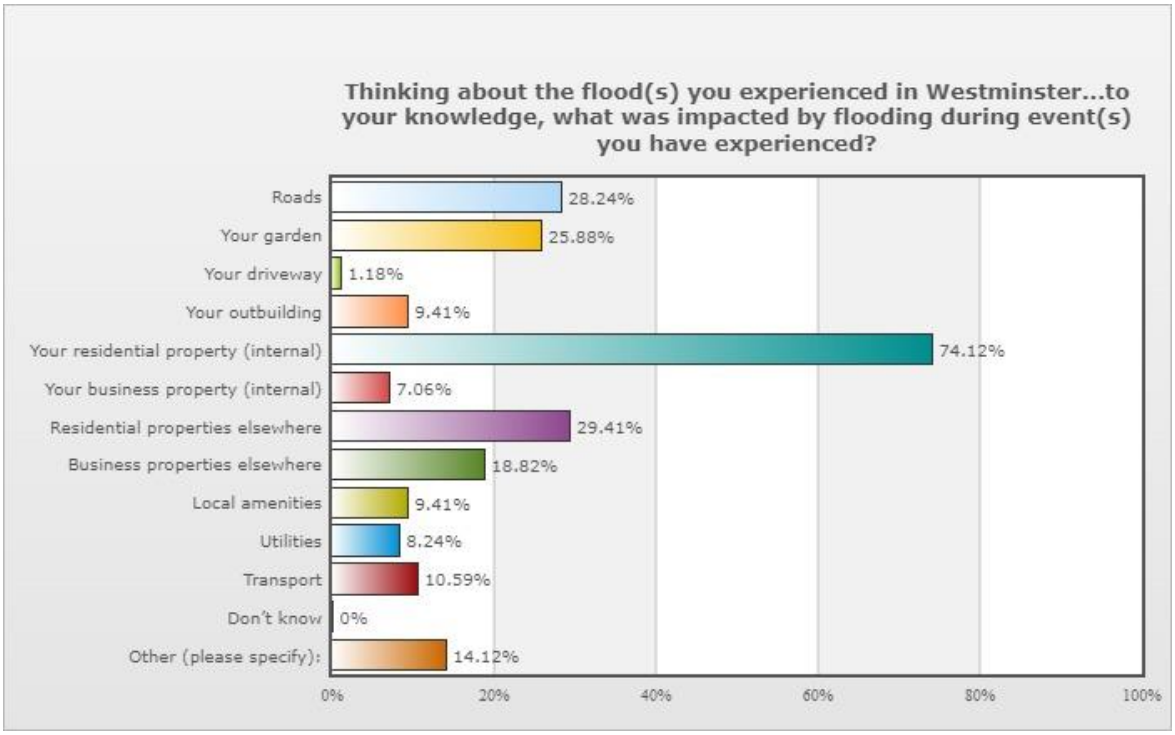


Figure 6-1 – What was impacted by flooding experienced by respondents

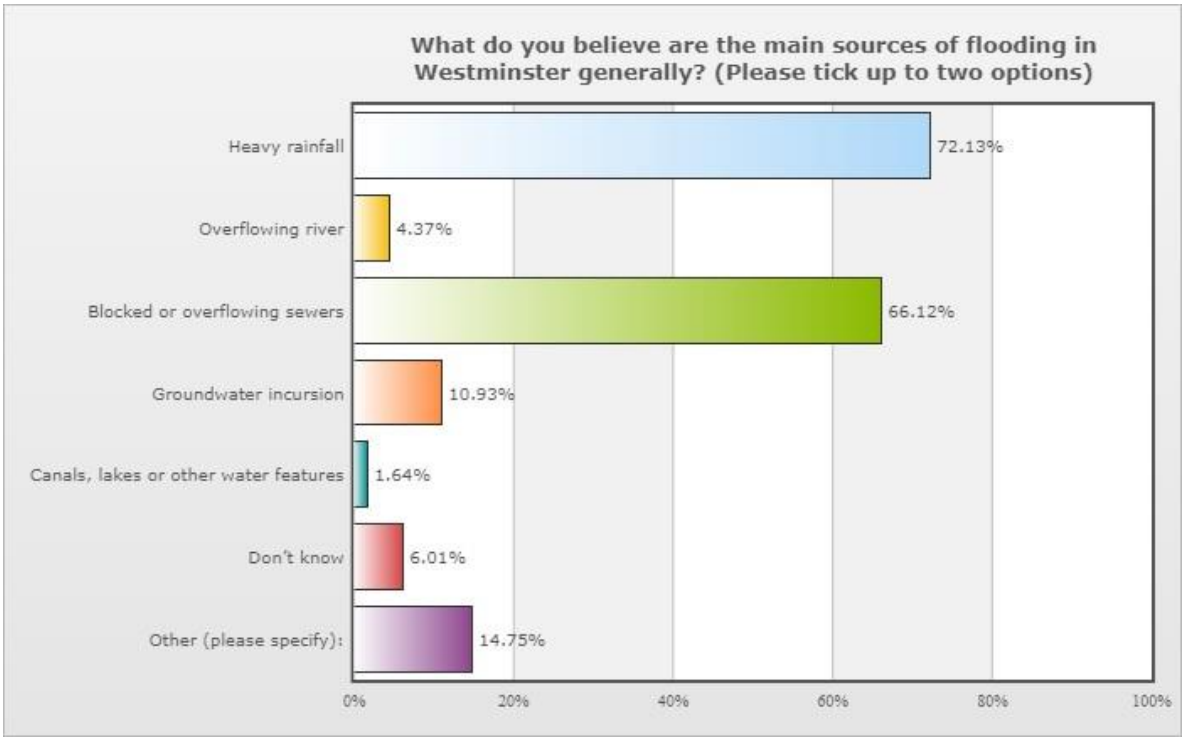


Figure 6-2 – What respondents considered to be the main source of flooding in Westminster



Figure 6-3 – Respondent's priorities for flood risk management

The outputs from the survey were subsequently presented within the stakeholder engagement workshop to help to understand the wider interests of the community and inform the development of the objectives and measures for the Strategy. Section 8 identifies how engagement responses have fed into the strategy development.

6.3 STAKEHOLDER ENGAGEMENT WORKSHOP

The aim of the stakeholder engagement workshop was to develop new objectives and measures as part of the Strategy. This involved all the RMAs and the majority of key stakeholders.

The workshop provided an opportunity for the stakeholders to share views, understand the views of the public, review the previous Strategy and discuss new ideas. It enabled discussion with a clear outcome to shape the priorities for local flood risk management in Westminster.

The objectives and measures for the Strategy were finalised following the stakeholder engagement workshop, ensuring input from all stakeholders was included and results of the public engagement survey had also been considered.

7 OBJECTIVES AND MEASURES

Following the public engagement survey and stakeholder engagement workshop, objectives, measures and actions were defined for the Strategy, reflecting the progress made to date and the further action needed to better manage flood risk in Westminster. Objectives are defined as the overarching vision, aligned with the national FCERM Strategy. Measures are the next step to achieving these objectives, linked to local needs within Westminster. Finally, the measures are broken down into actions, providing specific (and often time-bound) targets.

The objectives and measures are presented below. A more detailed table including breakdown of actions associated with the measures can be found in Appendix C. WCC will continue to work towards delivering each of the objectives with key partners, over the next 6 years.

Objective 1: To better understand and explain the level of local flood risk affecting Westminster with partners, businesses and communities.

Measures

1.1 Create an integrated record of historic flooding and sources of flood risk in Westminster through data collection.

1.2 Quantify, visualise and communicate risk to understand the exposure to risk and the cost that this may incur to businesses, residents and communities.

1.3 Engage with local forums, residents associations, communities, businesses and social enterprise to provide further information in relation to flood risk management.

1.4 Promote a better understanding of flood risk with partners through information sharing and engage in stronger collaboration efforts.

Objective 2: To develop holistic, integrated, multi-beneficial and sustainable approaches to flood risk management in Westminster.

Measures

2.1 Increase opportunities for biodiversity, ecosystem services or urban greening to complement water management in Westminster.

2.2 Continue to implement public realm SuDS with target to attenuate 15% of water above the surface for a 1:30yr event (3.33% AEP) from the SuDS Catchments by 2030.

2.3 Connect complimentary internal and London-wide strategies (including the London Surface Water Strategy) to ensure maximised flood risk and wider environmental benefits are realised.

Objective 3: To promote and ensure preparedness, resilience and recovery to local flood risk with partners, businesses and communities.

Measures

3.1 Implement a system of identifying, contacting and providing support to residents before, during and after flood events by 2026.

3.2 Improve resilience and recovery amongst partners, businesses and communities.

Objective 4: To ensure all development takes an integrated approach to flood risk management, ensuring it is sustainable and delivers improvements.

Measures

4.1 Streamline local planning guidance and clarify necessary documentation for all developments by 2025.

4.2 Ensure all new developments consider SuDS, with preference to above ground SuDS by 2025.

Objective 5: To adopt and implement a collaborative approach to flood risk management in Westminster with partners, businesses, and communities.

Measures

5.1 Engage in regional networks for sharing of knowledge and best practice.

5.2 Work with other RMAs and risk management stakeholders to engage communities.

5.3 Encourage the involvement of communities and businesses in Flood Risk Management.

8 HOW ENGAGEMENT IS INFLUENCING THE STRATEGY

The responses from the Public Engagement Survey and Stakeholder Engagement Workshop helped to shape and influence the development of our Strategy:



You said:
We need more support before, during and after a flood event.

We did:
As part of Objectives 1 and 3, actions have been developed to ensure residents at risk of flooding know where to find information before a flood event and how to get additional help, through personal contact.

You said:
There should be more collaboration with residents and RMAs.

We did:
As part of Objectives 1, 3 and 5, an increased collaboration effort will be made. In particular, there will be more regular attendance at the Central London North Flood Risk Partnership Group (and dissemination of relevant information), public events with other RMAs and more attendance at local neighbourhood forums, residents' associations and business groups.

You said:
There should be more permeable surfaces and SuDS within Westminster to manage surface water flooding.

We did:
As part of Objective 2, we will work towards attenuating 15% of water above the surface for a 1:30 year flood event from our SuDS Catchments by 2030. This can be achieved through actions within Objectives 2 and 4:

- Producing standard details for highways and public realm schemes.
- Retrofitting SuDS.
- Encouraging water reuse.
- Establishing a requirement for all major planning applications to verify the installation of SuDS.
- Providing updated SuDS guidance for developers.

You said:
We need help to understand the risk of flooding in Westminster and report flood incidents.

We did:
As part of Objective 1, we collated all the data regarding previous flood incidents submitted as part of the survey into a GIS database. This will feed into future assessments of flood risk in Westminster. In the future, an online system for reporting flood incidents in Westminster will also be setup as part of Objective 5.

9 WIDER ENVIRONMENTAL BENEFITS

The objectives, measures and actions identified as part of the Strategy will also contribute to achieving wider environmental benefits within Westminster. The following explains which of WCC's environmental goals the Strategy will help to meet:

Green Infrastructure

City Plan Policy 34 demonstrates WCC's committment to protecting and enhancing green infrastructure to maximise its environmental, social and economic value. This is supported by 'Greening Westminster', an annual grant funding programme designed to improve and increase Westminster's green infrastructure and open spaces. Objective 2 of this Strategy will help to create more green infrastructure in Westminster, through the incoporation of SuDS in the public realm. Objective 4 will also ensure new developments consider SuDS, helping to provide those wider benefits such as biodiversity, air quality and microclimate improvements that support climate resilience and greening of Westminster.

Climate Adaptation and Resilience Plan

As part of the Climate Emergency Action Plan, Westminster are developing a Climate Adaptation and Resilience Plan (CARP), which will set out an action plan for protecting the city from current and future effects of climate change. Flooding and heat risk are two of the greatest threats to residents and businesses across the city. The LFRMS will feed into the CARP and ensure all climate hazards are considered holistically and not in isolation. The Climate Emergency Action Plan also discusses the future impact of climate change on flood risk; all of the objectives in this Strategy aim to reduce flood risk and support Westminster communities against the impacts of flooding.

Ecological Emergency

In September 2023, Westminster City Council declared an ecological emergency, recognising the devastating effects of climate change and development on our natural environment as well as committing the council to further action to protect wildlife and improve biodiversity. As above, Objectives 2 and 4 of the Strategy will increase biodiversity and the amount of green space across Westminster through the introduction of SuDS.

Climate Resilient Schools

This programme, led by the GLA in partnership with the Department for Education and Thames Water, aims to make up to 100 London schools more resilient to the impacts of climate change. This includes improving water efficiency, reducing surface water flood risk, helping schools create climate adaptation plans and teaching children the importance of climate adaptation. Two Westminster schools are currently included in the programme - with scope for similar work to be undertaken with even more schools in the future. This feeds into all of the Objectives of the Strategy - engaging with local communities and improving resilience, developing SuDS for schools and working with other RMAs and stakeholders.

A Habitat Regulations Assessment (HRA) and a Strategic Environmental Assessment (SEA) screening have also been carried out to support the Strategy and ensure its implementation would not significantly impact the environment or significantly harm a designated feature of a European site.

10 MONITORING AND REVIEW

10.1 MONITORING PROCESS

To ensure that the Strategy is successful, it is important to review and monitor the progress of the actions against the overarching objectives and measures. Progress on the actions identified within the Strategy will be reported on an annual basis and any interventions required to improve progress will also be identified.

A monitoring framework will also be developed, upon adoption of the Strategy, enabling WCC to keep track of the actions and ensure they are effectively delivered. This monitoring framework will be an internal document which outlines the procedure and frequency for reviewing and monitoring each individual action. The WCC LLFA will be responsible for monitoring and reviewing the actions as outlined in this plan, working with other RMAs and key stakeholders.

10.2 FUTURE UPDATES TO THE STRATEGY

A periodic review of the Strategy will take place at least every 6 years, in accordance with the FWMA 2010, with the next review due in 2030 to update the Strategy. All measures and actions will be reviewed during the strategy period and amended if required, based on both progression and priorities within WCC.

In addition to this, updates to the Strategy may be made more regularly following significant changes in:

- Legislation which may result in changes to policy, which may affect roles and responsibilities.
- Funding arrangements which may affect priorities within WCC.
- New data and evidence which changes the understanding or nature of local flood risk.
- A significant flood event.

10.3 NEXT STEPS

This Strategy presents the commitment of WCC to work with RMAs and other key stakeholders over the next 6 years and beyond, to reduce and manage flood risk across the Borough. Implementation and delivery of the Action Plan will support the approach of the National FCERM Strategy in ensuring we can better adapt to and mitigate against flood risk and climate change.

APPENDIX A: ROLES AND RESPONSIBILITIES

Group		Responsibility
Risk Management Authorities	Westminster City Council Lead Local Flood Authority (LLFA)	Westminster City Council is designated as the LLFA, with a strategic role in overseeing the management of local flood risk in the borough. As the LLFA, Westminster City Council has the following powers: • To undertake works to manage flood risk from surface water, ordinary watercourses and groundwater; • To designate structures and features that affect flooding; and, • To request information from any person in connection with the authority's flood and coastal erosion risk management functions. The LLFA also has the following responsibilities: • Strategic Leadership – bringing together stakeholders and leading the development of a strategy to manage local flood risk in the city; • Developing and maintaining a Local Flood Risk Management Strategy; • Meeting the requirements of the flood risk regulations through producing a Preliminary Flood Risk Assessment; • Maintaining register and records of flood risk management assets; • Designating assets; and, • Investigate flood incidents and to publish flood incident reports; Westminster City Council as the LLFA is also a statutory consultee for major development planning applications with regards to surface water and sustainable drainage.
	Thames Water	Thames Water own and operate the sewerage system, responsible for its maintenance and operation. They have the following specific flood risk management responsibilities: • Provide, maintain and operate a system of public sewers and works for the purpose of effectively draining an area, including maintenance of all drains which serve more than one property or which extend beyond the curtilage of the property; • Respond to flood incidents involving their assets; • Undertake capacity improvements to alleviate sewer flooding problems with priority being given to frequent internal flooding problems; and, • Adopt all new lateral drains and sewers that are to connect to the public sewer from April 2013. Thames Water does not have responsibility for highways or land drainage until surface water enters the combined sewer network in the city.

Group		Responsibility
Risk Management Authorities	Highways Authorities	Transport for London (TfL) are responsible for the Strategic Road Network in the City; they are responsible for London Underground and gullies and culverts, ensuring that these assets do not cause flood risk. Westminster City Council is responsible for the drainage of surface water and highways flooding of all non-TfL roads and the majority of highway gullies and drains. All drainage systems on private land are the responsibility of the landowner. The following key duties apply to TfL and Westminster City Council as the Highways Authorities: • Maintenance of highways, ensuring that highway drainage systems are clear and that any blockages affecting drainage are removed; this is a duty under the Highways Act (1980); and, • Powers to undertake work they consider necessary to prevent flooding of highways.
	Environment Agency	The Environment Agency has a strategic role in flood risk management across the country and takes a strategic overview of the management of all sources of flooding and coastal erosion with specific responsibilities to: • Publish a National Flood Risk Management Plan which provides a clear national framework for all forms of flood risk management; • Managing regional flood and coastal committees (RFCC) and support and advise around decisions made in allocating funding for flood defence and flood resilience schemes; • Review and support LLFAs; • Providing data and information and tools to inform government policy and support local delivery of this; and, • Reporting and monitoring flood and coastal erosions risk management. Operationally the Environment Agency focuses on flooding from main rivers and the sea, which includes the Tidal River Thames in Westminster, rather than local drainage issues related to surface water, groundwater or ordinary watercourses.
Residents, businesses and major landowners		Property owners must consider flood resistance and resilience. Flooding may still occur when RMAs have carried out all of their duties and responsibilities. It is therefore suggested that residents and businesses at ground or basement level consider: • Flood insurance; • Flood resistance and resilience measures; • Signing up to the EA's flood warning scheme; • Prioritising what would be important to save at times of flooding; • Identifying who can help them and who they can help in the event of a flood, or any emergency; and, • To make a flood plan and prepare a flood kit. All homeowners, landowners and businesses have a responsibility to reduce surface and sewer water risks through measures such as disposing of litter, paint, oil and cooking waste responsibly, and keeping their own gullies, gutters and drains clear of blockages.
Developers		Developers should ensure that new developments appropriately deal with the risk of flooding, reducing it where possible and ensuring sustainable surface water management design within the development.

Group		Responsibility
Other key stakeholders	Greater London Authority (GLA)	The GLA has no statutory role in flood risk management; however it led the Drain London project to improve knowledge of flood risk in London, which helped the council prepare its first Preliminary Flood Risk Assessment and draft Surface Water Management Plan. Following the dissolution of Drain London, the London Drainage Engineers Group (LoDEG) was established to support LLFAs by facilitating partnership working, developing relevant tools, provide advice (also to the LoTAG – the London Technical Advisers Group) and promote best practice. The London Plan (2021), which sets out the development framework for London over the next 20-25 years, includes policies regarding flood risk management that should be used to inform planning and development across Westminster.
	London Fire Brigade	The London Fire Brigade are a category 1 responder under the Civil Contingencies Act for flooding. Additionally, the London Fire Brigade have set up a Flood Response system whereby they will deploy their Emergency Response Boats to rescue people in need. Additionally, the LFB also play a part in restoration, post flood events by keeping hospitals, prisons and essential services functional in floods and prioritising vulnerable people / people with mobility issues in flood events. Finally, the LFB also provide guidance on their website on how to mitigate damages from flooding in your home and essential numbers to call in emergencies (Floodline).
	Port of London Authority (PLA)	The Port of London Authority are the custodians of the tidal Thames, responsible for maintaining and supervising navigation, as well as protecting the river's environment. The PLA does not have any specific statutory responsibilities in relation to flooding.
	Canal and River Trust (CRT)	The Canal and River Trust own and manage the canals in Westminster. The Trust does not have any specific statutory responsibilities in relation to flooding and, therefore, its responsibilities are those of an owner and operator of its canals and other waterways.
	Network Rail	Network Rail is responsible for the mainline stations in Westminster (Charing Cross, Victoria, Paddington and Marylebone). They manage the entire track including, cuttings, culverts, and tunnels which can be essential for the management of flood risk. They have a responsibility for ensuring that their assets are maintained and do not result in flooding.
	Neighbouring LLFAs	All of the city's neighbouring boroughs are LLFAs. It is essential that Westminster work in partnership with them to ensure a catchment-based approach to manage flood risk. The Council works with the Central London North Flood Risk Partnership (which comprises Islington, Camden, the City of London, Kensington & Chelsea and Hammersmith & Fulham, the Environment Agency, Thames Water and TfL).
	Thames Regional Flood and Coastal Committee (RFCC)	Regional Flood and Coastal Committees (RFCCs) help to provide governance for the EA's Flood and Coastal Erosion Risk Management (FCERM) functions and cover all flood risks that are not the responsibility of the water companies. RFCCs have three main purposes as follows: • To ensure that there are coherent plans for identifying, communicating and managing flood and coastal erosion risks across catchments and shorelines; • To promote efficient, targeted and risk-based investment in flood and coastal erosion risk management that optimises value for money and benefits for local communities. This includes administration and allocation of Local Levy funding; and, • To provide a link between the EA, LLFAs, other risk management authorities, and other relevant bodies to develop mutual understanding of flood and coastal erosion risks in its area. The council has a seat on the Thames RFCC which is held by an elected member from the authority. Local authority officers attend the meetings in a supporting capacity.

Group		Responsibility
Other key stakeholders	Royal Parks	Royal Parks maintain and manage eight of London's largest open spaces, including the following within Westminster: Hyde Park, Green Park, St James's Park, Regent's Park and Kensington Gardens. Royal Parks have three main purposes related to flood risk, as follows: • Maintaining the soils to store carbon and help manage the movement of waters. • Maintaining the trees and plants intercept heavy rainfall. • To maintain and develop the biodiversity of the Royal Parks, including the protection of their wildlife and natural environment, together with promoting sustainability in the management and use of the Royal Parks.
	Emergency Planning	The Civil contingencies Act 2004 lists local authorities, the Environment Agency and emergency services as 'Category 1' responders to emergencies. Westminster City Council have a duty under the Act to develop emergency response plans, undertake risk assessments, carry out emergency planning and warn and advise the public during times of emergency which includes flooding.
	Planning Authorities	Westminster City Council and neighbouring Boroughs are all planning authorities responsible for ensuring the application of national and local planning policy for managing flood risk and drainage in new development.

APPENDIX B: SURVEY OUTPUTS

APPENDIX C: ACTION PLAN

APPENDIX D: GLOSSARY

Glossary	Abbreviation	Definition
Annual Exceedance Probability	AEP	A statistical measure used in hydrology and risk management to estimate the likelihood of a given river flow exceeding a specific threshold value in any given year.
Flood Zone 2	FZ2	Flood Zone 2 is a medium-risk flood zone with annual probability of river flooding between 1.0% and 0.1% AEP.
Flood Zone 3	FZ3	Flood Zone 3 is a high-risk flood zone with annual probability of river flooding of 1% AEP. Flood Zone 3 can be separated into 3a and 3b by the local planning authority.
Habitat Regulations Assessment	HRA	A Habitats Regulations Assessment is a process that determines whether or not development plans could negatively impact local plans on a recognised protected European site beyond reasonable scientific doubt.
Lead Local Flood Authority	LLFA	Lead Local Flood Authorities are part of county and unitary authorities that lead in managing local flood risks from surface water, ground water and ordinary watercourses.
Rainfall Return Periods	1:30yr 1:100yr 1:1000yr	Rainfall return periods are used to describe the likelihood of specific rainfall amounts occurring within a given time frame.
Risk Management Authorities	RMA	A term used to describe organisations that play a major role in managing and mitigating flood and coastal erosion risks.
Strategic Environmental Assessment	SEA	A Strategic Environmental Assessment is an organised procedure to assess environmental impact associated with a program, plan or policy.
Strategic Flood Risk Assessment	SFRA	A Strategic Flood Risk Assessment is a document that assesses and maps the risk of flooding from all sources and the impact of climate change. It is used by planning authorities when making land use allocations and determining planning applications.
Sustainable Urban Drainage Systems	SuDS	Sustainable Drainage Systems are designed to manage stormwater locally (as close to its source as possible) to mimic natural drainage and encourage its infiltration, attenuation and passive treatment.
Surface Water Management Zone	SWMZ	LLFA defined areas in Westminster at high risk of surface water flooding.



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