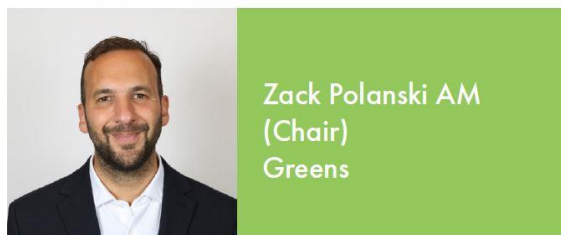


An aerial, top-down view of a city map, likely London, rendered in various shades of green. The map shows a dense network of streets and a prominent river winding through the center. Scattered across the map are several small, realistic human figures in various poses and outfits, suggesting a busy urban environment. The overall aesthetic is clean and modern, with a strong focus on urban planning and environmental themes.

London Under Water
Environment Committee

LONDONASSEMBLY

Environment Committee



The Environment Committee examines all aspects of the capital's environment, by reviewing the Mayor's strategies on air quality, water, waste, climate change and energy.

Contact us

Zoe Oliver-Watts

Assistant Director, zoe.oliver-watts@london.gov.uk

Anthony Smyth

External Communications Officer, anthony.smyth@london.gov.uk

Jack Booth

Committee Officer, jack.booth@london.gov.uk

Contents

London Under Water	1
Environment Committee	2
Foreword.....	4
Recommendations	5
Introduction	7
Coordination of flooding response services	14
Londoner’s flood awareness.....	22
Investigation meetings.....	27
Other formats and languages	28
Connect with us	29

Foreword



Zack Polanski AM
Chair of the Environment Committee

The message of our investigation is clear – we need to listen to the scientists.

London has already declared a climate emergency and we need to make sure that all of our policies and communications reflect the urgency required.

Flooding is not a future risk. We've already seen the devastating effects it can have on Londoners, their homes, and their businesses. – We must take action to both mitigate for the causes and create resilience to future floods. And all evidence points to an escalation of this in the future.

Extreme weather events have caused substantial disruption and destruction to our city in recent years. Our investigation highlights multiple flooding incidents in summer 2021, that caused flooding in hospitals, residential and commercial properties; people trapped in cars; train cancellations; and, reportedly, structural damage such as ceilings collapsing. We've seen around the world tragic consequences where cities have not risen to the challenge with the speed necessary and I hope that this cross-party report's recommendations will be seen as part of the action necessary.

I hope that our cross-party recommendations will be considered as part of the action necessary to future-proof London and protect the 200,000 properties at risk of flooding. I'm pleased to see the cooperative and multidisciplinary approaches that are taking place in response to recent flooding, and hope to see this work continue.

In this report, we welcome the creation of a Strategic Group on flooding, and also call on the Mayor to convene an annual meeting of partners to consider London's preparedness for future surface-water flooding events, and to report regularly and transparently on its assessment of risk.

Thanks to all the guests who came to the Environment Committee to offer their expertise in what is undoubtedly a huge challenge for our city, and to those who shared their photos and experiences with us via social media.

Recommendations

Recommendation 1

In response to this report, the Mayor should set out the ways in which London's flooding incident response has changed in the last year, following the work of the Flooding Roundtable and the Surface Water Task and Finish Group, and the progress that has been made on establishing the new Strategic Group.

The Mayor should outline what funding and/or staffing support has been provided by the GLA to tackle the issue of surface-water flooding in London since the summer of 2021, and explain what commitments the GLA made to further funding or resources at the 8 December 2022 meeting of the Group.

Recommendation 2

Through London Resilience, the Mayor should annually bring together key partners – including the Environment Agency and relevant Government ministries; the GLA; local authorities; Thames Water; Affinity Water; Transport for London; and London Fire Brigade – to reassess and re-evaluate London's preparedness for future surface-water flooding events and the level of risk attached to flood events. The work of such a group should be transparent, so it should publish an annual report on activities and assessment of risk.

Recommendation 3

Following the completed London Strategic Sustainable Drainage Systems (SuDS) Pilot Study (LSSPS), the Mayor should regularly review the Urban Greening LPG with regard to SuDS and strengthen it as necessary, in light of the developing climate emergency. The Mayor should work with Thames Water and other partners to ensure the £1 billion investment needed in SuDS infrastructure is in place quickly for high-priority locations. In response to this report, the Mayor should also provide an update to the Committee on progress following the LSSPS, including what additional investment has been secured and spent so far.

Recommendation 4

We welcome the Mayor's communication on flood risks to Londoners living in basements. However, the Mayor should further expand his communication to raise awareness among Londoners of flood risk and what actions they can take. This should include:

- targeted communication toward the 200,000 properties at risk of flooding, including small businesses and schools; such targeted campaigns are only useful if they:

- occur regularly, taking into account the level of ‘churn’ in London residences
- are well-timed ahead of known flood-risk seasons
- include clear information on who residents should call when they are flooded
- exploring cost-saving measures, i.e. options to include these warnings in existing formal correspondence such as water bills or council tax
- liaising with London Fire Brigade and their outreach work on flooding
- conducting broader communication campaigns using the tube and bus network advertisement hoardings to widely publicise the danger of flooding in basements.

Such a communication campaign should also highlight the positive actions that Londoners can take to mitigate and/or reduce the risk of flooding, such as:

- in the short term, ensuring necessary and up to date flooding insurance
- in the long term, maintaining green space in front gardens, and the flooding-related consequences when these are paved over.¹

Recommendation 5

The Mayor should focus some of his flooding communications on explaining the flooding-related consequences of Londoners paving over or replacing their green space with artificial grass. The Mayor, along with councils, should promote the opportunity for Londoners to help prevent flooding in London by retaining and improving their green space.

The Mayor should work with London’s boroughs to lobby Government for greater powers to: enforce rejection via planning of impermeable paving in front gardens; and refuse basement developments in flood-risk areas.²

¹ The Labour Group dissents from this recommendation. See Recommendation 5 footnote for details

² The Labour Group are unable to agree with the direction of Recommendations 4 and 5 of this report. We believe these targeted communications should be the responsibility of the Environment Agency, the water companies in London, primarily Thames Water and Affinity Water and local councils.

The intention of Recommendation 4, especially the need for more communication on the risks of flooding and what action householders can take, is welcome. However, these communications should not be the direct responsibility of the Mayor of London. Instead, the Recommendation should call on the Mayor to lobby Government to ensure the Environment Agency and Water Companies send these important communications. This is because the Environment Agency and the Water Companies have responsibility for flooding and the resources to send these messages. Water Companies already communicate on at least an annual basis with their customers in the form of sending water bills, so the additional information on flooding risks should be included, for targeted households, as part of these regular mailings.

Flood prevention is also partly the responsibility of local Councils. They are responsible for keeping gullies and drains clear, as well as having the powers to agree to pavement crossovers, introduced when front gardens are turned into parking areas. Recommendation 5 should therefore call on Councils to explain the consequences of impermeable surfaces such as artificial grass or of paving over driveways, to their local residents.

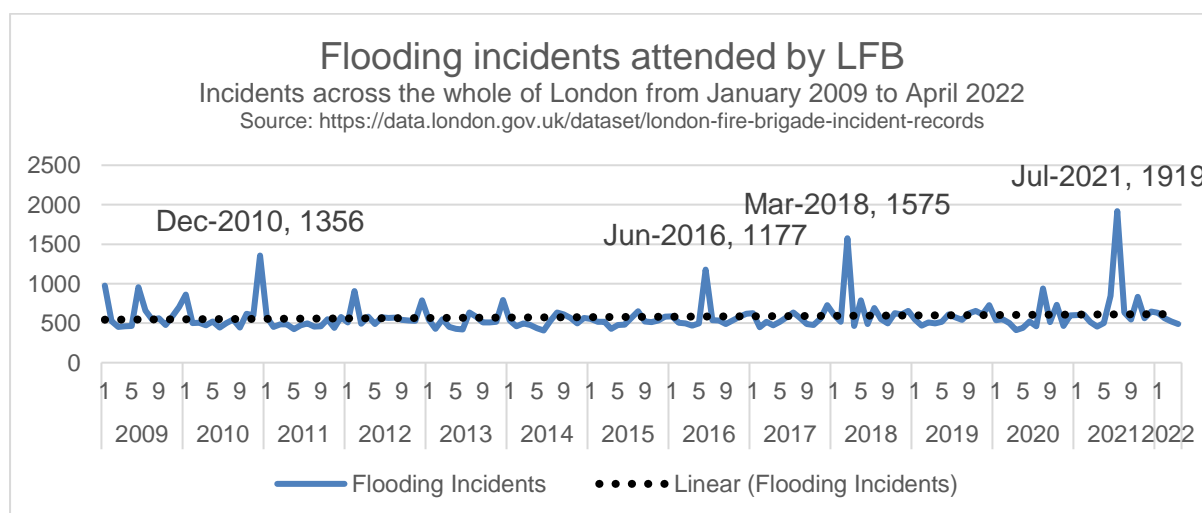
Introduction

The threat that climate change poses to London is significant and long-lasting. In September and December 2021, the Environment Committee held meetings on the topic of climate adaptations and climate risks in London, including heatwaves, with a particular focus on the surface-water flooding in London in summer 2021. The Committee further asked the Deputy Mayor about progress on flooding work at its recent meeting in December 2022.

In the latest progress report of London’s Environment Strategy, the Mayor stated that 200,000 commercial and residential properties are at risk of flooding from heavy rain.³ The London Risk Register rates surface-water flooding as a ‘very high’ risk where:

“surface-water flooding in a large metropolitan area caused by a warm unstable atmosphere, most likely to occur in summer due to the warmer atmosphere having a greater water holding capacity, causes a pattern of convective rainfall events.”⁴

The graph below shows flooding incidents attended by London Fire Brigade (LFB) between January 2009 and April 2022, with the four most significant peaks highlighted. The graph suggests that total callouts for flooding are gradually increasing; and that flooding incidents are becoming more frequent, with three of the four highest callout events taking place since 2016. The most pronounced peak incident took place in July 2021.



During summer 2021, the effects of increased rainfall in London resulted in multiple flooding incidents. The substantial disruption and destruction caused to London highlighted both the city’s vulnerability to, and lack of preparedness for, such events.

³ GLA, [London Environment Strategy: Second Progress report \(2019-2021\)](#), September 2021

⁴ GLA, [London Risk Register](#), February 2022

The Met Office states that, as the climate continues to warm, heavy rainfall events are expected to become more common:

“rain that does fall in summer will likely be more intense than what we currently experience. For example, rainfall from an event that typically occurs once every two years in summer is expected to increase by around 25 per cent. This will impact on the frequency and severity of surface-water flooding, particularly in urban areas.”⁵

Flooding in London, July 2021

During July 2021, severe storms and associated rainfall hit London, which caused flooding across the capital. The Met Office reported:

“On 12 July, a month’s worth of rain fell in an hour and on 25 July, a month’s rain fell in a couple of hours. The sewer flooding in West London on 12 July was worsened by high tides that coincided with the storms, closing the combined sewer outfalls, preventing the system from overflowing into the Thames.”⁶

The Met Office went on to report that, on 12 July, some areas of London, including Kensington, Westminster and Hammersmith, received almost 80 mm of rain during the day, which accounted for approximately 170 per cent of average rainfall in July.⁷

Similarly, with regards to flooding events on 25 July, the Met Office later reported that Walthamstow received almost double the average rainfall in July during one hour of the storm.⁸ A yellow thunderstorm warning had been in place, upgraded to an amber thunderstorm warning during the day itself.⁹

LFB took more than 1,000 calls during the second bout of flooding, with firefighters attending hundreds of incidents across south west and north east London – including supporting the removal of flood water from Whipps Cross Hospital in Waltham Forest.

Flash rainfall in July 2021 had numerous impacts, including causing flooding in hospitals, residential and commercial properties; people trapped in cars; train cancellations; and, reportedly, structural damage such as ceiling collapse.¹⁰¹¹¹²

⁵ Met Office, [UK and Global extreme events – Heavy rainfall and floods](#)

⁶ Thames Water, [Internal Review into the 12 and 25 July 2021 storms in London](#), November 2021

⁷ Thames Water, [Internal Review into the 12 and 25 July 2021 storms in London](#), November 2021

⁸ Thames Water, [Internal Review into the 12 and 25 July 2021 storms in London](#), November 2021

⁹ GLA, [Surface Water Flooding in London: Roundtable progress report](#), March 2022, p.29

¹⁰ LFB, [Flooding – south west and north west London](#), 13 July 2021

¹¹ LFB, [Flooding across London](#), 25 July 2021

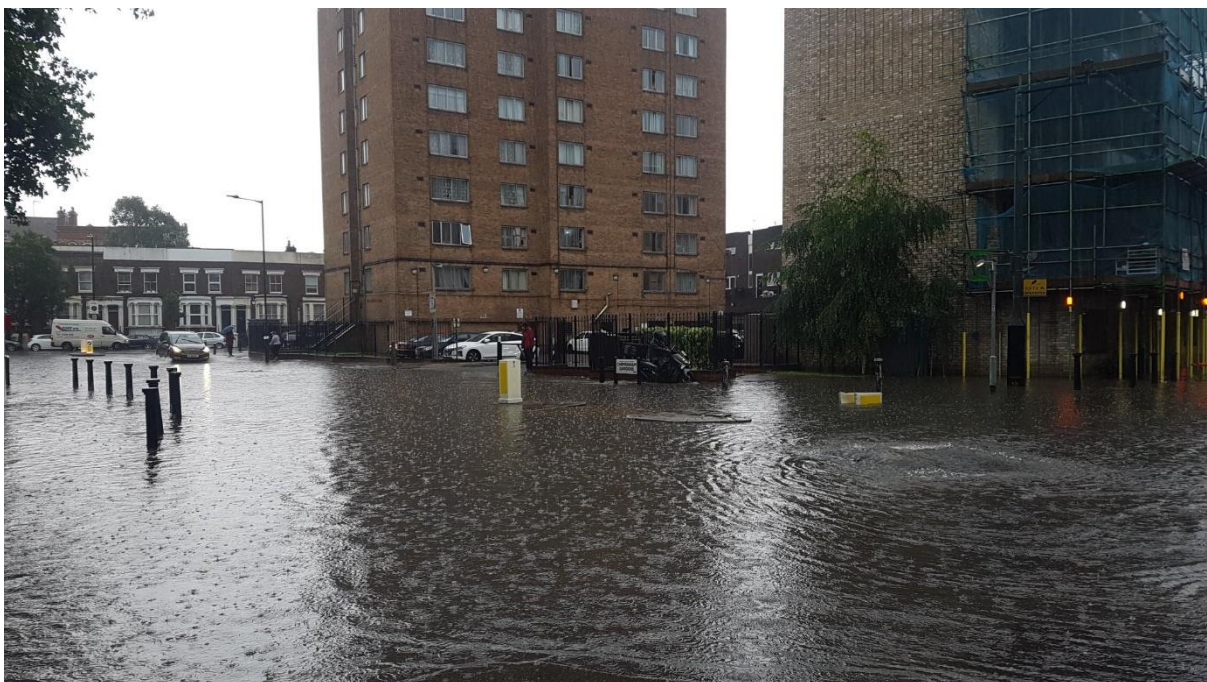
¹² BBC News, [Flash floods: Parts of London receive a month of rain in one day](#), 13 July 2021

Flooding in London, August 2021

In a single day in August 2021, London faced 50 flood incidents caused by heavy rain.¹³ The Met Office had issued severe weather warnings and, as reported in *The Guardian*, stated:

“The City of London had had 117 per cent of its usual August rainfall already, with 60mm (2.4in) of rain falling on the capital up to 17 August, compared with 51mm usually seen over the entire month.”¹⁴

The flooding caused numerous incidents in London, including flooded roads in Battersea and Tooting in south west London; closure of Stepney Green and Holborn underground stations due to the flooding; and closure of a platform at Liverpool Street Station.¹⁵



¹³ *i News*, [London streets submerged as thunderstorms spark flood warnings across UK](#), 7 August 2021

¹⁴ *The Guardian*, [UK weather warning as thunderstorms to bring risk of flooding](#), 20 August 2021

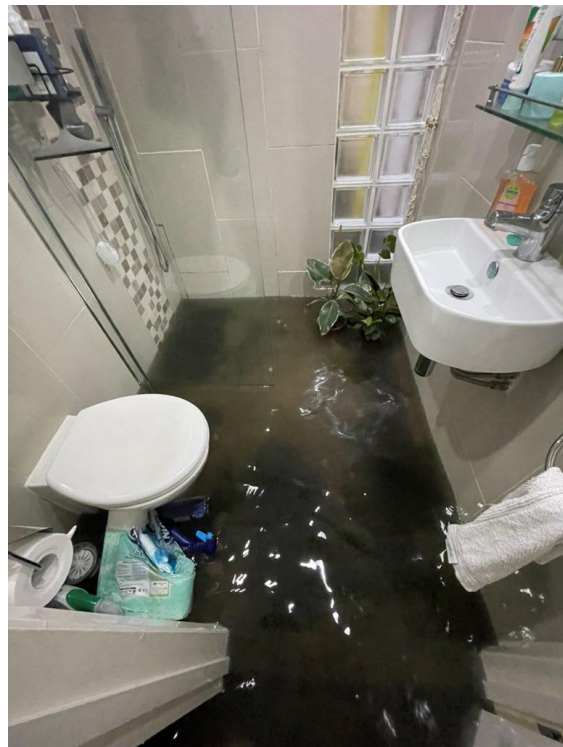
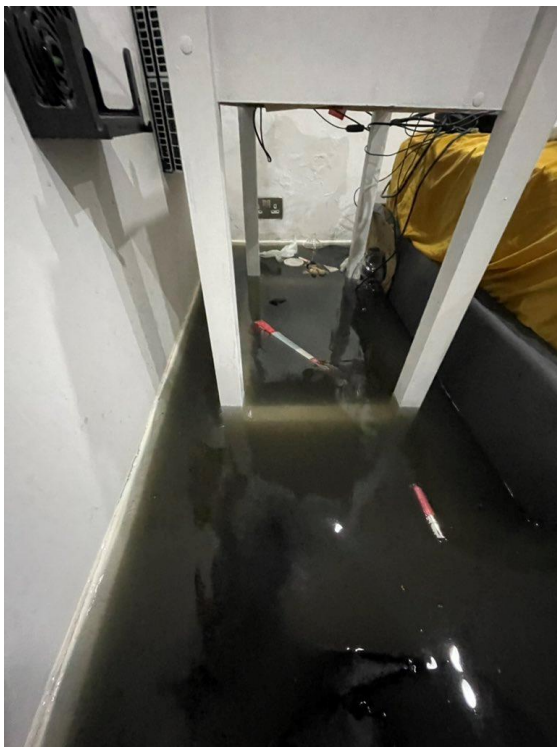
¹⁵ *The Independent*, [London floods: Streets submerged again as torrential rain triggers more flooding](#), 7 August 2021



Source: Photos shared on social media at time of flooding. Credit: Ben Polwin/Twitter



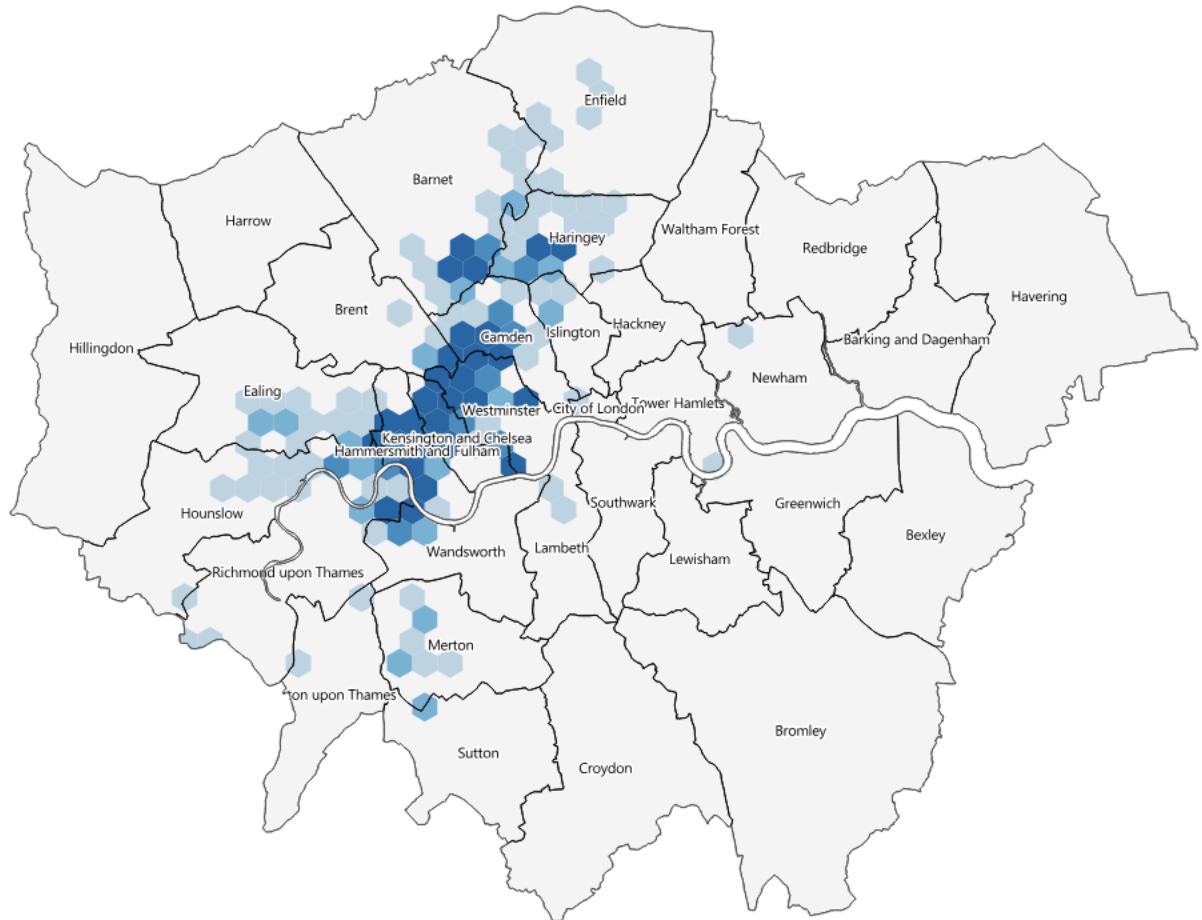
Source: Photos shared on social media at time of flooding by Credit: @ClareSKeogh/Twitter



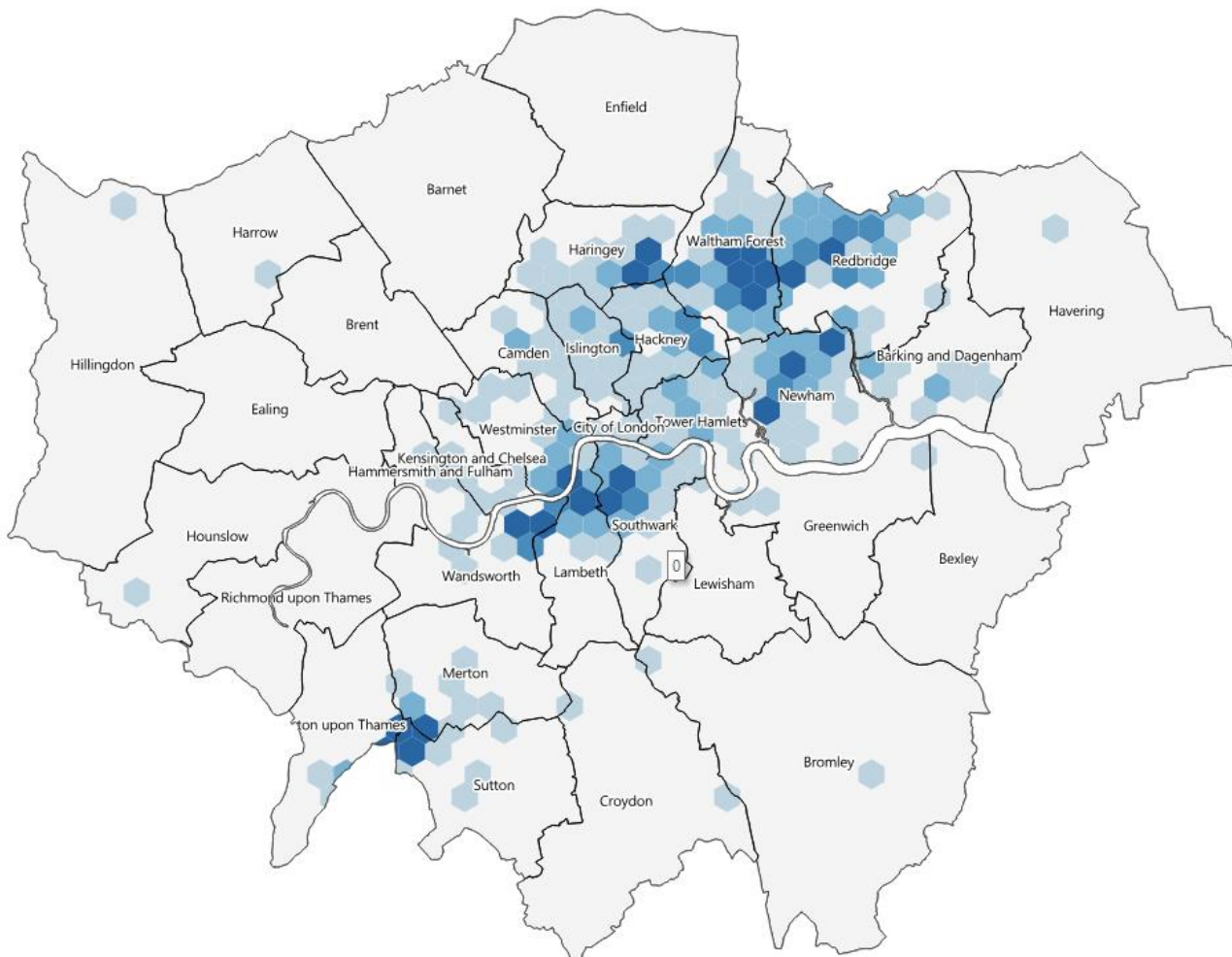
Source: Photos shared on social media at time of flooding. Credit: @Hale_Fail/Twitter

Maps of flooding incidents in summer 2021

Flooding calls received by LFB between 4pm on the 12th of July and 4pm on the 13th of July 2021



Flooding calls received by LFB between 10am on the 25th of July and 5:30am on the 26th of July 2021



Source: LFB Business Intelligence team, London Resilience Forum¹⁶

¹⁶ The LFB Business Intelligence team produced maps to show the distribution of the flooding calls received by LFB Control. For each event there is a 2km hexagon scatter grid of London. The maps represent calls to LFB Control, not LFB attendance to incidents. The data used is every individual call to 999 that went through to LFB Control, during the times shown, that included ‘flood’. This doesn’t mean it was an actual incident or that LFB necessarily attended. Mapping is based on the easting and northing attributed to the address given for the incident. Data was queried by looking for the term ‘flooding’ – so, for example, a call could be a result of a call to a boiler flooding rather than as a result of the extreme rainfall event. Also, if multiple calls were received about the same location/flooding incident, this would show up as multiple calls on the maps. It is uncertain if this data includes all calls handled by other fire and rescue services on behalf of LFB and then put through to LFB Control, due to the way data is captured in relation to those calls.

Coordination of flooding response services

During the Environment Committee meeting in September 2021, the Committee asked about the recent flooding events, and about what guests saw as the key learning from the response of agencies, including the Mayor. A major theme that came across in the evidence was around improving communications and improving partnership working.

It became evident, through the discussions, that London's flooding response infrastructure is complicated; and that when extreme weather events occur, there are several key players involved, including the GLA, local authorities, Thames Water and Affinity Water, TfL, the Environment Agency, the Maritime and Coastguard Agency, and the Met Office, all of which have their own responsibilities and legal duties regarding safety, incident response, infrastructure maintenance, and predicting and planning for flooding incidents. Deputy Mayor Shirley Rodrigues commented:

“There is a very convoluted process; for example, when the water hits the road then it is the local authority function, but as soon as it goes into the drain it is the utility, water or drainage companies’ responsibility – it is complicated. It does not help in terms of then: ‘Well, whose responsibility is it when the leaves are halfway in the drain, is it the borough or is it the householder?’”¹⁷

The GLA team provided the following diagram of flood-risk responsibilities:

¹⁷ London Assembly Environment Committee – 7 December 2022, Transcript of Agenda Item 5 – A Green and Just Transition for London's Businesses – Panel 1

Organisation	Flood type risk								
	Main rivers (large rivers) and Coastal	Ordinary watercourses (small rivers)	Surface water	Ground water	Sewer flooding	Road drainage	Offsite reservoir	Onsite reservoir	Canals and artificial waterways
Environment Agency	X								
London Boroughs (Lead Local Flood and Highways Authorities)		X	X	X		X Non Motorway or TLRN (Transport for London Route Network) roads	X		
National Highways						X Motorway Roads			
Transport for London (TfL)						X Red route roads TLRN			
Utility Companies					X				
Canal and Rivers Trust									X
Reservoir Owner								X	

Source: London Strategic Flood Response Framework (adapted)

The Committee heard from Charlotte Wood, London Area Director at the Environment Agency, who stated that, following a number of historic reviews and previous recommendations, it is clear who is responsible operationally. However, Ms Wood stated that in practice it is a complicated remit, and the reviews and recommendations also looked

at how organisations can work together better. Ms Wood also reflected on the lessons that could be learnt from the initial response to flooding events in 2021:

We have spoken a lot about how we are working together. That is not necessarily the issue, but a sharper focus on some of those collaborative approaches and partnership working is what we need to move forward on now and to try and find those real solutions to some of the problems.

There were absolutely some immediate lessons that we all could have learned from. One that jumps to mind is there was a suggestion to have had a partnership call earlier on and bring together all of our partners to talk about the fact that we knew thunderstorms were coming.

**Charlotte Wood, London Area Director,
Environment Agency**

These thoughts on improving communications and partnership working were reflected in evidence from other guests – including Alex Nickson, Wastewater Systems Strategy Manager at Thames Water.

I would flag that London's drainage system is not just Thames Water's assets. We are just at the bottom of the hill where the water wants to run to. It is a combination of lost rivers, main rivers, ephemeral rivers, the highway agency, local authority drainage, private drains, etc, and everyone needs to work collaboratively together to find a long-term solution to this challenge.

**Alex Nickson, Wastewater Systems Strategy Manager
Thames Water**

New coordination mechanisms

Following the extreme flooding incidents in London 2021, the London Councils Transport and Environment Committee (TEC) put in place a Surface Water Task and Finish Group to develop recommendations for a longer-term response.¹⁸ The Group's recommendations to the TEC Executive Sub Committee were published in February 2022; a strong recommendation was the establishment of a strategic group to provide leadership on

¹⁸ London Councils, [Surface Water Flood Risk Management in London](#), March 2022

surface-water management in London, agree a vision for how to manage the risk of flooding and develop a strategy to achieve this vision.¹⁹

It was also recommended that a ‘transition group’ be set up to support the establishment of the Strategic Group, and to develop the scope for the strategy and plan. The GLA has committed £50,000 and officer time as in-kind support. The recommendations were supported by the TEC Executive Sub Committee; the transition group has since commenced work to implement the recommendations and establish the Strategic Surface Water Management Group.²⁰

Thames Water commissioned a London Flood Review following the flooding events in July 2021. The review, conducted by an independent expert group, seeks to: better understand the extent causes of the flooding; assess how London’s drainage system performed; and recommend how the increasing risks of future flooding events can be managed.²¹ The final report, published in July 2022, set out what happened; it found that the sheer scale of the rainfall in both events “exceeded the current, and expected design capacity of the below-ground system”, causing surface and sewer flooding, and affecting over 1,500 properties in London.²²

The report makes recommendations for improvements in the areas of governance, funding, evidence, communication and strategic planning, including a range of options related to data management, cross-organisational working, design of flooding schemes, rainfall forecasting and monitoring, and planning policy.²³ However, it notes that there are limitations to these measures in terms of funding and capacity, and states:

“Even if all the recommendations in this report are taken forward by the risk management authorities, there is still potential for large-scale flooding to occur in rare intense rainfall events. It will be how we manage the impact in the future that will make the most difference.”²⁴

A key governance recommendation recognised the progress made by the Surface Water Task and Finish Group, and noted that plans to set up a Strategic Group were complex.²⁵ However, it included a recommendation, cited below, reinforcing the need to create such a new structure for coordination:

“Establishing a body with a strategic view and governance, with representation from all parties with responsibility for flood management, so that surface water and sewer systems

¹⁹ London Councils, [London Councils’ TEC Executive Sub Committee](#), 10 February 2022

²⁰ London Councils, [Surface Water Flood Risk Management in London](#), 2 March 2022

²¹ Thames Water, [London Flood Review](#)

²² Thames Water, [London Flood Review: Stage 4 report](#)

²³ Thames Water, [London Flood Review: Stage 4 report](#)

²⁴ Thames Water, [London Flood Review: Stage 4 report](#), p.1

²⁵ Thames Water, [London Flood Review: Stage 4 report](#), p.18

can be assessed, and investments designed to optimise outcomes across different organisational boundaries.”²⁶

It recommended that such a body report annually against these plans.²⁷

Mayoral programmes

The London Environment Strategy sets out the Mayor’s overall vision to protect and improve London’s environment. His progress was most recently documented in the London Environment Strategy: Second Progress report (2019-21).²⁸ Some of the actions around flooding the Mayor has taken so far include the following:

- The GLA sponsored the LSSPS,²⁹ a pilot study that showed the benefits of multiple small SuDS schemes and comparable performance to large flood-alleviation schemes.
- Grow Back Greener programmes provided £1.8 million of investment to support 40 projects tackling surface-water flood risk.
- The GLA published sector-specific sustainable drainage guidance for six sectors (schools, social housing, parks and greenspaces, hospitals, offices and retail). In addition, the Mayor has developed training for highways officers and more than 300 officers have been trained.
- The Mayor continues to convene the Water Advisory Group, attended by London’s four water companies, to ensure that water infrastructure is resilient to climate change.

SuDS have formed a core part of the response to surface-water flooding in London for several years. Sustainable drainage can include green roofs; water storage tanks; paving that lets through water; and drains that lead to unpaved areas where water can soak away. Features such as ponds and green areas can often enhance the appearance, liveability and environmental value of the site.

Following the incidents in summer 2021, the Mayor convened a flooding roundtable with key partners, chaired by the Deputy Mayor for Environment and Energy. The purpose was to look at the incidents and the response to them; and at longer-term challenges and how to prepare for those.³⁰ It published a roundtable progress report on surface-water flooding in London in March 2022.³¹

²⁶ Thames Water, [London Flood Review: Stage 4 report](#)

²⁷ Thames Water, [London Flood Review: Stage 4 report](#), p.18 and 51

²⁸ GLA, [London Environment Strategy: Second Progress Report](#), September 2021

²⁹ SuDS have been adopted in London for several years.

³⁰ London Assembly Environment Committee, [Transcript of Agenda Item 6 – Climate Adaptation and Climate Risks in London](#), 30 September 2021

³¹ [Surface Water Flooding in London: Roundtable progress report](#), March 2022

What we need is more effective coordination across all of the authorities involved. The recent surface-water flooding incident is a great example. What is clear is there is a need for a more integrated, effective plan for London. The lead flood authorities are required to cooperate, but can that be strengthened?

**Peter Daw, Assistant Director, Environment and Energy, and Head of Climate Change
GLA**

In December 2022, in response to the Committee’s request for an update on progress in establishing a new Strategic Flood Group, Deputy Mayor Shirley Rodrigues said that a new “office transition group” would hold its first meeting on 8 December 2022, co-chaired by London Councils and the Environment Agency. This would be a transition arrangement, in which organisations were:

“coming together to talk about how we are going to support the work programme in terms of funding just to get the work programme kicked off, and how we lobby Government and access funding for London from the Regional Flood and Coastal Committees (RFCCs) who hold the funding from the EA and, ultimately, Government.”

She indicated that some major work was still ahead, stating: “Then the big thing is starting work on what measures we need to come together to agree on and the strategy for surface-water flooding.”³²

The GLA later clarified that the transition group for the Strategic Surface Water Group that met on 8 December 2022 was comprised of:

- London boroughs – maximum total of six representatives drawn from Chair and Vice-chairs of London Councils’ TEC and/or Thames RFCC Strategic Partnership Leads
- Mayor of London – Deputy Mayor for Environment and Energy
- Environment Agency – London Area Director
- TfL – Chief Health, Safety and Environment Officer
- Thames Water – Strategic Resource and London Operations Director
- LFB – Assistant Commissioner
- Thames RFCC – Independent Member.³³

³² London Assembly Environment Committee – 7 December 2022, Transcript of Agenda Item 5 – A Green and Just Transition for London’s Businesses – Panel 1

³³ Correspondence from GLA Climate Change Adaptation team 7 December 2022

The Deputy Mayor said that the first meeting would address issues of roles and accountability, and that the responsible partners “are trying to agree is how that is funded”, but she has committed some GLA funding and GLA resources for the group. She commented, “We need somebody who is dedicated to working on this.”³⁴

The Committee welcomes these developments as a way of improving the coordinated response to such events, and endorses the recommendations set out by the Surface Water Task and Finish Group, co-chaired by London Councils and the Environment Agency. However, the Committee believes this is an area in which the Mayor can and should go further to ensure that there is an effective plan in place for flooding incidents in London; and that London is resilient to future flooding incidents. In December 2022, more than a year after the 2021 summer flooding, the Deputy Mayor acknowledged that she could not be confident that the city’s resilience to a similar flooding event had improved everywhere in London, although she noted that awareness of flood risk had improved.³⁵

Recommendation 1

In response to this report, the Mayor should set out the ways in which London’s flooding incident response has changed in the last year, following the work of the Flooding Roundtable and the Surface Water Task and Finish Group, and the progress that has been made on establishing the new Strategic Group.

The Mayor should outline what funding and/or staffing support has been provided by the GLA to tackle the issue of surface-water flooding in London since the summer of 2021, and explain what commitments the GLA made to further funding or resources at the 8 December 2022 meeting of the Group.

Recommendation 2

Through London Resilience, the Mayor should regularly bring together key partners – including the Environment Agency and relevant Government ministries; the GLA; local authorities; Thames Water; Affinity Water; Transport for London; and London Fire Brigade – to reassess and re-evaluate London’s preparedness for future surface-water flooding events and the level of risk attached to flood events. The work of such a group should be transparent, so it should publish an annual report on activities and assessment of risk.

Recommendation 3

Following the completed London Strategic Sustainable Drainage Systems (SuDS) Pilot Study (LSSPS), the Mayor should regularly review the Urban Greening LPG with regard to

³⁴ London Assembly Environment Committee – 7 December 2022, Transcript of Agenda Item 5 – A Green and Just Transition for London’s Businesses – Panel 1

³⁵ London Assembly Environment Committee – 7 December 2022, Transcript of Agenda Item 5 – A Green and Just Transition for London’s Businesses – Panel 1

SuDS and strengthen it as necessary, in light of the developing climate emergency. The Mayor should work with Thames Water and other partners to ensure the £1 billion investment needed in SuDS infrastructure is in place quickly for high-priority locations. In response to this report, the Mayor should also provide an update to the Committee on progress following the LSSPS, including what additional investment has been secured and spent so far.

Londoner's flood awareness

Surface-water flooding presents significant threats to the capital. The London Plan states: “London is at particular risk from surface-water flooding, mainly due to the large extent of impermeable surfaces.”³⁶

During the Environment Committee meeting in September 2021, the Committee's guests highlighted the importance of educating Londoners on the risks associated with flooding, and actions to mitigate those risks. Patricia Cuervo, Senior Flood and Water Management Officer, Royal Borough of Kensington and Chelsea and Co-Chair and Planning Lead, London Drainage Engineers Group, told the Committee one of the lessons learnt from the extreme flooding events in 2021 was the importance of raising awareness of the issue.

“The first thing that we need to do is make residents aware of the risk that they are at, because one of the lessons learned for us was that residents had not been aware of this type of flood risk. They were totally unaware, and that is really dangerous when you have sewer water flooding and you have basement properties used for sleeping accommodation. It is extremely dangerous.”

Patricia Cuervo

Senior Flood and Water Management Officer, Royal Borough of Kensington and Chelsea; Co-Chair and Planning Lead, London Drainage Engineers Group

Flooding poses a significant risk to homes, health and wellbeing, but also to personal possessions. Charlotte Wood, the Environment Agency's London Area Director, told the Committee that there are preparations Londoners should take to protect their belongings against flooding, this includes raising up important possessions when there is flooding forecast.³⁷

Another protection Londoners can take is having contents insurance. According to the Association of British Insurers, nearly half of Londoners (45 per cent) do not have contents insurance – the lowest proportion in the UK.³⁸ While insurance does not replace other preparations, such as moving belongings, it can help better enable Londoners to get back on their feet if they experience flood damage.

³⁶ GLA, [The London Plan](#), March 2021

³⁷ London Assembly Environment Committee, [Transcript of Agenda Item 6 – Climate Adaptation and Climate Risks in London](#), 30 September 2021

³⁸ Association of British Insurers, [Cost of home contents insurance falls to a record low, yet one in four UK households are uninsured](#), 1 February 2019

The Committee heard from Chris Lee, Director of Environment and Regeneration at the London Borough of Merton, that “sustainable drainage is absolutely essential if we are going to mitigate the flooding risk that we face”.³⁹ Both Chris Lee and Patricia Cuervo, Senior Flood and Water Management Officer at the Royal Borough of Kensington and Chelsea, told the Committee of the work they are doing with developers, and in new developments, to improve the proportion of permeable surfaces in their boroughs. However, the guests agreed that more action needs to be taken to encourage Londoners to introduce permeable surfaces and further green infrastructure on their properties, to improve sustainable drainage.

The Committee raised concerns about the impact of non-permeable surfaces on driveways in London, where there can be a lack of enforcement of existing rules that require only permeable surfaces to be installed. The Deputy Mayor commented that this was mainly a responsibility for London Councils, but the committee remains interested in clarity on powers and actions to require permeable surfaces on driveways.

Responding to a question about residents installing non-permeable paving, Chris Lee told the Committee that where there are breaches of planning rules, they can be reported to Planning Enforcement. However, at the time he said: “I am not aware of instances where planning enforcement has had to take action in order to reverse the position and to take the development out.”⁴⁰ He also noted that raising general awareness of the issue of flooding will enable people to take action.

“Raising awareness generally across London for existing landowners to think about how they could adapt their property, even if it is not subject to development, and how they could return grey surfaces to green to assist with the challenge that we all face. General awareness-raising would help, so that the problem be better understood and enable people to see how they can deal with it.”

**Chris Lee, Director of Environment and Regeneration
London Borough of Merton**

Mayor’s initiatives

The Mayor has led and participated in several initiatives to raise Londoners’ awareness of flood risks in the last year. During its investigation, the Committee heard that the Mayor launched London Flood Awareness Week in November 2021, with the aim of informing

³⁹ London Assembly Environment Committee, [Transcript of Agenda Item 6 – Climate Adaptation and Climate Risks in London](#), 30 September 2021

⁴⁰ London Assembly Environment Committee, [Transcript of Agenda Item 6 – Climate Adaptation and Climate Risks in London](#), 30 September 2021

Londoners about the ways in which they can prepare for flood events.⁴¹ In 2021 London's Flood Awareness Week operated in parallel to and in collaboration with wider national campaigns, in particular the Environment Agency's Flood Action Week.⁴²

The Flood Awareness Week provided Londoners with information from the Association of British Insurers, via its web pages, about accessing flood insurance. During London's Flood Awareness Week in November 2021 the Mayor also encouraged Londoners to "de-pave your garden" as part of the "grey to green" campaign:

*"You can also do your bit to help reduce the risk of flooding, encourage wildlife and support your wellbeing by changing just a part of your garden from grey to green. You can start small, even if you don't have a garden of your own. Winter is the perfect time to plan changes to your garden. If you already have a front garden keep it green. Paving over front gardens creates more impermeable surfaces which increase the risk of flooding."*⁴³

The Environment Committee have previously looked into how London can build resilience against flooding from extreme rainfall. In its report *The Climate Emergency: Extreme Weather and Emissions*, published in April 2020, the Committee made the following recommendation:

*"Programmes run by the Mayor and partners to communicate flood risk from extreme rainfall should be reviewed for effectiveness, should target those most at risk, and be backed by targets and milestones so that increased public awareness can be evaluated over the next decade by successive Mayors."*⁴⁴

The Mayor responded to this recommendation with information on his London Flood Awareness Week Campaigns, stating that campaigns were aimed to reach individuals and community groups who are most at risk; and that a wide range of partner organisations were involved. The response also stated that a key area of action is on communications, including the need for a London-wide communications plan.⁴⁵

On 29 June 2022, the Mayor announced that he was writing to Londoners in 45,000 basement properties "to urgently raise awareness and help them prepare in the event of a flood." The leaflets reportedly advise Londoners to sign up to receive weather warnings through the Met Office; check that drains in and around the home are clear; and ensure they know how to turn off water, gas and electricity supplies. The leaflet also recommends preparation of a 'flood kit' in case they have to evacuate their homes, containing warm

⁴¹ London Assembly Environment Committee, [Transcript of Agenda Item 5 – Climate Adaptation and Risks in London – Panel 1](#), 13 December 2021

⁴² GLA, [LDN Flood Awareness Week](#)

⁴³ GLA, [LDN Flood Awareness Week](#)

⁴⁴ London Assembly Environment Committee, [The Climate Emergency: Extreme Weather and Emissions](#), April 2020

⁴⁵ London Assembly Environment Committee, [Agenda](#), 30 September 2021

clothing, a phone charger, any vital medication and important documents such as proof of insurance.⁴⁶

The Committee welcomes the work the Mayor has done to raise awareness of the impact of flooding in London through Flood Awareness Weeks. However, the Committee believes the Mayor should expand his communication, particularly in the run-up to summer each year, on the risks of flooding and the mitigation measures Londoners can take.

Recommendation 4

We welcome the Mayor’s communication on flood risks to Londoners living in basements. However, the Mayor should further expand his communication to raise awareness among Londoners of flood risk and what actions they can take. This should include:

- **targeted communication toward the 200,000 properties at risk of flooding, including small businesses and schools; such targeted campaigns are only useful if they:**
 - occur regularly, taking into account the level of ‘churn’ in London residences
 - are well-timed ahead of known flood-risk seasons
 - include clear information on who residents should call when they are flooded
- **exploring cost-saving measures, i.e. options to include these warnings in existing formal correspondence such as water bills or council tax**
- **liaising with London Fire Brigade and their outreach work on flooding**
- **conducting broader communication campaigns using the tube and bus network advertisement hoardings to widely publicise the danger of flooding in basements.**

Such a communication campaign should also highlight the positive actions that Londoners can take to mitigate and/or reduce the risk of flooding, such as:

- **in the short term, ensuring necessary and up to date flooding insurance**
- **in the long term, maintaining green space in front gardens, and the flooding-related consequences when these are paved over.⁴⁷**

Recommendation 5

The Mayor should focus some of his flooding communications on explaining the flooding-related consequences of Londoners paving over or replacing their green space with artificial grass. The Mayor, along with councils, should promote the opportunity for Londoners to help prevent flooding in London by retaining and improving their green space.

⁴⁶ GLA press release, [Mayor warns Londoners living in basement properties about flooding risk](#), 29 June 2022

⁴⁷ The Labour Group dissents from this recommendation. See Recommendation 5 footnote for details

The Mayor should work with London’s boroughs to lobby Government for greater powers to: enforce rejection via planning of impermeable paving in front gardens; and refuse basement developments in flood-risk areas. ⁴⁸

⁴⁸ The Labour Group are unable to agree with the direction of Recommendations 4 and 5 of this report. We believe these targeted communications should be the responsibility of the Environment Agency, the water companies in London, primarily Thames Water and Affinity Water and local councils.

The intention of Recommendation 4, especially the need for more communication on the risks of flooding and what action householders can take, is welcome. However, these communications should not be the direct responsibility of the Mayor of London. Instead, the Recommendation should call on the Mayor to lobby Government to ensure the Environment Agency and Water Companies send these important communications. This is because the Environment Agency and the Water Companies have responsibility for flooding and the resources to send these messages. Water Companies already communicate on at least an annual basis with their customers in the form of sending water bills, so the additional information on flooding risks should be included, for targeted households, as part of these regular mailings.

Flood prevention is also partly the responsibility of local Councils. They are responsible for keeping gullies and drains clear, as well as having the powers to agree to pavement crossovers, introduced when front gardens are turned into parking areas. Recommendation 5 should therefore call on Councils to explain the consequences of impermeable surfaces such as artificial grass or of paving over driveways, to their local residents.

Investigation meetings

Thursday 30 September 2021

Panel 1:

- Alex Nickson, Wastewater Systems Strategy Manager, Thames Water
- Charlotte Wood, London Area Director, Environment Agency
- Lilli Matson, Chief Safety, Health and Environment Officer, TfL
- Peter Daw, Assistant Director, Environment and Energy, and Head of Climate Change, GLA
- Professor Jason Lowe OBE, Head of Climate Services, Met Office

Panel 2:

- Cllr Johnny Thalassites, Lead Member for Planning, Place and Environment, Royal Borough of Kensington and Chelsea
- Chris Lee, Director of Environment and Regeneration, London Borough of Merton
- Patricia Cuervo, Senior Flood and Water Management Officer, Royal Borough of Kensington and Chelsea, and Co-Chair (Planning Lead), London Drainage Engineers Group

Monday 13 December 2021

Panel 1:

- Shirley Rodrigues, Deputy Mayor for Environment and Energy, GLA
- Catherine Barber, Assistant Director, Environment and Energy, GLA

Panel 2:

- Lilli Matson, Chief Safety, Health and Environment Officer, TfL
- Dr David Joffe, Head of Carbon Budgets, Climate Change Committee
- Polly Billington, Chief Executive, UK100

Other formats and languages

If you, or someone you know needs this report in large print or Braille, or a copy of the summary and main findings in another language, then please call us on: 020 7983 4100 or email assembly.translations@london.gov.uk

Chinese

如您需要这份文件的简介的翻译本，
请电话联系或按上面所提供的邮寄地址或
Email 与我们联系。

Vietnamese

Nếu ông (bà) muốn nội dung văn bản này được dịch sang tiếng Việt, xin vui lòng liên hệ với chúng tôi bằng điện thoại, thư hoặc thư điện tử theo địa chỉ ở trên.

Greek

Εάν επιθυμείτε περίληψη αυτού του κειμένου στην γλώσσα σας, παρακαλώ καλέστε τον αριθμό ή επικοινωνήστε μαζί μας στην ανωτέρω ταχυδρομική ή την ηλεκτρονική διεύθυνση.

Turkish

Bu belgenin kendi dilinize çevrilmiş bir özetini okumak isterseniz, lütfen yukarıdaki telefon numarasını arayın, veya posta ya da e-posta adresi aracılığıyla bizimle temasa geçin.

Punjabi

ਜੇ ਤੁਸੀਂ ਇਸ ਦਸਤਾਵੇਜ਼ ਦਾ ਸੰਖੇਪ ਆਪਣੀ ਭਾਸ਼ਾ ਵਿਚ ਲੈਣਾ ਚਾਹੋ, ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਇਸ ਨੰਬਰ 'ਤੇ ਫੋਨ ਕਰੋ ਜਾਂ ਉਪਰ ਦਿੱਤੇ ਡਾਕ ਜਾਂ ਈਮੇਲ ਪਤੇ 'ਤੇ ਸਾਨੂੰ ਸੰਪਰਕ ਕਰੋ।

Hindi

यदि आपको इस दस्तावेज का सारांश अपनी भाषा में चाहिए तो उपर दिये हुए नंबर पर फोन करें या उपर दिये गये डाक पते या ई मेल पते पर हम से संपर्क करें।

Bengali

আপনি যদি এই দলিলের একটা সারাংশ নিজের ভাষায় পেতে চান, তাহলে দয়া করে ফো করবেন অথবা উল্লেখিত ডাক ঠিকানায় বা ই-মেইল ঠিকানায় আমাদের সাথে যোগাযোগ করবেন।

Urdu

اگر آپ کو اس دستاویز کا خلاصہ اپنی زبان میں درکار ہو تو، براہ کرم نمبر پر فون کریں یا مذکورہ بالا ڈاک کے پتے یا ای میل پتے پر ہم سے رابطہ کریں۔

Arabic

الوصول على ملخص لهذا المستند بلغةك،
فجراء الاتصال برقم الهاتف أو الاتصال على
العنوان البريدي العادي أو عنوان البريدي
الالكتروني أعلاه.

Gujarati

જો તમારે આ દસ્તાવેજનો સાર તમારી ભાષામાં જોઈતો હોય તો ઉપર આપેલ નંબર પર ફોન કરો અથવા ઉપર આપેલ ટપાલ અથવા ઈ-મેઈલ સરનામા પર અમારો સંપર્ક કરો.

Connect with us

The London Assembly

City Hall

Kamal Chunchie Way

London

E16 1ZE

Website: www.london.gov.uk/about-us/london-assembly

Phone: 020 7983 4000

Follow us on social media

